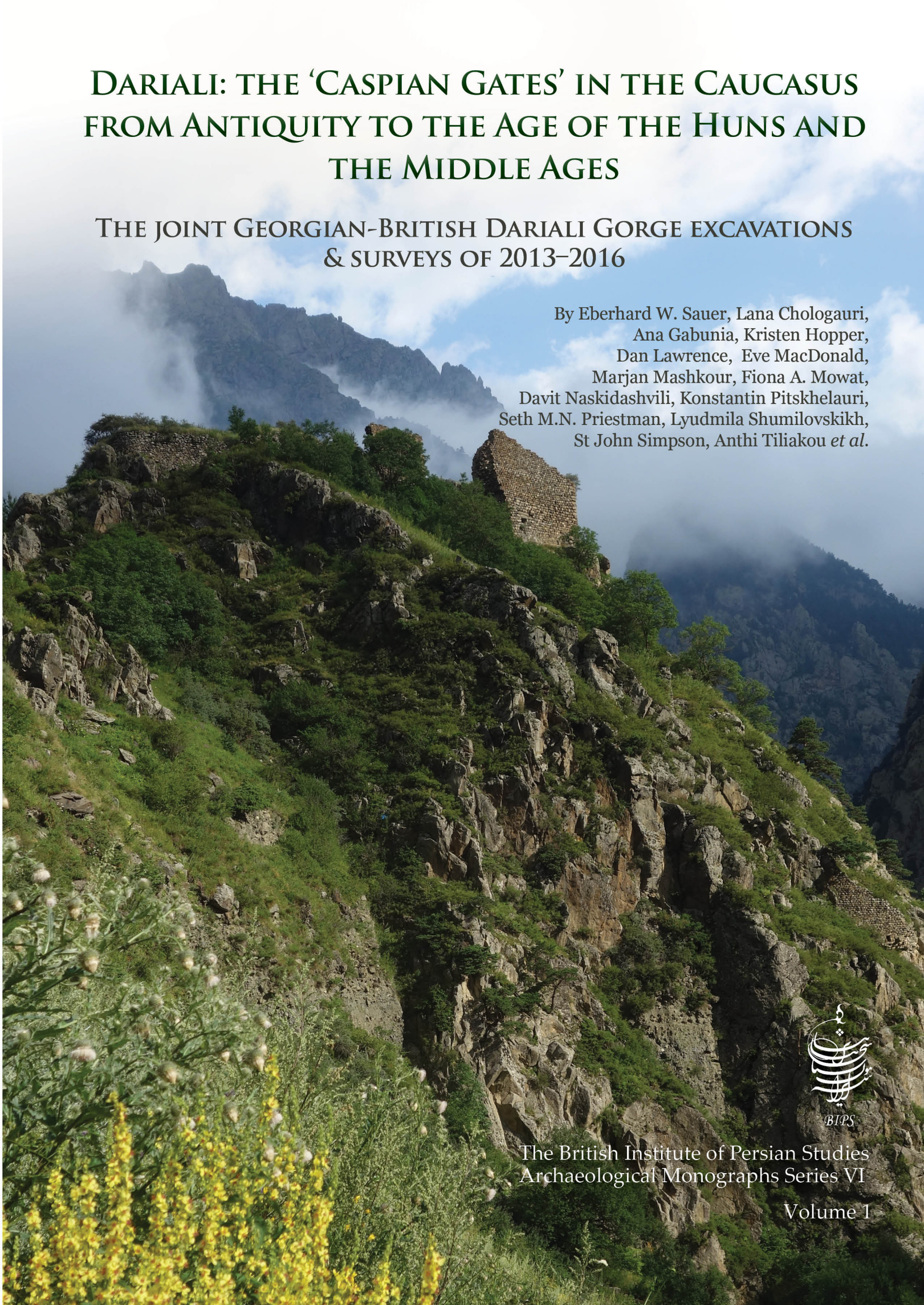
Dariali: the 'Caspian Gates' in the Caucasus from Antiquity to the Age of the Huns and the Middle Ages

The joint Georgian-British Dariali Gorge excavations & surveys of 2013–2016

By Eberhard W. Sauer, Lana Chologauri, Ana Gabunia, Kristen Hopper, Dan Lawrence, Eve MacDonald, Marjan Mashkour, Fiona A. Mowat, Davit Naskidashvili, Konstantin Pitskhelauri, Seth M.N. Priestman, Lyudmila Shumilovskikh, St John Simpson, Anthi Tiliakou *et al.*



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Volume 1

DARIALI: THE ‘CASPIAN GATES’ IN THE CAUCASUS FROM ANTIQUITY TO THE AGE OF THE HUNS AND THE MIDDLE AGES

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BRITISH INSTITUTE OF PERSIAN STUDIES ARCHAEOLOGICAL
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EBERHARD W. SAUER, LANA CHOLOGAURI, ANA GABUNIA, KRISTEN HOPPER, DAN LAWRENCE, EVE MACDONALD, MARJAN MASHKOUR, FIONA A. MOWAT, DAVIT NASKIDASHVILI, KONSTANTIN PITSKHELAURI, SETH M.N. PRIESTMAN, LYUDMILA SHUMILOVSKIKH, ST JOHN SIMPSON, ANTHI TILIAKOU, YOSHINARI ABE, CATHY M. BATT, GEORGE GAGOSHIDZE, BRIAN GILMOUR, DAVID P. GREENWOOD, CATRIONA PICKARD, IMOGEN POOLE, VALENTIN RADU, LISA SNAPE, J. RILEY SNYDER, EMMANUELLE STOETZEL, SARIEH AMIRIBEIRAMI, MARTINA ASTOLFI, IAN BAILIFF, SANAZ BEIZAEE DOOST, ENRICA BONATO, BENOÎT CLAVEL, KARYNE DEBUE, DELPHINE DECRUYENAERE, ANNAMARIA DIANA, HOMA FATHI, RUSUDAN JAJANIDZE, SAFOORA KAMJAN, TEHREEM KAINAAT, ROYA KHAZAELI, ELENA KRANIOTI, MICHEL LEMOINE, GRAHAM PHILIP, CATHERINE SHUPE, RYUJI SHIKAKU, BEN STERN & SCOTT STETKIEWICZ

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Front cover: Dariali Fort dominating the gorge and controlling traffic across Europe's highest mountain range.
Back cover: Top left, bottom, left and right: Bakh'tari Fort on top of a rocky ridge, c. one kilometre north of Dariali Fort, controlling one of the narrowest passages: the legendary Caspian Gates? Top right: view from Bakh'tari Fort towards Dariali Fort (on the conical hill in the background): the modern track, on the narrow ledge of land between the rapids of the Tergi/Terek River and the cliffs of the Caucasus, follows a similar route as the ancient path between these key fortifications must have done.

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Fig. 1:1: Professor Michael Vickers and Dr Manana Odisheli on Dariali Fort in 2013.



Fig. 1:2: Professor Vakhtang Licheli in Trench F in 2014.

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Dariali team members, taking part in fieldwork and/or finds processing in Georgia (Figs 1:3–1:6): Sarieh Amiribeirami (2015–2016), Mark Andrews (2016), Giulia Bellato (2016), Maria Buczak (2015–2016), Tika Bulashvili (2016), Carlos Cáceres Puerto (2016), Lana Chologauri (2013–2016), Malkhaz Datukishvili (2014–2015), Karyne Debue (2016), Delphine Decruyenaere (2015–2016), Annamaria Diana (2013), Graeme Erskine (2013–2015), Homa Fathi (2014–2016), Ana Gabunia (2013–2016), David Gagoshidze (2013 and 2016), Ketevan Gotsiridze (2013–2015), David Greenwood (2013–2016), Marc Heise (2014), Kristen Hopper (2013–2014), Gabriela Ingle (2013 and 2016), Emanuele Intagliata (2013 and 2015), Erin Irwin (2016), Rusudan Jajanidze (2016), Julian Jansen Van Rensburg (2013), Stuart Johnston (2015), Nino Kamkamidze (2014–2016), Roya Khazaeli (2014–2016), Koba Koberidze (2013 and 2015–2016), Elena Kranioti (2013), Giorgi Kvaratskhelia (2014–2015), Dan Lawrence (2013–2014), Zurab Lemondzhava (2014–2015), Emzar Lomtadze (2014–2016), Eve MacDonald (2013–2016), Rosalind MacDonald (2015–2016), Marjan Mashkour (2014 and 2016), Alexandre Mesarkishvili (2015–2016), Anahita

Mittertrainer (2015), Fiona Mowat (2013–2016), Amiran Nadirashvili (2015), Davit Naskidashvili (2015–2016), Claudia Nunes Caldeira (2015), Konstantin Pitskhelauri (2013–2016), Przemysław Polakiewicz (2016), Seth Priestman (2013–2016), Graham Ritchie (2016), Kim Ruf (2014–2015), Rusudan Rusishvili (2015–2016), Eberhard Sauer (2013–2016), Lyudmila Shumilovskikh (2014–2016), Catherine Shupe (2014 and 2016), Lisa Snape (2014–2015), Scott Stetkiewicz (2014–2015), Leigh Stork (2014), Anthi Tiliakou (2013–2014) and Steve Usher-Wilson (2013–2014 and 2016).

Find assistants and workmen: Niko Alibegashvili (2016), Vasiko Alibegashvili (2016), Vasil Alibegashvili (2014–2015), Vazha Alibegashvili I (2014–2016), Vazha Alibegashvili II (2015–2016), Shavlego Arabuli (2015), Viktor Avsajanishvili (2013–2016), Andro Burduli (2015), Lamara Chabukashvili (2016), Irakli Chopikashvili (2014), Pavle Chopikashvili (2014), Fido Efkhoshvili (2013), Vakho Goshiashvili (2015), Nika Kavtarashvili (2015), Shavlego Kavtarashvili (2016), Oliko Khaikashvili (2016), Bachuki Kukishvili (2014), Archili Kushashvili (2014), Bachuki Kushashvili (2013), Davit Kushashvili (2015), Edisheri Kushashvili (2014–2015), Gega Kushashvili (2014), Giorgi Kushashvili (2013), Gogi Kushashvili (2013–2015), Lukhumi Kushashvili (2013–2014), Rezo Kushashvili (2013), Gvtiso Marsagishvili (2014–2016), Tornike Naneishvili (2015), Gela Pitskhelauri (2014), Giorgi Pitskhelauri (2013), Gogi Pitskhelauri (2013–2015), Juba Pitskhelauri (2015), Manuchar Pitskhelauri (2014–2015), Vazha Pitskhelauri (2015–2016), Gocha Tekturmanidze (2013–2016) and Jura Valishvili (2013).



Fig. 1:3: Dariali team members, 2013.



Fig. 1:4: Dariali team members, 2014 at Trench F.



Fig. 1:5: Dariali team members, 2015 (photo by Lana Chologauri).



Fig. 1:6: Dariali team members, 2016. All photographs feature only part of the team in each season, as some could come for parts of the season only, and some were busy elsewhere when the group photos were taken.

Notes

1 In classical Greek, Latin and modern English, we often find the plural (*Πύλαι*, Portae and Gates) used for a single gated entrance or defensible narrow mountain pass resembling a gate in function or even shape, such as the Dariali Gorge, in part explained by the singular of the Greek word (*πύλη*) being just a single wing of a double-winged gate (Liddell and Scott 1940, 1553–54; Buchwald 2009, 6–7 no. II.A). In Arabic, the word Bāb (باب) tends to be used for a gate or passage, unlike the Greek and Latin terms normally translated with the singular, 'Gate'. To avoid confusion, we use consistently the plural in this report, *i.e.* the Alan, Caspian or Caucasian Gates.

2 Mindorashvili 2005; information on these important investigations was kindly provided by Professor Vakhtang Licheli and members of our Georgian team, who also summarised key sections of the report.

SECTION A

Preliminaries

1

Introduction

1.1. Summary

Dariali Gorge was the most famous mountain valley in the ancient and early medieval world. The principal route across the Central Caucasus, Europe's highest mountain range, led through the gorge, connecting the Steppes of Eurasia with Transcaucasia and the wider Near East. The narrow gorge, known in Antiquity as the 'Caspian Gates' or 'Alan Gates', resembled a natural gate and was controlled via gated barriers. It shared the name 'Caspian Gates' with the coastal Derbent route on the Caspian Sea shore and a pass in the Alborz Mountains.[1] Whilst one sympathises with Pliny the Elder who thought it was a great error to apply the name to Dariali, more appropriately labelled the 'Caucasian Gates' or the 'Gates of Hiberia' (*i.e.* Iberia),[2] the geographer's advice fell on deaf ears. In classical literature, Dariali Gorge is mostly called the 'Caspian Gates'. Indeed, where it is clear which northern mountain pass authors of the first millennium AD referring to the 'Caspian Gates' have in mind, it was more frequently Dariali than the two competitor sites further east. Locally, and in the Near East more broadly, the 'Alan Gates' gained currency, still the name of the gorge today: Dar-i-al, *i.e.* 'Door of the Alans'. There were other toponyms too,[3] but we are using in our title the two under which it reached world fame: the 'Caspian Gates' and 'Dariali'.[4]

The riches of the south attracted numerous northern invaders to our Transcaucasian traffic route, the Cimmerians, Alans, Huns and Khazars – as well as the armies of Tsarist and Communist Russia and Hitler's Germany in modern times. The major powers of the south, Rome, Sasanian Persia and the Caliphate, similarly strived for direct or indirect control and launched military expeditions deep into hostile alpine terrain. Little wonder that it came to the attention of more writers than any other mountain valley in the first millennium. Described by the tenth-century Arab author Mas'udi as one of the most famous forts of the world, Dariali Fort and the associated gates had already been known to Tacitus, Ptolemy, Procopius and numerous other classical and medieval authors. It also features on inscriptions in the royal heartlands of Sasanian Iran.

So dramatic was the landscape of the gorge that it became a place of legend. The mythical fire thief Prometheus was believed to have suffered excruciating punishment, chained to its sheer cliffs, his liver devoured by an eagle. Invasions by the Huns via the gorge spread terror across the ancient Near East, and the belief arose that it was Alexander the Great who had built the famous gates, acting as the agent of God to contain the Hunnic threat to the very existence of humanity. Apocalyptic literature envisaged a future breach of these floodgates by the Huns, their onslaught on civilisation bringing the world to an end. The gorge featured famously and prominently also in late antique negotiations between the great powers of Persia and Rome.

The gorge's unrivalled literary fame contrasts sharply with its archaeological obscurity. A small number of articles and Davit Mindorashvili's book on his pioneering fieldwork in the gorge,[5] all in Georgian or Russian, are devoted to the physical remains of the world-famous gates – and there is the odd passing reference and short description here and there. It seemed vital to us to explore what archaeology could contribute to its history. When was the gorge blocked via gated barriers? Where were they? How were they guarded? What role did they play in wider imperial Persian strategy to use mountains and barriers to safeguard internal prosperity and to use northerners as allies against Rome?

Our fieldwork (from 2013 to 2016 within the framework of the ERC Persia Project)[6] gave us more than we bargained for. Dariali's strategic significance lasted well



Fig. 1:7: Now in ruins and partially buried under stone collapse, travellers or hostile forces approaching Dariali Fort from the north, faced a once imposing barrier-wall running from the fort (left) to a rock cliff.

beyond the end of Antiquity, and our research has arguably shed as much light on medieval Dariali as on late antique defensive efforts. But it is only in the *longue durée* that we can understand a gorge that has been a borderland over most of the last two millennia and more. Twentieth-century gun emplacements and fourth-century fort walls served similar purposes – to exercise a stranglehold over unwanted transgression and to control human traffic and trade. The border of Georgia is today where the border of Iberia had been 2,000 years ago – and where the border of Sasanian Persia, the Caliphate and the Emirate of Tbilisi had been. Modern geography, explored by our landscape team, helps us to understand the challenges involved in supplying the garrison with food one-and-a-half millennia ago.

Pollen records show that the gorge was populated already before the time of the earliest recorded invasions in the eighth century BC – shedding light on how expansion of settlement into alpine valleys may have paved the way for the earliest Transcaucasian traffic. The hinterland of the gorge was, it seems, as densely settled as natural constraints allowed for much of the later first millennium BC and the first millennium AD – centuries before it had reached its greatest fame, and throughout its time in the international limelight. Around the late fourth century, construction started on the late antique fort – that was perhaps largely completed in the early fifth century. Around that time also a road-blocking wall was built to the west of the fort and a further barrier, of similar architecture, on a precipitous ridge one kilometre north of the fort – then perhaps the narrowest part of the gorge and the famed Caspian Gates. This fits well with the sources attesting Persian fort construction in the later fourth or fifth century, and we have been able to refine its chronology. Construction works may have started shortly before, and in any case not long after, the most momentous of all



Fig. 1:8: The outer fort walls were built in Late Antiquity.

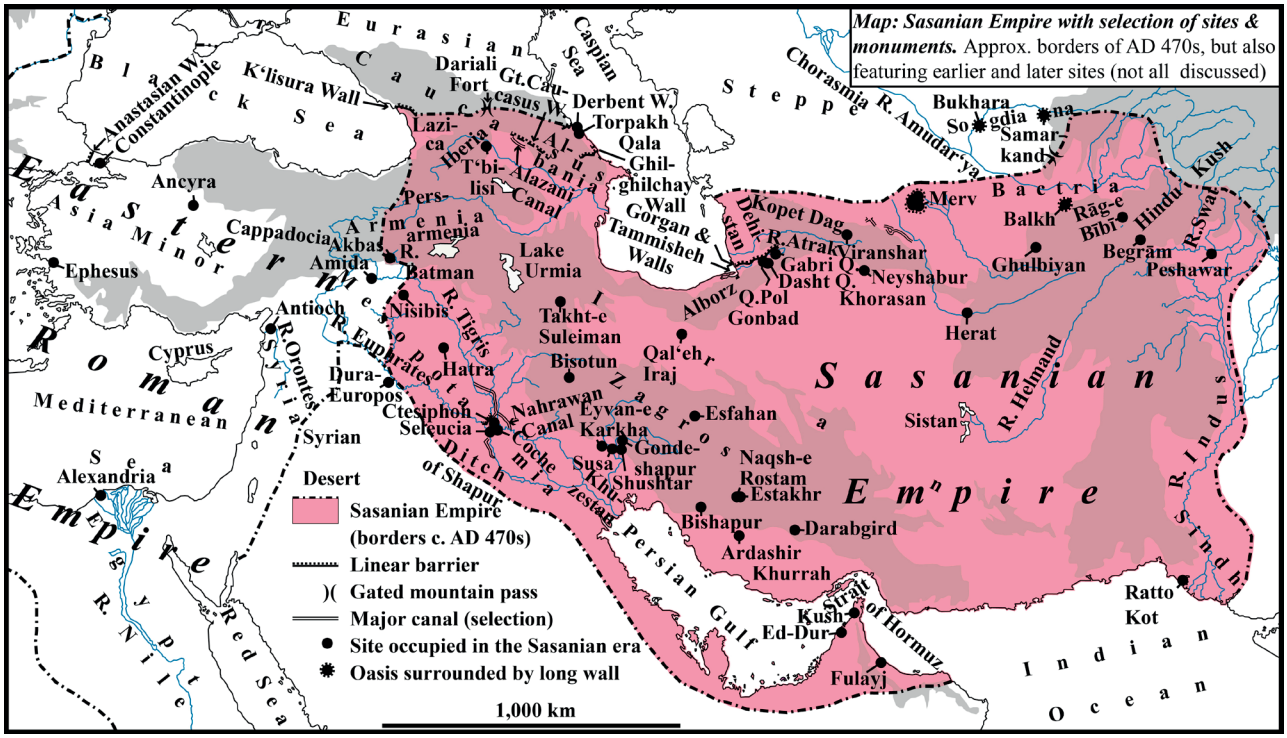


Fig. 1:9: Approximate extent of the Sasanian Empire in the AD 470s, if some of the sites and monuments plotted are later. Our ERC project also explored, jointly with colleagues in Iran and Oman, the Gorgan and Tammisheh Walls, fortifications in their hinterland and Qal'eh Iraj in Iran and the Fulayj Fort in Oman.

Hunnic raids into Near Eastern lands. It was via Dariali Gorge that the Huns invaded in AD 395, penetrating deep into Asia Minor, Mesopotamia and Levantine lands. Completion of the Dariali barrier (Fig. 1:7) ensured there was no repetition of destructive raiding and may have opened the door to Persia employing its new northern allies in proxy wars against Rome.

The late antique architects built a bulwark in durable, high-quality mortar masonry (Fig. 1:8) that stood for more than a millennium with only dry-stone walls added during the next six centuries of dense occupation. The thoroughness of the late antique workforce erased all potential traces of earlier occupation on the hilltop, with no more than plough soils south of the fort hinting at earlier occupation. The garrison was tidy, with little intramural rubbish disposal and no precious objects left behind. Pottery and food were brought to the fort from the south – but there were also strong northern/local connections. Politically, the garrison reportedly served southern masters in Late Antiquity, and for a period in the late fifth/early sixth century also northern warlords, but economically it appears to have been well integrated into a Transcaucasian supply network. No early burials have been found, perhaps pointing to Zoroastrians manning the gates. A small cemetery at Gveleti, some 2.5 km south, with a Sasanian coin and Pahlavi-inscribed gem set in a fingering, may have been for an armed allied force.

Efforts were made to seal off or control other Transcaucasian traffic routes too, and Persia's demands for, literally, tons of Roman gold to secure the Caspian Gates and keep the Huns at bay were excessive for Dariali alone, if a drop in the ocean for the system of Sasanian northern defences as a whole. Probably dating back to the late fourth century, Dariali Fort was one of the earliest elements of a massive fortification programme in the Sasanian Empire's northern frontier zone, completed by the sixth century (Fig. 1:9).[7] Much grander barriers included the Ghilghilchay, Derbent, Tammisheh and Gorgan Walls and perhaps also the K'lisura Wall, not to mention numerous forts and fortresses all over the Persian realm. By around the mid-fifth century, Sasanian military infrastructure dwarfed that of the Eastern Roman Empire. The combined size of Sasanian military compounds exceeded that of Dariali Fort several thousand times. Yet, skilfully positioned in a mountain pass, it was vital in Persia's endeavours to use the Caucasus as a natural barrier – the first empire to do so. None of the western gold reached Persian frontier troops, who were probably paid in kind, nor did Persia require western support for maintaining its northern defences. The main challenges lay in logistics and keeping the long supply lines secure – only possible with Iberian cooperation. Dariali Fort was a disproportionately small and cheap, if extraordinarily effective, part of Persia's northern defences.

We do not know who held the fort after the mid-seventh century demise of the Sasanian state. Traceable building activity had come to a virtual standstill from the sixth to the eighth or ninth century – evidence for lesser investment and the durability of existing infrastructure. The same tidiness as in Late Antiquity prevailed amongst fort occupants also in the later seventh century – suggesting perhaps that descendants of the Sasanian garrison remained in residence and followed similar traditions. A sudden influx of northern-style ceramics may hint at political and economic realignment: no longer an outpost of a southern empire, the garrison sought new alliances.

A marked change in cultural behaviour follows. From around the early eighth century, for some 300 years, copious amounts of rubbish are dumped within the walled compound – pointing to new occupants following practises not seen before in the fort. They chose to live in the solid late antique buildings, gradually adding basic dry-stone annexes, perhaps to compensate for some basements becoming inhabitable – rubbish disposal necessitating repeated raising of floor surfaces to prevent infiltration of muddy water. It may also have been in the early eighth century (or in any case not long before or after) that a cemetery was established – also occupied for some 300 years.

Who were Dariali Fort's new occupants in the later first millennium? The sources refer to a Muslim army conquering the fort in c. AD 727 and holding it for more than two centuries, into the AD 940s or beyond. Yet, archaeology paints a more complex picture than textual accounts and casts doubt that the occupants were exclusively Muslim or observed strict Muslim custom. We found probable wine jars, evidence for occasional pork consumption, a Georgian graffito featuring the Christian name Gogi (George) and collective burials strikingly resembling Christian family tombs from elsewhere in Georgia. Khazar-style bone carvings featuring animals are likely evidence for the presence of northerners living in the shadow of the fort walls. Pottery supplies come from the north or local sources as well as the south. This does not mean that the sources are lying. Glass, a rarity in pre-medieval times, is now flooding in from Islamic lands and traded beyond the gates. Other rarities include fragments of a chlorite cooking pot probably from the Arabian Peninsula and a polished shark vertebra perhaps from the Persian Gulf. There are individual burials, the heads turned in the direction of Mecca. Those found are not amongst the earliest tombs, but not all the cemetery has been excavated – and digging of probably Muslim burials continues at least until the later tenth century. Towards the turn of the millennium, graves with rich northern grave goods, one with a sword and three arrowheads, another with numerous beads and jewellery, mark the arrival of northerners practising distinctly non-Islamic traditions. Also around AD 1000, a man dies of a fatal sabre(?) attack.

Those buried in the early medieval cemetery (many not living beyond childhood and some surviving into

their twenties or thirties or a little beyond) often suffered periods of stress or malnutrition – no doubt a result of supply problems at a site often cut off from the outside world through snow, ice, mud avalanches and rockfall. Occasionally, they enjoyed food from the south. The author Mas'udi, writing in the 940s, attests supply convoys from Islamic Tbilisi, venturing through infidel lands to the fort. His testimony is corroborated by plant remains and isotope analysis, the latter suggesting that southern supplies did not cease even after northerners had taken up residence at the fort.

The evidence is complex, but it seems that early medieval Dariali had a multi-faith and multi-ethnic garrison, that accepted newcomers – perhaps a sign that different faith groups joined forces. Their common cause was to offer protection from northern raiding in exchange for essential supplies and some precious commodities from the south. The situation evolved as power constellations changed – and there will have been periods when there was close cooperation with northern forces. Dariali Fort was hard to storm militarily, but utterly dependent on food provisions. It may be for these reasons that (during the last three centuries of the first millennium) many generations of the same core garrison occupied the fort without, it seems, ever being ousted, but living in symbiosis with those in control of the supply lines and admitting some into their circle. It is for this reason that similar cultural behaviour lasted from the eighth to tenth or early eleventh centuries and that we see both northern and southern imports and influences, without any one religious or ethnic group being solely in residence.

From the late tenth or early eleventh to the thirteenth or fourteenth century, there is no archaeological evidence for the occupation of Dariali Fort – though, not necessary proving total abandonment, as a much-reduced garrison could have been accommodated in buildings outside the area excavated. Indeed, the fort features in the sources and was, from the twelfth century onwards, under Georgian control. In contrast to Dariali Fort, we found traces of high medieval occupation on Gveleti Fort, some 3.6 km further south. This prominent natural bastion had seen low-level activity since the late first millennium as well as in the eleventh and/or twelfth century when it may have served as a local refuge. We witness a new surge of activity at both forts in the late thirteenth or fourteenth century. A tall building on the summit of Dariali Fort, then nearly a thousand years old, was re-occupied, new dry-stone annexes added and rooms paved with flagstones. At a similar time, we also see stone construction on Gveleti Fort. In the early fourteenth century, Georgia's King Davit VIII reportedly fled to Gveleti Fort pursued by the forces of the mighty Ilkhanid Empire. Gveleti's impregnable natural defences saved the king's life. This may have stimulated a period of investment into this mountain castle that continued to be occupied into the sixteenth or seventeenth century, whilst there is no archaeological evidence for activity on Dariali Fort beyond the fourteenth or early fifteenth century.

In the early nineteenth century, ruined Dariali Fort was largely destroyed following its occupation by Ossetian rebels against Tsarist Russia, who were reportedly starved into submission. Russian explosives were meant to ensure that Dariali would never again stand in the way of Russian imperialism. Yet a gun cartridge case of 1916, from a material extraction pit next to a modern bunker, suggests that it did so once more, if unsuccessfully. This modern ammunition suggests that the bunker, and perhaps some of the other modern military trenches, may date to the period shortly after its First World-War production – when the Georgian 'David' may have used Dariali Fort to take a stance against the Russian 'Goliath'. Georgia's brief period of independence was crushed by the Red Army in 1921, breaking through the gorge. Today, the narrowest stretch of Dariali Gorge forms again the northern border of Georgia, as it had been the border of the Kingdom of Iberia, Persia, the Caliphate, the Emirate of Tbilisi and medieval Georgia – 2,000 years of continuity determined by geography.

Long before being a thorn in the flesh of the Russian Bear – the gorge-blocking bastion's fame had spread thousands of kilometres to imperial capitals and residences. No larger than a football field, Dariali Fort's unique topography, controlling a bottleneck on one of the few viable routes across the massive mountain chain separating Europe from Asia, has allowed it to punch well above its weight.

1.2. Geography

Dariali Fort, the focal point of our studies, is located c. 120 km north, as the crow flies, of Tbilisi, the capital of modern Georgia and c. 10 km ENE of the 5,047 m high Mount Kazbek. To reach it, the traveller coming from the south first has to ascend the 2,379 m-high Jvari or Cross Pass before descending c. 1,000 m in altitude. Snow, ice and avalanches impede travel in winter and spring and there is a permanent danger of rock fall and mudslides, which sometimes block the route. Not an easy crossing, alternative routes pose even greater difficulties and dangers. The Transcaucasian traffic highway via the Cross Pass and Dariali Gorge is generally considered the most viable across the Central Caucasus and has been the main traffic artery between Central Transcaucasia and the Steppes of Eurasia for over two millennia. Our project focused on the narrowest part of this Transcaucasian highway and the barriers and bastions built here to control movement and prevent hostile forces from crossing the mountains (Fig. 1:10).

Dariali Fort, arguably the nerve centre of defensive efforts, crowns a conical hill, rising to roughly 1,390 m above sea-level a little over 100 m above the Tergi/Terek River (Fig. 1:11).[8] Melting snow turns this river, skirting

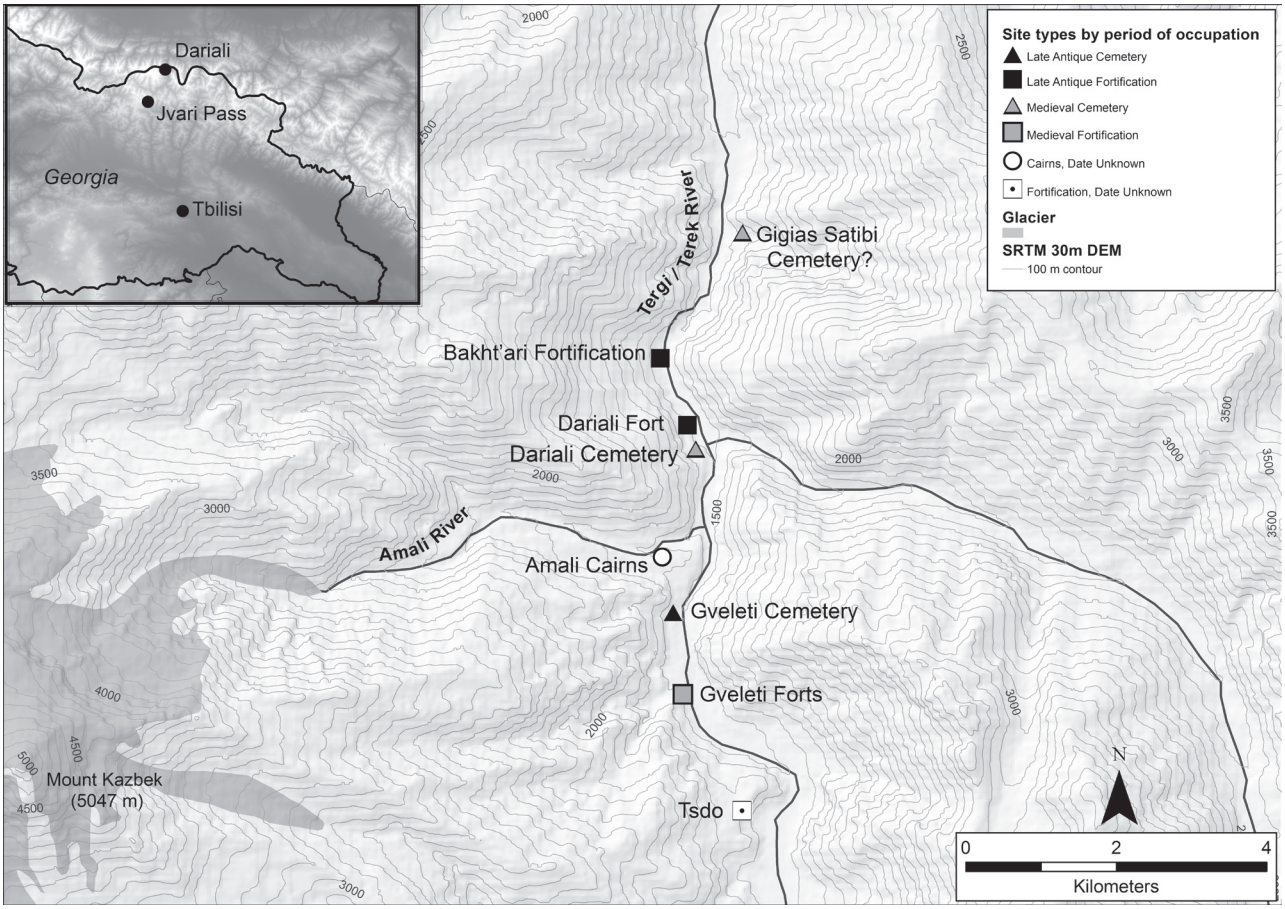


Fig. 1:10: Map of key sites in the Dariali Gorge by Kristen Hopper. Sites classified by type and period of first occupation or construction, as established by archaeological evidence. (Only surviving/excavated monuments have been plotted, and the map should not imply that these were necessarily the earliest. Late antique fortifications may well have replaced more ancient forts, as suggested by early cultural layers at the base of Dariali Rock and written sources.) Elevation data: SRTM 30 DEM (courtesy of the US Geological Survey).

the east side of the fort, for much of the year into a dangerous, fast-flowing torrent, with a current strong enough to move rocks and to drown any would-be trespasser. Traffic inevitably had to follow one bank of the river except where there were bridges which, in the landslide-prone vicinity of the fort, were invariably wiped away within a few years at most. Prior to the nineteenth century, traffic in this part of the gorge followed the left/western side of the river and all travellers had to pass a narrow passage between Dariali Fort and a steep rock-cliff, controlled via a gated barrier. On the opposite side of the Tergi a few hundred metres north of the fort, the rapid waters of the unfordable river washed along unsurmountable rock cliffs – blocking all traffic along the river's right bank. It was at this point on the river's left bank, just under one kilometre NNW of the fort, that we find one of the narrowest points of the gorge. Prominent Bakht'ari Ridge, towering over the narrow passage to the west of the river, was fortified here to control traffic.

South of the Dariali Fort (3.6 km), Gveleti Fort towers over another narrow passage, as well as forming an impregnable retreat. Whilst Dariali Fort was probably built in the late fourth century, at the postulated site of a more ancient fortification, occupation at Gveleti Fort appears to have commenced 300–500 years later, and the surviving walls probably belong to the second millennium. Not relevant for the ancient history of the gorge, Gveleti Fort was occupied simultaneously with Dariali Fort in the fourteenth century (and probably already at the end of the first millennium). Further south, there is a small undated dry-stone fortification at the village of Tsdo, probably a local refuge and lookout post and certainly not a valley-blocking fort.

Three cemeteries have been excavated in the northern parts of the gorge. Dariali Cemetery (late seventh/eighth to late tenth/early eleventh century) is south of Dariali Fort and clearly associated. Gigias Satibi Cemetery was the northernmost, but its exact position is hard to pinpoint. It was certainly over a kilometre NNE of Bakht'ari Ridge, maybe even 2 km. It has yielded eighth/ninth-century grave goods and was perhaps associated with a further control point at a narrow section of the gorge. The only



Fig. 1:11: Dariali Fort, with its prominent road-blocking wall north-west of the fort and the two trenches excavated on top of the fort: Trench F immediately south-west and Trench Q north-west of the centre. Note also the separate small rock south of the main plateau (defended by a separate bastion which is not visible on the plot). Laser-scanning plan by Malkhaz Datukishvili and Giorgi Kvaratskhelia plotted onto satellite imagery (Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community). (Note that the map was compiled in 2015, prior to further extension of Trench Q.)

known pre-medieval burial ground is Gveleti Cemetery (sixth to seventh or eighth centuries) c. 2.5 km south of Dariali Fort. The distinctly northern-style burials may belong to a northern auxiliary force. Only the former of these three burial grounds was explored within the framework of our project, whilst Gigias Satibi is now in Russia and inaccessible to us and attempts to locate further graves at Gveleti failed to yield any pre-modern burials.

Whilst all our excavations (excluding only small sondages dug into terraces by the landscape team) took place within a five-kilometre stretch of the gorge, the landscape survey covered more ground and reached further south, in order to reveal the wider landscape setting of defensive installations across the ages and the food supply networks necessary to sustain them. A study of canal systems in eastern Georgia has been included in an appendix, being of significance for our wider Persia and its Neighbours Project.

1.3. Site chronology

Radiocarbon, archaeomagnetic and OSL samples

We used three different laboratories for radiocarbon dating. We are grateful to the following colleagues for dating samples and answering our enquiries: Diane Baker, Professor Tom Higham and Professor Christopher Ramsey and their colleagues (Research Laboratory for Archaeology and the History of Art, University of Oxford), Professor Gordon Cook, Dr Elaine Dunbar and Dr Brian Tripney (Scottish Universities Environmental Research Centre) and Professor Tomasz Goslar (Poznan Radiocarbon Dating Laboratory). We owe the identification of dated animal bones to Marjan Mashkour, Sarieh Amiribeirami, Karyne Debue, Delphine Decruyenaere, Homa Fathi and Roya Khazaeli. Charcoal samples were identified by Imogen Poole and Lyudmila Shumilovskikh. Human bone was identified by Annamaria Diana, Elena Kranioti, Cate Shupe and Anthi Tiliakou. Lisa Snape and

Ian Bailiff provided OSL dates for Trench F and landscape features.[9]

Archaeomagnetic dates have been provided by Cathy M. Batt, David P. Greenwood and Tehreem Kainaat of the University of Bradford. The summary tables only list date ranges that are consistent with the radiocarbon dates, whilst their separate report lists all possibilities since 1000 BC.[10]

Bayesian modelling was accomplished by Eberhard W. Sauer and Cathy Batt, using the OxCal programme. Eberhard Sauer produced the final versions and selectively tested results in the BCal programme, whilst Cathy Batt provided essential advice on the programme, tested various sequences independently, reassuringly coming to similar results. Eberhard Sauer takes the responsibility for all potential imperfections, whilst the task could not have been accomplished without the advice of Cathy Batt. Eberhard Sauer is grateful to Professor Gordon Cook, Dr Derek Hamilton and Dr Tony Krus for having drawn his attention to the imperfections of his initial interpretation of radiocarbon sequences, their advice and for taking the time for a meeting. They have not seen or scrutinised the final results and are not to be blamed for any shortcomings. In the light of budgetary constraints towards the end of the project, the complexity of the stratigraphy and pressures of time, it was decided not to commission a professional Bayesian statistician. Having modelled our data in various ways, variants of models mostly produced similar results and constantly made us rethink our interpretation, increasing our confidence that the models are reasonably reliable.

Where there are few samples in a sequence, and/or if they are far apart in time, the modelled dates are close to the unmodelled dates, as one might expect. In cases of numerous well-stratified samples for a shorter period (*e.g.* the early medieval casemate) modelling has often allowed us to narrow down dates considerably, without producing results that are stratigraphically or chronologically unconvincing. In the text, we mainly cite the modelled dates (at 95.4% confidence), but the tables always list unmodelled as well as modelled dates (whenever there is a sequence that permitted us to produce Bayesian models). They also indicate if there is a high probability of a sample dating to a shorter period within the modelled or unmodelled range. These raw data will allow readers to independently assess our chronology, whether they wish to be cautious, and base their argument on broad date ranges with small margins of error, or prefer narrow date ranges, even if there is a greater chance that the real date may fall outside. Samples that are in no certain stratigraphic relation to other samples are shown as single plots. Whenever samples are in a clear stratigraphic sequence, they are shown as multi-plots, often spanning several phases. Tables of results, by contrast, have been split into phases, to make it easier for the reader to find relevant dates. The stratigraphic information presented will allow Bayesian statisticians to test, review and refine the models in future.

Phases

Our chronology is largely based on radiocarbon dating and stratigraphy. Occasionally, artefact typology, archaeomagnetic and optically stimulated luminescence dating has helped to refine dating. Once typical artefact assemblages for different times were identified or typical masonry styles, such information has been used to date otherwise undated or poorly dated contexts.

We have resisted the temptation to date phases on the basis of textual evidence, and few historically recorded events can be directly linked with structures and deposits. It is nonetheless permissible to note that the start and end of some archaeologically identified phases may well coincide with turning points recorded in literary sources. The earliest traceable horticultural and agricultural activity (phase 2b) at the base of Dariali Rock roughly coincides with the earliest contemporary references to the pass defences. The earliest surviving structures and deposits on top of the plateau (phase 3a) are probably related to the historically attested construction of a fort by the Persians (but none of the sources provide a precise date for this event, and it is archaeology that helps to refine it). It is tempting to think that phase 4 marks the mid-seventh to early eighth century Post-Sasanian to Pre-Islamic interlude, but there is (as always) some leeway as to the precise start and end of the phase. Phases 5a-c are different to all previous phases, marked by much heavier intramural rubbish deposition, construction of dry-stone structures (as opposed to the earlier, late antique mortar walls and the virtual abandonment of building in the transitional phase) and the establishment of a cemetery (whilst there are no known graves before). One is inclined to think that the start of phase 5a may mark the arrival of new occupants, perhaps the historically attested Islamic garrison in c. AD 727 – even if there were almost certainly various ethnic groups and religions represented amongst fort occupants over the next three centuries (phase 5a-c).

There is a limit to the precision of our dating, but we have been able to differentiate the phases listed in Table 1:1. Not all deposits and structures can, of course, be assigned to a single phase. These phases are widely used in the finds reports and plans and facilitate systematic examination of developments. In the overall synthesis, we have used them more sparingly to avoid excessively technical language. It should be clear from the dates cited what phase is discussed and vice versa.

Chronological terms

The chronological terms used in this volume require a brief definition, as there is no agreement in scholarly literature on the precise duration of Late Antiquity and the Middle Ages. Any attempt to subdivide history into neat periods is, of course, subjective and dependent

Table 1:1: Phases used in the report.

Phase	*Date*	*Events at Dariali Fort*	*Events at Gveleti Fort*
1	Geological	None	None
2a	6th–3rd c. BC	Earliest evidence for human presence at the base of Dariali Rock	None
2b	1st c. BC/1st c. AD onwards	Earliest evidence for horticulture/agriculture at the base of Dariali Rock: perhaps establishment and occupation of earlier fort (completely destroyed in phase 3a)	None
3a	Late(?) 4th c.	Construction of Dariali outer fort wall and (re-?) occupation of plateau	None
3b	Late 4th/early 5th c.	Construction of rooms abutting outer fort walls.	None
3c	Late 4th–early/mid-5th c.	Earliest levelling inside inner fort wall, construction of buildings in fort interior	None
3d	2nd quarter 5th–6th c.	Occupation inside inner fort wall, perhaps continued construction of buildings in fort interior?	None
3e	Mid-late 6th c.	Continued occupation of fort; no evidence for building works	None
3f	Early-mid 7th c.	Latest probably Sasanian-era occupation	None
4	Mid-7th c.-early 8th c.	Post-Sasanian to pre-Islamic occupation; no building works except for one posthole; localised conflagration at the end	None
5a	Late 7th–early 9th c. (prob. early 8th-early 9th c.)	Start of intensive intramural rubbish disposal; perhaps earliest new dry-stone structures; earliest (collective) graves: new garrison?	None
5b	Late 8th–late 9th c.	Continued intensive intramural rubbish disposal; dry-stone structures; Khazar-style bone artefacts; transition from collective to individual burials, perhaps overlapping in time	Earliest occupation in phase 5b or 5c
5c	Late 9th–late 10th c./ early 11th c.	Continued intensive intramural rubbish disposal; dry-stone structures; latest (individual) graves with northern grave goods or none	
6a	Early/mid-11th–mid/late 13th c.	No evidence for occupation: perhaps small garrison (if any) in building outside the excavated area?	Continued occupation
6b	Late 13th–early 15th c.	Re-occupation of fort; new stone floors and dry-stone walls	Continued occupation; stone floor and dry-stone walls
7a	Mid/late 15th–mid-17th c.	No evidence for occupation	New dry-stone houses and clifftop wall; continued occupation
7b	Mid-17th–21st c.	No evidence for occupation, except for 20th-c. military structures	Temporary dry-stone structures?

on what developments in religious, cultural, military, technological, administrative and political history are considered most significant in defining change, not to mention that such changes can affect different territories centuries apart. Furthermore, there will almost always be more change over a long period of time, however defined, than over a much shorter period bridging the postulated end and start of two successive phases of history. Such

broad chronological terms nevertheless help us to describe complex developments without unnecessarily convoluted language. They may also stimulate thought, if properly defined, as to what constitutes significant change in world history.

In this monograph, key chronological terms are defined as follows:

Late Antiquity (phase 3): the period from the reign of Diocletian (r. AD 284–305), with its wide-ranging reforms, to the late AD 630s/mid-seventh century when the Caliphate replaced the Roman and Sasanian Empires as the dominant military and economic power in the Near East and the Mediterranean. Only the last two-and-a-half centuries of Late Antiquity are represented in the archaeological strata at Dariali Fort.

The term '(Eastern) Roman Empire' (or just 'Rome') is preferred here to 'Byzantine Empire', notably in a pre-medieval context, as it was the only direct successor to Rome, and contemporary authors still define the empire as 'Roman'. The Empire's Roman heritage, not the location of its capital city, determined imperial identity. After the Empire's division into a western and eastern half, the terms 'Roman Empire' or 'Rome' refer principally to the Eastern Roman Empire. The Eastern successor state to Rome was the beneficiary of the Caucasian defences, the victim when they failed, or were used by the masters of the pass to employ northerners in proxy wars against Rome. The Eastern Roman Empire was also sometimes a paymaster or contributor to the upkeep of the Caucasus fortifications (in theory at least, if in practise the money may have been used for other purposes) – and it was the only Roman Empire to survive beyond the late fifth century. In conventional Georgian chronology, phase 3 forms part of the Early Middle Ages (whereas in this report the term 'Early Middle Ages' is only used for phases 4–5). It should be noted that the narrower definition of the term Middle Ages (phases 4–6, *i.e.* mid-seventh to fifteenth centuries) as used in this report, as opposed to the broader definition in conventional Georgian chronology (c. fourth-eighteenth centuries, corresponding roughly to our phases 3–7a), is not meant to imply that we disagree with conventional Georgian chronology. As stressed above, any definition of the chronological parameters of the Middle Ages is to some extent arbitrary. Whilst the broader Georgian definition of the term 'Middle Ages' is as logical as the one used here, we felt that it would reduce the risk of misunderstanding to adopt a narrower definition, for two reasons:

1. This is internationally now more widely used.
2. The history of Dariali Fort from the fourth to the seventh centuries differs markedly from its history in the seventh/eighth to tenth/eleventh centuries. Describing the former as 'late antique' and the latter as 'early medieval' will make it clear what we refer to, as opposed to using the same term for both.

Middle Ages (phases 4 to 6): the period from the end of (Late) Antiquity, as defined above, to the fifteenth century and the Renaissance. This is broadly subdivided into the following eras: early medieval (mid-seventh to mid-eleventh centuries/phases 4–5), high medieval (phase 6a, mid-eleventh to thirteenth centuries and not well represented in our excavations) and late medieval (phase 6b, late thirteenth or fourteenth to mid-fifteenth centuries).

The first of these three medieval sub-phases is by far the longest, lasting for c. 400 years. As far as Dariali is concerned, this could be further subdivided into the interlude (phase 4), between the end of the Sasanian era in the mid seventh century (even if in all likelihood effective Sasanian control would have ceased a little before) and the Islamic conquest of c. AD 727, and the occupation of the fort by a new, reportedly Muslim, but in reality, probably a multi-faith garrison for the next three centuries or so (phase 5). Activity on the fort, attested archaeologically, seems to come to a temporary end toward the end of the tenth or in the first third of the eleventh century. Northern influences increase as time progresses, but we do not know if the fort stayed under formal Muslim control until this point or changed ownership a few years or decades before. After little activity in the High Middle Ages (phase 6a), exclusively traceable at Gveleti Fort, there is renewed occupation in both forts in the Late Middle Ages (phase 6b).

Post-medieval/Modern Era (phase 7): c. mid/late fifteenth century to the present. In conventional Georgian chronology, phase 7a still forms part of the Late Middle Ages (whereas in this report the term 'Late Middle Ages' is only used for phase 6b).

1.4. Ethnic/political terms

As we use the term 'Roman' in a political and legal, but not in an ethnic, sense, even for times when Rome or Italy more broadly was not a part of the Roman Empire, it is important to stress that the same applies to many other ethnonyms. It is clear that many northerners, notably larger groups, such as the Sarmatians and later the Huns, Turks/Khazars, were not 'monolithic' and included or absorbed other ethnic groups. Similarly, 'Eranshahr' (the Empire of the Iranians) under the Sasanian dynasty, included Iranians and non-Iranians. Centred (as already under the Achaemenids) on the Persis province in southwest Iran, ancient authors use the term 'Persian' for ethnic Iranians/speakers of Persian as well as for all inhabitants of the empire or parts thereof, just as the term 'Roman' has more than a single meaning. 'Sasanian' is a term that refers to a dynasty, if frequently applied to the state and its inhabitants in modern literature. By contrast, modern scholarship would not refer to the inhabitants of the Roman/Eastern Roman Empire by dynastic terms, such as 'Constantinian' or 'Theodosian' – perhaps because dynasties did not last long enough.

Ancient and medieval authors frequently conflate or confuse ethnic groups or use antiquated terms familiar to their readership. Whilst conscious of the minefield of ethnic interpretation in archaeology/history or adopting the broad-brush terms used in primary sources,[11] there is often no way of unpicking them. Nothing is to be gained by replacing ancient terminology with similarly vague or ambiguous modern or dynastic terms. We would not call the inhabitants of the Eastern Roman Empire under the Theodosian dynasty 'Theodosians', and there is no logical reason to describe all subjects of Sasanian kings as 'Sasanians'. We use traditional ethnic/political terms, as our sources do, broadly defined. They often refer to political units, named after one ethnic group, if encompassing many. If a garrison, for example, is described as 'Roman' or 'Persian', this is not meant to imply it consisted of people from the city of Rome or the heartlands of Persia, but from anywhere within the Roman or Persian Empire. 'Rome' in this report is also used as a synonym for the Roman and/or Eastern Roman/Byzantine Empire.

1.5. Technical notes

Limitations and potential of our studies

Dariali Gorge, arguably the most famous mountain valley in the ancient and medieval world, is referred to in many ancient and medieval works and countless modern publications. We have tried to cover as much ground as possible, but it is impossible to list, let alone discuss in detail, all relevant literature in all languages over the past two millennia. There is no question that our project has shed more light on the history of the gorge from the late fourth century to the end of the first millennium than the second millennium. It contributes little new evidence for the period prior to the fourth century. Yet, the unique geography of the mountain pass can only be understood in a broad chronological framework, with nineteenth-century reports helping us to understand what traffic and living conditions may have been like a millennium or two before. Post-medieval land use patterns, as explored by our landscape team, may in part reflect much older traditions and help us to understand how medieval and pre-medieval populations sustained themselves in this alpine environment. It would have been strange to start our history of this famous mountain valley only in the fourth century, centuries after it had reached world fame. Our summary of the history of the gorge in the first third of the first millennium is undeniably based largely on existing literature, whilst we have much new primary evidence to contribute to the history of the gorge in later centuries. We do not pretend to be able to offer new insights into each and every recorded event in the gorge, and sometimes we cannot offer a decision as to which of various conflicting hypotheses is correct. This does not mean that there is nothing new on the history of the gorge in Classical Antiquity. Whilst the thoroughness of the late antique workforce at Dariali and Bakht'ari Forts seems to have erased most traces of their earlier occupation, there is little doubt that they focused their defensive efforts on the most formidable natural obstacles that will have played a pivotal role in the history of the gorge long before their arrival. Late antique and medieval efforts to control the pass are crucial for understanding how it was possible to block the route, or open it only to allies, in earlier times.

The impressive architecture surviving from Late Antiquity has enabled us to understand what strategies were used to control Transcaucasian traffic at a time when these defences feature prominently in negotiations between Persia and Rome. We have been able to obtain, for the first time, scientific dating for the major late antique fortifications and thus to assess them in their proper historical context. The abundance of archaeological evidence for later centuries in the first millennium does not mean that all questions have been resolved. Material evidence can often be ambiguous, notably when trying to establish religious or ethnic affiliations. We are not always sure of the religion of those buried in a particular grave, nor have states or warlords gaining control over the pass necessarily left unmistakable traces of their presence. There is no doubt that there were representatives of more than one faith and more than one ethnic group stationed in the fort in the Early Middle Ages and that material culture from north and south is represented. When the evidence is ambiguous, we allow for more than one interpretation. The gorge's history in modern times is inextricably linked with that in the Middle Ages and Antiquity, as the modern military exploited the same strategic advantages as those guarding the fort centuries and millennia before. We have thus endeavoured to describe our findings for all periods of the past, but lacked the time and expertise for archival studies of the gorge's recent history. There may well be documents dating, describing and explaining the modern trenches, bunkers, pillboxes and gun emplacements, mentioned here only in passing. We hope a modern historian will fill the gap.

Whilst this report may not always offer simple and clear statements as to who was in charge from when to when, it has shed significant new light on the challenges the garrison faced in this extreme alpine environment. The massive efforts and human ingenuity invested to make this mountain pass as impenetrable as possible prove that there was substance to the northern threat that made the gorge famous across the world. We now have a much clearer understanding of the strategies the garrison and their changing imperial or home-grown masters employed to sustain itself and to withstand numerically superior forces. It is perhaps not so much specific events, but the broader context and the bigger picture that our project has succeeded to present in a new light.

And whilst the mountain gorge features in significant numbers of ancient and medieval texts and modern historical works, there are surprisingly few publications in

western European languages on the archaeology of the Caucasus in Late Antiquity and the Middle Ages. The systematic study of large quantities of artefacts, notably pottery and glass as well as animal bones and plant remains, has shed much new light on the environment, the economy, diet and trade. The natural setting and material remains of the Gates that feature so prominently in history, yet are hardly ever illustrated, should enable historians to appreciate the physical challenges involved in Transcaucasian traffic, trade and warfare.

Trenches and contexts

Twenty-eight trenches were excavated in total, labelled A to Z and AA to AB. They are all tabulated, with years of excavation and area in square metres, in the chapter on ceramics,[12] as the area covered is of particular interest in the context of the quantitative assessment of the most abundant type of artefact found. In the same chapter, we also provide a list of all deposits yielding pottery and their phasing, based on stratigraphy, scientific dating and any other chronological indicators (such as the presence of modern material), also listing separately their ceramic date where possible.[13] During excavations, context sheets were filled for all deposits, cuts and structures, as well as level registers, finds lists and context lists per trench and separate burial recording sheets for all graves. During post-excavation, stratigraphic matrices were compiled for all trenches (except for some with a simple stratigraphy) as well as lists of contexts. Due to the complexity of the stratigraphy, which would have made it difficult to reproduce these matrices for Trench F and Q clearly on A4 pages and would have required multiple pages for each trench, it was in the end decided not to publish matrices or long lists of contexts, mostly duplicating information presented in the excavation report. Matrices for all other trenches could easily have been reproduced, but would have been of limited benefit to the reader, as the simple stratigraphy should be clear from the narrative report, plans and sections. All significant deposits, structures and cuts are discussed in the chapters devoted to the relevant trench or group of trenches.[14]

Site elevation

Heights for all trenches are indicated in relation to the relevant benchmark. Each trench, or group of trenches in vicinity to each other, was given its own benchmark. An attempt, in 2016, to establish the height of benchmarks in relation to sea-level via expensive equipment imported from the UK failed, as there was insufficient satellite reception for the equipment in the narrow gorge. It only worked where the valley widens at Stepantsminda – which was of no tangible benefit to the project, as none of our trenches was located here. Where heights are cited, they were measured with a variety of handheld GPS devices, which inevitably entails a significant margin of error. The topography of Dariali Fort was, of course, accurately recorded via Laser Scanning by Malkhaz Datukishvili and Giorgi Kvaratskhelia (plotting relative heights). For most trenches, we also used a Total Station to measure in their height in relation to each other. Calculating and indicating all height measurements in relation to a single benchmark would be of no benefit to most readers; calculating them in relation to our best estimate as to absolute height above sea-level would have conveyed an incorrect sense of accuracy and would have cluttered the report with lengthy figures.[15]

Directions

Photos of burials mostly feature a north arrow, aligned with the aid of a magnetic compass. No attempt has been made to systematically and retrospectively correct north arrows in plans, so that their alignment exactly matches that in the photos. In the case of discrepancies, photos and larger site plans and maps will reflect magnetic north more accurately than trench plans or sections. Directions are mostly expressed to the nearest 45-degree angle (*e.g.* east or south-east, rather than SSE, even if these 22.5-degree subdivisions are used occasionally).

Tables listing finds quantities

In selected cases, notably where we have much well-stratified and dated material, an attempt has been made to tabulate the quantities of key finds per context and horizon. The information is based on the work of relevant specialists, notably Seth Priestman and Marjan Mashkour and others, as well as the efforts of the finds processing team, notably Fiona Mowat, Rosalind MacDonald and many other team members to weigh, list and tabulate literally tons of finds.

Georgian version of the Acknowledgements and the History of Dariali Gorge

The Georgian chapter, compiled by Davit Naskidashvili, is designed to facilitate access to some of our key finds to scholars and the public in Georgia. It mostly follows closely the corresponding sections in the English version, but it is not meant to be a simple translation. Notes, illustrations and some details have been omitted, whilst there is the odd passage summarising important information that features in different chapters in the English version.

Notes

1 This name was also attributed to the Derbent route and, first, to a pass in the Alborz Mountains: Anderson 1928; *id.* 1932, 15–16; Hansman 1992; Heil 1997, 224–31; Isaac 1992, 404; Kavtaradze 2001, 201–02; Kolendo 1987; Miller 1916, 653; Nawotka 2017a, 179; Porter 1821, 366–67; Prontera 2014; Sauer *et al.* 2013, 12; Schmidt 1940, 34, pls 41–42; Standish 1970; Treidler 1953; Warner and Warner 1912, 31–32.

2 Plinius Secundus, *Naturalis historia* 6.30, 6.40.
3 See chapter 25.
4 Which of its ancient names is best used for Dariali remains controversial even amongst the authors of this report, and no attempt has been made to impose uniform nomenclature.
5 Mindorashvili 2005.
6 For preliminary reports, see Sauer *et al.* 2015; 2016; Sauer and Naskidashvili 2018; Sauer and Pitskhelauri 2018; cf. Sauer 2017b.
7 Co-directors in Iran: Dr Jebrael Nokandeh, Hamid Omrani Rekavandi and Dr Mohammad-Reza Nemati: see Nemati *et al.* 2019; Sauer *et al.* forthcoming 2020; cf. Sauer *et al.* 2013. Field and co-directors in Oman: Professor Nasser Said al-Jahwari, Dr Derek Kennet and Dr Seth Priestman: see Al-Jahwari *et al.* 2018; Priestman *et al.* forthcoming 2020.
8 For its height above the river, see Fig. 1:11; the top elevation is an estimate based on numerous measurements with hand-held GPS devices.
9 See chapter 24.
10 See chapter 23.
11 See, for example, Brather 2004.
12 See chapter 11.1.4 with Table 11:1.
13 See chapter 11.11.
14 See chapters 2–9 (matrices and context phasing by EWS, building on the work of trench supervisors and the finds team).
15 For trenches excavated for more than one season we maintained the same benchmark throughout. Only for Trench F was the benchmark changed in 2014. Heights in 2013 have been re-calculated and expressed in relation to the 2014–2016 benchmark. We often used the same benchmark for trenches in proximity (*e.g.* F and Q; E and G; U, V and W). Via Total Station, we measured also the relative height of many trenches at a greater distance to one another, although it has not been possible to link the Gveleti trenches to those near Dariali Fort, due to the lack of direct sight-lines and the impossibility of crossing the Amali River in summer. As knowing the relative difference in height between distant trenches will be of little benefit to the reader, we refrain from cluttering the report with such technical details.

SECTION B

Excavations and Survey

2

Late antique buildings occupied to the Late Middle Ages: life over one millennium on Dariali Fort (Trench F)[1]

2.1. Introduction

Trench F on Dariali Fort was excavated over some three and half months in total. It was the first trench we marked out within the actual fort and it was the only trench in which we worked in for all four seasons of the project.[2] Prior to excavation in 2013, the area at the top of the hill was visually surveyed for an appropriate location for a trench. The surface of the fort is covered by dense vegetation, in summer up to two metres high in places, but not many standing walls survive. A few walls rise above the high grass, but most are preserved to a height of a few courses only and, as subsequent excavation established, remained buried under the surface. It took six people a full day to mark out a 10 × 10 m square and clear it of its lush vegetation before excavation could begin. The trench was placed towards the south-western edge of the plateau of the fort in a location where no structures or natural rock were visible on the surface. It was our aim to sample an area with deep and undisturbed stratigraphy and with the greatest potential to produce a stratigraphic sequence that might identify the phases of occupation of the fort.

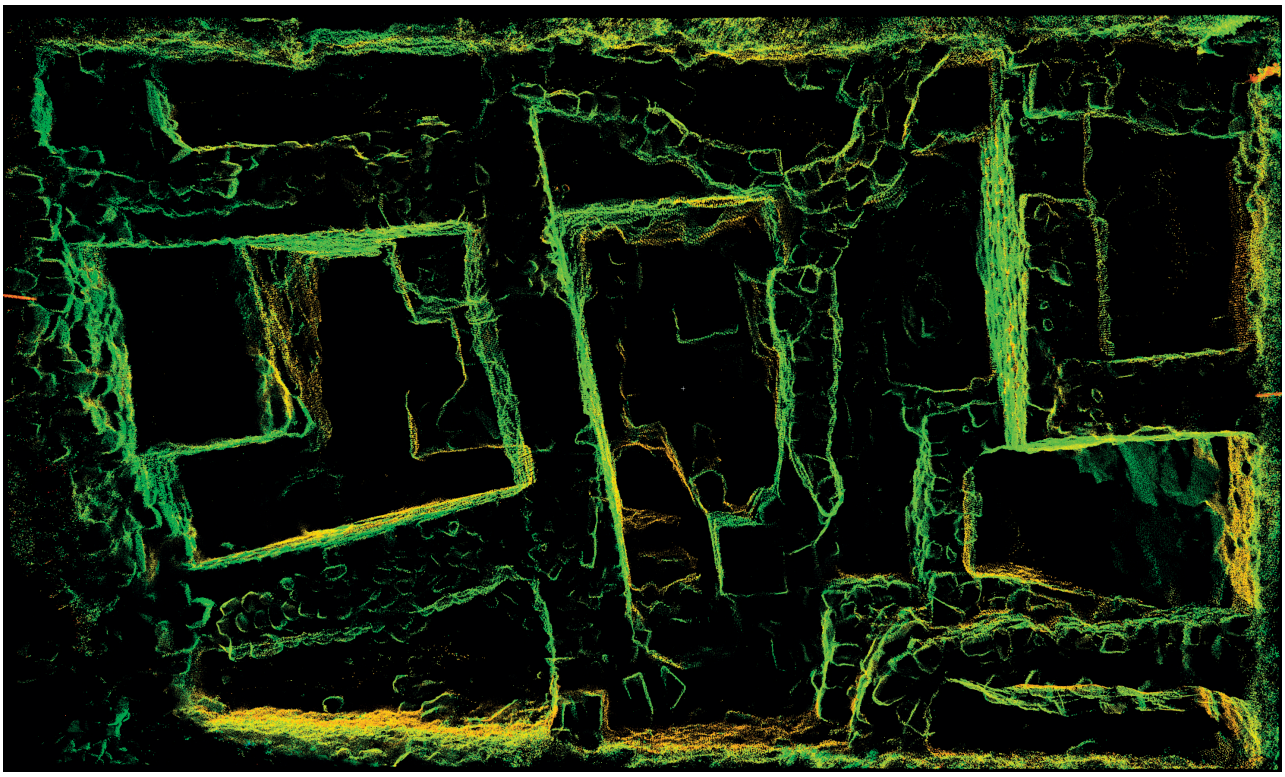
It quickly became apparent that Trench F encompassed an area of dense occupation and multiple walls from different phases of occupation. The first season yielded more than 3,000 pottery sherds, of around 73 kg in combined weight, and more than 135 kg of animal bone, along with many other finds of metal, glass, worked bone implements and worked stone. In 2014, the trench was extended by seven metres to the west. The enlarged (17 × 10 m) trench now reached, in the south-west, to the edge of the plateau and the outer fort wall. The 2014 season was even more productive in terms of material, and yielded an additional 481 kg of pottery and 547 kg of animal bones. In 2015, the trench was not extended any further, and excavation continued on a reduced scale, with the main purpose of shedding light on the earliest surviving deposits (Figs 2:1–2:2). Unsurprisingly, the quantity of finds (another 58 kg of pottery and 56 kg of bone) was much reduced. In 2016, we completed the excavation of the interior of the F.004 building, yielding another 4 kg of bone and 5 kg of pottery, and carried out no further excavation anywhere else in the trench. The depth of the stratigraphy, the significant number of surviving walls and structures and the efforts over four seasons resulted in Trench F yielding more insights into the chronology of hilltop occupation and the architectural history of the fort than any other area explored during the project.

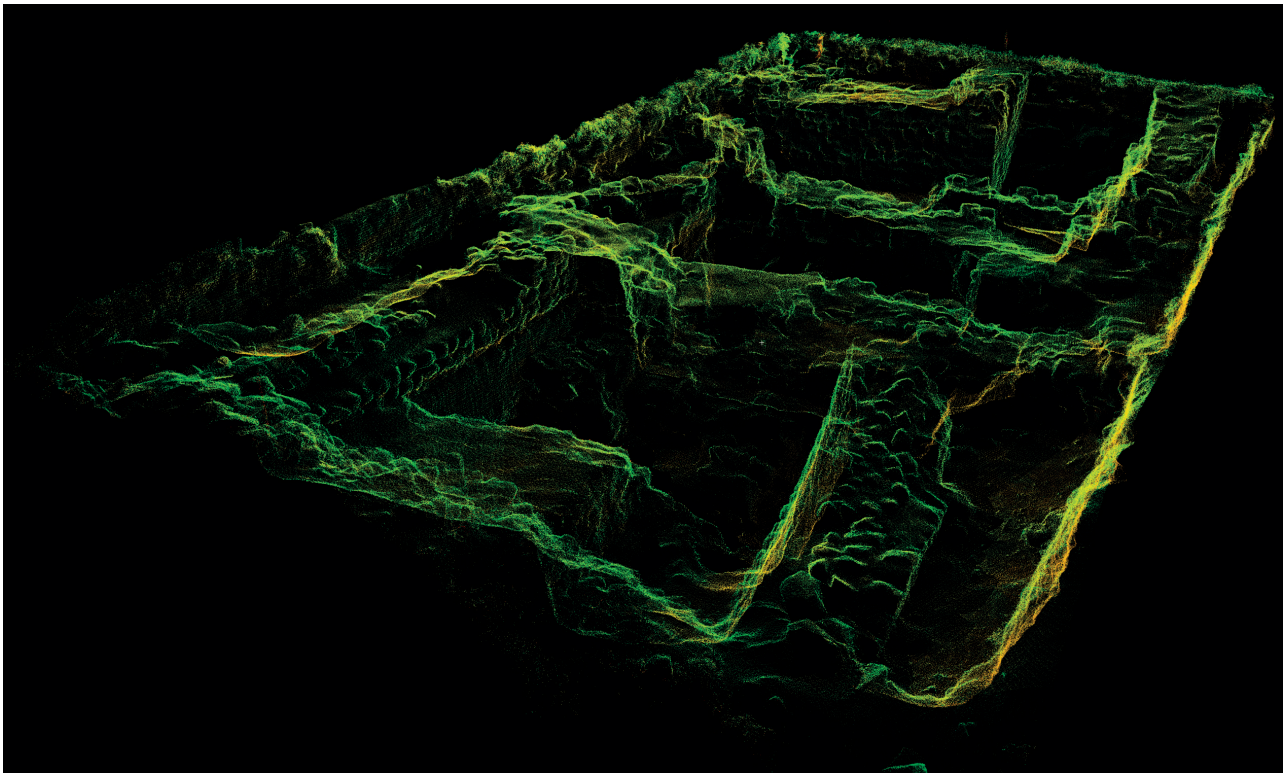
2.2. The late antique fort walls and intramural life (late fourth to mid-seventh centuries AD/Phase 3)

2.2.1. The fort walls (Phase 3a–b)

As stated above, Dariali Fort saw many phases of occupation, as it controlled one of the strategically most significant mountain passes in the world. Trench F contained a complex palimpsest of walls and surfaces on top of earlier structures and occupation horizons. Yet, the most solid constructions proved so durable that they lasted for more than a millennium and never needed replacement. This appears to apply to much of the fort's outer defences. Our excavations have not established whether the defensive cordon – consisting of the outer wall (F.058) along the edge of the escarpment, a parallel wall inside (F.013) and shorter perpendicular walls (F.050 and F.059) linking the two (Figs 2:3–2:6) – was the earliest ever built here or replaced an earlier demolished wall circuit. These walls are, however, certainly amongst the earliest surviving structures within the trench.

The outer (western) wall of the fort (F.058) has only partially been exposed and is abutted by two walls on the inside (F.050 and F.059). The latter two walls also





Figs 2:1–2:2: Trench F towards the end of the 2015 season, laser-scanned by Malkhaz Datukishvili and Giorgi Kvaratskhelia.

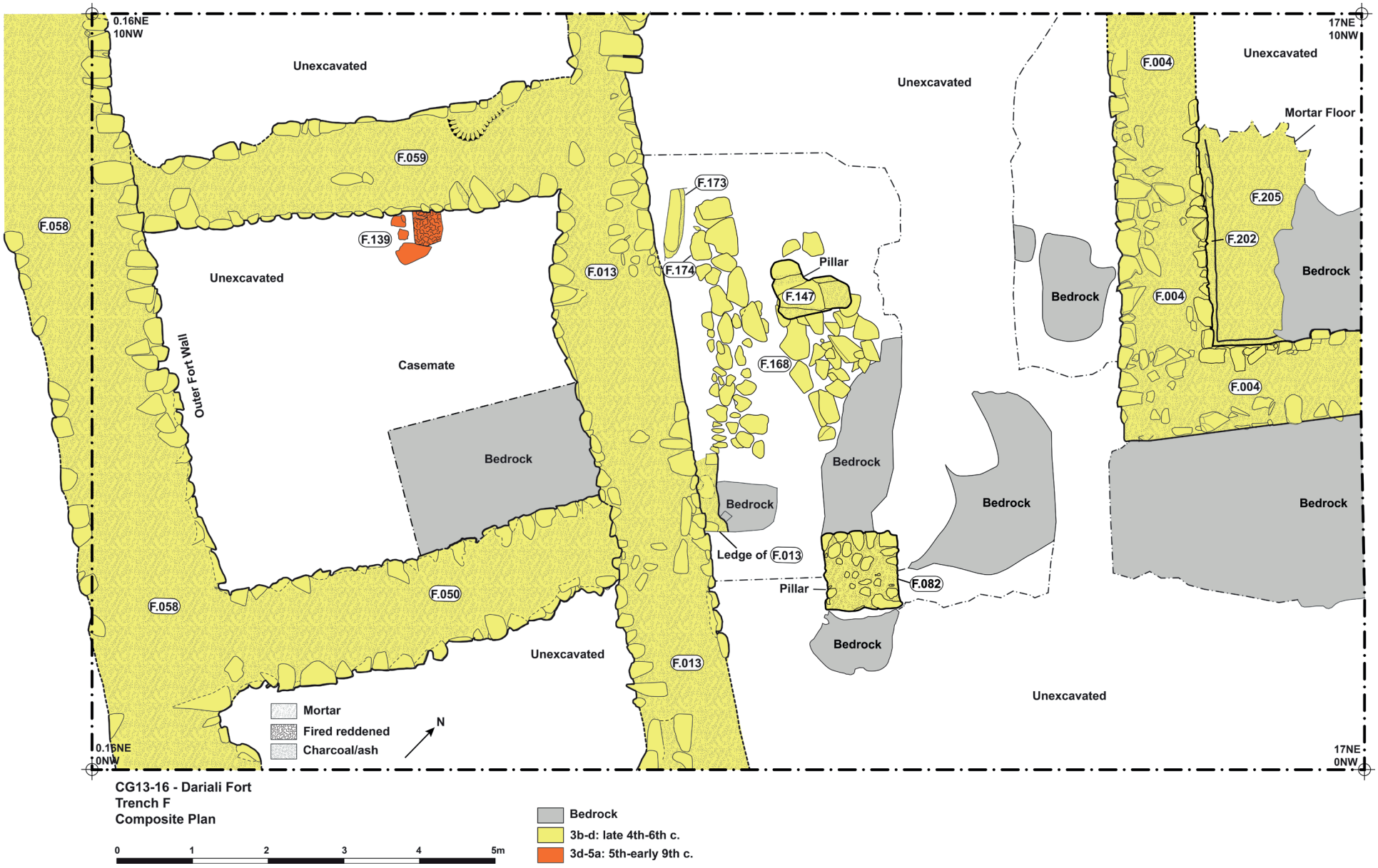


Fig. 2:3: Late antique (phase 3) structures in Trench F.

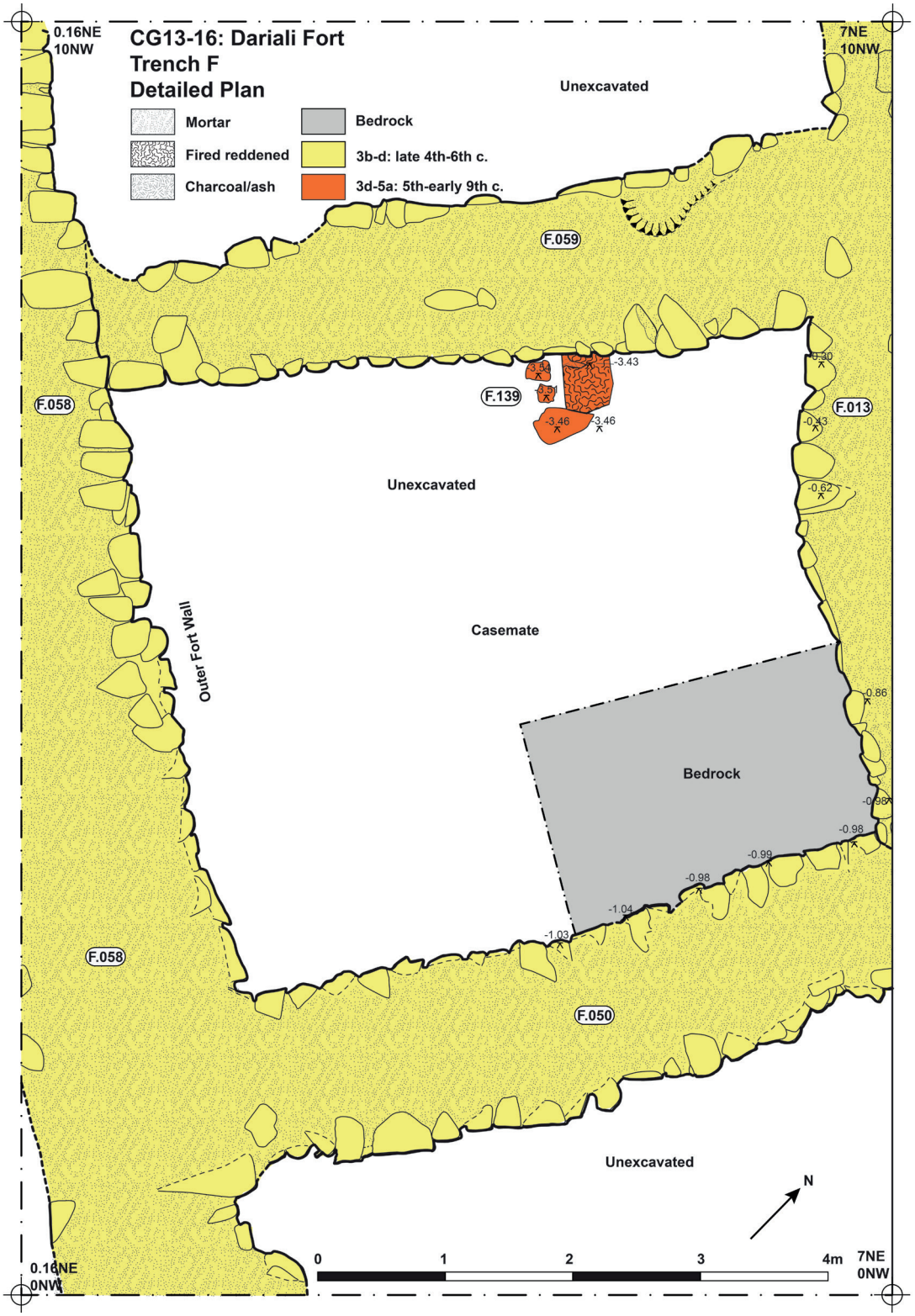


Fig. 2:4: The casemate in phase 3. The hearth (F.139) is probably late antique or a little later. Certain late antique layers have only been explored in the sondage in the east of the room, excavated down to the bedrock.



Fig. 2:5: Drone image of Trench F in 2016 by Davit Naskidashvili et al.

abut a wall (F.013) that runs parallel to the outer wall (F.058). All four walls employ the same masonry style. They are double-faced, with a rubble core and ashlar on both sides, bonded and covered by mortar. Analysis of the mortar of the outer walls and internal building has shown this to be of high quality, evidently prepared by an experienced workforce, using locally available materials.[3] They employ stones of a wide variety of dimensions, many of them of medium size (c. 20 cm diameter). These well-built walls are amongst the most substantial within the trench, the outer wall (F.058) being some 1.57–2.00 m wide at the top, the parallel inner wall (F.013) and the two connecting walls (F.050 and F.059) measuring some 1.20–1.60 m across.

Architecture suggests that the parallel and connecting walls (F.013, F.050, F.058 and F.059) are not far apart in time. The connecting and inner walls provided buttresses for the outer wall, significantly enhancing its stability and adding to the structural integrity of the fort. Furthermore, the casemates between the outer and inner walls would have provided shelter and storage space. Building this row of rooms adjacent to the outer wall saved building material and labour, made the most efficient use of intramural space, and the substantial walls would have offered



Fig. 2:6: Drone image of Trench F by Davit Naskidashvili et al. *in 2016, rectified by Eve MacDonald.*



Fig. 2:7: Dariali Fort's late antique mortar walls were built directly on the bedrock. Wall F.013, like several contemporary walls, was provided with a ledge at its base (with a horizontal one-metre scale on top of the ledge and a vertical 30cm-scale in front). There was a window (F.151) in the wall (top right).

much-needed insulation from wind and weather. Living within the shadow of the wall also reduced the risk, in the event of an assault, of being hit by enemy missiles. It was for these practical reasons that casemates were common in defensive architecture across the Late Antique world, both in the Roman and Sasanian dominion.[4] At Dariali Fort, there was probably a ring of them around most of the inside of the outer walls, as subsequent excavation in Trench Q confirmed. The distance between the inner face of the outer wall (F.058) and the outer face of the inner wall (F.013) in the room within Trench F amounted to c. 5.20 m. The connecting walls were not parallel (the inner ring inevitably being shorter than the outer ring). Room width of the casemate varied from c. 5.00 m along the outer wall (F.058) to c. 4.10 m along the inner wall (F.013), providing some 24 m^2 floor space within the casemate.

The masonry style (Fig. 2:7) suggests that all four walls (F.013, F.050, F.058 and F.059) around the casemate in Trench F were of a broadly similar age and probably built as part of the same construction project. Even if the outer wall should have been built first, it seems unlikely that it ever was intended to stand on its own, nor that it did so for a very long period. Had it been designed as a stand-alone feature, one would expect it to be much wider, for purposes of stability and defensibility. These considerations lead us to conclude that the four walls were planned as part of a single scheme, even if not necessarily constructed at once. A further observation adds strength to our hypothesis that all four walls were part of the same scheme. Walls F.013 and F.050 were built immediately on top of the bedrock, undoubtedly to enhance their stability. The same must be true for walls F.058 and F.059. It would have made no sense to build the inner wall (F.013) on the bedrock, and the outer wall (F.058) on sediments, making it liable to subsidence, waterborne erosion and, potentially, undermining. We may thus be sure that wall F.058 as well as probably F.059 were also built on bedrock. If we are right in thinking that all four walls had been part of the original design, then the first task of the workforce would have been to clear a broad strip of land all around the edge of the plateau, probably even the entire plateau, from vegetation, soil and any earlier walls and structures. The workforce may well have kept larger stones in piles for reuse, but organic sediments and occupation debris would have been of little use in the construction project. Stripping the soil would have been easiest to accomplish before the erection of the outer wall which would have stood in the way of spoil removal downhill. The evidence for the likely construction date of wall F.013, unearthed in the 2014 and 2015 seasons and presented below, provides a *terminus ante quem* for the whole defensive cordon, with the outer wall perhaps being earlier, but probably no more than a few years or decades.

How tall would the double fort walls and room units within once have been? Dariali Fort seems to have been

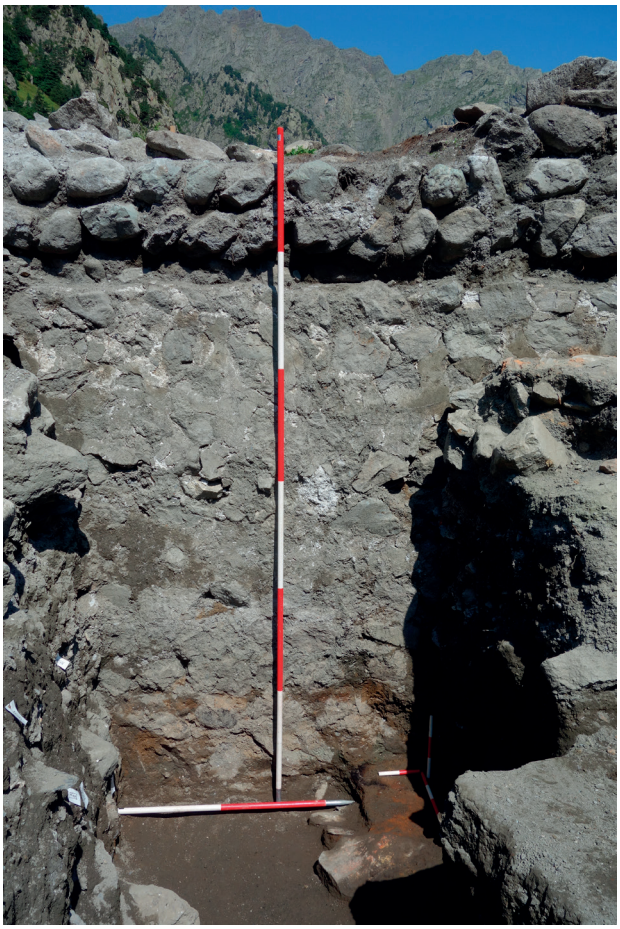


Fig. 2:8: South-east facing side of late antique wall F.059. Note the fireplace (F.139, bottom right on an early floor horizon) and the horizontal slot in the wall that probably supported the ceiling of the basement – suggesting that the room was originally some eight feet high. The plaster-covered masonry below the slot is typical for late antique walls. Weathering has largely removed the plaster cover above the slot.

slighted in modern times, to deny rebels the opportunity to seize an impregnable fortification towering over a vital Transcaucasian traffic artery, not to mention further destruction in the wake of transforming Dariali into a twentieth-century military post.[5] With the exception of one stretch of outer wall in the east and one tower only in the west, none of the inner or outer walls of the fort is preserved to impressive heights. This also applies to the walls in Trench F, only surviving, buried under sediments, below 2013 ground levels. Despite destruction above ground, enough survived of at least one of the buried walls to suggest that there was a second storey (and quite possibly more above). On the south-east facing side of wall F.059 (Figs 2:8–2:11) one observes a horizontal slot, rectangular in section, c. 14 cm high and 12 cm deep (at -0.96 m to -1.10 m height). This has been exposed over a length of c. 3.45 m, from the joint of wall F.059 with F.013 towards its joint with wall F.058. We may assume

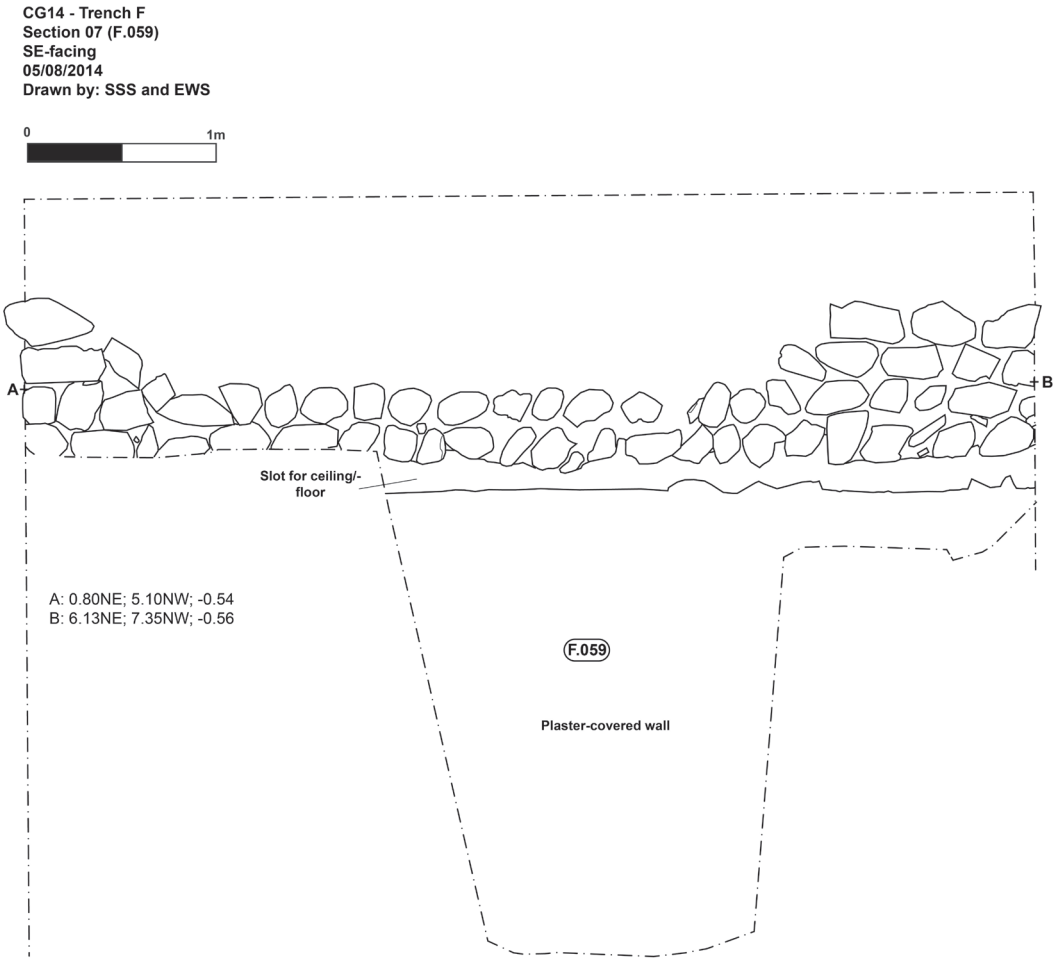


Fig. 2:9: Late antique wall F.059 as far as exposed.





Figs 2:10–2:11: There was no slot in the other three walls of the casemate.

that it once ran from one wall to the other for the entire width of the room, of c. 5.35 m at this level, even if not enough of the face of wall F.059 in the south-western 1.90 m has been exposed to prove it. The wall displays the characteristic late antique masonry style of the era, being covered by plaster, below the slot. Above the slot, stone size and layering is comparable (medium stones in neat courses), but much of the plaster cover has vanished – undoubtedly a result of greater exposure to the elements. Wall F.013 contains no such slot (Fig. 2:12) and the slot in wall F.059 comes to a terminal in the corner between these two walls. Little has been exposed of the inner face of wall F.058, but there is no trace of it in the southern corner of the room, proving that there probably was no slot in wall F.058 or at least no continuous slot. There is no slot or recess in wall F.050. It survives, at its highest

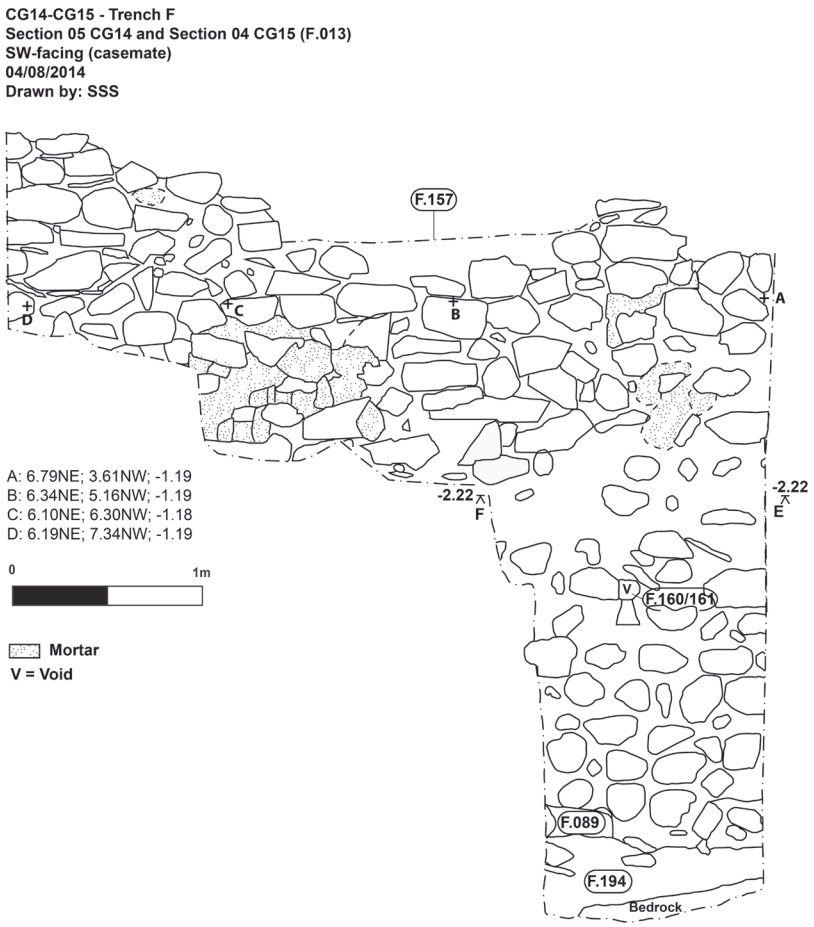


Fig. 2:12: The south-west-facing side of wall F.013 as far as exposed.

preserved points (on the side facing the interior of the casemate) to c. 12 cm above the level of the base of the slot in F.059, high enough to suggest that there was no slot at the same level as in the wall opposite. What was the function of the slot in wall F.059? It probably held the timbers of a wooden floor of a first storey within the casemate. Technically, it would have been impossible to slide floor timbers spanning the whole width of the room into slots on all four sides, or even two sides opposite, unless doing so prior to raising the outer wall (F.058) above the level of the slot in F.059. The unequal lengths of the four sides of the room and the unequal angles of its corners meant that the floor boards would also have differed in dimension, suggesting that the ceilings/floors in the casemates were not of identical shape and size and were tailor-made or improvised. Even if there are no slots in the other walls, it seems likely that the slot in F.059 was the base for an interim wooden floor. Perhaps there were timber posts supporting it elsewhere. No ancient postholes have been found, but except for a small sondage in the eastern corner of the room, pre-medieval layers have not been reached. Posts could have stood in unexcavated areas. If resting on the bedrock or stones, rather than in postholes, they would be impossible to detect. An early medieval (post?) trench (F.208) and post-pipe (F.116) might have supported a floor at a later stage,[6] but the evidence is far from clear. Even if we could be sure how a repaired or replaced floor was supported, the postulated posts need not necessarily reflect pre-medieval architectural traditions. Whilst we cannot be sure how precisely the floor was supported, it is hard to think of an alternative explanation for the regular slot in wall F.059. It is worth noting that it resembles a slot on the inside of the outer fort wall (Figs 2:13–2:14) on the east side of the plateau, in all probability supporting a timber floor above a narrow staircase.

The slot is of interest not only in providing likely proof that there was double or multi-storey occupation in the shadow of the fort walls, but also in revealing room height. The base of the slot in wall F.059 (c. -1.10 m) is 2.45 m above the bottom of the sondage in the centre of the trench (as far as excavated). The surface above late antique deposit F.175 is at a similar level (of c. -3.55 m), whilst a fireplace (F.139, at c. -3.45 m) next to the wall is 2.35 m below, suggesting that the bottom of the central sondage may correspond to late antique ground floor levels (and is in any case at most a few centimetres above). It seems that in Late Antiquity the basement may have been almost two and a half metres high and



Fig. 2:13: The masonry style of Dariali Fort's outer wall resembles that of wall F.059. The photo shows the inner face with a similar slot (probably for a roof/floor above a staircase).



Fig. 2:14: The same slot (left of the human scale).

perhaps the same applied to upper storeys. A high ceiling would have reduced fire risk. There is no way of telling if space in the tall rooms was used effectively, *e.g.* via bunk beds and/or stacked supplies. If we are right in thinking that the small fort was densely occupied, then it would have made sense to add interim floors, in order to accommodate the maximum number of occupants, and



Fig. 2:15: The mortared layer of stones, behind the horizontal one-metre ranging pole, forms the top of doorway (F.162) in wall F.013. Isolated stones and mortar underneath are part of its fill. View when first exposed in 2013.

provide space for supplies, within the limited space on the fortified plateau.

Within wall F.013 there is an original window and door opening (Figs 2:15–2:18).[7] The doorway (F.162), just over two metres high and c. 1.10 m wide at the bottom and c. 0.95 m at the top, was an original feature, employing the same masonry style as the outer face of wall F.013, and there is nothing to suggest that it had been cut through the wall at a later stage. The top of the doorway was originally preserved at c. -0.90 m, some 2.20 m on average above the bedrock and some two metres above later mortar floor F.172/F.195. There was no stone lintel, nor any trace of a wooden lintel. Consisting of layered stones bonded by strong mortar, there must have been a wooden frame during construction until the mortar had dried and fully bonded the stones. Recorded in 2013 and 2014, it could not be preserved due to its fragility.

A large window (F.151) in wall F.013, is preserved to over 1.30 m height. Fragments of possible window glass have been found within the casemate (F.169) and outside (F.033), as well as in Trench Q, raising the possibility that at some stage, probably in the Early Middle Ages, there



Fig. 2:16: Doorway F.162, after further excavation in 2014, with stones framing left edge clearly visible.

may have been glass windows in the fort.[8] Blocked up later,[9] excavation of the blockage has shed light on the window's original design and the date of blockage. Like the doorway, it is evidently an original feature. It narrows from the bottom (c. 0.95 m) to the top (c. 0.70 m) and employs the same masonry as the wall's outer faces, characteristics it has in common with door opening F.162. It is narrower on the outdoor than the indoor face of wall F.013: at a trench height of -1.25 m, its width amounts to as much as 1.15 m on the inside of the casemate, as opposed to just 0.75 m on the outside, perhaps to provide anchorage to shuttering and reduce the influx of cold air.

Interestingly, there is also a possible joint on the inside of the outer fort wall (F.058: Figs 2:19–2:20). It is in a broadly similar position to window F.151: the south-eastern joint in wall F.058 is 1.03 m from the southern inner corner of the casemate,[10] that in wall F.013, at 0.85 m from the eastern inner corner. The joint in wall F.058 might form the edge of an opening in the outer wall. There was mortar in the wall north-west of the joint, but no clear traces south-west, perhaps suggesting the potential door or window was in the corner of the room, just over one metre wide and not in alignment with the window in wall F.013. Little of wall F.058 has been exposed (Fig. 2:21), and we thus do not know if there were any further joints. A window at a low level on the outside of the outer fort wall would have compromised the defences. Perhaps it was a postern gate that might have



Fig. 2:17: North-east-facing side of wall F.013 with doorway (F.162, right) and window (F.151, centre top) after excavation of their early medieval fill.

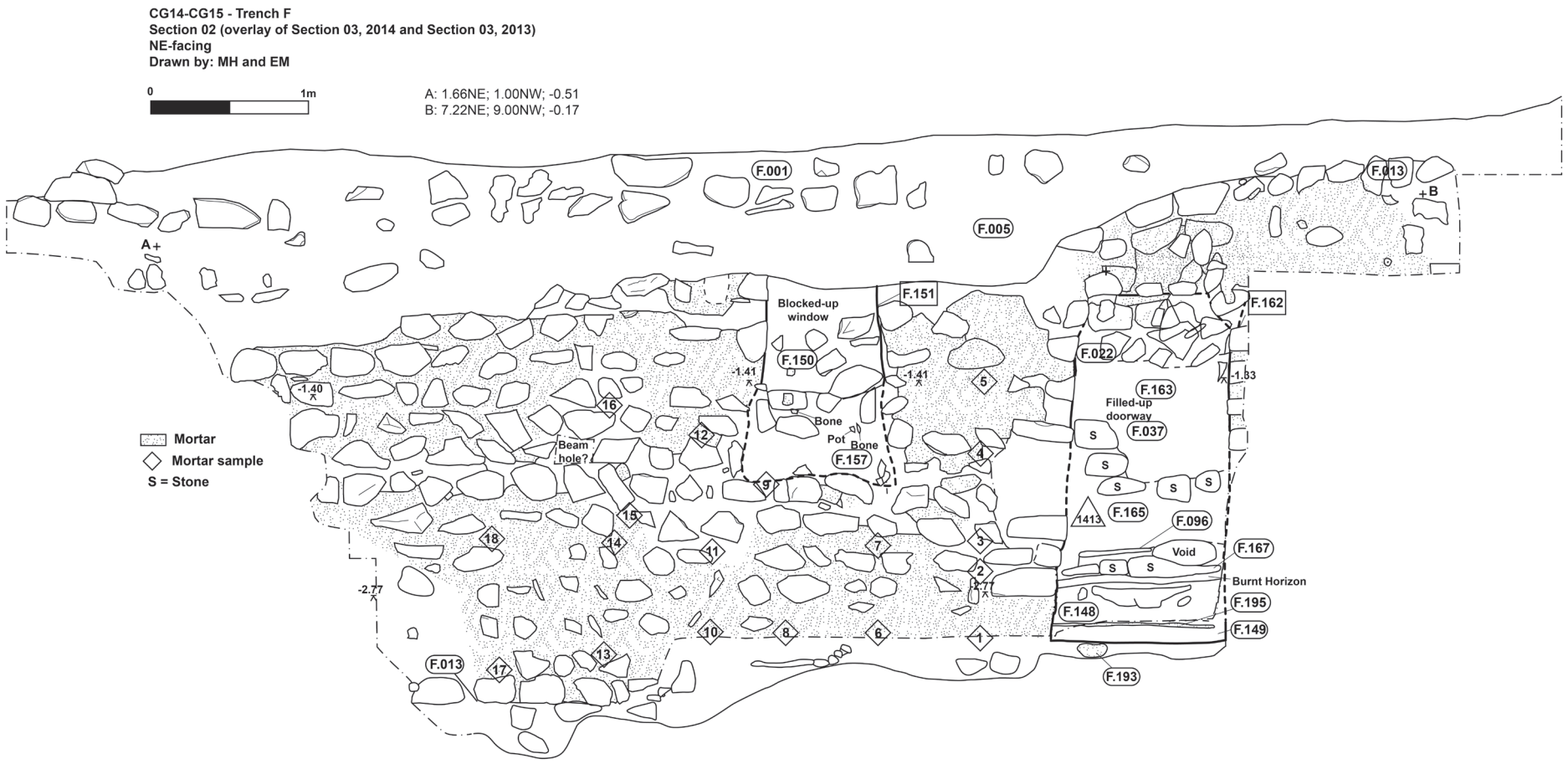


Fig. 2:18: Drawing of the preserved wall, with the location of mortar samples (numbered 1 to 18: see chapter 18).



Fig. 2:19: A joint (near the right end of the left ranging pole) in the outer fort wall (F.058): the edge of a walled-up opening or just an irregularity?

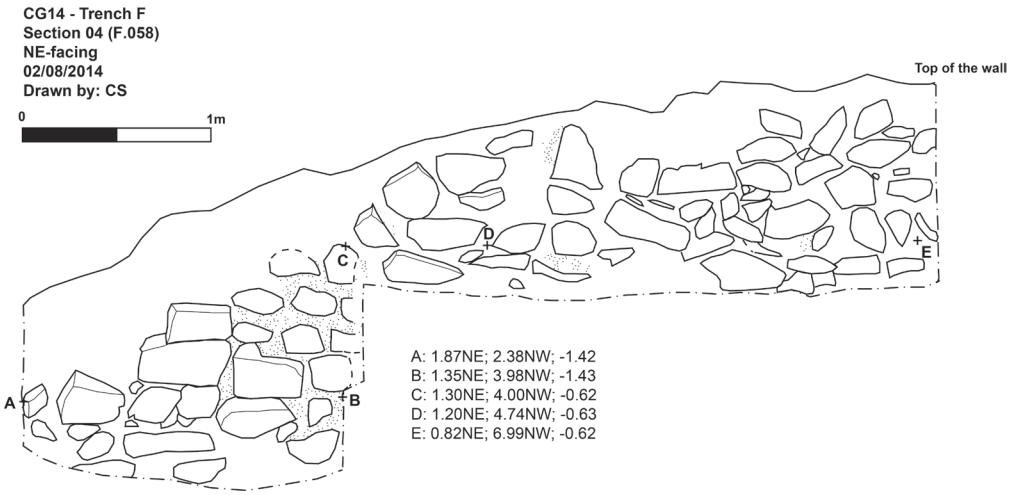


Fig. 2:20: Wall F.058.

been intended for sorties, but with so little exposed it is best not to speculate any further. The potential postern gate was walled up employing stones in neat courses, as far as we can tell on the basis of the small area exposed, but no obvious traces of mortar – a possible sign of late masonry. The blockage may well have been motivated by security concerns. Alternatively, the joint may be no more than an imperfection during fort construction. One would need to expose more of the outer wall to be sure whether or not there ever was a postern gate here and if and when it may have been closed.

A small part of a second casemate may have been within Trench F, to the north-west of wall F.059, but only the uppermost layers were excavated.[11] Subsequent excavations in Trench Q revealed a similar doorway providing access to another casemate. The rooms within the fort's double walls evidently seem to have had a similar layout, as far as a sample of two doorways allows us to tell.



Fig. 2:21: The outer face of the outer wall (F.058), foreground left, with Trench F in the middle ground.

2.2.2. Late antique outdoor occupation in Trench F (Phase 3c–f)

The north-east side of wall F.013 was abutted by a burnt horizon (F.096), probably of the mid-seventh to early eighth century, and with substantial early medieval occupation debris on top. These later deposits will be discussed in subsequent chapters, but it is worth noting here that they form a neat chronological sequence and that everything sealed underneath the burnt horizon is earlier and appears to be undisturbed. The sequence of radiocarbon samples from deposits abutting the north-east side wall F.013 is shown in Fig. 2:22 and Table 2:1.

2.2.3. The stronghold's foundation date: wall construction and the earliest levelling horizon to the north-east of the wall circuit (Phase 3a–c)

How closely can we date the start of construction works? The substantial number of samples we have processed has enabled us to reconstruct the chronology of construction works and the accumulation of occupation debris over centuries in some detail. Stratigraphically, the earliest samples are on top of the bedrock, both within the casemate (to be discussed separately below) and on the north-east side of wall F.013. The two earliest samples are on the casemate side (F.184/1603 and F.192/1634), yielding *termini ante quos* of c. AD 394 and 400 (modelled, at 95.4% confidence).

The absence of pre-fourth-century, or even early fourth-century, samples from the entire hilltop is most plausibly explained by the clearance of all earlier structures, occupation debris and sediments only once in the late fourth century and immediately before construction started on the late antique fort. The rock had likely been occupied for centuries and then was cleared of all earlier material.[12] If we are right in thinking that the surface of the hilltop had been systematically cleared down to the bedrock prior to the erection of the mortar walls, then all bones are likely to represent animals that were slaughtered or had perished during or after the start of construction works. If so, the two cited fourth-century bones are indeed likely to be no earlier than the start of construction works. Their dates are worth closer scrutiny (see Table 2:2).

These samples are both likely to date to the latter two thirds of the fourth century. They are from a probable levelling horizon likely to abut the outer fort wall, further explored below,[13] but cut by the foundation trench of wall F.050. Both bones listed in Table 2:2 are likely to postdate the outer fort wall, but predate the connecting wall F.050. Based on these samples, the start of construction of the outer fort wall was between the 330s and 390s, not likely to be much after the turn of the century and more probably before. (With a 95.4% probability, both of them are no later than c. AD 400, based on the most comprehensive model, and at least one of them is no later than the AD

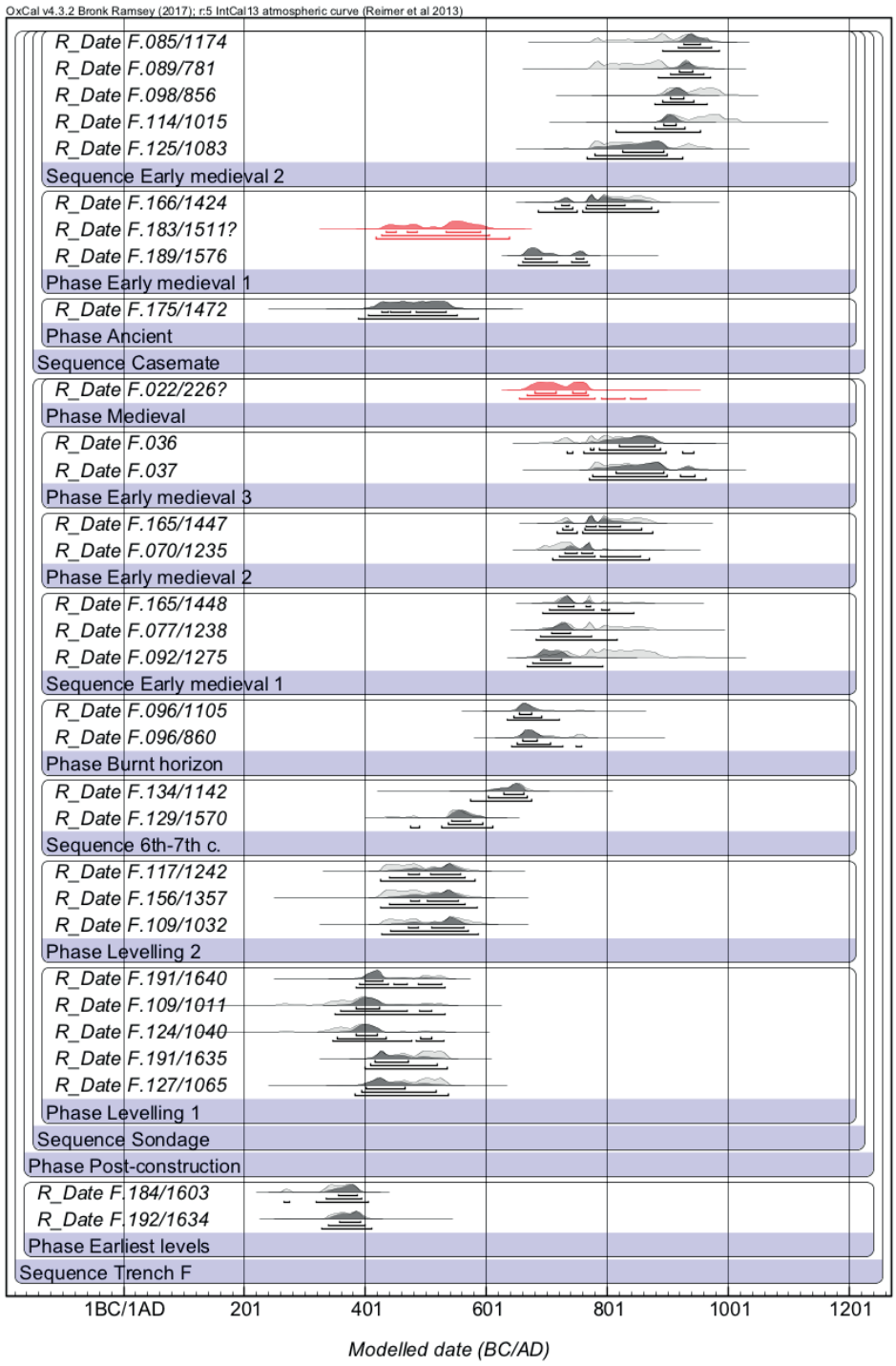


Fig. 2:22: Bayesian model of ancient to early medieval samples from both sides of wall F.013 combined. The two samples from the earliest levels are likely to date to the fourth century. They are probably later than the outer wall and, if so, suggest a fourth-century construction date for the outer wall circuit. Samples from elsewhere in the trench have not been included in this model, as their precise stratigraphic relation to the above sequence is not clear. Outliers (probably redeposited from earlier levels) are marked in red. Early medieval phases and sequences on the sondage side have been subdivided into three phases; those on the casemate side could only be subdivided into two. The terms 'Ancient' and 'Early medieval 1, 2 and 3', where applied twice to different parts of the trench, should not be assumed to be contemporary. 'Early medieval' means any date from the late seventh century to c. AD 1000. 1 predates 2, and 2 is older than 3 within one sequence. 'Early medieval 2' within the sondage, for example, is younger than 1 and older than 3 in the sondage; it is not contemporary to 'Early medieval 2' in the casemate. To facilitate it for readers to follow the discussion, the samples are tabulated where discussed in the text. Only the samples from pre-medieval layers on the sondage side are listed in the table below (see Tables 2:1, 2:5, 2:15, 2:22 and 2:24 for further details).

Table 2:1: Radiocarbon dates from late antique deposits in Trench F on Dariali Fort, to the north-east ('sondage' side) of wall F.013 (BBM = below benchmark) (see Fig. 2:22 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
F.138 (OSL sample)[1]	412–15.2.1	c. 8.81 m NE, 5.70 m NW, -2.51 m BBM	OSL sample	1462±198	AD 355–751 → c. AD 600–706?	Not plotted
F.134/1142	OxA-31501	8.56 m NE, 7.31 m NW, -2.60 m BBM	Bone: Caprinae, rib	1386±33	AD 600–680 → modelled: 603–668	d13C= -19.54
F.129 (archaeo-magnetic sample)[2]	AM231	c. 8.40–8.90 m NE, 5.90–6.30 m NW, -2.43/-2.50 m BBM	Burnt soil	n/a	AD 224–598 → c. AD 538–598?	Not plotted
F.129 (OSL sample)[3]	412–15.1.1	c. 8.81 m NE, 5.70 m NW, -2.58 m BBM	OSL sample	1426±163	AD 426–752 → c. AD 538–598?	Not plotted
F.129/1570	SUERC-63167	7.52 m NE, 7.05 m NW, -2.64 m BBM	Bone: Caprinae, rib, proximal medial, left side, not fused	1524±16	AD 432–596 (86%: 466–596; 76%: 532–596) → modelled date: 538–595	d13C= -18.7
F.117/1242	OxA-31615	8.03 m NE, 7.73 m NW, -2.84 m BBM	Bone: Caprinae, coxal, illium	1547±27	AD 425–573 → modelled date: 443–567	d13C= -19.34
F.156/1357	SUERC-63198	8.816 m NE, 7.056 m NW, -2.937 m BBM	Bone: Bos, caudal vertebra, complete	1553±33	AD 420–576 → modelled date: 444–567	d13C= -19.6
F.109/1032	OxA-31393	unrecorded	Bone: Sus, scapula	1534±31	AD 427–595 → modelled date: 443–573	d13C= -19.04
F.109/1011	OxA-31494	8.13 m NE, 5.07 m NW, -3.05 m BBM	Bone: Caprinae, rib	1653±37	AD 259–535 (91.7%: 324–535; 80.6%: 324–474; 77.6%: 324–436) → modelled date: 346–529 (84.2%: 346–472) (close to bedrock, even if not as deep as other early levelling samples, likely to belong to earlier levelling horizons)	d13C= -19.36
F.124/1040	OxA-31498	8.48 m NE, 3.25 m NW, -3.25 m BBM	Bone: Caprinae, cranium, petrosa	1657±31	AD 260–532 (92.5%: 325–532; 87%: 325–432) → modelled date: 342–530 (86.5%: 342–466; 86.0%: 342–434)	d13C= -20.23
F.191/1640	SUERC-63166	8.222 m NE, 4.195 m NW, -3.272 m BBM	Bone: Ovis, scapula, complete, left side	1618±18	AD 390–535 → modelled date: 391–530 (78.8%: 391–470; 74.0%: 391–438)	d13C= -17.9
F.191/1635	SUERC-74172	8.417 m NE, 4.12 m NW, -3.594 m BBM	Bone: Equidae, male, mandible with teeth, 1 canine, 3 incisive, left side	1590±18	AD 417–537 → modelled date: 411–527	d13C= -20.4
F.127/1065	OxA-31394	8.45 m NE, 3.89 m NW, -3.51 m BBM	Bone: Equus, hoof	1601±28	AD 401–538 → modelled date: 397–526	d13C= -20.9

[1] See chapter 24. Note that OSL dates are at 68.2% confidence.
[2] See chapter 23.7.
[3] See chapter 24. Note that OSL dates are at 68.2% confidence.

Table 2:2: Radiocarbon dates from the earliest levels.

Sample	*Unmodelled date (95.4%)*	*Modelled date, casemate only (95.4%)*	*Modelled date, casemate and sondage combined (95.4%)*
F.184/1603	AD 260–396	AD 327–398	AD 335–394
F.192/1634	AD 332–410	AD 336–408	AD 340–400

390s, modelled or unmodelled.) Unfortunately, there was no opportunity to excavate on the inside of the outer wall (F.058) to foundation levels. If future excavation should confirm that the deposits containing the earliest samples abut the outer wall, then the argument of the wall being not later than the AD 390s would gain strength. It is possible that the ground was levelled first, before the outer wall was built. Yet even if the outer wall should cut these horizons, the samples are still likely to post-date the start of construction works.

Could the outer wall have been built as early as the AD 330s or 340s, the earliest likely decades, to judge by the samples? The style of the outer wall (F.058), the parallel inner wall (F.013) and the two connecting walls (F.050 and F.059) is remarkably similar. Furthermore, we have already observed that it makes little structural sense to assume that the outer wall was designed as a stand-alone feature.[14] Since, as we will see, the most likely date for the earliest levelling horizon abutting the inner wall (F.013) is around the AD 410s–430s, it seems improbable that the outer wall could be almost a century older. On the contrary, one would assume that the construction date of the outer wall was late within the likely sequence of the 330s–390s, perhaps within the 390s or not long before. This would still suggest that the outer wall is at least a good decade earlier than the other three walls around the casemate (F.050, F.059 and F.013). Perhaps the outer wall was built first and the ring of rooms inside added over several years – starting perhaps on the eastern or northern side of the plateau.

All ten samples recovered on the north-east side of wall F.013 and sealed underneath the burnt horizon, of the mid-seventh to early eighth century (discussed in the next chapter), are late antique. Nine of the ten are definitely, and a tenth is probably, earlier than the burnt horizon, and we spotted no medieval or modern material. The pre-medieval layers in this part of Trench F are undisturbed. The north-east side of wall F.013 initially stood on bare rock. The uneven rock surface would have made pedestrian traffic on the inside of the perimeter difficult, and it is unsurprising that the irregular cavity between wall F.013 and the rocky slope was filled with soil and stones (with a higher proportion of stones towards the bottom) to create a level surface. This levelling horizon, soft brown sandy silt, was excavated in multiple spits:[15] F.124, F.126, F.127, F.149, F.152, F.153, F.154 and F.191.[16] Significantly, the three samples from the upper levels of this horizon are of a higher radiocarbon age than the two from the bottom. This observation, even if the calibrated date ranges of all five samples overlap, offers support for an interpretation as a levelling horizon (as does the fairly uniform colour and composition and horizontal layering of the soil on top of a sloping rock surface). The uppermost sample is a sheep or goat rib (F.109/1011)[17] of c. AD 346–529 (with an 84.2% chance of an AD 346–472 date). A cranium fragment (find F.124/1040), also of sheep or goat, found 20 cm deeper (and at 186 cm distance), dates to c. AD 342–530 (with an 86% probability of a date no later than AD 434). A scapula (F.191/1640) at a similar level, also embedded in the earliest levelling horizon, belongs to a sheep that perished in AD 391–530 (with a 74% chance of the date falling between AD 391 and 438).[18] Another 24–26 cm deeper, and very close to the bedrock, we found a horse hoof (find F.127/1065), dating to c. AD 397–526 (Figs 2:23–2:25). A fifth sample (F.191/1635), a further 8 cm deeper close to the bedrock (and 25 cm from the hoof), yielded a compatible date: c. AD 411–524. It was a mandible, also from a representative of the horse family.[19] The equid remains are interesting and may suggest, as attested for the eighth century,[20] that cavalry had been stationed here from the start. Equally the remains could have belonged to packhorses.

The well-known plateau in the radiocarbon calibration curve for much of the fifth to early sixth century prevents precision dating of the levelling horizon. It is worth noting, however, that two of the five samples (with or without modelling) are, with a high probability, no later than the AD 430s. The earliest levelling horizon to the north-east of wall F.013, however, appears to be later than that within the casemate. Two separate observations support this relative chronology:

1. The two radiocarbon samples from the earliest deposits in the casemate are both of a higher radiocarbon age than all five from the deepest levelling horizon on the opposite side of wall F.013.
2. The lowest levelling deposits in the casemate (containing the two probably fourth century samples) are cut by a construction trench (indicating that they are earlier than some of the fort walls or at least earlier than F.050) whilst there was no construction trench on the opposite side of F.013 (proving the levelling deposits here are later than the fort walls or at least later than wall F.013).

This makes perfect sense: it was more important to have a level floor within occupied rooms than outdoors. One







Figs 2:23–2:25: A horse hoof (find F.127/1065, immediately to the right of the 20cm-scale) close to the bedrock and wall F.013's mortar ledge foundations: one of the samples that enabled us to date the successive construction of the fort walls.

would not expect, however, that levelling indoors and outdoors occurred generations apart. Furthermore, there was no evidence for occupation debris having accumulated in the deep depression between wall F.013 and the bedrock before levelling. In part, this may be explained by the astonishing tidiness of the fort's late antique occupants, not practising much intramural rubbish disposal and leaving quantitatively and qualitatively only a small fraction of the material deposited by their early medieval successors. The absence of debris is worth noting nonetheless and suggests perhaps that the levelling horizon, abutting wall F.013, is not much later than the fort walls. An early date would also make practical sense. It would have been difficult to walk over the uneven bare rock prior to levelling. Levelling may thus have occurred not long after wall construction. If the levelling horizon to the north-east of wall F.013 dates probably to within the first third of the fifth century, then it seems improbable that levelling on the opposite of the same wall occurred much earlier than the late fourth century. Further circumstantial evidence for strategic interest in Dariali in the fourth or early fifth century is provided by a charcoal sample from the foundation layer of the ridge-top barrier one kilometre north of the fort. The sample (admittedly not certain to be young) dates with an 84.5% probability to between AD 321 and 431[21] – adding strength to our assumption that this part of Dariali Gorge was transformed into a fortification no later than the early fifth century.

At an earlier stage of the analysis, we thought that radiocarbon samples enabled us to date the likely start of construction works on the fort walls much more narrowly, *i.e.* to the AD 390s.[22] A dating proposal to a decade or less now seems too precise, and it is safer to allow for a longer window (probably within the late fourth century). This is not to imply that a start of construction works in the AD 390s is unlikely. Indeed, as outlined below,[23] the outer fort walls may well have been built before the end of the fourth century, with the ring of rooms added, as soon as possible on the inside, over the next few years or decades.

One of our Bayesian models provides an AD 394 *terminus ante quem* for the earliest sample, raising the question if construction had started just before the famous invasion of the Huns in AD 395. Were the fort and barrier perhaps still an unfinished building site at the time of the breakthrough? It is perhaps safer not to try to make the results fit the historical narrative or over-interpret the accuracy of our modelling. Historically, the invasion of the Huns of AD 395 – or the threat of such an invasion before it actually materialised – would indeed have provided a

compelling reason to invest in a fort blocking the invasion route in the future. We cannot be sure if construction works started before or after the invasion, but they are likely to have commenced around this time: either just before the famous incursion or a short time after. If it is accepted that the Huns indeed took the Dariali route on their way for what was arguably the most devastating northern invasion of the Near East for centuries, the question arises if a fast reaction is not more likely than a slow response. A start of construction works in the mid to late 390s makes sense historically and perfectly fits the archaeological findings. A start in the late 380s or early 390s, in anticipation of the threat, is possible too.

2.2.4. A second late antique building phase: mortar floor and porticus at the entrance to the casemate (Phase 3c–d)

The earliest levelling deposit north-east of wall F.013[24] lies underneath a mortar floor (F.173/F.195) at the base of the door opening (F.162) in wall F.013. Within the doorway, it overlies a patch of soft dark brown silty sand (F.193) with a high proportion of charcoal[25] and no other finds, directly over the bedrock – perhaps the remains of an early campfire or, in part, vegetation burnt down in preparation for fort construction. The mortar floor (F.173/F.195) in the doorway through wall F.013, on top of the levelling horizon, does not prove that the wall and the levelling horizon are contemporary. The door frame reached deeper and its bottom was later filled with the same levelling material used to raise the surface elsewhere, before the entrance area was provided with mortar floor F.173/F.195. It is possible that this was done shortly after wall construction or up to a few decades later. The mortar floor extended only some 20 cm beyond the doorway to the north-east. We did not excavate much of the fill of the doorway and do not know if it extended into the casemate. We found no trace of a mortar floor in our sondages within the casemate (whose late antique floor was at a much deeper level).[26] Perhaps the mortar surface was confined to the entrance, an area of heavy wear and tear. By contrast, the late antique F.004 building was provided with a mortar floor (F.205) throughout its interior (as far as excavated).

On top of the bedrock, just over 1.40 m north-east of wall F.013, we encountered a basic stepped and slightly worn paving (F.168) following the slope (Figs 2:26–2:27). Perhaps this was an access ramp or a basic form of stairs leading into the interior of the fort, used at an early stage. It cannot be later than deposit F.109/F.117 which built up around it, but we cannot tell how much earlier it may be.



Fig. 2:26: Late antique paving (F.168, with horizontal scale on top) between the two pillars (F.147 left and F.082 right) of the porticus. The vertical scale is in front of early medieval walls (F.110 and F.064). In the background, centre: the corner of a late antique building (F.004).

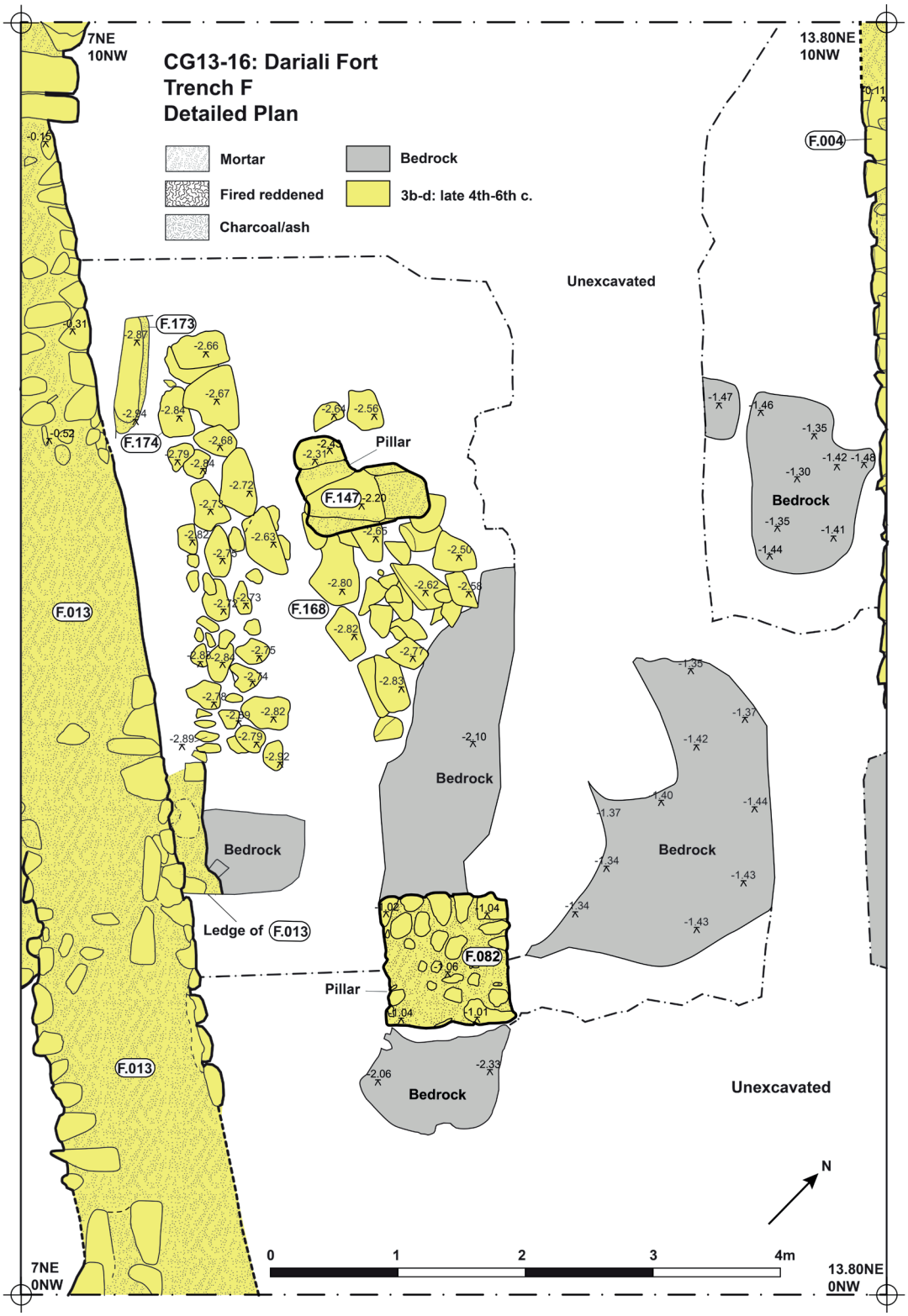


Fig. 2:27: Late antique structures to the north-east of wall F.013.

A further basic dry-stone structure, linear, c. 3.50 m long, parallel to wall F.013, two courses high in places (F.155 over F.174) and at a similar level to F.168, overlies the early levelling horizon (deposit F.149) and can be assigned to the fifth or sixth century. Its inner edge is c. 0.30–0.50 m from the north-east face of F.013, its outer edge, c. 1.00–1.10 m. One wonders what its function may have been: a (largely demolished) dry-stone wall so close to wall F.013 would have served no obvious structural purpose. It may be significant that it runs more or less parallel to wall F.013 and past its doorway, rising some 23 cm above the level of mortar floor F.173/F.195. North-east of it very soft greyish-green silty sand (F.156) built up – the green hue indicating that there had been standing water here. The two-course stone alignment (F.155/F.174) probably formed part of a mini barrage to prevent water from entering the casemate via doorway F.162.[27] The floor level in the basement of the casemate was some 45 cm below that of the entrance and without such measures it could easily have been transformed into a water pool after any episode of rain. Whether occupants dwelled here or perhaps on an upper storey, water infiltration would have prevented effective use of the basement even as a storage area. Deposit F.156 has yielded a date of c. AD 444–567. The cattle vertebra was found at a depth of -2.94 m. c. 15 cm east of dry-stone structure F.155/174.[28]

Apart from these structures, there are only a few in Trench F that can be attributed to Late Antiquity with confidence: they include a well-built square pillar F.082 (Figs 2:28–2:30), measuring one metre across and surviving to a height of 1.70 m. Three observations support a late antique date between the fifth and early sixth century:

1. Stratigraphy: built on the bedrock in the north-east, its base is (at the lowest exposed point) at 2.71 m below the site benchmark. Abutted by F.109 (levelling horizon 2), it cannot be later than the sixth century at the latest. Its base is 40 cm or more below the top of the burnt horizon (F.096). Burnt patches of F.096 extend to its vicinity, and there was no trace of any foundation trench cutting the burnt surface or

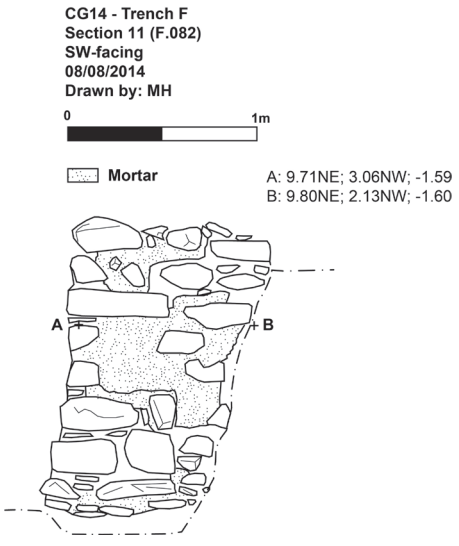


Fig. 2:28: South-west-facing side of pillar F.082: part of a late antique porticus and covered walkway.

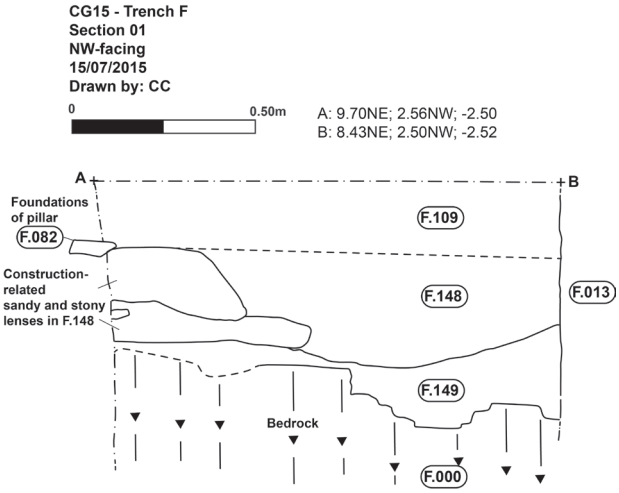


Fig. 2:29: Pillar F.082 (on the left), built on top of levelling horizons that abut wall F.013 (on the right), is clearly later. It is, however, not necessarily much later as the uneven bedrock would have made even pedestrian traffic difficult prior to creation of a horizontal walking surface – suggesting that levelling occurred very soon after, or even during, construction of wall F.013.



Fig. 2:30: Photo of the section shown in Fig. 2:29. Note also the ledge of wall F.013 (foreground, right) and (c. eighth-century?) tumble F.092 in the background.

F.109 – an observation that confirms that the pillar must be earlier than both deposits. It appears to be built on top of deposit F.148, within the lower part of the second levelling horizon, abutting the inner casemate wall (F.013). It must be later than F.013 and the entire casemates and earlier than the late sixth century.

2. Masonry style: the pillar's stones, in neat and regular rows, are bonded by and covered by a layer of mortar. In style, the wall is similar to late fourth/fifth-century walls, such as F.013, F.050, F.004 and F.059, rather than medieval dry-stone walls, such as the eighth or ninth-century wall F.110, which abuts the pillar. This observation would support a late antique date.
3. Two further pillars in Trench Q are likely to be part of the same scheme. Stratigraphy and samples point to construction of the Trench Q pillars no later than the early sixth century and more probably in the early fifth century.[29]

A second structure in Trench F (F.147) is likely to be a pillar as well, if less well-preserved (Fig. 2:31). It measures 0.96 m across and was probably square originally. Built on top of levelling deposit F.109, its base being at a slightly higher level, it may have been erected after pillar F.082 (but probably soon after). If we are right in thinking that deposit F.109 is part of the second levelling horizon, deposited on a single occasion, then the construction of both pillars and the second operation to raise the surface level in the area are all part of a single construction project. The distance between pillar F.082 and its likely counterpart (F.147) is 2.75 m, edge to edge. F.082 is 1.40 m inside wall F.013 (and a little further away on its north-west side), the other probable pillar (F.147) further north-west, c. 1.53 m – not perfectly parallel to wall F.013, but not far off. The pillars were probably part of a colonnade supporting arches and/or a timber roof. Perhaps there was a covered walkway and veranda behind the casemate. The (continuous?) line of pillars running from Trench F to Trench Q and probably beyond and all around the inside of the double fort walls, not to mention Dariali's humid climate, point to a roofed walkway rather than the pillars supporting balconies. Pillar F.147 rested on sediments, as appears to be the case for the deeper foundations of pillar F.082 in the south-west (unlike most other late antique mortar walls which were built on the bedrock throughout). If the pillars were designed to carry no more than the wooden roof of a veranda, they would not have required the same solid foundations as the fort walls or the walls of potentially multi-storey



Fig. 2:31: Wall F.013 (left) is lined by pillars: F.082 (marked with scales) and F.147 (largely demolished behind). There was a roofed porticus on the inside of the ring of rooms lining the fort walls, here as well as in Trench Q.

internal buildings. The second levelling horizon buried the basic stairway (F.168) as well as dry-stone structure F.155/F.174. We do not know how rain-water falling on the postulated roof of the porticus was collected at this stage and prevented from forming a pool in this low-lying area and from flooding the casemate.

Pillar F.147 is overlain by a substantial early medieval rubbish deposit (F.070) and appears to have been largely demolished by the eighth century at the latest, whilst its counterpart F.082 was left standing. Perhaps the roof of the portico burnt down in the mid-seventh to early eighth century, leading to the formation of the burnt horizon (F.096) to be discussed in the next section[30] – rendering the pillars redundant. Any defunct pillars or walls will have provided sought-after building material. Whilst stone was available in unlimited quantities in Dariali Gorge, reuse was easier than carrying heavy boulders up the steep slope. The destruction by fire and collapse of the roof, resting on the pillars, may of course also have damaged these stone structures, even if at least the lower sections of F.082 seem to have survived without much damage. A possible clue to the reasons for the south-eastern pillar's survival may be provided by the early medieval wall (F.110) abutting it. Pillar F.082 appears to form a buttress for this wall. F.110 may have been a wall following the natural slope, hence its curving alignment. Without pillar F.082, wall F.110 would have been unstable – unless extended to join wall F.013 and thus blocking pedestrian traffic. Pillar F.082 thus may have been reused to provide stability and to leave a 1.40 m wide passage alongside wall F.013. Wall F.110 was erected on top of eighth-century occupation layers. If we are right in thinking that pillar F.082 was at least two centuries earlier than wall F.110 – and potentially even three, four or over four centuries earlier – the pillar was an existing feature reused as a buttress for the early medieval wall F.110, rather than having been built for that purpose. The pillars originally appear to have formed part of a covered walkway, built on a level surface that would have much facilitated movement along the passage. The above-cited Trench Q parallels and the observation that they are stratigraphically later than the earliest levelling horizon in Trench F (whose youngest sample provides a modelled *terminus post quem* of AD 411) suggest that the porticus was built between the AD 410s and 530s, but the most likely construction period is between the AD 410s and 430s.

2.2.5. A second phase of levelling (Phase 3d–f)

The early levelling horizon and mortar floor F.173/F.195 provided a walking surface, but at some stage it was decided to raise the floor surface again. Just like the earlier horizon, the deposits (F.109 and F.117) piled up on top were layered horizontally. Two samples have been dated from this levelling horizon. A third, from F.156 and already discussed, might be earlier, but has been included in the same phase, as the bottom of the second levelling horizon (F.109 and F.117) reached down to a similar level, and there is no certainty as to the relative sequence. All three samples are securely stratified beneath F.129. Of these three, one sample (of c. AD 443–573) has been recorded by context only and its relative position to the other two cannot be securely determined. The upper of the stratified samples dates to c. AD 443–567 and was found at a depth of 2.84 m below the site benchmark. The most likely date for this horizon falls between the AD 440s and the 560s or 570s. Horizontal layering, variable and often sandy composition of the soil, and the overall low proportion of organic material, all point to this being a levelling horizon, rather than a gradual accumulation of occupation layers.

Unsurprisingly, as one would expect in the case of redeposited soil, there are many shades of brown and grey, but overall the levelling horizons seem quite uniform, in soil colour composition and horizontal layering. This applies to the deposits/spits within one phase, as well to inter-phase comparison for main horizons. The deposits from levelling horizon 2 (c. mid-fifth to mid-sixth century) are similar to those of phase 1 (c. early fifth century). The higher quantity of finds from horizon 2 (phase 3d; see Table 2:3) reflects greater volume rather than higher density. The absence of rich organic layers suggest that this was not an area of intensive occupation, nor a rubbish dump, in Late Antiquity.

At the top of the late antique sequence are deposits of lesser volume, F.129 (c. last two thirds of the sixth century) and F.134 = F.138 (c. first two thirds of the seventh century). F.129 contains traces of fire-reddening. Radiocarbon dating from a bone sample (F.129/1570) within the deposit yielded a likely *terminus ante quem* of c. AD 595 – very close to the archaeomagnetic *terminus ante quem* of c. AD 598 (AM231).[31] We observed two burnt horizons also at the edge of the doorway (F.162) (at c. -2.62 m and -2.44 m); the lower of these is best attributed to the patchy lower burnt horizon. It is unclear what had caught fire, and there is nothing to suggest it caused any major damage. This burning event is unrelated to a second and more extensive conflagration in the mid- to late seventh century that led to much more intensive fire-reddening higher up in the sequence (F.096);[32] there were fewer patches of fire-reddening in F.129, yellowish to reddish light brown sandy silt, F.129 is at a deeper level and the radiocarbon sample is more than half a century (between c. 52 and 170 years) earlier than those from F.096. Sample F.129/1570, from the lower levels of F.129, predates the mid- to late seventh-century conflagration by generations. It is unclear whether or not these deposits are successive levelling horizons. F.134/F.138 (underneath the mid-seventh to early eighth century burnt horizon, F.096), soft mid greyish brown sandy clay, may contain a higher proportion of washed-in material to judge by its clayey composition. Its top elevation is in places as high as -2.39 m, in places as low as -2.54 m, its bottom is at c. -2.68 m. This is clearly still part of the late antique

Table 2:3: Finds from the late fourth or fifth to mid-seventh-century deposits abutting wall F.013 and sealed under the mid to late seventh-century horizons (quantities in grams).

Levelling horizon	*Deposits/spits*	*Bone*	*Pottery*	*Other finds*
4 (phase 3f)	F.134 and F.138[1]	3,380.0	1,131.0	Charcoal, 719 g ceramic building material and glass
3 (phase 3e)	F.129	375.7	876.5	Charcoal and glass
2 (phase 3d)	F.109, F.117, F.148, F.158 and F.167[2]	13,503.5	6,764.3	Charcoal, ceramic building material, copper alloy, worked bone, whetstone and gaming piece
Transition 1–2 (phase 3c-d)	F.156 and F.180	631.8	554.3	Charcoal
1 (phase 3c)	F.124, F.126, F.127, F.149, F.152, F.154 and F.191[3]	4,687.1	1,912.0	Charcoal, copper alloy and glass slag
Total	**n/a**	**22,578.1**	**11,238.1**	**n/a**

[1] The pottery includes a ceramic disk.
[2] Excluding F.140 and F.159 with no recorded finds.
[3] Excluding an additional 322 g of bone and 27 g of pottery from F.153, as potentially containing redeposited spoil.

sequence. A radiocarbon-dated bone sample from -2.60 m, of c. AD 603–668, proves that formation of this soil horizon continued into the seventh century, whether formed in its entirety after AD 600 or partially shortly before.

2.2.6. A tidy garrison: the quantity of late antique finds (Phase 3c–f)

The quantity of finds from these independently dated late antique layers was overall comparatively small, as Table 2:3 demonstrates. Even if one adds the material from the certain late antique contexts in the (selectively excavated casemate) and in the F.004 building, there is just 28,579 g of bone and 17,388 g of pottery – c. 3.85% of the bone and c. 2.82% of the pottery recovered from Trench F. This includes, of course, much unstratified material from the top, whilst in many areas excavation stopped at medieval levels. The proportion of late antique deposition will not have been quite so low. A perhaps more realistic picture for the first millennium is provided by the sondage between walls F.013 and F.064/F.110 where everything was excavated down to the bedrock.

The proportion of finds from late antique deposits here amounts to 7.65% of bone and 5.63% of pottery (Table 2:4) – excluding late medieval and modern levels and probably even the end of the first millennium. The proportion of late antique material on Dariali Fort may be somewhere between the higher figures from the sondage and the lower figures from the trench overall, perhaps roughly 5% of all finds.

The depth of the sequence sealed underneath the burnt horizons amounted to around one metre. It should be noted that pre-medieval layers only reached one metre thickness at the deepest points of the sondage where they filled fissures in the bedrock next to wall F.013, and considerably less where the bedrock was rising further north-east. Due to the unevenness of the bedrock, soil volume is hard to quantify, but the density of finds in late antique horizons was noticeably lower than in the early medieval layers.

The uniformity of the late antique assemblage in terms of dates indicates that it is not a mixture of redeposited material from a wide variety of different periods. It is neither sterile soil nor material rich in organic matter. The most plausible explanation is perhaps that it all derives from the late antique occupation of the fort, but was sooner or later levelled to create a terrace, raised in successive stages, hence the relative levelness of the burnt horizons above.

2.2.7. Life in the shadows of the late antique fort walls: the interior of the casemate (Phase 3a–f)

One of the rooms within the double ring of fort walls around the plateau was entirely within our trench. It was enclosed between the outer fort wall (F.058), the parallel inner wall (F.013) and the two connection walls (F.050 and F.059). A door and window in wall F.013 provided access from the interior of the fort, light and ventilation. We found no trace of doors connecting it to neighbouring rooms, whilst traces of a vertical joint in the outer wall might be insignificant or potentially part of a postern gate walled up later.[33] This indoor living or storage area had the potential to shed light on how the fort occupants lived. Ideally, it would have been desirable to excavate the room in its entirety down to the natural bedrock. As excavation progressed, we noticed, however, that the central parts of wall F.013, between the door and window opening, leaned towards the inside of the room. We stabilised it with timber shoring and confined deep excavations in the interior to sondages. A sondage in the centre of the room provided detailed insights into the Early Middle Ages,[34] but it was only in a second sondage (of 1.50 m × 2.50 m) in the

Table 2:4: Finds from late antique to early medieval layers in the sondage between walls F.013 and F.064/F.110 (quantities in grams).

Phase	*Bone*	*%*	*Pottery*	*%*	*Ratio (bone:pot)*
5b–c: 9th–10th-c. contexts	132,761	44.95	80,230	40.17	1.65
5a: 8th-c.-early 9th-c. deposits	126,401	42.80	101,102	50.62	1.25
4: mid 7th–early 8th-c. deposits	13,586	4.60	7,150	3.58	1.90
3: late antique deposits	22,578	7.65	11,238	5.63	2.01
Total	**295,326**	**100.00**	**199,720**	**100.00**	**1.48**

eastern corner of the room that we excavated deeper and reached the natural bedrock (Figs 2:32–2:34).

It was this sondage that shed light on fort construction and the earliest occupation of the room. Walls F.013 and F.050 had been built on top of the natural rock (as probably also all other fort walls). Sterile mid greenish brown silty sand (F.194) on top of the bedrock appears to be natural soil filling cavities in the bedrock, probably left in place during clearance operations. The greenish hue is perhaps a sign of later standing water. On top of this geological horizon, we found what appear to be levelling layers of c. 70 cm depth combined: from bottom to top, F.192, F.188, F.184, F.181 and F.177. Composition and colour varied, from clayey silt at the bottom (F.192 and F.188) to silty sand (F.184) and sandy silt (F.181 and F.177) at the top. Dark brown at the bottom and the top, the middle three deposits were less organic with a greyish or yellowish hue. Huge stone boulders are embedded in F.188, whilst F.184, F.181 and F.177 abut an alignment of three courses of large stones (F.182) in the south-west. The layers are sufficiently different to suggest that the material did not all come from a homogenous source. Yet, there were no sharp context boundaries, suggesting that no distinct separate events (*e.g.* phases of occupation interspersed with natural sedimentation, artificial levelling, etc.) led





Figs 2:32–2:33: A sondage in the eastern corner of the casemate was excavated down to the bedrock.

to the formation of the sequence. The heterogeneous composition may simply be the result of material being brought from a variety of sources, which would also explain the presence of large stones. It certainly seems as if this happened within a limited span of time. The two radiocarbon samples date to the fourth century and one of them potentially to the early fifth. The lower sample (F.192/1634) is likely to be later than the mid AD 330s, the upper (F.184/1603), probably no later than the late AD 390s (Table 2:5). These deposits were not occupation debris that had built up over centuries but over just a few years or even months (or at most some 60 years). The overall quantity of bone and pottery (a little over 3 kg each) is modest. The lower two deposits contained much more bone than pottery, whilst the reverse is true for the top three. As normal in late antique deposits, there were few unusual finds, a quernstone (F.181/1596) and a possible stone net weight (F.177/1494), the latter made of a simple pebble, perhaps being the most remarkable.[35] Bone, pottery, charcoal and the quernstone for food processing, all point to the redeposition of occupation debris. It seems perfectly possible that the relatively small quantities of pottery, other artefacts and bone could be from vessels broken during the construction works and food consumed at the time.

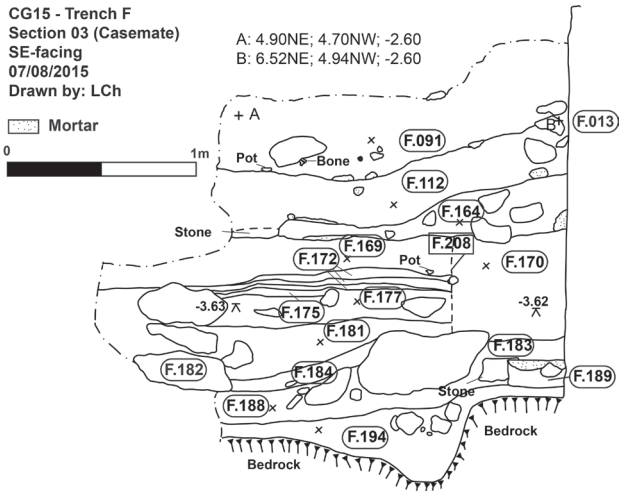


Fig. 2:34: The sondage in the east corner of the casemate yielded some of the earliest radiocarbon samples from the top of the plateau. (x-symbols mark the location of archaeobotanical samples: see chapter 22.2.)

These early deposits, probably levelling horizons, are cut by two trenches: the first (F.207) ran parallel to the wall F.050 and was some 30–40 cm wide. It had been cut from the top of F.177. The second (F.208), running parallel to wall F.013, truncates the first trench (F.207), was cut from a higher level, yielded an early medieval sample (as well as a re-posited late antique sample) and will be discussed below.[36] The first trench (F.207), by contrast, appears to be much more ancient. It probably was the foundation trench for wall F.050, indicating that the levelling deposits are (marginally?) earlier than this wall. This foundation trench may well have turned a corner, to enable the construction of wall F.013, but an early medieval trench alongside wall F.013 would have erased any trace of it. It appears that the ground was levelled first (shortly?) after the erection of the outer walls, but before the erection of the abutting room units. It is worth noting that the top of the highest

Table 2:5: Radiocarbon dates from late antique deposits in Trench F on Dariali Fort, from within the casemate to the south-west of wall F.013 (BBM = below benchmark) (see Fig. 2:22 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
F.175/1472	SUERC-63199	5.812 m NE, 3.393 m NW, -3.625 m BBM	Bone: Caprinae, tibia, medial distal, left side, fused	1579±33	AD 406–553 → modelled: 407–552	d13C= -19.2
F.184/1603	SUERC-63175	5.161 m NE, 3.600 m NW, -4.257 m BBM	Bone: Small ruminant, cranium, frontal part	1699±15	AD 260–396 (85.8%: 325–396) → modelled date: 335–394 (casemate and sondage combined)/327–398 (casemate only)	d13C= -20.1
F.192/1634	SUERC-63176	5.222 m NE, 3.636 m NW, -4.306 m BBM	Bone: Capra, humerus, medial distal, left side, fused	1680±17	AD 332–410 → modelled date: 340–400 (casemate and sondage combined)/336–408 (casemate only)	d13C= -20.3

deposit within the early levelling horizon (F.177) is at a similar level to the deepest bedrock to the north-east of (slightly later?) wall F.013. This is important, as it may explain why there is no trace of the early levelling horizon extending beyond the north-east face of wall F.013.

The lower fill (F.190) of the foundation trench (F.207) for wall F.050 consisted of loose light grey silty sand, and was rich in mortar and virtually devoid of finds. The upper fill (F.178), soft mid greenish brown sandy silt, yielded a much richer assemblage – evidently redeposited occupation debris. The greenish discolouration may signal that the material brought in to raise the floor level may have contained sewage or may have been affected by water-logging.

Arguably the most interesting find from ancient levels within the casemate came from this deposit (F.178, the upper fill of the foundation trench for wall F.050). This late fourth (or possibly early fifth) century deposit yielded a three-winged arrowhead (F.178/1504), the only one from a certain pre-medieval context (Table 2:6).[37] The arrowhead, probably lost during construction works, will have been part of the arsenal of the garrison (or potentially an enemy missile) – whether it belonged to the occupants of the room or had been lost elsewhere and brought in with material from outside to raise the floor.

Both the foundation trench for wall F.050 and levelling deposit F.177 were sealed by a floor horizon (F.175) of soft mid greyish brown sandy silt. A bone sample (F.175/1472) dates to the fifth or the first half of the sixth century. Unless it is redeposited, it suggests that this floor is of a similar age to levelling horizon 1 or 2 outdoors, on the opposite side of wall F.013. As it is the deepest trampled floor horizon, an early fifth-century date (potentially corresponding to the first levelling horizon outdoors), shortly after wall construction, is perhaps most likely. A rich archaeobotanic assemblage from this floor horizon, containing millet, rye, barley and, in lesser quantities, free-threshing wheat and emmer, probably attests indoor food consumption (and/or preparation).[38] A second packed floor surface (F.172), immediately on top of the earlier floor (F.175), consisted of light yellowish brown silty sand and was c. 5–12 cm thick. We tentatively identified three bands of soil within, differing in colour, perhaps successive floor horizons. Only a small quantity of finds, and more pottery than bone, was embedded in these floor levels and there were no contemporary indoor occupation layers – suggesting that occupants were tidy and tended to dispose of rubbish outdoors. We have no independent dates for F.172, but it must be later than F.175. One is inclined to think that it still belongs to the pre-medieval occupation of the casemate, being right on top of the earliest floor with similar tidy conditions prevailing – a possible sign of a continuity of tradition and rubbish disposal practices. The trampled earth floor in the basement of the casemate, with only the entrance (F.173/F.195) provided with mortar flooring, differs from the F.004 building's basement with a neat mortar floor throughout the interior. Perhaps the casemate's original occupants (garrison members guarding the perimeter?) were of a lesser status than those of the internal housing. Perhaps there is a practical explanation for lower-quality flooring downhill: the casemate's low-lying basement was (unlike that of the F.004 building on the hilltop) at potential risk of surface water entering via its door, perhaps an incentive to move permanent living quarters upstairs and to use the basement for the storage of non-perishable items, workspace or temporary

Table 2:6: Finds from the late fourth or fifth to mid-sixth-century deposits in the casemate (quantities in grams).

Levelling horizon	*Deposits*	*Bone*	*Pottery*	*Other finds*
3 (phase 3d-5b: 3d-f?)	F.172	45.2	266.4	Charcoal and small glass sherd
2 (phase 3d)	F.175	218	576.9	Charcoal and small glass sherd (0.5 g)
Transition 1–2: fill of foundation trench for wall F.050 (phase 3b-d)	F.178	2,525.4	1,511.2	Charcoal, small glass sherd and iron arrowhead (6.0 g after restoration, 8.6 g before)
	F.190	8.7	98.3	Small glass sherd
	Total	2,534.1	1,609.5	n/a
1 (phase 3a)	F.177	564.9	1,204.4	Charcoal and worked stone, including possible stone net weight
	F.181	249.7	471.9	Charcoal and quernstone
	F.184	275.2	593.9	Charcoal
	F.188	1241.6	712.9	Charcoal and 11.7 g ceramic material
	F.192	819.7	211.7	n/a
	Total	3,151.1	3,194.8	n/a
Total	**n/a**	**5,948.4**	**5,647.6**	**n/a**

accommodation. Yet its tidy occupants have left no clear clues how precisely they used the space.

2.2.8. A tall building on top of the rock (Phase 3c–d)

It was in the northern corner of the trench that a substantial mortared wall (F.004) of this hilltop building has been uncovered (Figs 2:35–2:37). The layers abutting it on the inside and outside have been excavated down to its foundations on bedrock. In the north-east and north-west, the wall (F.004) continues into the baulk of the trench. The wall forms the corner of a building of unknown dimensions. Abutted by early medieval deposits on the outside, in the south-west and in the south-east, we first thought it was an early medieval construction as well. Excavations on the inside proved it to be more ancient. Below a sequence of, mostly medieval, contexts (discussed below)[39] we eventually reached a neat and level mortar floor (F.205), 3.5 cm thick, built on a levelling deposit (F.206) on top of the bedrock. This levelling deposit contained 341 g of late antique pottery,[40] 551 g of other ceramic material and charcoal, but no animal bones. A sample of birch charcoal (F.206/1714) yielded a date of c. AD 421–567 (Fig. 2:38; Table 2:7). Sealed firmly beneath the mortar floor, it provides a *terminus post quem*. It was not possible to identify what part of the tree the charcoal sample was from, whether sapwood, a young branch or an old core. In theory, the felling date of the birch tree could be more recent than the above date, but (based on parallels for associated architecture discussed below) it seems much more likely that it was within this range and probably towards the beginning of it.

Eventually, the mortar floor F.205 was covered with soft mid bluish grey clayey silt (F.204) containing no more than 52 g of bone, 162 g of pottery and charcoal (Table 2:8). A sheep or goat femur (F.204/1711), found within this deposit and just 4–5 cm above the floor, dates to c. AD 357–531, and, with an 85.6% probability, is no later than AD 432 within this range. Bayesian modelling produces a poor agreement with the sample from under the mortar floor, and there is a strong probability that the bone was redeposited. This makes perfect sense. There would have been little point in crafting a neat mortar floor, and then to cover it immediately with rotting food waste and soil. If Dariali Fort's late antique occupants did not dump rubbish indoors (as far as we can tell) in the casemate, on a mere earthen floor, or even outdoors to the north-east of wall F.013, why should they have acted differently on the nicest floor found to date within the fort? The bone from above the mortar floor – as most bones from late antique layers elsewhere within the fort – will have been embedded in a levelling horizon (F.204). Admittedly,



Fig. 2:35: The building (F.004) in the right (northern) corner of Trench F occupied high ground. Built in Late Antiquity, the slate floor inside is almost a millennium later – evidence for the quality and durability of late antique architecture.

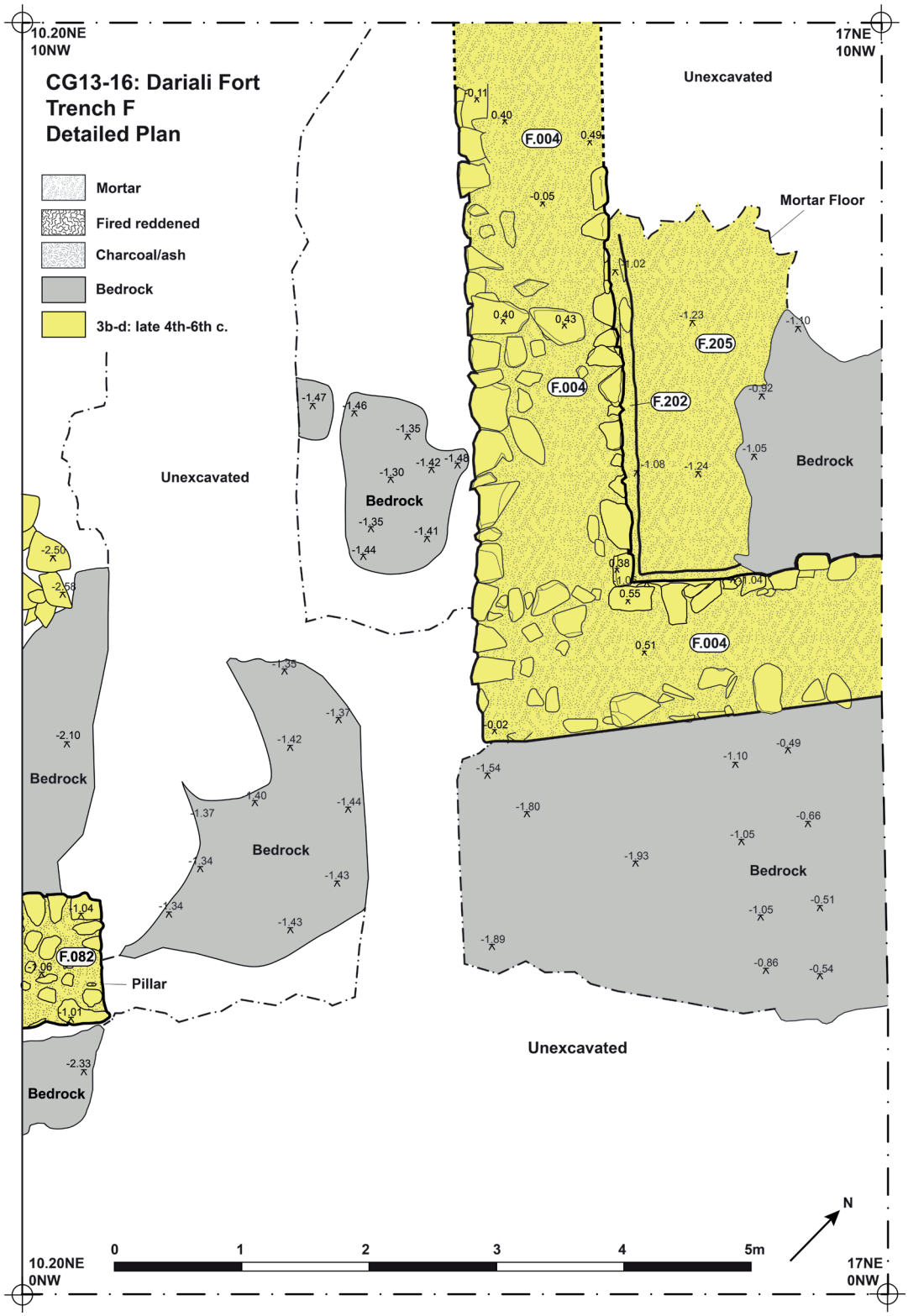


Fig. 2:36: Plan of wall F.004, forming the corner of a substantial late antique building, and the mortar floor (F.205) inside.

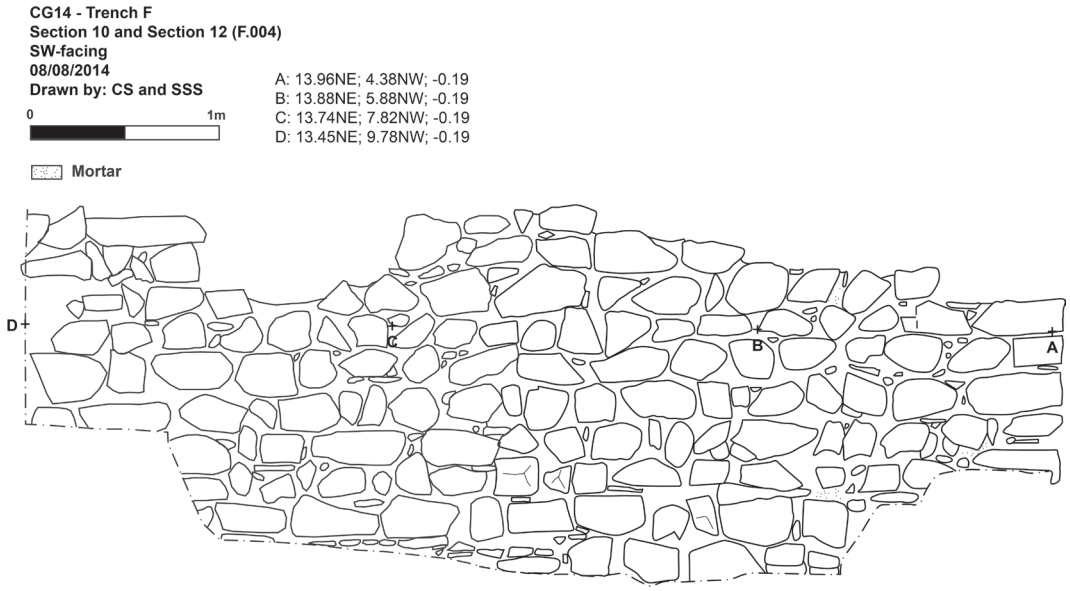


Fig. 2:37: The south-west-facing side of wall F.004.

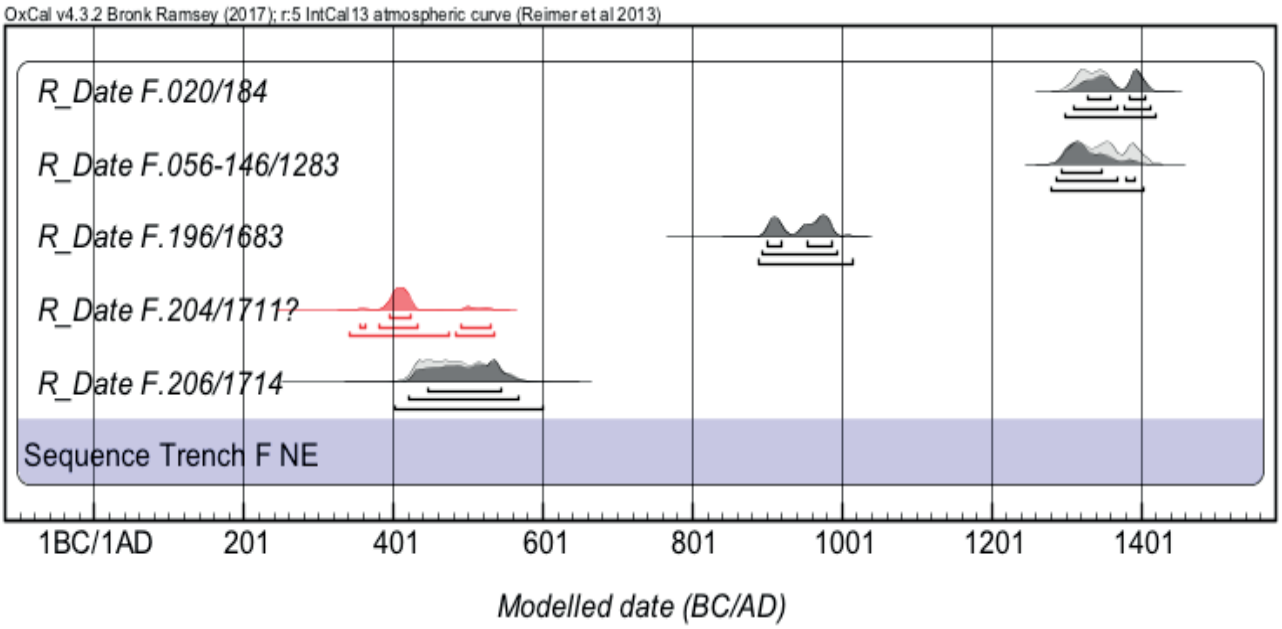


Fig. 2:38: Bayesian model of samples recovered from within the F.004 building. An outlier (perhaps redeposited from earlier levels) is marked in red (see Tables 2:7, 2:11 and 2:26 for further details).

redeposition of the bone within deposit F.204 cannot be dated with precision. As with mortar floor F.205, it cannot be earlier than the AD 420s. Assuming the floor remained in use for at least a few decades and at most for three centuries or so until Dariali's (new?) early medieval garrison started disposing of much more rubbish in the intramural space, any date between the later fifth and the eighth century seems possible for the burial of the floor under debris (F.204). Similarly, the date of the next deposit in the sequence (F.200), soft mid greyish brown clayey silt is uncertain. It contained c. 35–40% stones (as opposed to just 5–10% in F.204) of up to 30–50 cm diameter. Wall F.004 evidently remained standing until the fourteenth century and probably beyond,[41] and it seems more likely that the stones were brought in to raise the surface rather than being the result of the wall beginning to collapse. Whether F.204 and F.200, the deepest deposits above the floor, were still late antique or potentially belonged to the ancient-medieval transition or the Early Middle Ages, the nature of use of the building appears to have changed afterwards. The ceramic assemblage from F.204 and F.200 is of late antique appearance,[42] suggesting that it was indeed before the end of Antiquity or not long after that the floor was raised.[43]

Table 2:7: Radiocarbon dates from late antique deposits within the F.004 building in Trench F on Dariali Fort (BBM = below benchmark) (see Fig. 2:38 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
F.204/1711	SUERC-71943	15.23 m NE, 6.60 m NW, -1.19 m BBM	Bone: Caprinae, femur	1633±18	AD 357–531, 85.6%: 357–432, 84.8%: 381–432 (outlier in model; perhaps redeposited - even if early 5th century date compatible with similar mortared walls)	d13C= -19.5
F.206/1714	Poz-89859	15.50 m NE, 8.00 m NW, -1.39 m BBM	Charcoal: Betula	1564±30	AD 419–560+ (sample not certain to be young, but not likely to be old as sample above earlier) → modelled date: 421–567+	d13C= -29.4

Table 2:8: Finds from late antique deposits within the F.004 building (quantities in grams).

Horizon	*Deposits*	*Bone*	*Pottery*	*Other finds*
Possibly late antique deposit (phase 3d-5c: 3d-e?)	F.200	136.2	409.8	n/a
Layer covering floor, perhaps still late antique and certainly containing a late antique sample (phase 3d or later)	F.204	52.4	161.7	Charcoal
Layer sealed under mortar floor (phase 3d)	F.206	0.0	340.8	Charcoal and 551.2 g CBM
Total	**n/a**	**188.6**	**912.3**	**n/a**

Most bones from levelling horizons within the fort, however, form a neat chronological sequence – evidence that the material used to raise floor surfaces was mostly of recent origins rather than dug-up mixed material of a variety of ages. If indeed there was little, if any intramural rubbish deposition in the fort prior to the Middle Ages there may, furthermore, have been no opportunity to excavate and redeposit much older assemblages. The (probably late fourth or early fifth-century) sheep/goat femur (F.204/1711) is of a similar age to some of the material within the earliest levelling horizon to the north-east of wall F.013 and may have come from a similar source. The clayey nature of the deposit suggests that the probable source was an area in the interior of the fort, where standing water had formed puddles and alluvial sediments. Few late antique bone samples were found redeposited in early medieval layers, and we may conclude that the femur adds strength to our assumption that deposit F.204 and the floor underneath is late antique. The scarcity of late antique material from medieval layers (not to mention that the latter often yield a much higher quantity of finds) suggest that the levelling occurred within the late antique era. If we accept F.204 and F.200 as late antique layers (and this is far from certain), then there is still only 189 g of bones and less than one kilogram of ceramic material from the interior of the F.004 building – further circumstantial evidence to suggest that Dariali Fort's pre-medieval garrison tended to dispose of rubbish well away from their living quarters. It was only at a higher level (-1.05 m in relation to the site benchmark, 18 cm above mortar floor F.205 and 14 cm above sample F.204/1711) that we found the base of a typically medieval dry-stone wall (F.198) – potentially suggesting (if not proving) that some soil (F.204) built up on top of the mortar floor before the end of Antiquity, perhaps in the sixth and/or seventh centuries.

Deposit F.204, probably containing redeposited material, provides no more than a possible late antique *terminus ante quem* for mortar floor F.205 and the F.004 building. Stronger evidence is provided by comparing the architectural features uncovered with dated parallels. The masonry technique of the inside face of wall F.004 (Figs 2:39–2:41) closely resembles that of the outer fort walls and the walls of room units abutting it. The latter have been assigned,

based on radiocarbon dating of samples from associated deposits, to the late fourth or possibly the early fifth century. The similarities between wall F.004 and the double-ring of fort walls are as follows:



Fig. 2:39: The mortar floor (F.205) between wall F.004 (right and background) and the bedrock (left).

- Excavation of the interior face of F.004 revealed that the wall face was plastered over and covered in mortar (just as the walls of the defensive circuit, F.013, F.050, F.058 and F.059), even if there was little sign of plaster covering of the outside face (or the upper sections inside), probably destroyed through prolonged exposure to wind and weather.
- Strong grey mortar was used as a bonding agent.
- There is a mortared ledge (F.202) near the base (as also observed on late antique walls F.013 and Q.102).
- Like the other late antique walls, it was built on the bedrock.
- At c. 1.08 m width, it is of similar dimensions to other probably late antique walls of internal buildings in Trench Q. Late antique walls F.013, F.050, F.058 and F.059 are even more substantial, but this observation need not prove a different date, as width is never uniform, and the walls differed in function: walls F.013, F.050, F.058 and F.059 were part of the defensive perimeter, whereas F.004 probably formed the outer wall of an intramural building.
- Its two rectilinear segments meet at a right angle, geometric planning that is paralleled in other late antique monuments.

Admittedly, the last three characteristics provide less compelling dating criteria than the first three. Late eighth or ninth-century (dry-stone) wall Q.004 is rectilinear for more than four metres, before starting to curve, and is only a little narrower than F.004, whilst tenth-century wall F.014 is of a similar width to F.004. Some early medieval walls (or segments thereof) are also built on bedrock, notably where the stratigraphy is shallow. Geometry, width and foundations on bedrock are paralleled by a higher proportion of late antique than early medieval





Figs 2:40–2:41: There was a ledge between the mortar floor (F.205) and the wall (F.004). Both display the typical late antique plaster-covered masonry style (lost in the upper courses due to prolonged weathering).

walls, but not exclusively so. By contrast, in four years of excavations we failed to find a single medieval structure employing mortar – persuasive evidence to suggest that wall F.004 is unlikely to be an exception. The masonry style (*i.e.* the plastered over wall-face and the provision of a ledge) adds much strength to our dating proposal, as do the two early radiocarbon samples from the bottom of the sequence in the interior.

Despite being abutted by early medieval deposits down to the bedrock on the outside, the F.004 building is clearly much older than the Early Middle Ages. It is probably just a little younger than the late antique fort walls. The later date of the deposits abutting it on the outside is likely to be the result of the fort's heavy early medieval occupation, when occupants appear to have cleared soil down to the bedrock in selected areas. Unprotected by sediments, plastering on the outside of wall F.004 has weathered away, exposed to the elements for centuries.

The listed architectural parallels suggest that the same architects or masons may have erected the double-circle of fort walls and the F.004 building. Even if different working parties or generations should have been involved, they certainly followed the same traditions and style. This is no proof for wall F.004 being contemporary to the fort's outer wall circuit and the ring of rooms inside. Logically, it would have made sense to build the defences and room-lined fort walls first, before constructing additional housing in the intramural space. The birch charcoal sample makes a date prior to the AD 420s for the earliest levelling (F.206) and the mortar floor (F.205) unlikely. Both are, of course, later than the wall (F.004), whether by as little as a few days or as much as a generation. We have argued above that a few years may have passed between the construction of wall F.013 and the earliest levelling on its north-east side. It is possible that there is also a gap between the construction of wall F.004 and the internal levelling and mortar floor. Little would be gained by speculating further as to how much or little time may have passed between the construction of the double-ring of fort walls and that of the internal F.004 building – and how much or little time after that, until the latter building was provided with mortar floor F.205. All three stages follow the same tradition, and one is inclined to think that all would have been accomplished between the late fourth and first third of the fifth century, and within the lifespan of the some of the late antique fort's earliest occupants, perhaps under the guidance of the same group of masons.

F.205 may be the neatest and nicest floor unearthed so far within the fort, but it covered little usable space between a steeply sloping outcrop of bedrock and wall F.004 in the basement of the building. The care that was taken to provide even this narrow basement room, just 80 cm wide in places, with level flooring is perhaps a sign of how valuable space was within the strategic hilltop fort. Whilst preserved to a height of only 1.95 m today, wall F.004 may have been a tall construction, as it is overlooked by an outcrop of bedrock, rising to its highest point to the north-east of the trench. There would not have been much usable space at any level below the top of the rock. The main storey(s) of the building must have been above the top of the rock and above modern surface levels. We cannot be sure how high the building would have been. At the very least, there will have been one storey above the narrow basement and the rock summit. But there is no reason why the solid walls should not have supported a double or multi-storey building, making the most of the limited intramural space. If F.004 was the outer wall of a tall building, then firmly anchoring its base on the bedrock would have made sense and significantly reduced the risk of collapse. Similarly, the double-ring of fort walls was (as far as excavated at least) built on bedrock, presumably rising to much greater height than late antique pillars (F.082 and F.147) resting on sediments, but not likely to have supported more than the roof of a walkway. Admittedly, there is a chronological difference too, as also in the area of the pillars the ground had been cleared down to the bedrock in the late fourth (or possibly early fifth century) and they were only erected later on top of a levelling horizon. We may conclude that the F.004 building may well have risen to a height of two or more storeys above the basement, but all that we can be sure of is that there would have been at least one storey above.

There was no doorway within wall F.004 within the confines of our trench. Access must have been gained from a different direction and perhaps not at basement level. A c. 1.00 m to 1.20 m wide opening, about 1.25 m above the base of the wall, was perhaps originally a window, transformed into a doorway only in the Late Middle Ages. It is c. 3.40–4.60 m from the south corner of F.004. The base of the doorway in F.004 was only c. 10 cm above the late medieval stone floor, and it is tempting to think that it would have formed an entrance then. Being close to the modern surface, mortar did not survive at this level. Unlike the window (F.151, perhaps also made into a door at a later stage) and door (F.162) in wall F.013, both evidently plaster-covered original features, we cannot decide if the opening in wall F.004 is original or whether it was cut into the ancient wall nine centuries or so after its creation. The latter hypothesis seems, however, unlikely, as there is no evidence so far for any doors or windows cut through old mortar walls anywhere else in the fort. The early medieval dry-stone wall F.198 seems to be aligned with its north-west side, circumstantial evidence for the window's/door's existence in the first millennium.

More excavation is needed to establish how the F.004 building related to other late antique walls, such as those found in Trench Q. The latter probably also belong to internal housing units. Dariali's most massive preserved mortar walls are on the east side of the plateau, a little over 40 m north-east of F.004. Perhaps they formed not only the outer fort walls, but also part of a keep on the top of the hill. We cannot tell if F.004 was part of a separate structure or potentially part of a large complex on the highest point of the plateau. The mortar floor in the narrow basement,

whilst practical rather than ornamental, was superior to the trodden earth floor within the casemates – making one wonder if living quarters on the upper storeys would not have been provided with similar or superior interior design. This and the prominent hilltop location raise the question, if the F.004 building was intended for higher status occupants than the rooms along the fort walls. The fort commander and his entourage may well have resided somewhere in the centre.

Other than the F.004 building (and disregarding the basic dry-stone structures such as the stone paving or stairs (F.168), no late antique structures have been found on the inside of the double fort walls and colonnade in Trench F. Late antique deposits are confined to the interior of the casemate, the low-lying area immediately north-east and the bottom of the sequence within the F.004 building. It is astonishing that no late antique layers have been found to the south-west and south-east of wall F.004, even though we have reached natural bedrock here. It is hard to imagine that the substantial late antique fort walls surrounded a thinly occupied space. The absence of late antique deposits in the few square metres outside structure F.004 must have been the result of renewed clearance of soil down to the bedrock, perhaps in the eighth century, to provide early medieval walls in the area with greater stability. Tenth-century material to the south-east of wall F.004 may have filled a late cellar/pit dug down to the bedrock. The presence of one late antique sample of AD 428–598, found redeposited in a late medieval context (F.029), provides circumstantial evidence for early occupation, quite possibly nearby. More research is needed to gauge the proportion of residual late antique material in medieval layers. There is no question, however, that there is vastly more medieval than late antique pottery and bone from Trench F. Early medieval occupation probably spanning approximately three centuries has produced much more material than the two-and-a-half centuries or so of late antique occupation, not just in absolute terms, but also in terms of quantity per century. This marked difference need not be a result of heavier later occupation. A change in rubbish disposal patterns provides an alternative scenario to explain the marked difference. We do not know how much material might have been tipped over the walls, least of all on the cliff in the east, towering over the Tergi River. The wild waters would rapidly have washed away any amount of debris, and even large-scale disposal of rubbish would not have compromised the fort's defensibility (in contrast to large piles of debris next to a lowland fort).[44]

In the heavily occupied fort, earlier walls constantly seem to have been demolished to make way and provide construction material for later walls. That the late antique walls survive until immediately under the modern surface, like F.004 and the double fort walls,[45] suggests that they were left standing as long as the fort remained in active use. The build-up of medieval material within the casemate, as well as in the interior of the F.004 building, whose early medieval occupants may well have produced much of the huge outdoor rubbish dump opposite of wall F.013, is further evidence for medieval occupation of pre-medieval structures. The F.004 building was re-occupied as late as the fourteenth century,[46] probably remained standing beyond, and it seems likely that it was modern explosives rather than natural decay that eventually erased most above-ground walls in recent centuries.[47] Lasting for a millennium or more, one cannot fail to be impressed by the high standards of late antique architecture on Dariali Fort. The F.004 building, towering on top of the plateau if now razed, will have been one of the famous fort's landmarks.

2.3. Mid-seventh/early eighth-century power vacuum (Phase 4)

By AD 651 the Sasanian state, credited with the creation of Dariali Fort ('Biraparach'),[48] ceased to exist – and it will have lost effective control of this remote outpost before its dying day. Our sketchy written sources suggest the Sasanians had lost and regained the fort at least once in the late fifth/early sixth century. It seems likely that the empire remained in control well into the seventh century, if probably with substantial Iberian involvement.[49] How did the destruction of the Sasanian Empire and the reduction of the Roman Empire to a regional power affect a key cornerstone in the two empires' northern defences? Did the garrison melt away or did it outlive the state that had stationed it here? Trench F has shed light on events in the wake of the political upheaval that shook the Near Eastern world in the mid-seventh century. This time of transition was marked by a degree of continuity in an age of discontinuity, yet also decay and destruction rather than investment and construction.

On the north-east side of wall F.013, we encountered a distinct burnt horizon (F.096 = F.083), friable mid greyish-brown sandy silt,[50] with numerous patches of fire-reddened mid orangey brown clayey silt (Figs 2:42–2:45). It contained a significant quantity of finds (see Table 2:9) which must have been deposited here before this levelling or occupation deposit was affected by heat-induced discolouration. At many places, there was charcoal on top of fire-reddened soil. The fire-exposed patches extended over much of the area between wall F.013 and pillars F.082 and F.147. The heat-affected surface (at a trench height of -2.19 m to -2.24 m, with patches of fire-reddened material down to -2.38 m), unlike the early medieval dump layers above, did not slope downhill, but was, more or less, level. The fire-reddened patches are evidently the result of *in situ* burning, producing a consistent magnetic orientation.[51] The distribution of fire-exposed patches is remarkably random, and some are smaller than a normal fireplace. The only plausible explanation is a conflagration. Imogen Poole's analysis of the charcoal from F.096 suggests that some of it was exposed to high temperatures, consistent with this hypothesis.[52] This conflagration may well have



Fig. 2:42: Trench F in phase 4 (mid-seventh to early eighth century).

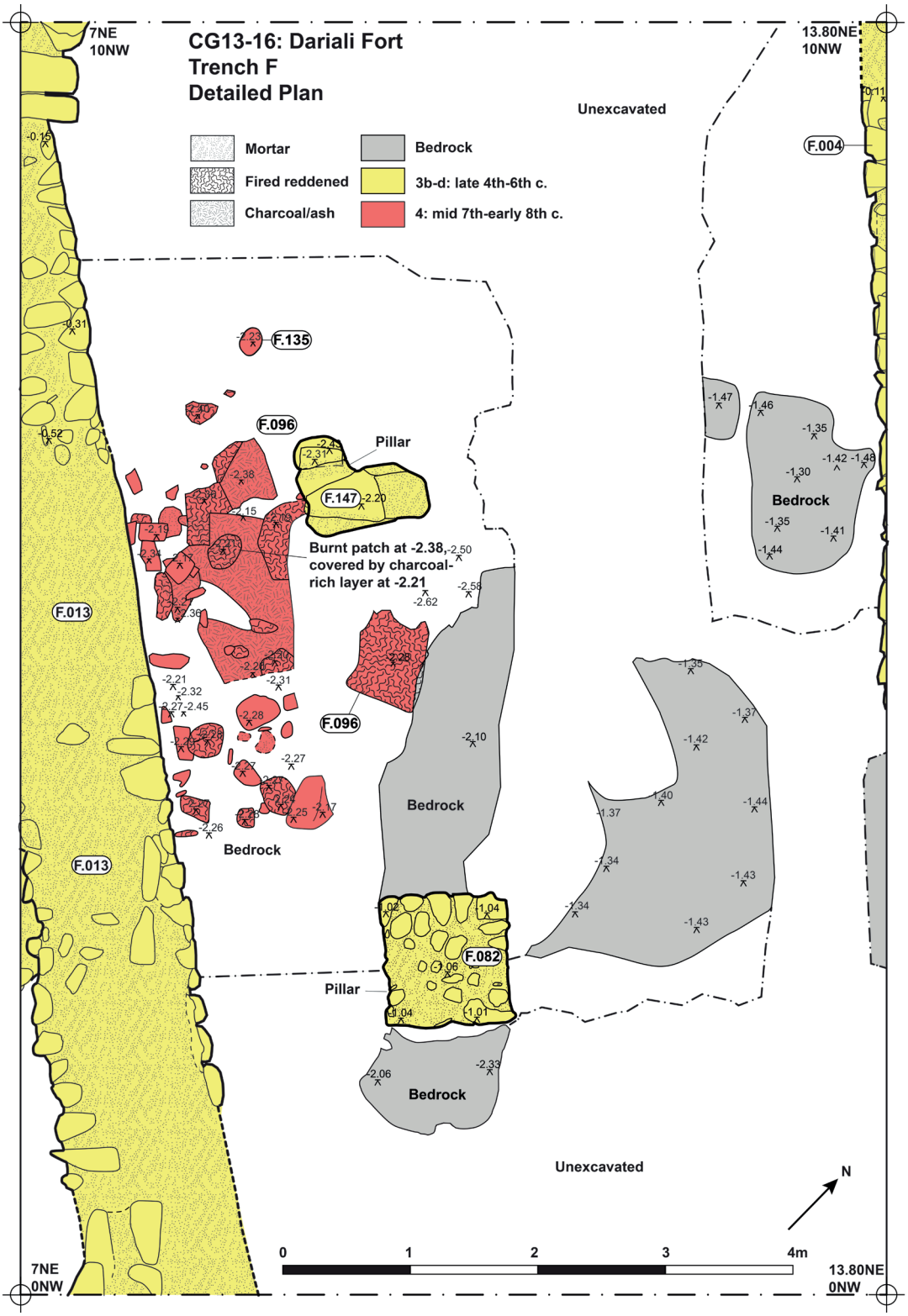


Fig. 2:43: A conflagration in phase 4, almost certainly of the old roof supported by pillars F.082 and F.147, led to the formation of a burnt horizon (F.096) in the area of the old walkway. The only other feature datable to this transitional era is posthole F.136, filled by deposit F.135.



Figs 2:44–2:45: The intense heat of the conflagration at the transition between Antiquity and the Middle Ages (phase 4) created fire-reddened patches on the surface (F.096), sampled by David Greenwood.

Table 2:9: Finds from mid-seventh to early eighth century horizons (quantities in grams).

Horizon	*Contexts*	*Animal bone*	*Pottery*	*Other finds*
Burnt horizon	F.083, F.095 and F.096	3,563	3,477	Charcoal, 3,472 g worked stone, incl. spindle whorl and <1 g glass
Deposit south-east of burnt horizon	F.097	8,699	3,101	Charcoal, 478 g brick
Deposit north-east of burnt horizon	F.094	1,324	572	Charcoal, 72 g glass
Total	**n/a**	**13,586**	**7,150**	**n/a**

been localised, and certainly did not engulf the entire fort (or even more than a few square metres within Trench F). No trace of a similar burnt horizon was found anywhere in Trench Q. What was it that went up in flames? There was no housing built against the north-east face of wall F.013, certainly none that has left any traces in the form of walls or postholes. The limited number of finds in the deposits sealed underneath the burnt horizon similarly suggests that there were no dwellings here, at least none in which much organic debris had accumulated.

Circumstantial evidence, presented in the previous chapter, suggests that there may have been a passageway, probably with a roof, alongside wall F.013, hence perhaps the comparative levelness of the ground. Micromorphological examination of soil block samples from F.096 by Lisa Snape has interestingly revealed a trampling and floor horizon on top of the fire-reddened soil and charcoal in F.096, suggesting that the area continued to be used as a walkway, or at least that people walked over the burnt debris before the area was transformed into a rubbish dump.[53] Elements of a wooden roof truss in flames hitting the ground could easily have produced what we encountered, *i.e.* patches of more or less intensive burning and charcoal accumulation over a wide area. If we are right in thinking that stone pillars F.082 and F.147 were part of a colonnade that carried a roof leaning onto wall F.013, then this roof would have covered precisely the area of the burnt patches (F.096). If this is correct, then it seems that the original roof of this walkway lasted from its construction to its destruction by fire in the mid- or late seventh or early eighth century.

The casemate almost certainly carried a roof as well. Might its (partial?) destruction by fire provide an alternative potential explanation for the burnt horizon? If ablaze,

parts of it could easily have fallen onto the ground outside. Within the casemate, we found one charcoal-rich deposit with red patches (F.169) that is not well dated (c. sixth to ninth century), but could be contemporary to F.096. The discolouration was less distinct than in F.096 and is perhaps more plausibly attributed to heavy iron-staining than *in situ* fire-exposure, let alone a major fire engulfing the interior of the building. Lack of traces for contemporary *in situ* burning within the casemate does not disprove the hypothesis, as the casemates could have been multi-storey, and a fire need not have destroyed them to the ground, notably if wooden interim floors were insulated with earth. The fire might potentially have affected parts of the defences and some structures inside.

Which of the proposed scenarios is most likely to be correct? Did the roof of the colonnade or the casemate or both catch fire? The extent of the burnt area (F.096) suggests that the first of these is most likely: the fire-reddened surface covered a broadly rectangular area extending from wall F.013 to the vicinity of pillars F.147 and F.082; there was a large burnt patch between the two pillars, but little beyond. Of two burnt horizons at the edge of doorway F.162, the upper is probably related to F.096. At a depth of c. -2.44 m, it is over 20 cm below the top of F.096 near pillar F.147. Does this suggest that the roof between pillar F.147 and the next pillar further north-west (outside the excavated area, if pillar-spacing was similar to that observed in Trenches F and Trench Q) was still preserved and affected by the fire too? There was little trace of fire-reddened soil nearby and it was at a much lower elevation. The isolated patch was perhaps the result of a piece of burning timber hitting the ground beyond the main area of roof collapse. What we can safely conclude is that the fire did not spread along the whole colonnade or wall circuit, and there was no trace of it in the Trench Q casemate or colonnade. Might rain or humidity have prevented the spread of the fire? Perhaps, but more probably part of the roof had collapsed by the time of the conflagration probably two or three centuries after the covered walkway's construction. As noted above, all traces of fire-exposure are between the two pillars and wall F.013 and perhaps it was only the short span between these two old stone supports that retained its roof at the time. As already observed, the top of F.096 rose to -2.19 m, whilst there are slightly later samples (F.092/1275 and F.165/1448) from as deep as -2.35 m to the south-east and north-west of F.096. The stretch of burnt-down roof formed a low pile in the middle of the trench. We may conclude that it was probably just the old roof of the walkway between pillars F.082 and F.147 that burnt to the ground.

Towards the northern edge of F.096 and cut from -2.43 m, a single round posthole (F.136) emerged (Fig. 2:46), surviving to some 22 cm depth and with a diameter of also c. 22 cm. It was filled with sterile soft mid grey sandy clay (F.135), except for a slate plaque at its base



Fig. 2:46: The bottom fill (F.135) of posthole F.136, with a slate post pad at the base: evidence for a timber structure of unknown plan erected during the mid-seventh to early eighth century imperial power vacuum?

that may have served as a post pad. Cut from a similar level as patches of F.096 in the doorway but located beyond the area of burning, it is likely to be of a broadly similar date to F.096. Its location (not in alignment with pillars F.082 and F.147 and much closer to wall F.013) suggests it was unrelated to the old walkway and probably not a timber post to prop up its roof. The posthole provides circumstantial evidence for a possible timber structure of unknown plan and function, the remainder of which may well be beyond the excavated area. This seemingly unremarkable feature is our only piece of evidence for construction work in the seventh or early eighth century – suggesting that the occupants continued to inhabit the existing buildings of the old fort, adding no more than basic timber structures.

To the north-east of F.096, we found at a similar level a deposit (F.094) of similar soil (very soft mid greyish brown sandy silt, with some redeposited mortar), but with no obvious traces of fire-exposure. Deposit F.097 (see Table 2:9), soft mid yellowish-brown silty clay, sealed underneath stone tumble (F.081 = F.092) between pillar F.082 and wall F.013, was at a similar depth to the seventh-century horizons. The tumble, discussed in a subsequent chapter,[54] is best assigned to the late seventh or eighth century. F.097 probably belongs to the second half of the seventh century too – or perhaps to the early eighth century. The area of F.094 and F.097 does not appear to have been affected by the conflagration and was devoid of fire-reddened patches. F.094 was beyond the area of the covered walkway, and it is unsurprising that the collapse of the burning roof did not affect an open-air space. F.097, by contrast, should have been within the area of the covered walkway. Perhaps the roof did not survive here at the time of the conflagration. Interestingly, the base of the stone tumble (F.092) in this area reached down to a level below that of F.096, yet a sample (F.092/1275) from 2.35 m depth is of a probably more recent date than the burnt horizon. A possible explanation is that an unknown stone structure (further south-east?) collapsed during or

shortly after the conflagration, falling onto an area to the south-east of the low pile of roof debris, but that the voids between the stones only up filled with sediments later.

How intensive was occupation before the localised inferno? The overall quantity of mid-seventh to late seventh/early eighth century pottery and bone (representing at a rough estimate half a century) amounts to more than 60% of the deposits of the preceding two and a half centuries underneath – a remarkable intensification of deposition. The conflagration is not likely to have led to the accumulation of ceramic vessels or food remains, nor would there have been much incentive to recover such debris. Was it already before the reported arrival of a Muslim army in AD 727 that rubbish disposal patterns began to change? Perhaps to an extent, but material was still layered horizontally, whereas the sloping rubbish dump only began to accumulate after the fire. The main change will have occurred at some stage following the conflagration, quite possibly related to the arrival of the new garrison.

One particular find from F.096 is worth noting as a further possible indicator of change: the deposit contained the earliest of the 12 spindle whorls found in the fort (F.096/1085).[55] Did fort occupants only start producing textiles after the demise of the Sasanian state, perhaps enjoying supplies of clothing before? This may well have been the case, but with no more than one object attesting textile production from the mid-seventh to early eighth-century transition periods and none before, caution is advised.

When did the fire sweep through the old colonnade? The sheep or goat rib from F.134 provides a *terminus post quem* of c. AD 603 for deposit F.096 above. David Greenwood and Cathy Batt[56] have established a number of possible archaeomagnetic dates for the burnt horizon, but on the basis of radiocarbon dates for deposits underneath and above, we may confidently rule out high medieval to modern dates or any date prior to AD 600. The only period, when the position of the earth's magnetic field is compatible with the orientation of the samples (AM230) from a burnt patch in F.096 and that comes close to the likely date of the conflagration, runs from 14 BC to AD 627. Yet, a bone and charcoal sample have yielded *termini post quos* of c. AD 652 and AD 647 respectively (Table 2:10). The charcoal (F.096/1105) was found 3 to 11 cm below burnt patches nearby the bone (F.096/860), even some 20 cm deeper than burnt patches in its vicinity. The charcoal was from a young alder twig, not a beam from the truss of the collapsing roof, nor is it likely that the roof contained surviving wickerwork. In all probability, the alder charcoal was firewood embedded in the surface onto which the roof collapsed, and the cattle bone must evidently be part of the same horizon predating the conflagration. The two samples were both from below the burnt horizon formed by a burning roof crushing onto the floor. They provide *termini post quos* for the fire. Even at 99.7% probability they cannot be earlier than AD 644 and AD 638 respectively, providing no overlap with the archaeomagnetic date range (even if the latest suggested date in the range may only be a few decades too early). Relying instead on the likely *terminus post quem* of AD 652, provided by the later of the samples (at 95.4%

Table 2:10: Radiocarbon and archaeomagnetic dates from horizons in Trench F on Dariali Fort at the late antique – early medieval transition (BBM = below benchmark) (see Fig. 2:22 for a plot of the dates).

Context/Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
F.096 (archaeo-magnetic sample)	AM 230	c. 8.90–9.30 m NE, 5.50–5.90 m NW, -2.20/-2.30 m BBM	Burnt soil	n/a	14 BC-AD 627? (outlier)	Cannot be correct, as earlier than samples below
F.096/1105	OxA-31562	9.35 m NE, 4.85 m NW, -2.31 m BBM	Charcoal: Alnus, twig	1346±25	AD 642–764 (89.2%: 642–695) → modelled date: 647–690	d13C= -25.31
F.096/860	OxA-31614	8.19 m NE, 5.96 m NW, -2.42 m BBM	Bone: Bos, rib	1326±26	AD 652–766 (78.9%: 652–716) → modelled date: 652–706	d13C= -19.96
F.096 (OSL sample)[1]	412–15.3.1	c. 8.81 m NE, 5.70 m NW, -2.43 m BBM	OSL sample	1240±120	AD 555–895 → c. AD 647–706?	Not plotted

[1] See chapter 24. Note that OSL dates are at 68.2% confidence.

confidence), we may conclude that the conflagration is not likely to have occurred before the AD 650s at the earliest (nor after the early eighth century at the latest, to judge by samples from deposits above), proving that Dariali Fort was occupied beyond the end of the Sasanian Empire. It is not beyond possibility that it could be related to the historically attested conquest by an Arab army of AD 727, the roof perhaps set alight by a fire missile or catching fire when the fort was stormed. In the light of the limited extent of the damage, the scenario of an accident is perhaps more plausible.

The evidence appears to suggest that in the period between the mid-seventh and early eighth century (*i.e.* between the end of Sasanian Empire and before the arrival of Muslim forces), a roof (probably of an old covered walkway) went up in flames. The limited extent and location of the conflagration suggests that it broke out as result of an accident, rather than enemy action or a scorched earth policy. Had a retreating garrison set alight timber roofs, to make enemy reoccupation of the fort more difficult, one would have expected more extensive devastation. We may be confident that most roofs survived and buildings remained in a habitable state. Deposition of pottery and bones in various quarters of the fort during this transitional period surely proves continued occupation, possible only in weatherproof shelters. The fire did not cause much damage, beyond destroying a small surviving section of a dilapidated roof of an old colonnade, but does provide further evidence to prove that the strategically crucial installation was still occupied. Pressure from the north would have continued even after the collapse of the Sasanian Empire, and it made sense to maintain a watch on the pass. Whether this was part of a political initiative to maintain Iberia's northern defences or a local initiative is difficult to discern. The era between the fall of the Sasanian Empire and the Islamic conquest is neglected by written sources, but there is no reason to think that the interlude of at least 80 years or so, when no great empire controlled Dariali, was uneventful. Intensive occupation to the end of the Sasanian Empire and beyond underlines the strategic significance of blocking Dariali Gorge. When the Sasanian Empire was involved in one of the most calamitous wars it had ever fought, against an alliance of Roman in the west and Turks/Khazars in the north, depleting its defences in the north was not an option, and our evidence suggests occupation during and well beyond this momentous conflict. Dariali Fort survived the end of the Sasanian Empire but not without being affected by the upheavals of the time. There is no obvious abandonment horizon under or on top of the burnt horizon, and neither is there any evidence for construction or structural maintenance of walls. This was a period of continued occupation within well-built if slowly deteriorating housing, but not an era of innovation and investment. The end of imperial overlordship is unlikely to have lessened northern pressure and both the Khazar Khaganate and local principalities, squeezed between the expansionist Caliphate and their northern neighbours, would have had an interest in holding this strategic fort. In uncertain times, the personal security the fort offered to its occupants would have been similarly attractive for local people and external major and minor powers. One wonders if controlling traffic might have offered earning opportunities for the garrison. We found no coinage of any period, even if a tariff on basic trade goods in kind is possible, and it is hard to know the amount of trade and any income this might have generated.[57] Even if in this turbulent period the fort may have suffered from disrepair, it is no surprise that it lasted beyond the fall of the Sasanian Empire. This forms an interesting contrast to the forts on the Gorgan Wall across the steppes of northern Iran that were abandoned for good between the AD 610s and 650s, probably towards the mid-seventh century. In contrast to the massive Gorgan Wall, requiring probably tens of thousands of troops for effective defence, Dariali Fort could have been held by a few dozen to a few hundred and could have functioned as a major barrier to migration and invasion – as well as a local refuge.

2.4. The early medieval zenith of activity (eighth to tenth/eleventh centuries AD/Phase 5)

2.4.1. A new start: the beginning of Phase 5a

Mas'udi[58] attests that around AD 727 a new Arab garrison was placed in the fort, after the people living in the area had been subdued, but he provides no information as to whether or not the fort itself was taken by force, who had been in charge before or indeed whether the fort had been occupied at all. As pointed out above, there is clear evidence for continued occupation during the interlude between the end of Sasanian rule and the Islamic conquest. There is, however, no precision-dating available to us. Even samples that almost certainly fall into this transitional period can only be dated to half a century timespan at best, whilst for others we cannot decide if they belong to this time of transition or either the late Sasanian or the early Islamic era. This period of continued settlement at the interlude between the end of Sasanian rule and Islamic conquest was followed by the period of most intensive artefact deposition in the fort's history.

2.4.2. The F.004-building: continued occupation into the Early Middle Ages (Phase 5a–c)

We have seen above[59] that the F.004 building was a late antique construction, towering over the lower parts of the fort. It played a central role long beyond its period of construction. This is proven not so much by finds from its interior as by the massive accumulation of debris downhill. A huge dump of rubbish (as we will see) formed on top of the burnt horizon (F.096), its slope following the natural gradient from north-east to south-west. Only large-scale deposition from the top of the hill can explain

the phenomenon. Had the occupants of the casemate been the principal agents, the dump would have sloped in the opposite directions or at least been more level. This need not imply that the casemate was less heavily occupied or that its residents were tidier. They may have dumped rubbish over the fort wall – as certainly many medieval occupants did, to judge by our subsequent excavations of Trench X,[60] irrespective of extramural rubbish dumps slowly but surely diminishing the impregnability of the stronghold. Excavations on a much grander scale will be required to gauge the level of extramural rubbish disposal. It is likely to have much exceeded intramural deposition in volume, but would have been more onerous for those living in the centre of the fort. We have no means of quantifying the intensity of occupation of the casemates versus internal buildings, but it is clear that there was heavy use of both and that the F.004 building was one of the hubs of activity.

One has to assume that most, if not all, residents lived on the upper storey(s) that do not survive. Within the building, however, only basement levels were preserved, crammed between wall F.004 and a rock outcrop. They may well contribute less to our understanding of the history of occupation than the deposits outdoors, but are worth our attention nonetheless. On top of the late antique mortar floor (F.205) we found a deposit (F.204) with a late antique bone sample (F.204/1711) and late antique pottery, overlain by another soil horizon with similar ceramics, already discussed.[61] Based on this sample, the relative scarcity of pre-medieval material in medieval contexts and the small quantity of finds, these deposits have above been tentatively assigned to the pre-medieval era. It is, however, also possible (if perhaps marginally less likely) that the mortar floor remained in use and on view throughout Late Antiquity and that it was only in the Early Middle Ages that the decision was taken to raise the floor, using dug-up earlier material.

On top of F.204 (and at a level above most of F.200) the basement of the F.004 building was subdivided via a basic dry-stone alignment (F.198) at a right angle to, and abutting, wall F.004 (Figs 2:47–2:49). It survived to a height of two to five (irregular) courses. There is a suggestion of a possible doorway, c. 1.10 m wide, connecting two internal rooms next to wall F.004. So far there is no firm evidence for dry-stone walls in Dariali Fort prior to the eighth or ninth century,[62] and we may thus tentatively suggest that F.198 is early medieval.

Firm dark brownish grey clay (F.201) built up next to it and on top of F.204 and F.200. F.201 contained also small patches of mortar and only a few stones (5–10%), but there was a dense concentration (F.203) of large angular stones of up to 35–60 cm diameter within. Perhaps the clayey nature of the deposits indicates that a pool of water had formed in the basement – humid conditions that may also explain why the plaster cover of wall F.004 started to crumble and perhaps why it was felt necessary to raise and stabilise the ground with stones. The building's basement seems to have been in a run-down state. The next layer (F.199), soft mid greenish brown silt and stone slates, contained more mortar patches – suggesting that the plaster continued peeling off the wall, whilst somewhat less humid conditions prevailed, to judge by the silty soil. It may have formed a basic flooring, the green discolouration perhaps suggestive of sewage rather than standing water. No radiocarbon samples are available from these layers, but post-seventh century pottery,[63] the dry-stone wall and nature of occupation suggest that they belong to the early medieval era (perhaps the eighth to ninth or early tenth centuries, the sample from deposit F.196 above providing a likely tenth-century *terminus ante quem*). F.196, soft mid greenish brown sandy silt, with a lens of sand (F.197), may well be a levelling deposit containing c. 20–40% of stones of up to 40 cm diameter. A cattle scapula (F.196/1683) of the AD 890s–990s (Table 2:11) provides a likely date for the context, unless redeposited, in which case a later date between the late first millennium and the fourteenth century is possible too. A similar time bracket applies to F.185 and F.186 in the sequence above, mid greyish brown and greenish grey sandy silt – with much stone, suggestive of continued levelling, perhaps necessary to prevent mud and water from infiltrating as occupation debris built up outdoors. The pottery from all three contexts (F.196, F.185 and F.186) would be consistent with an attribution to the later first millennium.[64] A stone spindle whorl (F.186/1608: Table 2:12) probably attests to indoor textile production, as do two more[65] found in debris dumped outdoors quite possibly by the early medieval inhabitants of the F.004 building. Wall plaster from F.004 continued to peel off, to judge by patches of mortar in F.196 and F.185.

Humid conditions in the basement may suggest that the building was in a worse state of repair than it had been in Late Antiquity. Yet, the basement is not necessarily symptomatic for well-drained upstairs habitation, and mortar crumbling centuries after construction was only to be expected. We have no evidence for the use of mortar anywhere in medieval Dariali and should not be surprised that no attempt was made to reinstate plastering. There would have been little space between wall F.004 and the outcrop of bedrock immediately to the north-east of the limits of the trench. Perhaps the basement was used as a cellar. Successive episodes of levelling with soil and stone may have been a response to water infiltration.

2.4.3. The F.004-building: a hub of early medieval life and waste disposal (Phase 5a–c)

Circumstantial evidence suggests that our postulated tall building, with F.004 forming part of its outer wall, was densely occupied throughout the Early Middle Ages, even

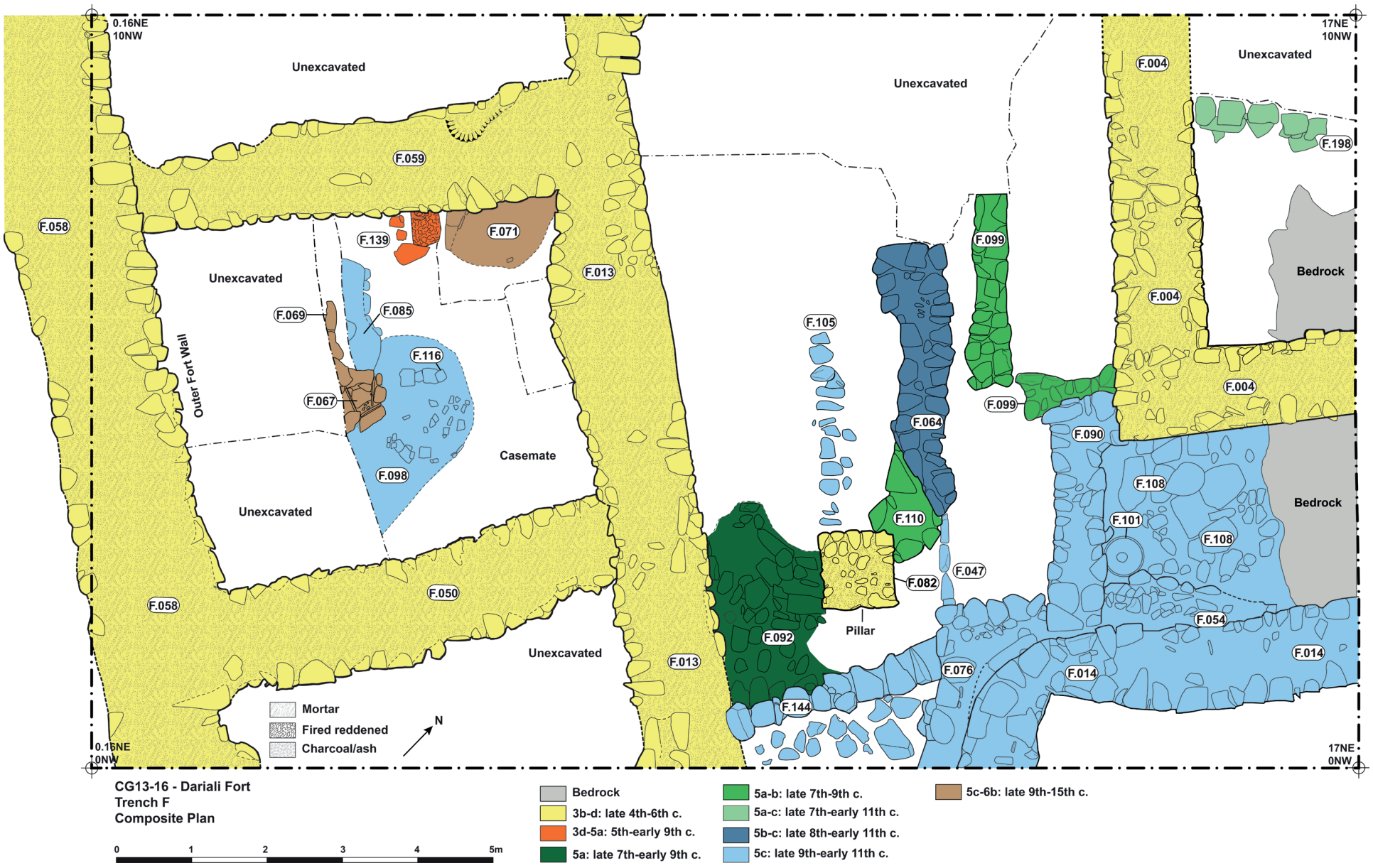


Fig. 2:47: In the Early Middles Ages (phase 5, late seventh or eighth to late tenth or early eleventh century) most of the durable late antique structures continued to be occupied. New dry-stone annexes leaned against the solid late antique mortar walls. F.110 and F.064 above form a terracing wall. Some of the new walls in Trenches F and Q could date to the eighth century (such as F.099), but none is certain to be earlier than the ninth century.

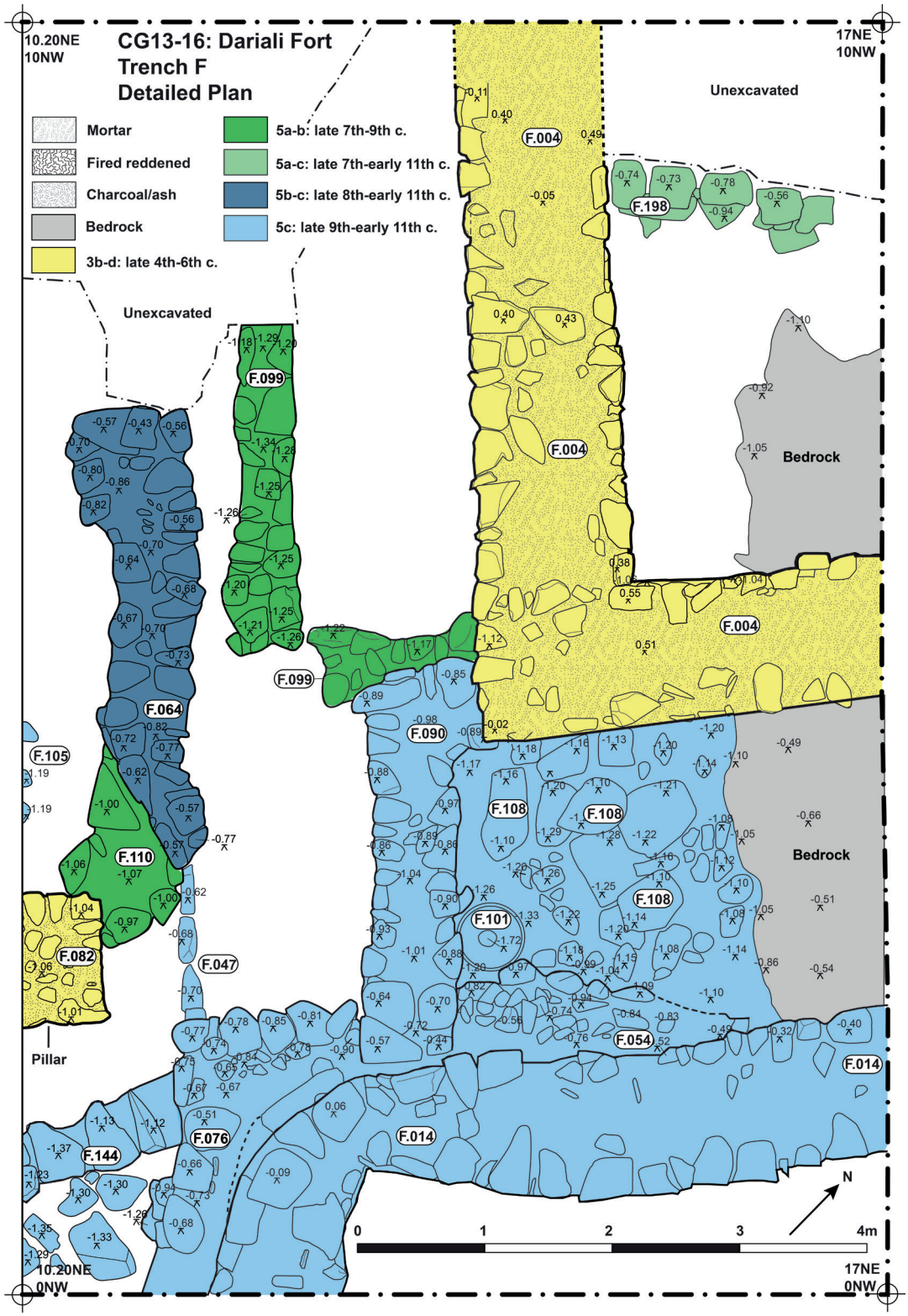


Fig. 2:48: The late antique F.004 building formed a nucleus of later activity, with new dry-stone annexes added. The occupants may in part be responsible for the creation of the substantial rubbish dump downhill.



Fig. 2:49: Wall F.004 (left) and dry-stone alignment F.198 (bottom): an early medieval partition wall within the basement of the building. The wall is higher on the right (north-east), probably indicating that there was an internal doorway on the left. Later wall F.007 (above) follows a similar alignment and there is a suggestion of blocked-up doorway in the same alignment. (Note that part of dry-stone wall F.007 had to be removed, prior to deep excavation and this photograph being taken, due its unstable nature and safety concerns.)

Table 2:11: Radiocarbon date from early deposit within the F.004 building in Trench F on Dariali Fort (BBM = below benchmark) (see Fig. 2:38 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
F.196/1683	SUERC-71942	15.00 m NE, 7.30 m NW, -0.69 m BBM	Bone: Bos, scapula	1092±18	AD 893–994 → modelled date: AD 894–995	d13C= -20.6

Table 2:12: Finds from probably early medieval deposits within the F.004 building (quantities in grams).

Horizon	*Deposit*	*Bone*	*Pottery*	*Other finds*
Probably early medieval deposits, with late 9th/10th-c. *t.p.q.* (phase 5c-6b: 5c?)	F.186	292.1	348.4	12.6 g worked stone, incl. spindle whorl
	F.185	221.2	237.8	n/a
	F.196	2,399.6	2,485.2	Charcoal, 13.7 g shell and bone gaming piece
Probably early medieval deposits (phase 5a-c)	F.199	1,216.3	832.3	Charcoal, 35.2 g FE and 0.8 g shell
	F.201	16.2	72.1	n/a
Total	**n/a**	**4,145.4**	**3,975.8**	**n/a**

if the basement's use may not reflect this adequately. The strongest indications for dense occupation of the F.004-building comes from outside. Occupants whether at ground floor level or any higher storey, the latter probably with wooden floors, appear to have dumped copious quantities of rubbish outdoors. This seems the most obvious explanation for substantial layers of debris building up on the south-west side of the wall.

On its south-west side, wall F.004 is abutted by deposit F.086, which overlies the bedrock and is overlain by F.078. F.086 has yielded a radiocarbon sample of c. AD 665–757 and F.078, of c. AD 672–770 (Fig. 2:50; Table 2:13). It should be noted that the sample from F.086 was taken from bulk finds, whilst that from F.078 is deep within the deposit. Whilst all samples from F.078 should be later than those from F.086, Bayesian modelling produces a poor (49.9%) agreement for the F.078 sample. Perhaps it was redeposited, perhaps the F.086 bulk sample was taken from the interface between these deposits. Little would be gained by speculating whether the modelled or unmodelled dates are more trustworthy, as they are not far apart. It is safe to conclude that there was late seventh or eighth century material from just above the bedrock to the south-west of wall F.004 (and there is a further sample, F.106/825, of similar date (Fig. 2:51; Table 2:14) also from just above the bedrock – even if at a greater distance from the F.004 building: c. 2.85 m to the south of its southern corner). The base of wall F.004 is at c. -1.49 m, whilst the sample from F.078 is 5 cm deeper in absolute terms, but c. one and a half metres south-west and downhill of the wall. On its south-east side, wall F.004 is abutted by much later deposits, but this is likely to be the result of later cellar or pit digging, as further explored below.[66] The radiocarbon sample from F.063 was 81 cm above that from F.078 (and just 73 cm further north-west). Dating to c. AD 896–1030 (and more likely to after AD 945 than before), it is at least c. 130 years, or possibly over three centuries, later. Intensive rubbish deposition indeed seems to have taken place throughout the early medieval era. Whilst there was only 100 g of pottery and 841 g of bone from F.086, there was some 4 kg of pottery and 16 kg of bone from F.078 and as much as c. 50 kg of pottery and 38 kg of bone from F.063 – not to mention other finds.

The most interesting discovery is perhaps a pierced shark or ray vertebra (F.063/536), thought to have originated from the Persian Gulf. Once suspended from a necklace, quite possibly worn by an inhabitant of the F.004 building, it was probably lost in the ninth or tenth century.

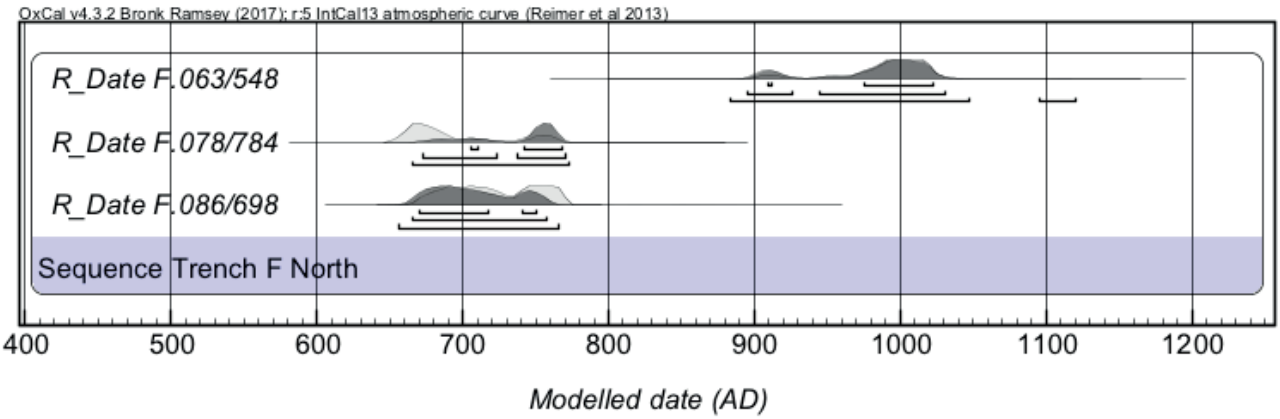


Fig. 2:50: Bayesian model of samples recovered to the south-west of wall F.004 (see Table 2:13 for further details).

Table 2:13: Radiocarbon dates from medieval deposits abutting the south-west side of wall F.004 in Trench F on Dariali Fort (BBM = below benchmark) (see Fig. 2:50 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
F.063/548	OxA-31492	12.30 m NE, 6.57 m NW, -0.73 BBM	Bone: Bos, left tibia	1041±32BP	AD 899–1034 (88.5%: 946–1034) → modelled date: AD 896–1030, 80.4%: AD 945–1030	d13C=-20.13
F.078/784	OxA-31389	12.30 m NE, 7.30 m NW, -1.54 BBM	Bone: Bos, coxal, ischium	1327±26BP	AD 651–766 (79.5%: 651–715) → modelled date: AD 672–770	d13C=-20.38
F.086/698	OxA-31390	Unrecorded	Bone: Bos, rib	1279±28BP	AD 668–772 → modelled date: AD 665–757	d13C=-20.76

One wonders if this exotic piece of personal ornament had been in the possession of a member of the new Arab garrison arriving in the eighth century and handed down from generation to generation. If so, it may add strength to Mas'udi's claim of descendants of the original garrison remaining in place for over two centuries. Of course, the arrival of people at the famous fort from afar at a later stage in the first millennium is possible too.[67]

Eighth-century rubbish disposal by the occupants of this building (perhaps out of any windows at a higher level) is likely to account for material found immediately to the south-west of the wall (*i.e.* deposits F.086 and F.078). Worth noting are the greenish hue of F.078, and of F.063 above, the latter greyish to greenish mid brown silt. Greenish discolouration is often suggestive of a component of sewage. It may strengthen our assumption that the building, with F.004 as the outer wall, was densely occupied and that its occupants opted for easy outdoor disposal of all waste. Many successive generations of them may have done so.

Parallel to F.004 and 1.50 m south-west (face to face) there is a second wall built on the bedrock (F.099), abutted by deposits F.086 and F.078 above. Surviving to a height of just a single course, with only its north-east facing and part of its rubble core exposed, little can be said about its significance. It must have been higher originally and may have been largely demolished when wall F.110 (or F.064 on top of F.110) was built later. Much rubbish accumulated downhill, between this wall and F.013, at a distinctly sloping angle. It is thus not likely that there was a building abutting the old fort wall F.013 and that F.099 formed part of it. Whilst we cannot be certain, the less substantial nature of wall F.099 (not employing any mortar) suggests that F.004 was the outer wall of our postulated tall building and F.099 a terracing wall or part of a temporary structure abutting the building, such as a makeshift aisle or portico parallel to F.004. Its terminal is in alignment with a possible blocked-up door in walls F.110 and F.064, but we cannot be sure whether this is original or whether any part of wall F.099 extending beyond was removed later, to allow free passage. It cannot be excluded that F.099 is an ancient wall, but the seventh to eighth-century deposits abutting the little that survives of it, and its basic dry-stone construction make it more likely that wall F.099 dates to the eighth century. Whatever its precise date and significance, there is nothing to suggest that it was part of a major structure. The space between F.099 and F.004 may well have been an outdoor lane, rather than an indoor corridor, probably from the start and almost certainly when silt rich in rubbish, and presumably sewage (F.063), built up on top of the largely demolished wall (F.099).

Downhill (south-west) of F.099, significantly greater amounts of occupation deposits, full of discarded bone and sherds, accumulated and eventually abutted wall F.013. Between pillar F.082 and wall F.013, we found stone tumble (F.081 = F.092), consisting of large stone blocks sloping from south-east to north-west

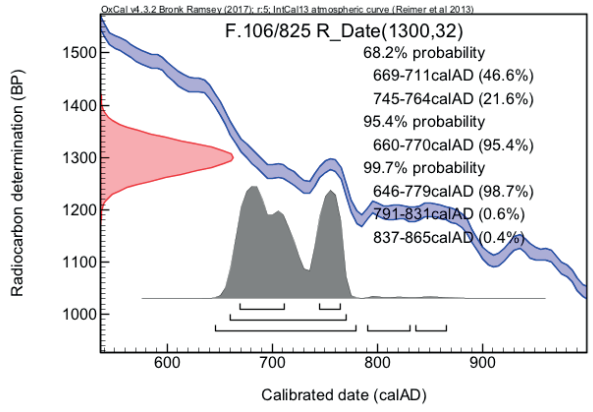


Fig. 2:51: Radiocarbon date from deposit F.106 (see Table 2:14 for further details).



Fig. 2:52: Stone tumble (F.092) between pillar F.082 (centre left) and wall F.013 (right).

Table 2:14: Radiocarbon date from a medieval deposit above the bedrock on Dariali Fort (BBM = below benchmark) (see Fig. 2:51 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
F.106/825	OxA-31493	11.90 m NE, 2.40 m NW, -1.39 BBM	Bone: Ovis, left scapula	1300±32BP	AD 660–770	d13C= -19.80

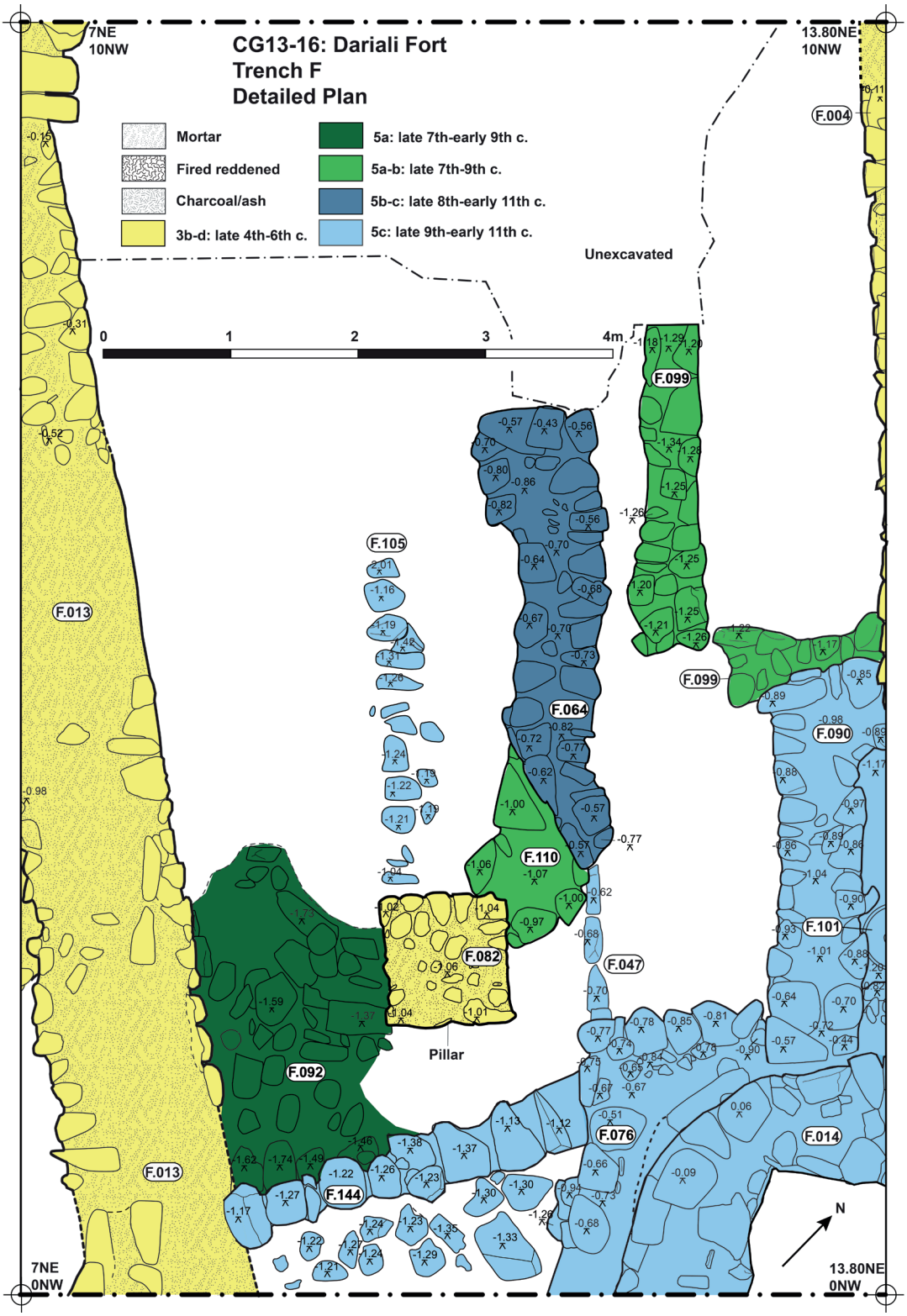


Fig. 2:53: Early in phase 5a (late seventh to mid-eighth century) a stone structure collapsed, leading to the formation of tumble deposit F.092. The strip of land to the north-east of wall F.013 was then turned into unoccupied wasteland largely devoid of walls and other structures, used for dumping rubbish

(Figs 2:52–2:53). The steep gradient of the top of the pile of stones suggests that these represent the remains of a collapsed tall structure further south-east. Alternatively, should the tumble have formed when the upper part of pillar F.082, or of a hypothetical arch on top, caved in, then it is more difficult to explain why the pile slopes at such a steep angle. We have, however, not reached the bedrock in this part of the trench, and it is possible that the steep slope of the tumble might follow the lay of the land. It also included some mortar, suggesting that some or part of it was formed by the collapse of a late antique mortar structure. It is unlikely that any part of wall F.013 collapsed, as the casemate evidently remained occupied for centuries beyond. We may conclude that the tumble (F.092) represents probably either the collapse of an arched superstructure, resting on pillar F.082, or (more probably) of an unknown late antique structure further south-east. The tumble overlies F.097 and is overlain by F.036. No traces of burning were observed underneath, and it appears to have fallen onto level ground. A significant quantity of finds was embedded between the stones, including a rib of a sheep or goat, from a low level within the tumble.[68] This yielded a radiocarbon date of AD 689–890 (at 95.4% confidence; see Table 2:15). The modelled date is much tighter, c. AD 680–737, but it should be noted that the Bayesian model produces an agreement of just over 50%. It is from the same level as the base of the early medieval rubbish dump and marginally lower than the top of the mid-seventh-early eighth century burnt deposit further north-west. It is hard to imagine that the sample could be as late as the ninth century, and the modelled date may well be right. The collapse appears to have occurred before F.070 and substantial early medieval deposits built up and probably during or shortly after the conflagration. Is it possible that the fire may have caused the wall collapse? Whilst the tumble is clearly earlier than early medieval rubbish deposits (F.070 and those above) covering it, this only applies to collapsed masonry, which must initially have formed a loose pile of stones with voids in between. The soil filling the voids, including all finds embedded within it, is likely to be later than the loose stones and quite possibly contemporary to early medieval rubbish deposition layers further north. The bone sample thus provides no *terminus post quem* of c. AD 680 for the conflagration, only for the, probably later, deposition of debris in the area. The Chronicle of Theophanes Confessor informs us about an earthquake that shook the Caspian Gates in AD 742/743.[69] It is possible that the wall collapse occurred then, but also that there was some other unknown cause. The nearby fire might have destabilised structures, but there was little timber and no evidence that the conflagration reached the base of the wall near the pillar – perhaps adding strength to the possibility of earthquake damage. Whether or not the reported earthquake led to the formation of the tumble deposit (F.092), there is no other evidence for extensive damage at the time, and the solid late antique walls remained standing.

Subsequently, large quantities of material began to be deposited on top of the tumble, to the north-east of wall F.013 (Figs 2:54–2:55). Deposit F.077, likely to be of eighth-century date (with a sample of AD 689–880, but under F.070, soft mid greyish brown sandy clay, with a sample of AD 695–772), underlies wall F.110. The latter terracing wall would have blocked sediments from being washed downhill subsequently. F.077 (greyish brown sandy silt) is similar to F.078 (greenish brown sandy silt), but did not display the same greenish discolouration. Both deposits are in any case of a likely eighth-century date and rich in occupation debris, with most sewage perhaps dripping onto the narrow lane between F.004 and F.099 – and between F.004 and the later walls F.110 and F.064 subsequently.

In the tenth century, the lane parallel to F.004 may have provided access to rooms further south-east; wall F.064 (= F.047) led to wall F.076 in the south-east. Wall F.064 (= F.047) and the NW-SE-running section of wall F.076, in a similar, if not perfectly rectilinear alignment, may also have formed the edge of the terrace. F.076 may also have functioned as the edge of a building platform for wall F.014. Once much of the area between walls F.110 (and F.064 on top) and F.013 had been filled up with rubbish, perhaps towards the end of the first millennium, we find some basic construction on top of the former dump: dry-stone wall F.105, abutting pillar F.082, may represent part of an annexe, leaning against wall F.064 and the ancient pillar F.082.[70]

In the south-eastern part of this postulated lane between wall F.064 and the F.004 building, we found friable greenish grey sandy clay (F.106) overlying the bedrock. One sample (F.106/825) has yielded a radiocarbon date of AD 660–770, at 95.4% probability (see Table 2:14). It is thus of similar date to F.086 and F.078, and the three deposits may well have built up on the lane at the same time and as a result of similar processes, hence probably the (sewage-related?) greenish discolouration of all three early medieval deposits. It should be noted that the samples from F.078 and F.106 are from near the base, and it is possible that they (and F.106 in particular) built up over a longer period, lasting beyond the eighth century. F.106 may also include earlier, late antique, pottery.[71] Above F.106, mid greyish brown sandy silt (F.065) and mid brown sandy silt (F.046) successively accumulated. F.046 underlies F.042 as well as the outer wall of the irregular high to late medieval 'apse' (F.010). F.065 and F.046 probably date to the same time as F.063 further north-west, *i.e.* in the ninth to late tenth or eleventh centuries, even if the formation of F.046 might have continued beyond, until wall F.010 was built on top.

F.077 and F.070 clearly slope downhill, as do deposits above and north-east/uphill of wall F.013. The precise layering of these only became apparent when sectioned.

Table 2:15: Radiocarbon dates from medieval deposits above the burnt horizon north-east of wall F.013 in Trench F on Dariali Fort (BBM = below benchmark) (see Fig. 2:22 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
F.022 (OSL sample)[1]	400–3	c. 8.14 m NE, 7.54 m NW, -1.57 m BBM	OSL sample	904±154	AD 957–1265	Not plotted
F.022/226	OxA-29433	n/a	Bone: Bos Taurus	1284±26	AD 669–770? (outlier, redeposited from earlier horizon)	d13C= -19.98
F.036 (bulk)	OxA-29435	n/a	Bone: Caprinae	1217±25	AD 695–888 (94.8%: 710–888; 81.3%: AD 764–888) → modelled date: AD 767–874	d13C= -19.93
F.037 (OSL sample)[2]	400–1	c. 9.91 m NE, 7.68 m NW, -1.84 m BBM	OSL sample	926±138	AD 951–1227? (outlier?)	Not plotted
F.037 (bulk)	OxA-29436	n/a	Bone: Caprinae	1173±25	AD 771–950 (87%: 771–900) → modelled date: AD 772–881	d13C= -18.19
F.165/1447	SUERC-63173	7.391 m NE, 7.012 m NW, -2.139 m BBM	Bone: Small ruminant, rib, medial part	1221±17	AD 717–881 (81.3%: 766–881) → modelled date: AD 721–835 (75.2%: 761–835)	d13C= -19.3
F.070/1235	OxA-31388	7.74 m NE, 7.78 m NW, -2.08 m BBM	Bone: Caprinae, radius, right diaphysis	1219±27	AD 695–886 (94.5%: 710–886; 78.8%: 764–886)	d13C= -19.62
F.070/1235	OxA-31467	As above	As above (2nd sample from same bone)	1268±22	AD 677–772	d13C= -18.78
F.070/1235	OxA-31388 and 31467	As above	Combined date based on the above two samples of the same bone	1249±18	AD 680–860 (90.7%: 680–778) → modelled date: AD 717–821 (89.4%: 717–780)	d13C= -18.78 and -19.62
F.165/1448	SUERC-63174	7.349–7.436 m NE, 6.782 m NW, -2.349 m BBM	Bone: Caprinae, rib, proximal medial, left side, not fused	1237±17	AD 690–870 (70.1%: 690–779) → modelled date: AD 707–776	d13C= -20.5
F.077/1238	OxA-31612	10.14 m NE, 7.92 m NW, -1.98 m BBM	Bone: Caprinae, unfused left calcaneum	1232±26	AD 689–880 → modelled date: AD 691–771 (93.7%: 691–749)	d13C= -20.02
F.092/1275	SUERC-63197	9.39 m NE, 1.70 m NW, -2.35 m BBM	Bone: Caprinae, rib, medial part	1217±33	AD 689–890 (75.3%: 760–890) → modelled date: AD 680–737 [NB: only 50.4% agreement, but slightly younger than material above, hence not redeposited from earlier level]	d13C= -19.2

[1] See chapter 24. Note that OSL dates are at 68.2% confidence.

[2] See chapter 24. Note that OSL dates are at 68.2% confidence.



Fig. 2:54: The early medieval rubbish dump with layers sloping steeply from north-east (right) towards wall F.013 in the south-west (left): south-east-facing section with wall F.009 on top.

Table 2:16: Finds from key deposits of phase 5a, of mainly or exclusively eighth-century (or up to early ninth-century) date[1] (quantities in grams).

Horizon	*Deposits (and phase)*	*Animal bone*	*Pottery*	*Other finds*
Deposits between walls F.004 and F.099	F.078 (5a-b)	15,671	4,340	Charcoal, 1,620 g brick and 7 g glass
	F.086 (5a)	841	100	43 g brick
Deposit on top of bedrock further south	F.106 (5a-c)	5,212	703	Charcoal, 548 g brick and <1 g FE
Early dump layers between walls F.013 and F.099	F.055, F.070, F.104[2] and F.165 (5a)	78,978	58,533	Charcoal, 11,365 g brick, 205 g glass, 685 g worked stone, 72 g FE, 26 g slag and 2 g worked bone
	F.077, F.113 and F.118 (5a)	32,464	38,207	Charcoal, 5,343 g brick, 167 g glass, 1481 g worked stone, 10 g FE and 1 g AE
Stone tumble and debris between wall F.013 and pillar F.082	F.081 and F.092 (5a)	14,959	4,362	Charcoal, 845 g brick, 72 g glass, 4 g FE and 13 g worked bone
Total	**n/a**	**148,125**	**106,245**	**n/a**

[1] It is possible that some of these started to form in the late seventh century. Some may have built up over a longer period. The upper parts of F.078 and F.106, where the radiocarbon samples were taken from near the bottom of the deposit, could well be later than the eighth century.

[2] A piece of glazed pottery of the tenth to twelfth century from high within F.104 suggests that the context is mixed and not exclusively of eighth-century date: see chapter 11.11.

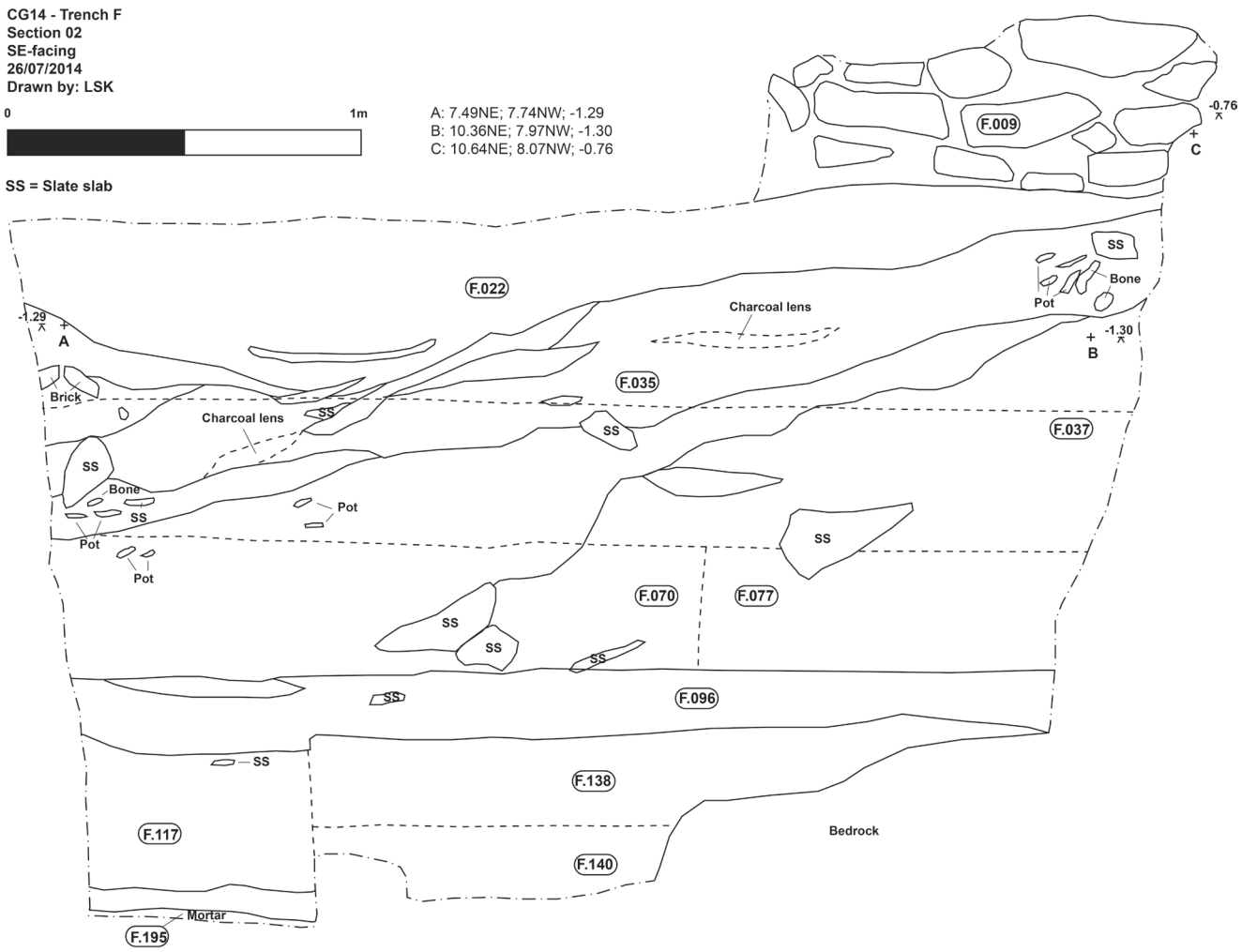


Fig. 2:55: For about the last three centuries of the first millennium prodigious quantities of rubbish were dumped, creating a heap with distinctly sloping sides on top of the horizontal layers of the seventh/early eighth century (F.096, not fire-exposed in this area) and late antique deposits below. On top of the early medieval rubbish heap, new structures were built in the first half of the second millennium, such as wall F.009. (Dotted lines mark approximate spit boundaries.)

It is now clear that these form successive sloping deposits at a steep angle, in marked contrast to the, more or less, level burnt horizon (F.096) of the mid- to late seventh or early eighth century underneath. The steep gradient of the surface of successive deposits between walls F.013 in the south-west and F.099, and subsequently F.110 and F.064, in the north-east indicates that in the last quarter of the first millennium this space was not used as the floor of a dwelling or walk-way. Instead, it appears to have formed an outdoor rubbish dump for occupants living further uphill in the F.004-building and any ancillary structures. Indeed, Seth Priestman established that average sherd weight in the Early Middle Ages (phase 5) was roughly twice as high as it had been in Late Antiquity (phase 3); material embedded in rapidly growing early medieval dumps was less likely to suffer further breakage than sherds in thin late antique trampling horizons.[72]

The deposits likely to date to the eighth century (possibly up to the early ninth century) contain more than a quarter of a ton of finds (see Table 2:16),[73] not counting less tightly dated deposits that may contain additional finds of similar date. These impressive quantities only represent a part of the material deposited in a single trench. Even on the basis of this selective sample, it is clear that intramural rubbish deposition was practised on a massive scale in the eighth century. It seems likely that the sudden change in rubbish disposal practices is related to the reported takeover of the fort by a new garrison in this century, bringing with it new traditions. The new occupants were evidently numerous enough to consume meat on a considerable scale and to use, gradually break and discard a similar quantity of pottery. Little metal was lost. This included interestingly a three-winged tanged iron arrowhead (F.070/643) from deposit F.070, further described elsewhere.[74]

The arguably most significant find from these deposits is an inscribed pot handle in *nuskhuri* script mentioning a 'Gogi', *i.e.* George (Figs 2:56–2:57). It was found



Fig. 2:56: Sherd with graffito: a pot produced by or for, and perhaps belonging to, a Georgian-speaking Gogi.

embedded in the early medieval dump layers. It was found near the base of the heap, just inside the doorway (F.162). Evidently, the growing heap at the time filled the entire area of the depression, reached wall F.013 and began to spill through the doorway into the casemate. Our excavations were confined to the area north-east of wall F.013 and to a part of the fill of the doorway and we do not know how far the rubbish heap extended into the casemate. Our radiocarbon dates of well-stratified samples below and above (see Tables 2:15 and 2:17) indicate that the sherd was lost or discarded in the eighth or early ninth century, which make this graffito an early example for the script. A bone found below the sherd dates (at 95.4% probability) to c. AD 707–776, a bone above, to AD 717–821 (and at a probability of almost 90% to AD 717–780), providing a likely date of deposition between AD 707 and AD 780 or AD 821. These two samples are no outliers; samples further up in the sequence also date to the eighth to ninth century, samples a little deeper down date to the mid-seventh to early eighth century. George Gagoshidze's study has shown that it is one of the earliest examples of the *nuskhuri* script, but not without parallels at this early time. There is no way of telling, on the basis of the samples, if the pot was inscribed, broken and lost before or after the Muslim conquest of c. AD 727. One wonders, however, if the new garrison is responsible for the marked changed in rubbish disposal patterns. As we have observed above, at the time when fire swept through the colonnades, between the mid-seventh and early eighth century, and formed a burnt horizon (F.096) layers were still horizontal. Only afterwards did rubbish accumulate on top, soon forming a massive and growing heap. If the new arrivals introduced large-scale intramural rubbish disposal, then we may assign deposition of the graffito sherd to at least a few years or decades after they had taken up residence in the fort.

Stratigraphy of course only dates the time the broken pot was discarded, not when it was made and used. The inscription, incised prior to firing, proves that the vessel was made by a literate Georgian-speaking potter, proving, as George Gagoshidze has argued, that there was literacy even amongst people of the lower classes at the time. The potter perhaps signed his own name or potentially that of the prospective owner at his request. The named person carried a Georgian name in the Christian tradition, spoke Georgian and could probably read and write. If it was the name of the vessel owner, it seems unlikely, if not impossible, that such an inexpensive and fragile personal possession would have been acquired by a third person and taken away from its original place of use. And it would also seem odd, if the potter had marked the product with such a rare and personal Georgian graffito, if

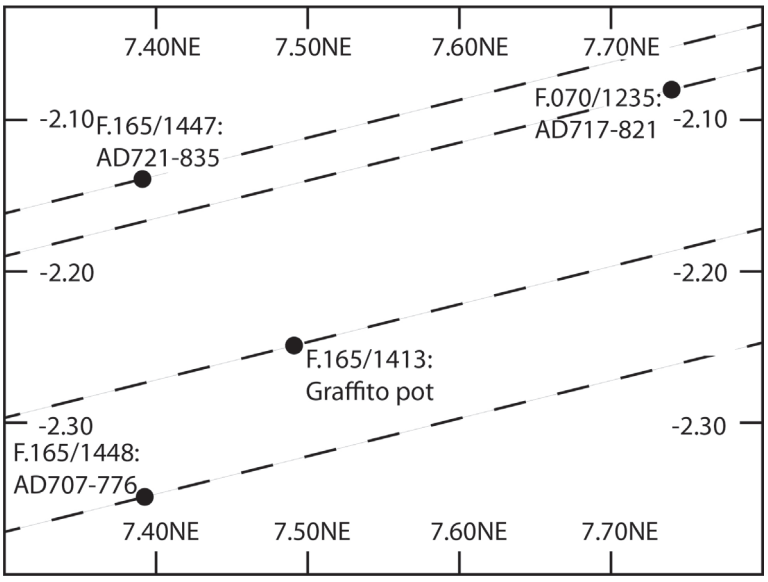


Fig. 2:57: Schematic plot of the samples. Dotted lines: approximate gradient of the slope. Note that the early medieval layers slope from north-east to south-west (and south-east to north-west location has not been taken into consideration). F.070 and F.165 are part of the same deposit, excavated in two successive seasons. We may be confident that the sherd with the graffito was deposited after the lower sample in the sequence and before the upper two, whilst the proposed relative sequence between the upper two samples seems likely, but not certain.

Table 2:17: Stratigraphic sequence of samples near the sherd with the graffito (all coordinates are in metres and relate to Trench F). Note that the 3D for the graffito sherd refers to its base.

Find no.	*F.165/1447*	*F.070/1235*	*F.165/1413*	*F.165/1448*
Type	Bone	Bone	**Graffito pot**	Bone
Modelled Bayesian date (95.4%)	AD 721–835	AD 717–821	**AD 707–821**	AD 707–776
North-east	7.39	7.74	7.49	7.39
North-west	7.01	7.78	6.79	6.78
Depth	-2.14	-2.08	-2.25	-2.35
Rel. depth, 7.45NE, @ gradient of ¼	-2.12	-2.15	-2.26	-2.33
Rel. sequence top to bottom	1	2	3	4



Fig. 2:58: Dry-stone wall F.110 (left) used the old late antique pillar F.082 (centre) as a buttress. Pillar F.147 in the foreground was already defunct, whilst wall F.013 (right) still stood and continued to serve as the outer wall of the ring of rooms in the shadow of the fort walls.

intended for sale to foreigners. The inscribed jug probably indicates that Dariali's eighth-century occupants included native Iberians, rather than exclusively Muslims from the heartlands of the Caliphate and/or northerners – a perhaps unsurprising, but significant, finding.[75]

2.4.4. Early medieval blockage of windows and doorways (Phase 5a–c)

After substantial quantities of occupation debris had already built up in the course of the eighth century (notably deposits F.077 and F.070), a wall (F.110 = F.025 = F.074) was built on top, abutting the late antique pillar F.082 (Figs 2:58–2:59). Whilst resting on a high outcrop of bedrock in the south-east, close to the pillar, the early medieval masons made no attempt to remove the earlier, eighth-century, deposits further north-west. The wall was double-faced like its earlier counterparts but, at c. 80 cm width, was narrower. Unlike the rectilinear walls of Late Antiquity, it curved in the south-east, abutting the pillar. These changes, notably the lack of solid foundations and

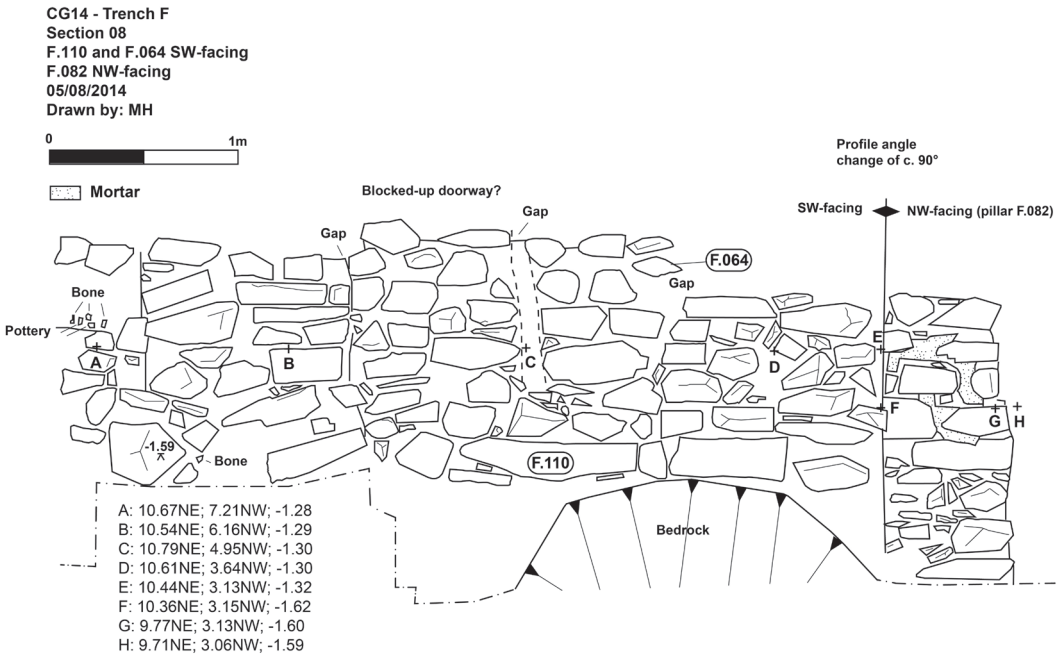


Fig. 2:59: Walls F.110 and F.064 on top of it.



Fig. 2:60: Early medieval blockage (F.150) of the late antique window (F.151) in wall F.013 on the casemate (south-west) side, where not fully excavated.

dry-stone construction, are worth noting. They may in part reflect a decline in workmanship and in part the likely function of the wall. After its construction, deposits rich in discarded debris continued to accumulate downhill, suggesting it formed a terracing wall rather than a major load-bearing structure.

In wall F.110 (and F.064 above) there are vertical joints that may be of no significance or might form the edges

Table 2:18: Blocked-up doorways in Trench F. All coordinates are in metres; 'northing' refers to how far north-west the point is from the south-eastern trench edge; 'easting' refers to the south-west to north-east distance from the south-western trench edge; height of the base is (as always) in relation to the trench benchmark.

Wall	*Side observed*	*SE side, northing*	*SE side, easting*	*NW side, northing*	*NW side, easting*	*Width*	*Base*
F.013	SW-facing side of window F.151	4.37	6.57	5.49	6.28	1.15	?
F.013	NE-facing side of window F.151	4.75	7.97	5.59	7.82	0.85	-2.01
F.110	SW-facing, 1st phase? (very uncertain)	4.25	10.79	5.87	10.60	1.62	-1.79
F.110	SW-facing, 2nd phase? (uncertain)	4.25	10.69	4.95	10.79	0.71	-1.79

Table 2:19: Finds embedded in the lower and upper blockage of former window F.151 (quantities in grams).

Horizon	*Context (and phase)*	*Animal bone*	*Pottery*	*Other finds*
Upper fill of window/door F.151	F.150 (5b-c)	1,268	3,477	n/a
Lower fill of window/door F.151	F.157 (5a-b)	660	842	n/a
Total	**n/a**	**1,928**	**4,319**	**n/a**

of a later blocked-up doorway.[76] The masons building the wall do not appear to have taken care to ensure that stones overlapped to enhance stability. A course of larger stone slabs at the base probably served as a foundation for a wall. The base of wall F.110 is at -2.01 m and it rested in part on sediments, rather than solid bedrock throughout. Abutted by deposits likely to date to the late eighth to ninth century (notably F.037 and F.036), wall F.110 is not likely to be later, nor much earlier, than the ninth century.

Whilst short of further excavation, the interpretation of the joints in walls F.110 and F.064 has to remain a matter of speculation, there is no question that there is a blocked-up doorway (F.162) and window (F.151) in wall F.013, both excavated and shown to be original late antique features.[77] The latter in particular is of interest also in an early medieval context. It is clearly visible on both sides of the wall (Fig. 2:60). The base of the window is at -2.01 m on the north-east-facing side (Table 2:18), c. 1.27–1.35 m over the surface of the uneven bedrock, *i.e.* at the same level as the base of wall F.110. Our sequence of radiocarbon samples (notably F.165/1447 found just inside the filled-up doorway F.162 at -2.14 m) suggests that at some stage in the eighth century the top of the growing rubbish dump spilled into the door opening and subsequently, in the later eighth or ninth century, reached the base of the former window (F.151) in wall F.013. Perhaps it was at this stage that the former window was reused as a doorway[78] for a short period.[79]

As we have seen above, it was probably already in the eighth century that the growing rubbish heap to the north-east of wall F.013 started to spill into the doorway (F.162) to the casemate. There were a few large stones from within the former entrance, but no trace of any attempt to wall it up, and the ever-growing rubbish dump gradually filled up the former entrance. Floor horizons within the casemate are at a lower level than contemporary surface levels at the entrance, suggesting that a way was found to prevent muddy water and rubbish from infiltrating. Perhaps it was in the unexcavated northern corner of the room that some effective blockage was erected, to keep the casemate habitable.

As the heap grew, the former window (F.151) would have provided an alternative access, if temporarily only. As the rubbish heap continued to rise higher and higher, it proved necessary to wall up the bottom 50–60 cm (F.157) of former window/door F.151. Our sequence of radiocarbon dates does not permit precision dating of the time when the heap had risen to a level beyond the base of F.151, necessitating blockage (F.157), but a ninth-century date seems likely. Continued growth of the rubbish heap forced the inhabitants of the casemate at a later stage to wall up the former window another half metre higher (F.150), perhaps in the ninth or tenth century. The two successive phases of blockage differ: the first consisted of a proper dry-stone wall, flush with the face of old wall (F.013) on both sides, using soil containing bone and pottery as a bonding agent (F.157). In the second phase, we see a proper dry-stone wall only on the casemate side, whilst it was mainly loose soil (F.150) opposite, containing much more material (Table 2:19), despite filling less space. The walling-up of former window (F.151) in wall F.013, providing natural light for, and later access to, the basement room in the casemate will have had purely

Table 2:20: Finds embedded in deposits of probable ninth to tenth-century date between walls F.013 and F.004 (quantities in grams).

Horizon	*Deposit (and phase)*	*Animal bone*	*Pottery*	*Other finds*
Deposits between walls F.013 in the SW and F.110 and F.064 in the NE: Upper spits	F.022 (5b-c)	20,606	16,329	Charcoal, 3,292 g brick, 47 g glass, one bead (2g), 5 g worked bone (comb), 98 g worked stone, incl. whetstone, 66 g FE and 5 g AE bracelet, 14 g ceramic spindle whorl
	F.030 (5b-c)	678	1,202	Charcoal
	F.032 (5b-c)	356	377	810 g brick and 3 g glass
	F.033 (5b-c)	19,289	8,939	Charcoal, 500 g brick, 40 g glass, 21 g worked bone, 440 g possibly worked stone and 10 g FE (arrowhead)
	F.088 (5b-c)	16,874	8,866	Charcoal, 2,716 g brick, 13 g glass, 12 g worked bone and 155 g FE
	F.163 (5b-c)	5,541	4,720	1,427 g brick
	F.035 (5a-b: 5b?)	18,942	8,350	Charcoal, 2,849 g brick, 90 g glass, 37 g FE, 7 g worked bone (gaming piece) and 1 g worked stone
Deposits between walls F.013 in the SW and F.110 and F.064 in the NE: Middle spit	F.036 (5a-b: 5b?)	30,166	22,112	Charcoal, 4,799 g brick, 18 g glass, 14 g worked bone and 5 g AE (bracelet)
Deposits between walls F.013 in the SW and F.110 and F.064 in the NE: Lower spits	F.115 (5a-c: 5b?)	552	0	n/a
	F.037 (5a-b: 5b?)	19,757	9,335	Charcoal, 2845 g brick, 81 g glass, one glass bead (6g), 3 g worked bone, 70 g worked stone, 10 g AE and 17 g FE
Deposits between wall F.013, pillar F.082 and wall F.076: top to bottom	F.075 (5c)	3,774	3,616	152 g brick
	F.079 (5b-c)	1,800	2,552	Charcoal
	F.080 (5b-c)	1,150	678	2 g glass
Deposits SW of F.004: at a similar level F.063 NW and F.065 SE	F.063 (5b-c)	38,447	49,764	Charcoal, 10,246 g brick, 43 g glass, 58 g worked bone (incl. shark vertebra with suspension hole), 1 g AE and 22 g FE
	F.065 (5b-c)	4,730	16,474	Charcoal, 1,193 g brick and 8 g glass
Deposits SE of F.004: top to bottom	F.043 (5c)	11,810	11,181	Charcoal, 1,259 g brick, 8 g glass, 16 g worked bone, incl. spindle whorl, 69 g worked stone (chlorite vessel fragment) and 27 g FE
	F.053 (5c)	14,124	12,445	Charcoal, 4,553 g brick, 6 g glass, <1 g human bone (child's tooth) and 11 g FE
	F.057 (5c)	313	123	n/a
	F.102 (5c)	1,360	766	Charcoal, 683 g brick, 4 g glass, <1 g stone bead and 4 g FE
	F.076: wall (5c)	50	50	n/a
	F.090: wall (5c)	48	0	2 g glass
	F.119 (5c)	582	930	Charcoal, 3 g glass, 498 g potential stone projectile and 17 g FE
	F.121 (5c)	149	683	5 g worked bone (comb)
	F.128 (5c)	839	12,709	Charcoal and 15 g glass
	F.137 (3a-5c)	37	12,240	Charcoal, 2 g glass and 57 g FE
Total	**n/a**	**211,974**	**204,441**	**n/a**

practical reasons: to keep the room dry, reasonably clean and habitable.

2.4.5. Intramural rubbish disposal in the later first millennium (Phase 5b–c)

North-east of wall F.013, on top of eighth-century deposit F.070, a substantial sequence of deposits built up. These were first reached in 2013 when two sondages were excavated. The first, Sondage 1, was set out at slightly over 1 × 3.40 m, extending east from F.013 through the gap between F.010 and F.009, reaching wall F.110 (= F.025) in the north-east. At the bottom of the sondage we encountered F.037, soft greyish-brown sandy silt, almost indistinguishable from the soft grey sandy silt above (F.035 and F.022, with a lens of yellowish grey sandy silt, F.030, above F.035 and below F.022). F.022 at the top and F.035 below are two spits of the same deposit. The combined depth of deposits F.022 and F.035 added up to more than 50 cm and they included substantial amounts of finds, notably bones and pottery (Table 2:20). Dariali Fort seems to have been intensely occupied at the time. Sondage 2 was marked out to the south of Sondage 1 between walls F.010 and F.013, reaching the upper courses of pillar F.082 in the east. The sondage measured roughly 2.60 × 1.50 m. In 2014 the baulk between the two sondages was excavated. The joined sondage of 2014 extended a little further to the south-east and north-east and was excavated to a deeper level than we had reached in 2013. By the end of the 2014 season, we had recovered most medieval material between walls F.013 and F.064/F.110, but excavation of parts of the filling of doorways F.162 in 2015 yielded some additional material.

F.036 above tumble F.092, in 2013 Sondage 2, was found at a similar level to the lower parts of F.035, F.088 and F.163 and to the upper parts of F.037. These contexts, as well as F.033 above F.036 and F.022, a spit above F.035, are of a similar composition and all part of a large heap of discarded debris of the later eighth or ninth to the tenth century, building up to the north-east of wall F.013. The deposits consist mainly of sandy silt, varying in colour from brownish grey to greyish brown. Some minor variation in colour is what one would expect in a rubbish heap. Further deposits and spits are listed in Table 2:20. Little would be gained by detailed discussion of each, not least as the oblique layering only became evident in section, and each of the spits, from F.022 at the top to F.037 at the base, overlap to a greater or lesser extent with some other spits. (By contrast, there is a clear stratigraphic sequence,

Table 2:21: Probably redeposited samples from the top of Dariali Fort. Only eight out of 72 (c. one in every nine) samples from the top of Dariali Fort (six out of 48 in Trench F alone, i.e. one in eight) are likely to be outliers, dug up in ancient or medieval times from earlier deposits. The deep stratigraphy in Trench F may mean that the results are more reliable, as outliers are easier to detect where there is a known relation between multiple dated samples, and impossible to identify where there is no known relation between a single dated sample and other dating evidence. Minimum and maximum age difference between outliers and the sample underneath have been calculated at the 95.4% probability range (using the modelled date for the sample underneath, where available). Minus values in the minimum range indicate that the sample could in theory be younger than the sample underneath and that the date ranges overlap. This may be deceptive, as Bayesian statistics suggests that there is poor agreement in dates.[1]

Find no.	*t.p.q.*	*t.a.q.*	*t.p.q. (sample beneath)*	*t.a.q. (sample beneath)*	*Years older than sample below (minimum)*	*Years older than sample below (maximum)*	*Comments*
F.022/226	669	770	767	874	-3	205	n/a
F.029/179	428	598	1299	1408	701	980	n/a
F.102/818	723	894	896	976	2	253	n/a
F.121/1059	661	853	887	971	34	310	n/a
F.183/1511	428	606	660	767	54	339	n/a
F.204/1711	357	531	421	567	≥-110	≥210	Sample below not certain to be young
Q.058/408	638	764	676	856	-88	218	n/a
Q.085/613	679	775	n/a	n/a	?	?	Stratigraphy suggests that redeposited, maybe by a century or two, but no sample below dated

[1] Sample P.006/31, being c. 143–465 years older than the sample underneath is a further clear outlier, but has not been included as activity at the foot of the fort differs in nature from occupation on top of the fort.

in the casemate and in the F.004 building, as well as to the south-west and south-east of the latter.)

The radiocarbon dates for these deposits are not in the chronological sequence one would have expected (see Table 2:15). A cattle bone from top spit F.022 dates to c. AD 669–770, whilst a goat bone from bottom spit F.037 dates to c. AD 771–950 (modelled date: c. AD 772–881), both dates at 95.4% confidence. The sample from deeper in the sequence appears to be later than that from higher up. The two samples are separated by F.035 and it thus seems inconceivable that both could be of a similar date, around the early AD 770s, especially as it is hard to imagine that the ground could have risen to the level of F.022 well before the end of the eighth century, whilst there are plenty of samples from the tenth century further uphill, suggesting that heavy occupation within the area of Trench F continued for over two centuries beyond, not to mention activity on a reduced scale in the second millennium. In all probability, the bone from F.022 is redeposited, and belongs to an earlier phase of occupation. In a densely occupied compound digging of pits can bring earlier material to the surface, and we should not be surprised that there is the odd early find or sample from an evidently later context. Overall, however, the proportion of such samples (marked as outliers in red in the Bayesian multi-plots) is small. The vast majority of dated samples (around eight out of every nine from the top of the fort: see Table 2:21) are in a chronological sequence that matches their relative stratigraphic age, suggesting they became embedded in their respective layers shortly (or at most a few years or decades) after the death of the organism in question. The layering of stones and debris in F.022 follows the natural lay of the land, and we can see such inclusions forming lines that slope downhill from north-east to south-west. Deposit F.022 covers parts of wall F.110 (= F.025) and underlies walls F.009 and F.010. OSL samples by Lisa Snape yielded *termini post quos* in the AD 950s for F.037 and F.022, which seems too late for F.037, but may be possible for F.022.[80] Whatever the precise dates of these late dumping horizons, it seems that the ground was eventual levelled out, which would inevitably have resulted in the redeposition of finds dug-up nearby. This may account for the curious observation that F.022 yielded an earlier sample than the stratigraphically much earlier deposit F.037 underneath. Whilst the ground may only have been levelled to create a building platform for F.009 and F.010, not much before the turn of the first millennium, at the earliest, or in the Late Middle Ages, at the latest, the bulk of the finds from F.022 and the deposits underneath will belong to the last third of the first millennium, consisting largely or exclusively of material from the era of the postulated Arab occupation.

A radiocarbon date of c. AD 695–888 (modelled c. AD 767–874), for a goat bone from F.036, provides a *terminus post quem* for this deposit and the deposits in Sondage 2 above, and a *terminus ante quem* for the tumble (F.081 = F.092) below. Like the two sampled bones from F.022 and F.037, it clearly dates to the phase of postulated Arab occupation. As pointed out above, these deposits are similar and almost certainly are part of the same pile of debris. The absence of any certain later material from these deposits so far may suggest that the entire heap dates to the period from the eighth to the tenth or early eleventh centuries. In F.022 and deposits underneath, pottery sherds tended to be heavier and less fragmented than in the deposits above, notably the topsoil, adding strength to our assumption that it had not been discarded on a floor surface, but on a heap outdoors where not much further breakage occurred.

Table 2:22: Finds embedded in deposits of probable ninth to tenth-century date between walls F.013 and F.004 (quantities in grams): comparison between the dump in the sondage and deposits near the F.004 building.

Location	*Animal bone*	*Pottery*	*Ratio (bone : pot)*
Sondage	132,761	80,230	1.65
Rest of trench	79,213	124,211	0.64
Total	**211,974**	**204,441**	**1.04**

It is no surprise that the bulk of finds of the rubbish heap consists of items that had no value: bones, broken pottery and broken glass. Interestingly, the proportion of bone to pottery is more than two and a half times greater in the dump layers in the sondage than near the F.004 house (Table 2:22). Even if it is not higher than in many deposits of other eras, this suggests perhaps that rotting and foul-smelling food waste was preferentially disposed of on the rubbish dump between walls F.013 and F.110, at some distance from the living quarters. The odd unusual find sheds light on everyday activities, such as textile production: two spindle whorls, a comb and a whetstone. Two beads and two copper alloy bracelets will be accidental losses by their owners. Metal was always valuable, even in small quantities, and not likely to be thrown away deliberately. This will also apply to the only weapon embedded in the heap. Deposit F.033 has yielded a three-winged iron arrowhead (F.033/228).[81]

The arrowhead and a few items of personal adornment, made of metal and other valuable materials, are no more than the proverbial needles in the haystack, the bulk of finds being worthless to their owners. It is clear that rubbish deposition continued on a massive scale, the above deposits between the F.004 building and wall F.013 yielding over 200 kg of pottery and over 200 kg of bone, amounting to some 1.4 times more bone and 1.9 times more ceramics than the abundant quantities embedded in deposits attributed to the eighth century. This need neither indicate an increase in the number of occupants nor further changes in their rubbish disposal practices. It may simply represent a longer period (roughly two centuries



Fig. 2:61: In the tenth century, life was as busy at the fort as ever before, as exemplified by heavy occupation of a dry-stone annexe south-east of the F.004 building (here seen from the north-east, with walls F.004 on the right, F.014 on the left and F.090 in the background).



Fig. 2:62: The same annexe seen from the north-west, with walls F.090 on the right and F.014 in the background.

as opposed to roughly one). Bearing in mind the margin of error in our radiocarbon dates, the resulting length of phases and the attribution of deposits to phases, it is best not to venture hypothetical models as to potential changes in the intensity of deposition. One has the impression that, from the eighth to the end of the tenth century, habits and the number of occupants may have remained reasonably constant. No doubt, of course, matters must have been more complex; infectious disease and local and state responses to the ever-changing security situation will have resulted in the fort's population levels ebbing and flowing – but whatever the inevitable fluctuations over the last three centuries of the first millennium may have been, it seems that there was no dramatic long-term decrease or intensification of activity. Instead there was intensive activity and rubbish disposal throughout the Early Middle Ages.

2.4.6. Tenth-century occupation in the east of Trench F (Phase 5c)

Whilst within the casemate, north-east of wall F.013 and within the F.004 building, late antique (fourth to





Figs 2:63–2:64: An in-situ storage vessel (F.101) in the southern corner of the room was later filled up with debris (F.102), including animal bones.

sixth-century) occupation levels overlie the bedrock, and south-west of wall F.004 the deepest deposits reach back to at least the eighth century, the deepest datable sample (F.128/1137) south-east of the same wall (F.004) is probably no earlier than the AD 880s at the earliest and no later than the AD 970s at the latest (Figs 2:61–2:65; Table 2:23). In the light of the complexity and depth of tenth-century deposits and structures above, a date in the late ninth or early tenth century makes more sense for deposit F.128 than a date in the middle or second half of the latter century. Underneath F.128, there is only a single further deposit (F.137) on top of a natural layer of yellowish brown sandy silt (F.141) and the bedrock. F.137, soft light greyish brown silty sand was a little over 20 cm thick. The composition of finds was unusual. Whilst in most larger deposits the quantity of pottery is matched or exceeded by that of animal remains, in F.137 pottery (12,240 g) exceeded bone (37 g) by a factor of c. 331:1. Whether discarded on the spot or redeposited, it suggests different rubbish disposal patterns. Were these related to greater tidiness by the occupants, religious reasons or a different use of space? One radiocarbon sample processed from F.137 failed to be datable. Interestingly, however, F.128 above, which, as we have seen, cannot be earlier than the AD 880s, shows a surprisingly low proportion of bone too, even if a little less extreme: there was a similar

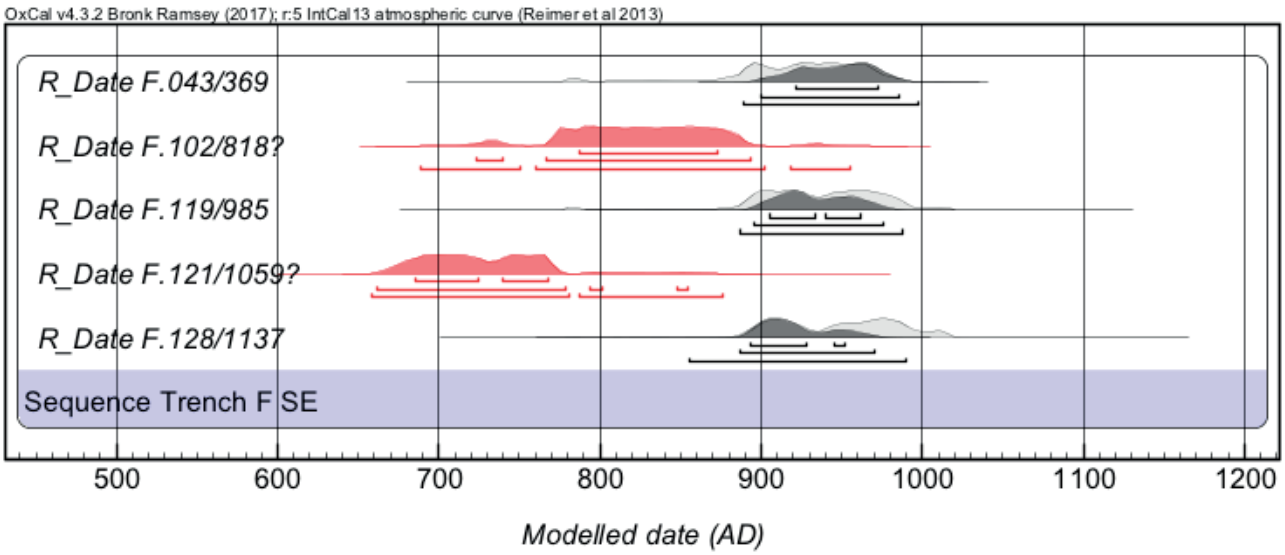


Fig. 2:65: Bayesian model of samples recovered south-east of wall F.004. The high proportion of outliers (marked in red) is likely to reflect heavy disturbance, down to the bedrock as late as the late ninth or tenth century, in the area (see Table 2:23 for further details).

Table 2:23: Radiocarbon dates from medieval deposits south-east of wall F.004 in Trench F on Dariali Fort (BBM = below benchmark) (see Fig. 2:65 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
F.043/369	OxA-31387	-0.87 m BBM	Bone: Bos, left radius/ulna	1128±26	AD 778–989 (91.9%: 864–989) → modelled date: AD 903–985	d13C= -20.14
F.102/818	OxA-31392	13.70 m NE, 2.73 m NW, -1.56 m BBM	Bone: Bos, mandible, left, M2 and M3,	1198±26	AD 723–894 (92.4%: 766–894)? (outlier, redeposited from earlier horizon)	d13C= -20.58
F.119/985	OxA-31496	14.84 m NE, 3.63 m NW, -1.46 m BBM	Flat bone: Caprinae, metatarse	1110±30	AD 879–1013 → modelled date: AD 896–976	d13C= -20.01
F.121/1059	OxA-31497	3D not recorded	Bone: Bos, coxal	1274±30	AD 661–853 (95.0%: 661–801; 94.5%: 661–778)? (outlier, redeposited from earlier horizon)	d13C= -19.77
F.128/1137	OxA-31500	14.81 m NE, 4.23 m NW, -1.62 m BBM	Bone: Caprinae, left femur, diaphysis	1092±31	AD 891–1015 → modelled date: AD 887–971	d13C= -19.86

quantity of pottery (12,709 g) as opposed to significantly more bone (839 g) – still an astonishingly small proportion at a ratio of pottery to bone of c. 15: 1. F.128, soft greyish brown silty sand, was similar in colour and composition to F.137. The low proportion of bone in a deposit that is contemporary to those downhill with vastly greater quantities of bone, absolutely as well as in proportion to ceramics, indicates that the likely explanation for the difference is use of space, rather than secular traditions or religion. The level ground in the area south-east of wall F.004 was occupied – and its occupants tended to deposit food waste outdoors and downhill. F.137 and F.128 were initially thought to be levelling deposits, but the markedly lower proportion of bone amongst the finds than in contemporary deposits elsewhere in the trench would be hard to explain if they consisted of redeposited soil to raise the surface level. In all probability, we are dealing with occupation horizons. F.121, soft greenish brown sandy silt, and F.119, mid greyish brown silty clay, contained far fewer finds, but a much-increased proportion of bone.[82] The changed ratio and quantity of finds may indicate a change in disposal patterns. More probably, these might indeed be levelling

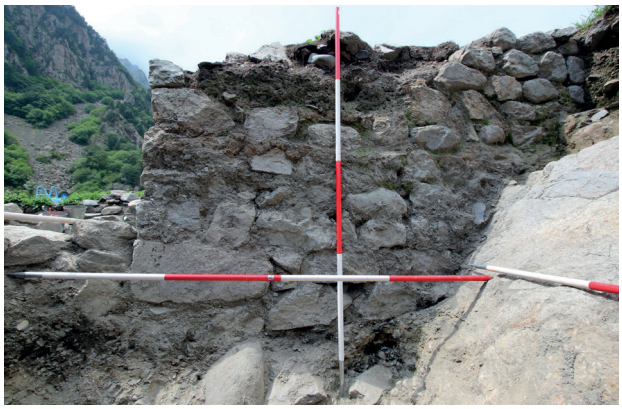


Fig. 2:66: Wall F.004 is a late antique mortar wall built on the bedrock.



Fig. 2:67: Early medieval walls F.054 and F.014, in contrast to late antique wall F.004, are dry-stone structures built on sediments.

deposits. The sample (F.121/1059) from F.121 is at least 34 years (and possibly up to 310 years) earlier than that from F.128 underneath, suggesting it had been dug up elsewhere to raise the ground. Sample (F.119/985) from F.119, is of similar date to material from above and below.

On top of F.119, there was a paving consisting of large stone slabs (F.108) – differing in style from the (later?) pavement (F.024) inside the F.004 structure, notably in employing less slate. Into this floor, where unpaved, a large storage vessel of c. 50 cm diameter (F.101) was interred. Its upper parts above the stone paving were, unsurprisingly, not preserved, and its fill, dark grey sandy clay (F.102), including stones of up to 20 cm maximum diameter, appear to postdate its actual use. A concentration of material (including 766 g of pottery and 1,360 g of bone, 683 g brick, not to mention a bead, three glass sherds and 4 g of iron) from the preserved lower half of the storage vessel is astonishingly high, suggesting perhaps it was material deliberately placed in the cavity after the storage vessel had accidentally broken or was intentionally put out of use. Filling the hole in the floor would have increased usable space and reduced the risk of an accident. The *terminus ante quem* for the sample (F.102/818) from the pot fill (F.102) of AD 894, just three to seven years later than the latest likely date for sample (F.128/1137) from F.128 well underneath, suggests that residual material was used for filling up the hole. It cannot be contemporary food waste, as it is hard to imagine that two putative levelling horizons, the laying of a floor, the interment of a storage jar, and its breakage and levelling of the hole



Fig. 2:68: Wall F.144 (with ranging poles on top and in front), connecting wall F.013 (right) with foundation platform F.076 (left). In the foreground: pillar F.082 (centre) and walls F.064 and F.110 (left).

in the floor would all have taken place within the short period when the dates potentially overlap.

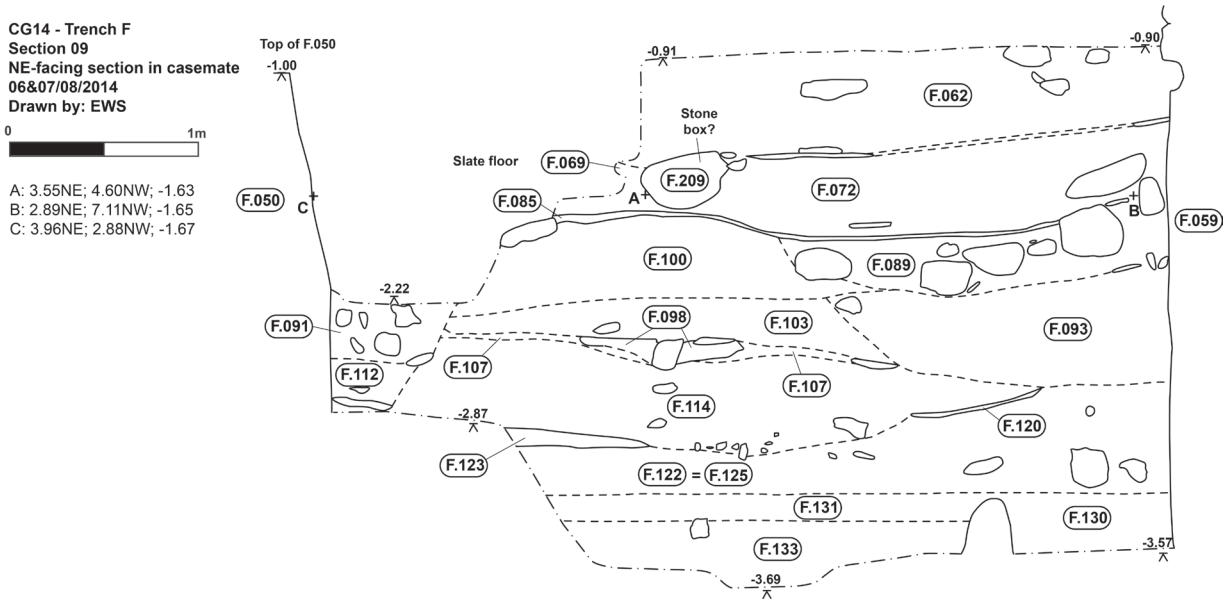
The stone paving (F.108) extends in the south-west to a double-faced wall (F.090) surviving to a height of three courses.[83] It is well-preserved on its outer, south-west-facing, side, where it is built on the bedrock. Its base is at a similar level to the paving. Wall F.090 abuts the more ancient F.004 structure. It formed the outer wall of a room with the stone paving (F.108), part of an extension to F.004 (Fig. 2:66). Wall F.090 was built on top of F.121 and abutted by F.119, pointing to a construction in the tenth century, or, at the earliest, in the last decade or two of the ninth century. It must have been built before the paving (F.108) was laid. Wall F.090 is also abutted by structures F.054 in the north-east and F.076 in the south-west, and by deposit F.119. These two structures appear to form part of a foundation platform for wall F.014 (Fig. 2:67), and only their sloping outside face has been exposed. They both abut wall F.090 at a right angle. Wall F.014, parallel to F.004 and built on top of a foundation platform (consisting of F.054 and F.076), is abutted by tenth-century deposit F.043. F.014 is a further dry-stone wall of the final century of the first millennium or the very end of the ninth century. F.014 shows some similarities to wall F.004: its width, measuring 1.00–1.15 m across, is similar, it is double-faced, with a rubble core, and runs in a rectilinear alignment, parallel to F.004, for around three and a half metres. There are distinct differences too: beyond the straight section, parallel to wall F.004, wall F.014 curves south, it employs stones of a much greater variety of sizes, no attempt has been made to place them in neat layers and no mortar was used. Unlike F.004, it does not reach down to, or even near, the bedrock, but was built on top of a wide foundation platform (F.054 and F.076). To the south-west of F.076, we find a further wall (F.144), built on top of the earlier tumble (F.092). Its stratigraphic relation to F.076 is unclear. Running from the foundation platform for wall F.014 to the old wall F.013, wall F.144 (Fig. 2:68) may form part of dry-stone constructions of the tenth century connecting the F.004 building with the fort walls.[84]

The base of the foundation platform (F.054 and F.076) for wall F.014 is at a similar level to paving F.108, and we may assume that this foundation platform was also built in the late ninth or tenth century. The parallel orientation of the north-eastern part of F.014 to F.004 was surely deliberate, as was wall F.090 running at a right angle to F.004 and F.014. The space of c. 2.00 m by 2.40 m enclosed between these three walls and the steep bedrock will have been a room covered with a roof, rather than an outdoor lane. The curving extension of wall F.014 in the south suggests that there was a further room beyond.[85] These rooms may have been part of a large annexe to the F.004 structure. Why was such an extension needed? A hypothetical rise in the number of occupants towards the end of the first millennium provides one possible scenario. More probably, however, the annexe did not increase indoor floor space, but made up for the loss of space elsewhere. As we will see,[86] by the tenth century, the basement level of the casemate had been almost completely filled up, restricting fort occupants to upper storeys, if still in habitable condition. There are no known mortar walls of this period at Dariali and no reason to think that the fort occupants at the time had the technical skills needed to add further storeys on top of the late antique casemates or any internal mortar buildings. Single storey dry-stone houses, or annexes leaning against existing solid mortar buildings, were their only option to make up for the loss of space.

And the new annexe of the late ninth or tenth century saw heavy occupation. The pot fill (F.102) and the stone paving (F.108) were covered by greyish brown clayey silt (F.057), overlain by brown sandy silt (F.053), the former with few finds, the latter with a massive quantity, including over 14 kg of bone, over 12 kg of pottery and over 4 kg of brick.[87] This in turn was overlain by mid brown sandy silt (F.043), with close to 12 kg bone, over 11 kg pottery and over 1 kg brick, as well as an imported chlorite vessel[88] – evidence for continuing links with the heartlands of Islam into the tenth century. All deposits (F.102, F.053, F.057 and F.043) above the stone paving (F.108) and the associated storage jar (F.101) contain more bone than pottery – even if mostly just marginally more. There is a marked difference to all deposits underneath (from top to bottom, F.119, F.121, F.128 and F.137) where pottery invariably accounts for a greater percentage of finds than bone – the proportion increasing markedly with depth and the relative age of layers.

A bone from F.043, at -0.87 m, about a foot higher than paving F.108, has yielded a probable *terminus ante quem* in the mid to late AD 980s. This suggests that the entire sequence, at least from F.128 to F.043, built up within a century or less, between the AD 880s and the AD 980s. This remarkable burst of action suggests that activity on the fort did not wane until the late tenth century at the earliest. Why is there no evidence for activity prior to the AD 880s – or very little, even if F.137 should be much earlier – whilst we know that the sequence reaches back about half a millennium further next to wall F.013? It seems inconceivable that any part of the top of the plateau had remained unused before. Instead, we should conclude that in the late ninth or early tenth century the fort occupants in the area dug down close to the bedrock. This may have been done as soil was needed to raise ground levels elsewhere and/or to create a cellar-like structure. The intensity of the disturbance may also explain the high proportion of outliers (two out of five samples) even if admittedly the number of samples is too small for reliable statistical evaluation. The levelness of the occupation horizons and the paving above suggests that this earth-moving operation was immediately followed by intensive occupation.





Figs 2:69–2:70: Section through medieval floors and occupation horizons in the casemate.

2.4.7. Living in the shadows of the wall: the casemate's occupation in the Early Middle Ages (Phase 5a–c)

2.4.7.1. Introduction

The build-up of at least 1.30 m of soil in the last three centuries or so of the first millennium north-east of wall F.013 provides compelling evidence for the heavy occupation of the fort at the time. Yet, the surface rose even a little further on the opposite side of the wall (Figs 2:69–2:70). A sequence of at least 1.50 m, more probably 1.70 m or more (c. 2.30 m counting the fill of a trench next to wall

Table 2:24: Radiocarbon and archaeomagnetic dates from medieval deposits in the casemate in Trench F on Dariali Fort (BBM = below benchmark) (see Fig. 2:22 for a plot of the dates).

Context/Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
F.085/1174	OxA-31613	n/a	Bone: Bos, rib	1147±25	AD 777–973 (88.6%: 802–973) → modelled date: AD 923–976	d13C= -19.55
F.089/781	OxA-31530	5.18 m NE, 4.98 m NW, -2.21 m BBM	Bone: Capra, right scapula	1165±26	AD 773–962 (79.4%: 773–902) → modelled date: AD 911–965	d13C= -19.55
F.098/856	OxA-31391	4.78 m NE, 4.71 m NW, -2.24 m BBM	Bone: Bos, cranium, nasal position	1099±25	AD 889–995 → modelled date: AD 895–948	d13C= -20.52
F.114/1015	OxA-31495	4.25 m NE, 4.38 m NW, -2.79 m BBM	Bone: Caprinae, maxilla, P2, P3 and P4, right	1086±31	AD 893–1016 → modelled date: AD 880–931	d13C= -19.82
F.125/1083	OxA-31499	n/a	Bone artefact: Caprinae, femur(?), decorated with carvings[1]	1171±31	AD 771–967 (80.7%: 771–905) → modelled date: AD 779–900	d13C= -18.79
F.166/1424	SUERC-65859	5.845 m NE, 4.151 m NW, -3.25 m BBM	Bone: Large mammal, rib, medial part	1217±19	AD721–883 (85.9%: 766–883) → modelled date: AD 715–874 (79.1%: 765–874)	d13C= -20.6
F.183/1511	SUERC-63200	6.41 m NE, 3.81 m NW, -4.06 m BBM	Bone: Bos, scapula, complete, left side	1523±33	AD 428–606? (outlier, redeposited from earlier horizon, over F.189 with late 7th-8th-c. sample)	d13C= -20.6
F.189/1576	SUERC-74171	0.17 m SW of F.013, 0.30 m NW of F.050, -4.25 m BBM	Bone: Caprinae, coxal, ilium part, left side	1309±19	AD 660–767 → modelled date: AD 660–767 (71.3%: 660–718)	d13C= -20.4
F.139 (archaeo-magnetic sample)[2]	AM232	4.52 m NE, 7.05 m NW, -3.44 BBM	Burnt soil	n/a	AD 560 BC-AD 734 → c. AD 407–734 [later than F.175/1472 of c. AD 407–552]	n/a

[1] See chapter 15.2.5 on this artefact.
[2] See chapter 23.7.

F.013), built up over the same period (out of almost four metres depth in total, including late antique and modern deposits). No firm dating is available for the top metre of deposits down to F.072. At least until the early tenth century (and possibly beyond) indoor floor levels in the casemate were lower than on the opposite side of wall F.013 outdoors. Raising floor levels indoors cannot be explained solely as a measure to keep pace with surface levels outside and to keep the interior dry. The thick mortar wall will have stopped water infiltration and, whilst we do not know how, a way must have been found to block surface water from flowing through the (only partially excavated) doorway F.162.

In contrast to contemporary deposits on the other side of wall F.013, dropping away from the F.004 building at a steep gradient, the deposits within the casemate tend to be, more or less, horizontal and there are several distinct floor surfaces, whilst there is none to the north-east of wall F.013. A degree of unevenness of the floor levels and deposits may well be the result of subsidence. It is clear that the casemate, in contrast to the waste ground uphill of F.013, was occupied in the Early Middle Ages (Tables 2:24–2:25). Further evidence to support this conclusion is provided by a series of features that have no counterpart on the other side of the wall and would make no sense in a rubbish heap: a late antique or later fireplace (F.139), and a carefully built medieval stone box (F.067) and, less significantly, a post-pipe (F.116). These features are not contemporary and prove continued occupation over an extended period.

Table 2:25: Finds embedded in deposits of probable eighth to tenth-century date in the casemate (quantities in grams). Note that the earliest occupation layers and the bedrock were only reached in a c. 1.50×2.50 m sondage in the east of the casemate. In the south-western half of the room, the deepest deposits explored go back to the end of Late Antiquity or the beginning of the Early Middle Ages.

Horizon	*Deposit (and phase)*	*Animal bone*	*Pottery*	*Other finds*
NE of casemate: c. 10th c.	F.066 (5c)	22,022	9,669	Charcoal, 6,531 g brick, 3 g glass, 11 g worked bone (gaming piece), 30 g FE and 2 g AE
	F.091 and F.161 (5c)	8,101	12,422	Charcoal, 7,299 g brick, 5 g glass, 13 g FE
NE of casemate: c. late 8th–10th c.	F.112 (5b-c)	6,994	21,048	Charcoal, 1,086 g brick, 42 g glass, 2,585 g slate roof tile, 7 g worked bone, 45 g FE
NE of casemate: c. 8th–9th c.	F.176 (5a-b)	257	1,602	n/a
	F.164 (5a-b)	4,988	4,349	Charcoal, incl. 185 g organic material, 42 g clay artefact, 26 g glass, 248 g worked stone (whetstone?), 40 g FE, including a razor blade
	F.166 = part of F.164 (5a-b)	33	0	n/a
NE of casemate: c. late 7th–9th c. (fill of trench along wall F.013)	F.170 (5a-b)	1,256	4,344	Charcoal, <1 g glass, 22 g worked stone (spindle whorl)
	F.183 (5a-b)	425	632	Charcoal, 5 g glass, 5 g slag, <1 g AE (bell)
	F.187 (5a-b)	0	11	Charcoal
	F.189 (5a-b)	55	14	Charcoal
NE of casemate: c. 6th–9th c.	F.169 (3d-5b)	3,717	3,310	Charcoal, 9 g glass
	F.171 (3d-5b)	78	131	Charcoal, 8,271.5 brick
Centre of casemate: c. 10th c.	F.085 (5c)	308	532	n/a
	F.089 (5c)	3,854	7,138	Charcoal, 674 g brick, 14 g glass, 11 g worked bone (gaming piece), 18 g FE and 2 g AE
Centre of casemate: c. early–mid 10th c.	F.100 (5c)	15,794	9,355	Charcoal, 4,434 g brick, 22 g glass, 15 g worked bone, 19 g FE
	F.093 (5c)	0	0	4 g shell
	F.103 (5c)	0	0	13 g FE (knife fragment)
Centre of casemate: c. late 9th–mid 10th c.	F.098 (5c)	262	5,191	Charcoal, 3,955 g brick, <1 g glass
	F.107 (5c)	123	0	n/a
Centre of casemate: c. late 9th–1st half 10th c.	F.114 (5c)	7,899	13,135	Charcoal, incl. 865 g remains of timber plank, 6 g glass, 84 g FE
Centre of casemate: c. late 8th–early 10th c.	F.120 and F.123 (5b-c)	857	1,860	Charcoal, incl. 212 g of burnt wood, 33 g FE, incl. 18 g knife fragment
Centre of casemate: c. late 8th–9th c.	F.122 and F.125 (5b)	9,852	19,123	Charcoal, 22 g glass, 7 g shell, 58 g worked bones (with figurative carvings), 7 g AE pin, 38 g FE
Centre of casemate: c. 8th–9th c.	F.131 (5a-b)	1,683	1,227	24 g glass, 58 g FE (incl. 52 g sickle)
Centre of casemate: c. 6th–9th c.	F.132 (5a-b) and F.130 (3d-5b)	1,759	2,945	2 g glass, 19 g FE
Centre of casemate: c. 5th–8th c.	F.139 (3d-5a)	0	39	Charcoal
	F.133 (3d-5a)	1,544	1,077	<1 g glass
Total	**n/a**	**91,862**	**119,152**	**n/a**

2.4.7.2. The casemate's occupation up to the eighth century (Phase 5a)

In contrast to the open space to the north-east of wall F.013, there was no contemporary burnt horizon in the interior of the casemate. The conflagration, probably of a short stretch of roof of a covered walkway, did not spread to the interior of the casemate. The substantial wall will have provided a firebreak, and the roof of the casemate was probably many metres above that of the, probably single-storey, porticus – far enough in any case from the flames it seems. A lucky escape for the occupants – resulting in us being unable to identify a horizon belonging the late antique to early medieval transition here. The radiocarbon sample from F.175 of the fifth to mid-sixth century suggests that this deposit still belongs to the late antique sequence and this may also be true for floor F.172 immediately above.

A layer of brick collapse (F.171) on top of this floor contains few finds other than some 8 kg of fired brick. We do not know what event resulted in the irregular scatter of bricks, clustering in the centre of our 1.50 × 2.50 m large deep sondage in the eastern corner of the room. Stratigraphy and the low quantity of pottery and bone, perhaps pointing to a continued tradition of late antique tidiness, makes one think that this layer may belong to the end of the late antique phase or the seventh to early eighth-century transition. It is worth noting that the ceramic date established by Seth Priestman for F.171, as well as for F.172 and F.175 underneath, is seventh century,[89] perhaps an argument for assigning the whole sequence to Late Antiquity (phase 3) and the transition from Antiquity and the Middles Ages (phase 4), even if the radiocarbon date suggests that the horizon may have started to form before the seventh century.

A more substantial deposit of firm mid reddish-brown silt (F.169) above contains more finds (well over 3 kg of bone and a similar amount of pottery) and more charcoal, although the reddish discolouration may be the result of iron-staining rather than fire-exposure. It is hard to be sure if the increase in indoor finds deposition might be a sign of this deposit perhaps being contemporary with the start of large-scale rubbish disposal outdoors, north-east of wall F.013. Alternatively, it could still belong to the seventh or early eighth-century transition, but can hardly be much earlier, as it was cut by a trench (F.208) containing a mid-seventh to mid-eighth century sample.

This trench (F.208), alongside wall F.013 and approximately two foot wide, was cut from the top of F.169 down to natural soil (F.194). Both the higher level from which it was cut and material from its fill prove that it was not a foundation trench for the wall (unlike trench F.207, cut from a deeper level along wall F.050). Its bottom fill, soft mid greyish brown sandy silt (F.189), yielded a sheep or goat bone (F.189/1576) of c. AD 660–767. Above, we encountered soft mid greenish brown clayey silt with an estimate 30% soft mid reddish brown sandy silt (F.187), perhaps fallen-in fire-exposed material or iron-staining.[90] The next deposit (F.183) was of essentially the same composition and colour as F.189 and contained some mortar, no doubt crumbled mortar from the late antique walls. Whilst there had been little finds from the bottom fill (F.189 and F.187), F.183 contained over 1 kg of finds (pottery and bone) as well as a wider variety, including parts of a copper alloy bell (F.183/1510). A cattle scapula (F.183/1511) of c. AD 428–606 is evidently older than the sample from F.189 underneath – testimony to the mixed-up nature of the fill of the trench (F.208), unsurprisingly with redeposited late antique material.

The top fill (F.170) was most prolific in finds, with over 1 kg of bone and over 4 kg of pottery (that may date to around the seventh century),[91] as well as a stone spindle whorl (F.170/1456). We cannot know if the latter object is redeposited from earlier layers; there are spindle whorls from the transitional burnt horizon (F.096), on the opposite side of wall F.013, and from various early medieval contexts. The upcast of the trench (F.208) should have provided enough material to fill it up again, and there is no obvious reason to think that material from outside the casemate would have been required for the purpose. If so, the spindle whorl interestingly, if not surprisingly, indicates that the occupants of the casemate engaged in spinning wool at least at some stage between its construction and the eighth or ninth century, rather than exclusively guard duties. Perhaps the casemates, just as interior buildings in Dariali Fort, were occupied by families rather than professional soldiers only (which is not to imply that textile production was necessarily practised exclusively by one gender only) – as also suggested by women and children being strongly represented in the early medieval cemetery whilst there is no evidence so far for separate housing of non-combatants or indeed for any extramural settlement.

When was this trench (F.208) dug? The later of the two radiocarbon samples from its fill provides a *terminus post quem* of AD 660. Both samples could of course be redeposited. A mammal rib (F.166/1424) from a fired patch (F.166) of c. AD 715–874 within deposit F.164, covering the cut, provides a likely ninth-century *terminus ante quem*. The trench (F.208) is thus definitely later than the mid-seventh century. As there is so far no firm evidence for building or digging ditches in the mid-seventh to early eighth century one is inclined to tentatively attribute the trench to the time after the change of garrison in the eighth century, perhaps not long after. The pottery from both F.183 and F.170 is of seventh-century appearance which, bearing in mind that such typological dating is only approximate (all the more so as a sizeable proportion of the fill could be redeposited), offers support for the dating proposal. What could the purpose of a c. 60 cm wide and 80–85 cm deep trench along wall F.013, down to its foundations, have been? It seems too regular for a material extraction pit. There is no clear evidence for side erosion or water infiltration and it does not appear to have remained open for a longer period. It was evidently soon filled up again with much poorly sorted redeposited material. Perhaps the

substantial top deposit (F.170) provides a clue: reaching some 55 cm deep, it consisted of soft dark brown silt, with large stones. The dark brown colour may suggest rotted timber, and one wonders, even if no postholes could be identified, whether the trench contained timber posts that supported one or more timber floors above, perhaps in need of repair, more than three centuries after construction. Alternatively, it might have contained the timber support of some other furnishing or shelving leaning against the wall. If indeed a post-trench, the postulated roof support cannot have lasted long as the trench was covered by soft brown sandy silt (F.164), perhaps corresponding to the upper part of F.130 and F.131, and of likely mid- to late eighth or ninth-century date. No explanation for trench F.208 seems entirely satisfactory, but it attests renewed activity perhaps involving structural alteration or repair rather than simple reoccupation of existing buildings.

Only in the small sondage in the east of the casemate did we reach the bedrock. A larger sondage, c. 1.50 m wide from the centre of wall F.059 to the centre of wall F.050, was not excavated to the same depth as that in the east of the room, but provided detailed insights into the earlier medieval occupation of the casemate. At the bottom of this sondage, as far as excavated, we found a stone-lined fireplace (F.139). It may extend under the unexcavated baulk. The parts exposed measure some 50 cm across, or up to 75 cm including heat-exposed stones around the edges of the fire-reddened soil. The fireplace is next to wall F.059. David Greenwood and Cathy Batt succeeded in dating this feature to 560BC – AD 734.[92] The absence of any certain pre-medieval finds or samples from the layers above may suggest a date not long after the transition from Late Antiquity to the Early Middle Ages, in the seventh to early eighth century, at the latest. The trampled earth floor (F.172) found in our deeper sondage in the east of the room, at a similar depth to the fireplace and without any pre-medieval debris on top, suggests that the room was kept clean in Late Antiquity. A radiocarbon sample from F.175, under F.172, provides a fifth-century *terminus post quem*, whilst pottery (as discussed above) embedded in F.172 and F.175 may point to the seventh century. Depth and layering would suggest that fireplace F.139 is of a similar age to F.172, F.169 or F.164, suggesting a date between the fifth and early eighth century (the sixth or seventh century perhaps being most probable). As the fireplace yielded no datable finds or only a small quantity of charcoal that has not been dated, and as we did not remove it and excavate deeper, we cannot be more precise; nor can we tell if this was the only fireplace here or the latest in a sequence. What is clear is that the floor surface did not rise rapidly in pre-medieval times. Whatever the precise date of the fireplace, it cannot be more than a few centimetres, at most, above the earliest floor of the casemate.

It is unsurprising to find the fireplace next to wall F.059, at about one and a half metres distance from doorway F.162, where it caused no obstruction to anybody entering, leaving or passing through the room, not to mention that it is generally common for such cooking and heating facilities to be located next to a wall. Undoubtedly, there must have been a fireplace in operation whenever the basement of the casemate was occupied, notably in autumn, winter and spring. None may have been required if, at times, the basement should have served solely as a dark and cold storage cellar. Perhaps it was just one of several successive fireplaces. Significant parts of the interior of the room have not been excavated, and more excavation is required to search for further fireplaces and to reveal if fires provided light and warmth in all phases or only some.

2.4.7.3. Late eighth/ninth-century (Phase 5b) levels in the casemate: people from Khazar lands at Dariali?

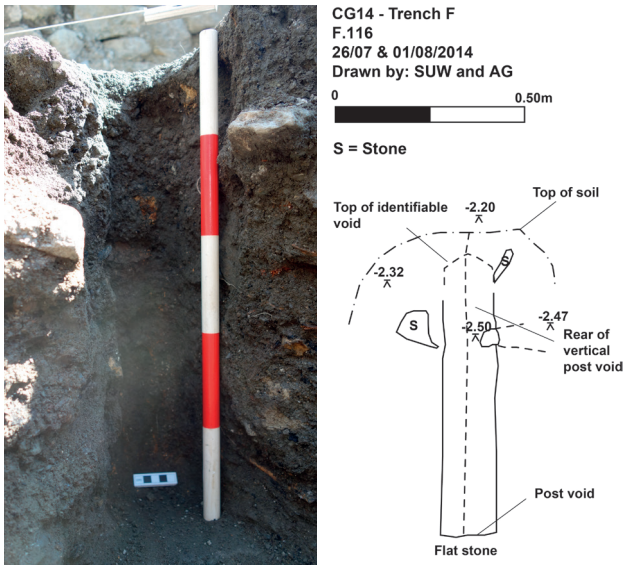
Above fireplace F.139, we found F.130 (= F.132), as well as at the same level further north-west, F.133 and F.131 above. These contexts should all be considered spits of a single deposit of soft greenish brown sandy silt, the green discolouration often suggestive of sewage or standing water. This may signal either untidiness, water infiltration or that the basement of the casemate was unoccupied at the time and may have been used for rubbish disposal by those living on the floor above. The quantity of material embedded in these deposits is modest, perhaps suggesting there was no large-scale rubbish disposal, the greenish hue perhaps a result of the inflow of dirty water through the doorway (F.162). Towards the top of F.131, at the interface to F.122/F.125, we found an iron sickle (F.131/1118). Probably used for agricultural or horticultural purposes in the extramural area, it made sense to store a valuable metal tool indoors to prevent rusting or theft. Above F.130 (= F.132) and F.131, there is a layer of soft brown sandy silt (F.125 = F.122).[93] This has yielded two of the most interesting finds from our excavations: a decorated cylindrical bone object (F.125/1083) and a part of a second (F.125/1084) with carved animal decoration. Bone powder drilled out of the former artefact has yielded a radiocarbon date of AD 771–967 (before modelling and at the usual 95.4% confidence range). As we will see, a substantial sequence of deposits built up on top of F.125 by or before the AD 970s. Not only the depth of the sequence, but also its complexity with repeatedly raised floors and structural alterations, suggest that this must have taken a considerable span of time. It thus seems unlikely that the artefact was lost in the tenth century. Bayesian modelling confirms this assumption and suggests a date between AD 779 and AD 900. In the light of the complex multi-phase stratigraphy above, the piece will have been lost or left behind during the same time span and certainly not much later.

Lana Chologauri's research has yielded interesting parallels, notably from the realm of the Khazars.[94] Was the elaborate artefact in the possession of a northerner when lost, or might it have been acquired through trade, gift exchange or plunder by a member of the original garrison? Alternatively, is it possible that garrison members

of Muslim extraction, but isolated in a non-Muslim environment, adapted to local customs? Chologauri has made a strong case that these distinctive artefacts, of no material value, will have had a special meaning and function for their owners and suggests that northerners were indeed present in the fort at the time. The assumption of the acquisition of such traditional Khazar art by members of the original garrison seems less persuasive. If their owners had indeed come from the north, one wonders what had brought them to the fort: were they traders, craftsmen or mercenaries? Found indoors, one is tempted to think that they belonged to occupants living either in the casemate's basement or upstairs. This is perhaps the most obvious accommodation for those guarding the fort. Should there have been any civilian traders or craftsmen present at the time, buildings in the interior would perhaps have been more appropriate accommodation than rooms in the shadow of the wall, presumably with access to the parapet. Might the fort have been in Khazar possession at the time, perhaps from some time in the later eighth century into the ninth century? If so, this might explain why the Khazars appear to have been able to venture across the gorge unopposed, or at least with no recorded armed struggle, in c. AD 762/764 or AD 799/800.[95] Yet such an assumption is hard to reconcile with Mas'udi's clear testimony that the same garrison of Arab descent had been in place from c. AD 727 to the tenth century. Catriona Pickard's isotope analysis adds strength to his claim of provisions arriving from the south over centuries.[96] It is perhaps best not to jump to conclusions. One possibility might be that the garrison, without being ousted, accepted Khazar suzerainty for a time, switching flags again when Khazar power waned. Alternatively, it may have continued to follow commands from the south, whilst employing northern mercenaries. The presence of artefacts of this kind certainly suggests at the very least that the garrison did not consist exclusively of strict Muslims, opposed to all figurative art. The presence of a pig bone in F.130 (under F.125) suggests that pork was eaten too in the eighth or ninth century, even if only in very small quantities. A pig bone from F.078 (further north-east in the trench) is likely to be of eighth-century date, even if it could be of the later seventh century too.[97] We may conclude, at the very least, northerners exercised considerable influence on the garrison or parts thereof. More probably, non-Muslims from Khazar lands were physically present within the fort in the late eighth and/or ninth century.

2.4.7.4. The late ninth/tenth-century burst of activity in the casemate (Phase 5c)

Deposit F.125 was sealed by a floor consisting of a thin band of soft yellowish brown clayey silt (F.120) and a patch of loose brownish yellow silty sand (F.123). The floor horizon whilst patchy was distinct and dipped lower toward the centre of the room, undoubtedly the result of subsidence. A sample (F.114/1015) from less than 10 cm



Figs 2:71–2:72: Section of flat-based square post-pipe F.116 (only lower part visible on the photo and in the section).

above the floor has yielded a *terminus post quem* of c. AD 880. The very soft mid yellowish to mid greenish brown sandy clay with some 20% of stones (F.114), it was found in, evidently cannot have started to build up before the late ninth century and is not likely to have formed after the first third of the tenth century. F.114 in turn is sealed by a further floor horizon, a thin layer of soft mid greyish brown silty clay (F.107). On top of this, there is a spread of brick fragments (F.098) in the centre of the room. The production of fired bricks was laborious, and it is unsurprising that they were used sparingly at Dariali where stone is available in limitless quantities. The limited extent of the brick scatter (F.098) and its uneven surface point to tumble or more probably deliberate scattering of broken brick (probably from a defunct earlier structure) to raise the surface, rather than a paving. A radiocarbon sample (F.098/856) from a cattle skull fragment between the bricks yielded a date of c. AD 895–948. Taking into account the chronology of deposits above and underneath, we may be confident that the tumble is indeed not likely to be earlier than the late ninth century and more likely to belong to the early to mid-tenth century.

Reaching down from the level of F.085 (the next floor surface above, to be discussed below) we found a void for a post (F.116), centred on 4.63 m north-east and 5.13 m north-west, its c. 114 cm deep void reaching down from c. -1.88 m to -3.02 m (Figs 2:71–2:72). It was square in plan and some 14 cm across, evidently for a squared timber post of similar diameter. The void was of a similar width and shape throughout, and its base, on two superimposed stones, was flat. There was no evidence for a wider posthole. We may thus conclude that the square timber post had a flat end and was not hammered into the ground. Instead the post was stabilised by building up material around it. Yet, as it penetrates floor F.107

(at the edge of brick scatter F.098 at -2.18 m) how could this have been achieved? It evidently is contemporary with the floor and make-up levels underneath (F.107 and F.114). That the void is reaching 30 cm above the brick scatter (F.098) does not prove that it had been driven into the ground from this level. In fact, it would have been impossible to drive a 14 cm-thin timber post with a flat end through deposits rich in stone. The continuation of the void proves simply that the post was still standing when the floor was raised again and that further material built up around it. We may conclude that F.114 and F.107 represent a floor that had been raised quickly, within days or even within a day. F.098 formed subsequently and need not be earlier than the post. Had F.114 and F.107 gradually built up over years and decades, how could the post have remained in an upright position? We may furthermore conclude that the floor was raised again before the timber had rotted, perhaps just a few years and no more than a few decades after. What was the post's purpose? It was not far off halfway between walls F.050 and F.059, but much closer to F.013 (c. 1.80 m from its inner face) than to F.058 (c. 3.30 m). It thus makes little sense to interpret it as a central post supporting the wooden floor of the next storey. Should a similar post void be found in the same axis further south-west, in the as yet unexcavated baulk, then it might make sense to interpret it as one of two support posts. Yet, at some 14 cm in diameter, it would not have provided a solid support. Furthermore, the preserved slot in wall F.059 suggests that the floor of the first storey would have rested on this ledge rather than relying solely on feeble post support. The post may, of course, have provided additional stability. Floor F.107 was only c. 1.30 m on average below the level of the slot in wall F.059. If the slot still supported a floor and ceiling resting on the slot, most adults would not have been able to stand upright. We do not know if at this stage there was a low basement room or if the interim floor (at c. -1.10 m) had rotted away or had been removed. If not supporting a floor, the post may have supported some furnishing, wooden panel or subdivision within the room, but there is no way to be sure.

A further succession of deposits was found on top of F.107 and F.098: dark brown sandy silt with much charcoal (F.103), soft mid brownish yellow silty clay (F.093), soft mid yellowish to greenish silty clay (F.100) and friable mid brown silt (F.089). These make-up layers are sealed by a further thin and compact surface (F.085), containing much brick debris. A bone (F.089/781) from F.089 dates to c. AD 911–965, another (F.085/1174) from F.085 to c. AD 923–976. These are modelled dates, but the results of Bayesian modelling are persuasive. As some of the deposits below can already be attributed to the late ninth or tenth century, we may be confident that the third phase of raising the floor must have taken place well after the turn of the century, perhaps towards the middle of the tenth century or even in the third quarter. Floor F.085 is a mere 65 cm below the slot in wall F.059, and we may



Fig. 2:73: Stone box F.067 with cover in place.

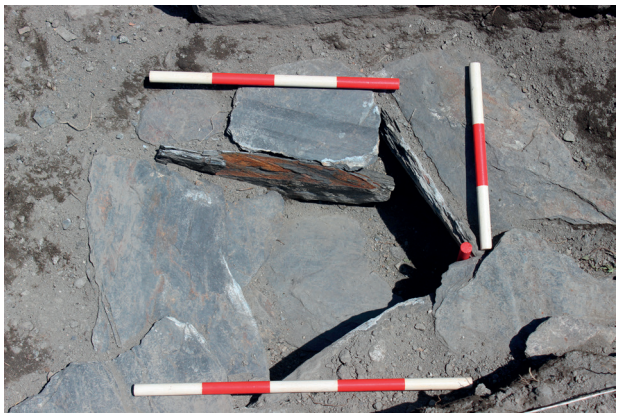


Fig. 2:74: Stone box F.067 after excavation.

conclude that it can no longer have supported a timber floor/ceiling at this stage (and may, of course, have ceased to do so some time before).

Subsequently the floor was raised for a fourth time. On top of floor F.085, we find grey sand (F.073 = F.084), overlain by soft greyish brown sandy silt with c. 30% stones, including large boulders (F.072). This is sealed by a slate floor (F.069). As there are late medieval slate floors in the north-east of the trench, notably F.024, one wonders whether this floor may also belong to the Late Middle Ages. This is possible, but it is also worth bearing in mind that floor F.085 contains material suggesting a *terminus ante quem* of c. AD 976, whilst there is evidence from the cemetery indicating that the main phase of occupation lasted at least until the late AD 980s and possibly a few decades beyond. As we have seen,[98] there is also intensive tenth-century activity in the north-east of Trench F, even if we cannot date its end with similar precision. Is it possible that the bones from F.089 and F.085 could both be redeposited and that floor F.085 dates to the AD 980s or even a little later? These samples, and indeed the samples from underneath in the casemate, form a perfectly plausible sequence, Bayesian modelling shows high levels of agreement and (with the exception of a sample from F.183 at a much deeper level) there are no obvious

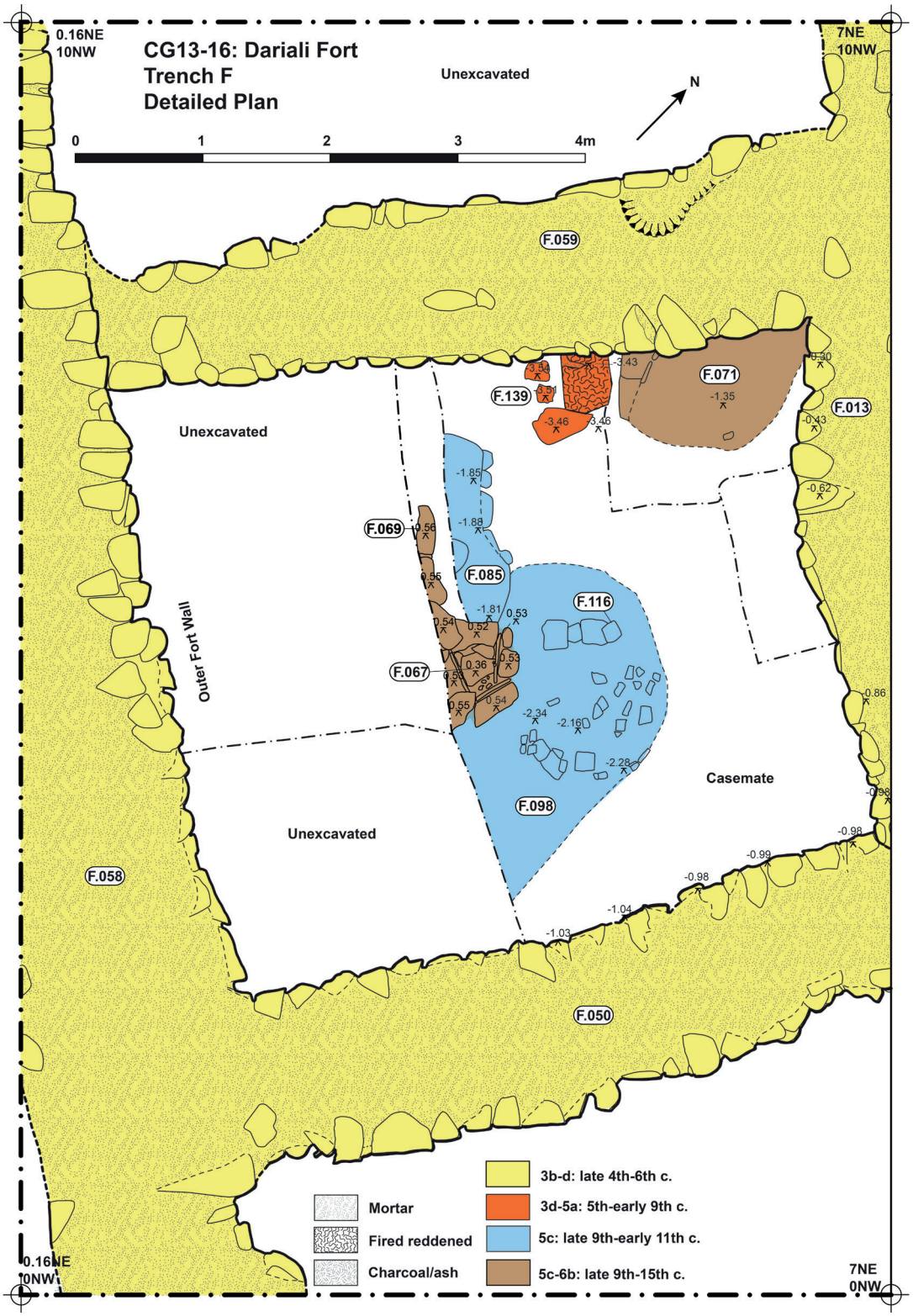


Fig. 2:75: There was a series of successive medieval floor horizons in the casemate. Under slate floor F.069, there was a covered stone box (F.067, plus probably a second, F.209, only exposed in the profile).

outliers. There is thus no strong argument for assigning floor F.085 to a later date than suggested by the sample, even if a later date is possible in theory. Accepting that F.085 is indeed likely to predate AD 973, it is possible that the floor was kept tidy for a few decades until the end of early medieval occupation in the late tenth or early eleventh century. If so, the sequence above might be late medieval. The pattern of activity is, however, an argument for attributing the fourth floor (F.069) to the final decades of the early medieval phase, in the very late tenth or very early eleventh century, as well. We certainly can assign the three previous floor surfaces (F.120/F.123, F.107 and F.085) plus the make-up layer underneath, to the Early Middle Ages. It seems that the floor was raised once every few decades, and it thus would make sense to assume that the fourth repetition of the same procedure was a manifestation of the same unbroken tradition. Ultimately, further samples and/or further analysis of associated finds will be required to decide the question if F.069 and F.072 are early or late medieval. The former seems more likely than the latter.

Whether floor F.069 predates or postdates the incorporation of the fort into the Kingdom of Georgia, it differed from those underneath in employing slate. Set into this floor was a box made of slate (F.067) and still, or again, covered with a large slate plaque (Figs 2:73–2:75). Of irregular trapezoid shape of c. 40 cm diameter at its widest point and some 19 cm deep, it offered little storage space. Most probably, it was designed for the safeguarding/concealment of precious items. Yet, this interpretation raises questions. Unless the slate floor was instantly covered with soil or some other thick floor, a hollow sound when stepping on it may have revealed the location of the cache and the plaque would not have been difficult to lift. Whatever the box once contained, or was intended to contain, the owners do not appear to have left it behind. All of the content of the box was floated and its fill (F.068), very soft mid brown silt contained 1,918 g of animal bones, 1,638 g of pot sherds and one fragment of vessel glass (2 g) as well as charcoal and molluscs. There was nothing of any particular value or special function. Given its small size, the concentration of rubbish was remarkably high, much higher than in deposit (F.062) covering it and the slate floor above. The latter yielded ninth to tenth-century pottery and could date to the tenth and/or early eleventh century or, bearing in mind late first-millennium pottery can still dominate late medieval contexts, the thirteenth, fourteenth and fifteenth centuries.[99] It cannot have been the result of it accidentally filling up with rubbish, as the cover remained in place. Perhaps the high concentration of rubbish was a deliberate ploy to conceal any small item(s) hidden amongst it. If removed by the owner why was the cover replaced? Perhaps it was a hiding place intended for reuse, should the need arise – or always designed for such an eventuality and never actually used. More probably, it was a disused storage box, filled up with rubbish once no longer required, so as to ensure that the stone plaque could not slip out of place easily. A vertical slate in the profile may be part of a second similar (unexcavated) stone box (F.209).[100]

At a similar level to F.069, and on top of a layer of grey sand (F.073 = F.084), we find F.071 in the northern corner of the casemate. A high and dense concentration of brick fragments in the corner, measuring some 80 × 130 cm, it is perhaps best explained as a collapsed brick structure, *e.g.* an elaborate fireplace, or simply a cluster of broken material used to raise the floor.

One wonders why so much material accumulated within the casemate in the eighth to tenth centuries and at a particular rapid speed, it seems, in the first two thirds of the tenth century. The deposits are rich in pottery, bone and other debris, proving that they contain a high proportion of rubbish. Do they prove heavy occupation? Was it simply a matter of convenience for the occupants of upper storeys to dump food waste and broken pottery at ground floor level? If there were no windows, the alternative would have been to carry all rubbish upstairs and throw it either out of the fort or in the open yard to the north-east of wall F.013. Yet on this open yard deposits clearly slope downhill, away from the F.004 building and towards wall F.013, and there is no evidence of any deposition out of the casemate and in the opposite direction. Dumping waste outside the fort walls compromised the defences, as piles of debris could have been used to ascend, but was clearly practised on a grand scale, as the excavation of Trench X demonstrated.[101] Indoor disposal downstairs might have been the easiest option and would have avoided the drawbacks of extramural deposition. Yet the presence of four successive floor surfaces is clear evidence that the ground floor was not a permanent rubbish pit for those living upstairs, but that it saw repeated occupation. The raising of the floor may thus in part have been deliberate. Up to the early tenth century at least it was below the level of the rubbish heap north-east of wall F.013. We do not know how flooding of the basement was prevented at the time, perhaps via some barrage next to the door opening (F.162) in the unexcavated northern corner of the room. Our data do not allow us to reconstruct the growth and height of the rubbish heap outdoors (north-east of wall F.013) towards the end of the first millennium. It is possible, if as yet unprovable, that the more rapid rising of the floor in the casemate in the tenth century aimed at preventing muddy water from infiltrating and making the basement uninhabitable. Using soil rich in rubbish (rather than sterile material which would have been hard to obtain) to successively raise the floor may have combined what was useful with what was convenient. The successive floor horizons certainly suggest that the ground floor was raised deliberately on at least four occasions. The build-up of deposits was not the result of constant uncontrolled dropping of litter, but of deliberate decisions to raise the floor level. The frequency of large

stones in many of the deposits, and even more so in the upper levels, adds strength to this hypothesis. They cannot have formed part of domestic waste produced by occupants on upper storeys, but they make perfect sense in bulk deposits intended to raise the surface. Loose stones would also have facilitated drainage. It is significant that all samples form a neat chronological sequence, with the sole exception of one sample (F.183/1511) out of the fill of the trench (F.208) alongside wall F.013. The material to raise the floor is thus likely to come largely from recently produced waste. Random pit digging to obtain material to raise the floor would not have produced such a neat sequence.

2.4.7.5. Home to the fort's guardians? The casemate's early medieval occupants (Phase 5a–c)

We may conclude that the basement of the casemate was occupied throughout the Early Middle Ages. Personal items and tools were also kept here, and it is interesting to note that, out of five knives found during our excavations, no less than three came from medieval occupation levels within the casemate.[102] Metal was valuable, and this may have been the reason why a sickle, of no obvious use indoors, was kept here.[103] The special Khazar-style bone carvings will also have belonged to one or two occupant(s) of the casemate.[104] Six knucklebones, probably used for playing games, were found embedded in medieval occupation layers from the late eighth or ninth century onwards, until at least the tenth century, providing a glimpse of how the casemate's medieval occupants entertained themselves in their remote outpost.[105] Whilst we have no evidence for storage jars *in situ* from the casemate, food storage is likely too. The postulated upper storeys unfortunately do not survive. There is no evidence for their collapse in the period under investigation. They would have provided much additional living and storage space.

One has to assume that there was a wall-walk on top and that those living in the shadow of the walls included its principal guardians. Combatants, quite possibly with their families, are the most likely occupants. No weapons were found in medieval strata in the casemate, but metal was rarely lost and probably even less so indoors than on disorderly outdoor rubbish dumps. One wonders whether the cited frequency of stones in some of the make-up layers is a result of stones having been brought in from outside, whenever the decision was taken to raise the floor, or if some may have come from a possible stockpile upstairs. Large stones of more or less any shape would have made highly effective weapons against any would be assailants – rolling, sliding and erratically jumping down the near vertical cliffs and steep slopes at rapid speed. If unleashed en masse, it would have been impossible for approaching enemies to evade the deadly and unstoppable avalanche. Whilst admittedly speculative, logic implies that the most sensible place to store missiles and to house those charged with defensive duties was the (multi-storey?) ring

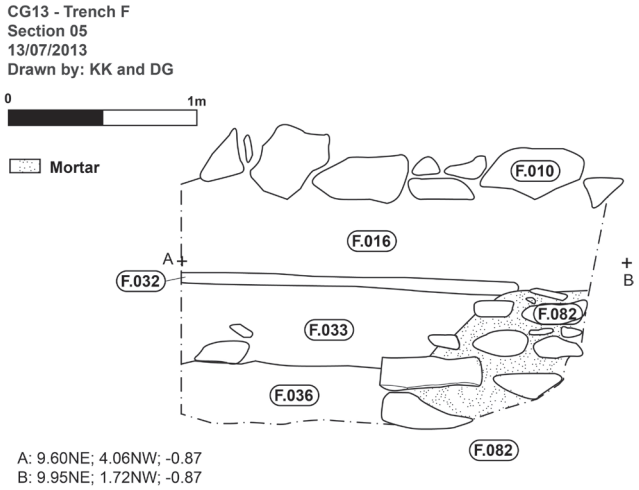


Fig. 2:76: Built above early medieval structures and deposits: the curving apse-like wall F.010 seen in section, as far as exposed in 2013.

of rooms along the fort walls. Rarely will enemies have attempted the suicidal endeavour to storm the fort, and it is unsurprising that some finds illuminate everyday pastimes, like playing games, and other activities, the sickle perhaps used to tend extramural garden plots.

2.5. The late medieval Georgian castle and renewed activity between the thirteenth to fifteenth centuries AD (Phase 6b)

On top of some 1.30–1.40 m of occupation debris of the last third of the first millennium (not counting the mid- to late seventh or early eighth century burnt horizon, F.096, and the late antique deposits sealed underneath) outside the casemate, we encountered a compact surface, F.032. This c. 5 cm thin layer ran across the area of 2013 Sondage 2 and beyond it in the north-west and north-east, from wall F.013 to underneath the outer wall of the later irregular apse-like structure (F.010: Figs 2:76–2:82). Consisting of whitish grey sandy silt, the whitish hue suggestive of a small quantity of lime or mortar, F.032 differed from the deposits underneath by greater compaction and levelness, more than colour or composition. Being at the same level as the top of the pillar (F.082), as far as preserved, it is tempting to think that the upper courses of the pillar were demolished, and the ground beyond levelled, simultaneously. This compact surface was separated by a layer of soft brownish grey sandy silt (F.016 = F.046), of c. 0.32–0.40 m depth, from the base of the outer wall of the apse-like structure and is evidently earlier. Whilst petering out at c. 4.28 m north-west and not extending to the area of wall F.009, it is worth noting that the base of wall F.009, built on top of deposit F.022, is at the same level as surface F.032.

The area between walls F.013 and F.110, after having served for centuries as a rubbish dump with distinctly uneven surface and unsuitable for occupation, was

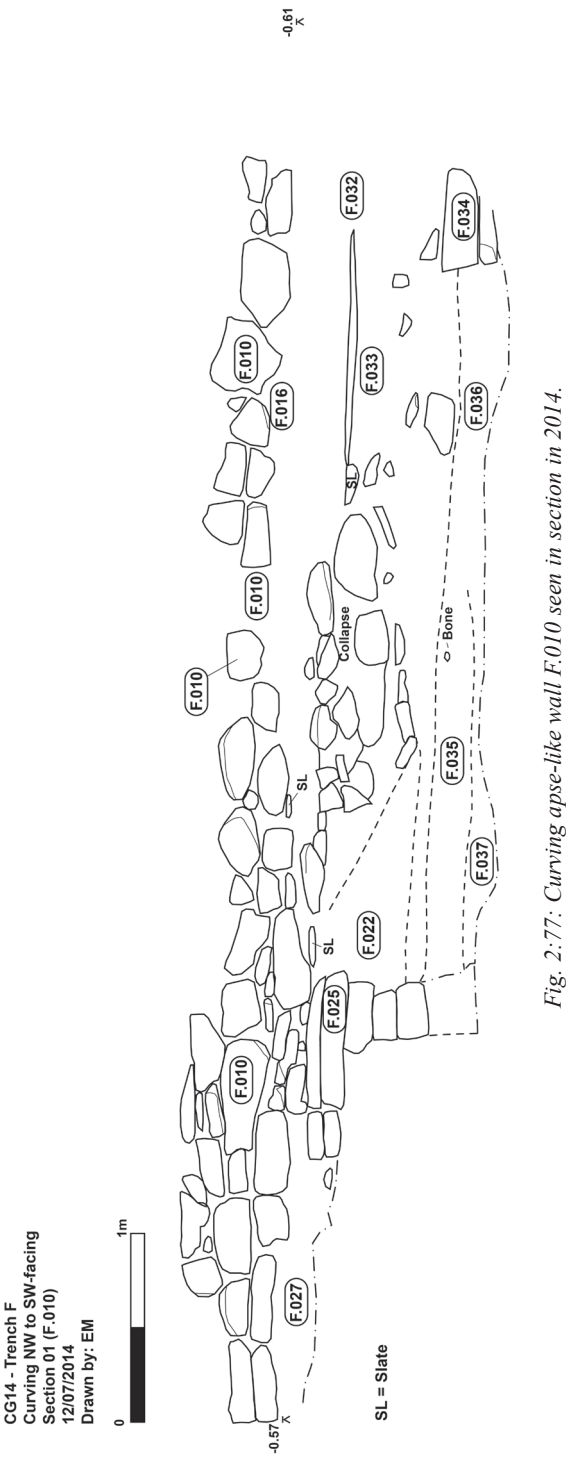


Fig. 2:77: Curving apse-like wall F.010 seen in section in 2014.



Figs 2:78–2:79: The trademark of late medieval structures (phase 6b, late thirteenth to early fifteenth centuries) was their distinctly non-geometric layout.

evidently levelled. No precision dating of this development is yet possible and it could in theory have occurred at any stage between the tenth and the fourteenth centuries. One wonders whether recorded historical events during this time period may provide a possible stimulus for the phase of renewed construction. Could it have occurred in the wake of the twelfth century Georgian conquest by King Davit IV?[106] Alternatively, may the pass defences have been shored up when under threat from the Mongols in the thirteenth and fourteenth century? Our dating evidence suggests that levelling occurred probably either in the tenth/early eleventh or the late thirteenth/fourteenth century, as there is no radiocarbon sample from the area of Trench F so far to prove occupation in the intervening period. This need not prove abandonment for a quarter of a millennium, but certainly points to a substantial reduction of the occupants, perhaps living in a keep outside the area of our trenches. Episodes of abandonment are possible too. The archaeological evidence certainly suggests a reduction in activity around the turn of the millennium. It was, of course, also around the turn of the millennium, probably between the late AD 980s and the AD 1030s, that the latest graves in the cemetery south of the fort, as far as explored, were dug. Further fieldwork is needed to

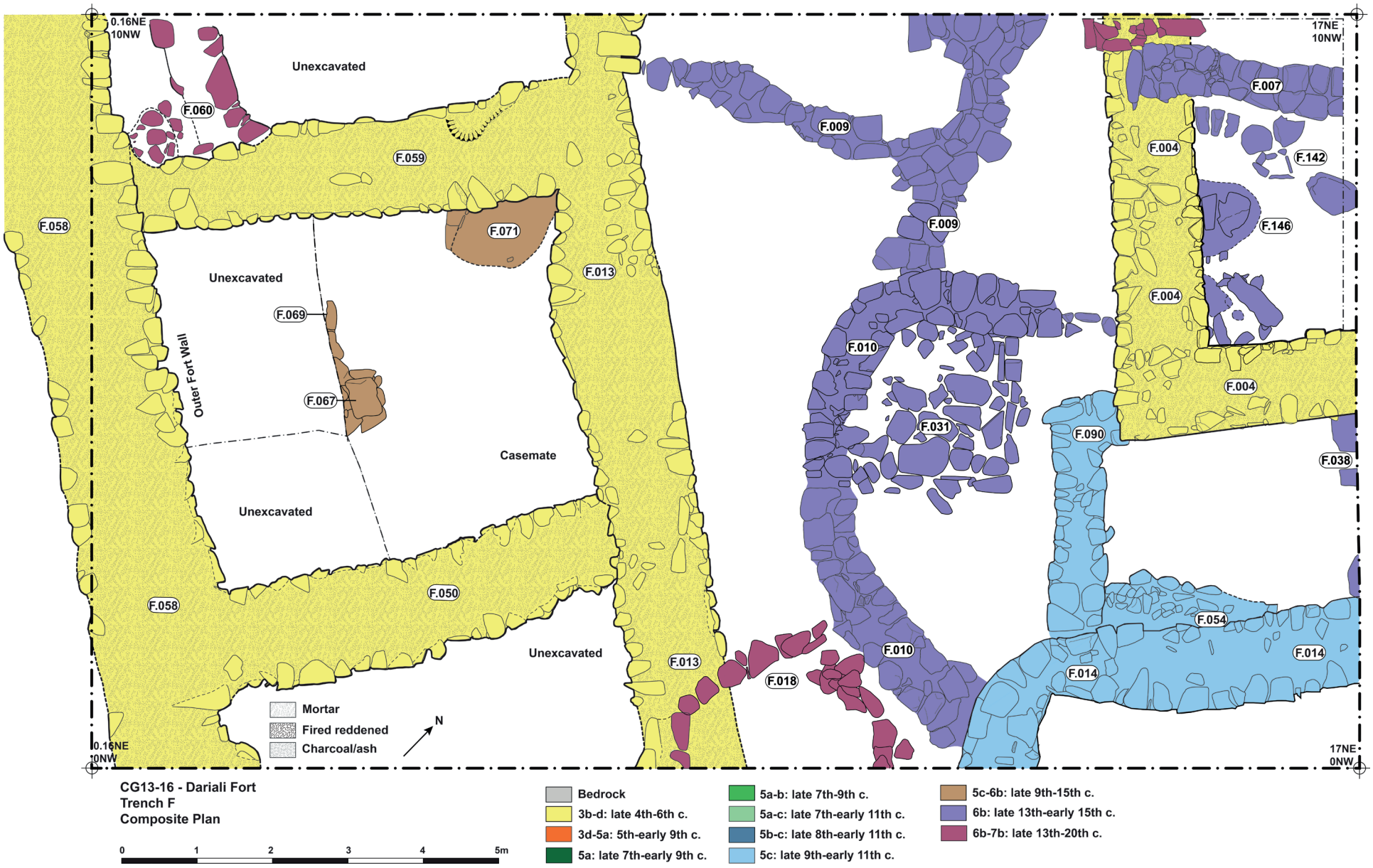


Fig. 2:80: Late medieval structures of phase 6b (late thirteenth to early fifteenth centuries), with earlier features within the F.004 building, including stone box F.142.

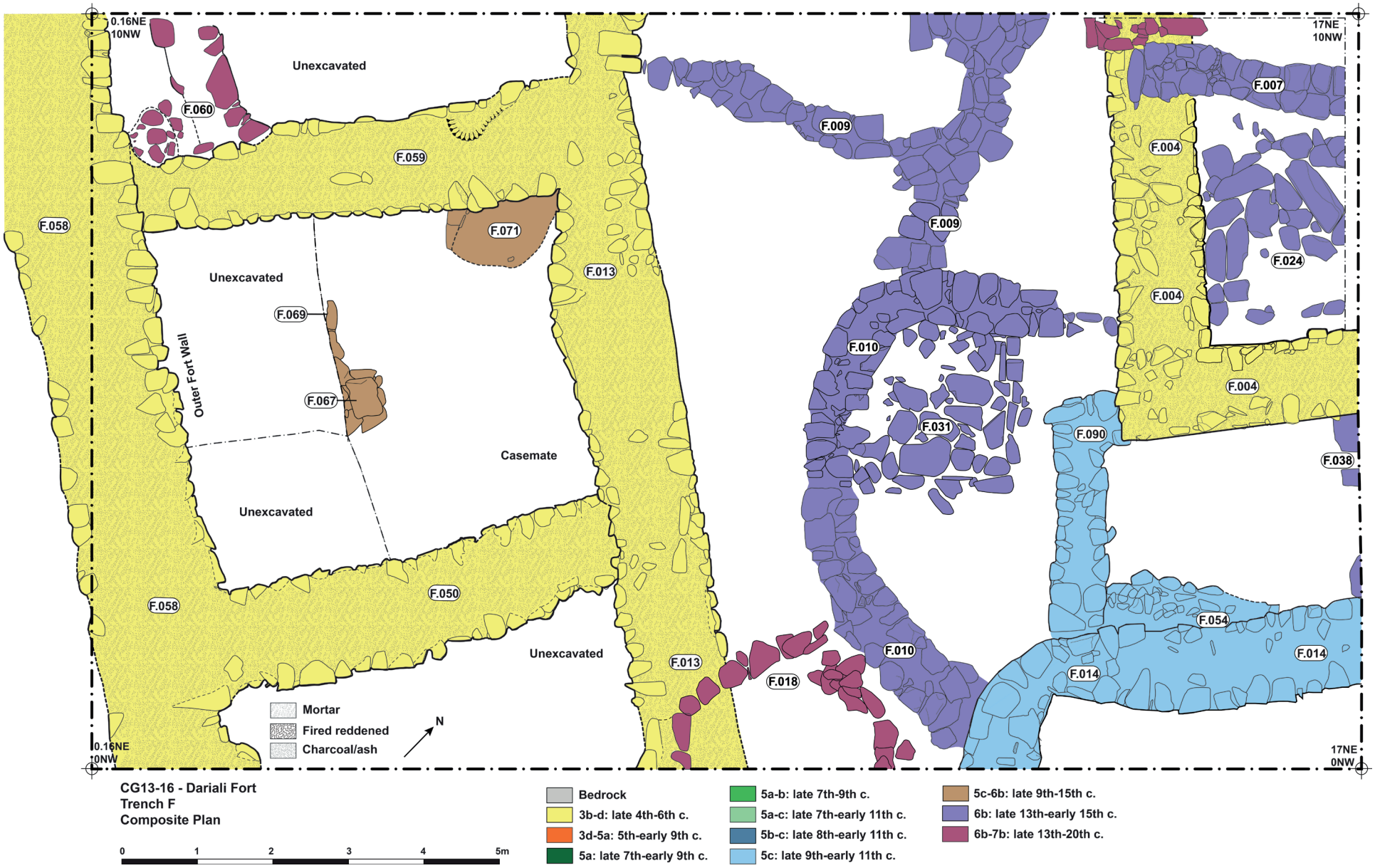


Fig. 2:81: Late medieval structures of phase 6b (late thirteenth to early fifteenth centuries), with later stone paving (F.024) within the F.004 building.

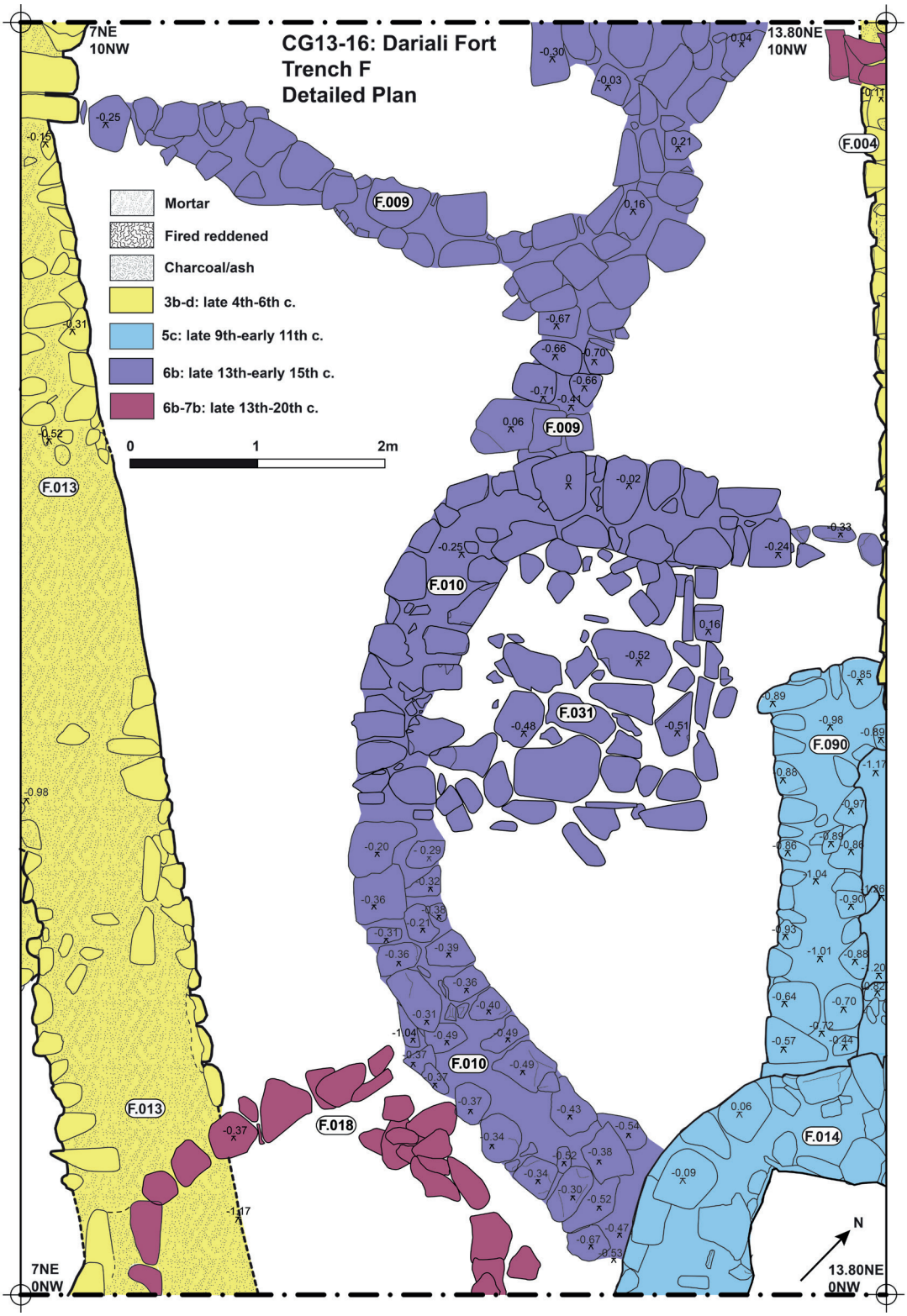


Fig. 2:82: After having served as a rubbish dump for centuries, the strip of land to the north-east of wall F.013 was sufficiently levelled for the construction of new dry-stone buildings. F.018, running over late antique wall F.013, is not closely dated, but may be modern.

Table 2:26: Radiocarbon and archaeomagnetic dates from late medieval deposits within the F.004 building in Trench F on Dariali Fort (BBM = below benchmark) (see Fig. 2:38 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
F.020/184	OxA-29280	n/a	Charcoal: Quercus, twig	592±25	AD 1300–1411 (69.7%: 1300–1369) → modelled date: AD 1311–1413	d13C= -26.15
F.056-F.146/1283	SUERC-63196	15.32 m NE, 6.08 m NW, -0.52 m BBM	Bone: Large Mammal, long bone, medial part	607±33	AD 1296–1406 → modelled date: AD 1288–1393 (91.2%: 1288–1372)	d13C= -21.5
F.146 (archaeo-magnetic sample from top of deposit)	AM240	c. 15.10–15.60 m NE, 6.80–7.70 m NW, -0.52 BBM	Burnt soil	n/a	AD 1124–1373 → c. AD 1288–1373	n/a

test whether Trench G encompasses the outermost part of the cemetery and the most recent graves or whether there were further graves of a more recent date beyond. We cannot be sure whether or not the cemetery expanded further away from the fort and may have been in use longer than the graves from Trench G suggest, but the evidence from all trenches excavated to date gives grounds for thinking that there was a major reduction of activity and, probably, population shortly before or shortly after the turn of the millennium. As the ground in Trench F appears to have been levelled in preparation for construction of new dry-stone buildings, in part at least datable to the late thirteenth or fourteenth century, it seems likely that this occurred not much earlier and in the Late rather than the Early Middle Ages. Early medieval deposit F.043 is overlain by F.042, which can be no earlier than the late tenth century and is earlier than the late medieval floor F.031 above. Pottery assigned to the eleventh to fourteenth century (perhaps of the last third or quarter of this 400-year time span, in the light of a lack of evidence for activity in the High Middle Ages) from F.042 provides a likely date range for this horizon. Evidence for probable fourteenth century occupation within the paved apse-like structure (F.031), above, provides a likely *terminus ante quem* for this last phase of construction that we can trace within the area of Trench F.

The solid F.004 building, probably built in the fifth century and a centre of activity throughout the remainder of the first millennium, was still standing and again occupied in the Late Middle Ages – some 900 or 1,000 years after its construction. The architectural legacy of the late antique fort builders lasted for a millennium or more. On top of the early medieval sequence discussed above,[107] we find a burnt horizon at -0.52 m. This has yielded an archaeomagnetic date of AD 1124–1373 (Table 2:26).[108] A bone sample (F.056-F.146/1283) from the same level, at the transition of deposits F.146 and F.056 is of a matching age of c. AD 1288–1393. Further corroboration of the chronology is provided by the ceramic date for F.146 containing eleventh to fourteenth-century material.[109] It is hard to be sure if the bone, found about a metre away from the sampled burnt patch was discarded before or after the fire, that had caused the discolouration and magnetisation of the soil, but this event and the deposition of the bone can hardly have occurred a long time apart. We may thus assume that the fire burnt in the late thirteenth or in the fourteenth century.[110]

A little above the interface of F.146 and F.056, a wall (F.007) was built, abutting F.004. It also overlies part of F.004, perhaps indicating that the door/window opening in the latter wall was an original feature, but reduced in width in the Late Middle Ages (or, less probably, that wall F.004 had been partially demolished before construction of F.007). Its south-eastern face is in alignment with the north-western side of the doorway in F.004. F.007, preserved up to three (irregular) courses only, is a basic dry-stone wall, two feet wide on average, probably intended to branch off F.004 at a roughly right angle and in a roughly straight alignment – even if no geometric perfection was achieved. F.007 is an internal wall separating two rooms within the same building. It appears to follow a similar alignment (if a little further north-west) as the, not fully excavated, wall F.198 underneath. Whilst running all the way from F.004 to the trench edge, there is a suggestion that the south-western c. 1.10 m are part of a blockage of an earlier doorway

Table 2:27: Finds from late medieval deposits within the F.004 building (quantities in grams).

Horizon	*Deposits*	*Bone*	*Pottery*	*Other finds*
Late medieval or later deposits	F.008	36.0	208.0	n/a
	F.012	1,428.0	1,617.0	Charcoal and 312 g CBM
Late medieval deposits	F.020	918.0	810.0	Charcoal
	F.143	0.0	0.0	Charcoal; bone recorded under F.056
	F.056	3,139.9	2,744.0	Charcoal and 6.8 g FE folded sheet with rivet
	F.056/F.146	33.2	0.0	n/a
	F.146	89.3	37.1	91.6 g boiling stone?
Total	**n/a**	**5,644.4**	**5,416.1**	**n/a**

(again on top of a probable doorway in the earlier wall, F.198) (Fig. 2:49). Within the area of the postulated internal doorway, wall F.198 was overlain by early medieval deposit F.196, suggesting it had been buried for three centuries at least by the time F.007 was built. The section of F.198 beyond the doorway may have remained standing and visible, and this is probably the reason for the similar alignment of these two successive room division walls and the postulated doors. There were also practical advantages in keeping the room division to the same side of the door/window opening at a higher level in wall F.004. The above-cited date for F.146 of c. AD 1288–1393 provides a *terminus post quem* for this later internal subdivision (F.007), the sample from F.020 of c. AD 1311–1413 a *terminus ante quem*. The wall must have been built at some stage between the late thirteenth and the early fifteenth century.

On top of this burnt area (F.146), some 40 cm of very soft dark brownish grey clayey silt accumulated, an occupation horizon rich in organic matter, with over 3 kg of bone and close to 3 kg of pottery (F.056: Table 2:27). Cut into this, we found a small stone box (F.142: Figs 2:83–2:84). Its fill, soft dark greyish brown silt (F.143), was devoid of valuables or unusual finds that might explain its purpose.[111] The same is, of course, true for its counterpart (F.067: Fig. 2:85) in the casemate and the much larger box (Q.017) in Trench Q. Stone box F.142 was covered by a stone floor (F.024). Its base was at -0.55 m, half a metre below the top of the surface of the stone paving (F.024), deep enough that it probably would not have produced a hollow sound that would have revealed its location. If ever used as a safe for treasured possessions, its content was evidently recovered, and the same is true for the two other stones boxes we found.

Late medieval stone floor F.024 is made up of well-preserved slate flagging in the interior of the room associated with F.004. It extends towards earlier room division wall F.007, but is broken up near the wall (Figs 2:86–2:87). Little was excavated of the room beyond F.007, and we do not know whether or not it was provided with a similar stone floor. Deposit F.020, lying directly on the floor (F.024), was a context with a high percentage of charcoal, that included large pieces (some of up to 5–10 cm diameter).[112] The charcoal in F.020 may represent the remnants of firewood, much of which will have been needed in the inclement climate of the gorge. There were no signs of *in situ* burning, suggesting that the fireplace was outside the trench and that none of the charcoal represents charred debris of a wooden ceiling or other structural timbers. An oak twig from F.020, certainly firewood, was radiocarbon-dated (see Table 2:26) and yielded a date of c. AD 1311–1413. This provides a *terminus ante quem* for the paving (F.024) underneath. It suggests that, in all probability, the room was in heavy use in the fourteenth and/or early fifteenth century. Debris evidently was allowed to accumulate at the time. We cannot be sure whether the flagged floor had been swept clean before and, if so, for how long, but it does not appear to be heavily worn. Whether the absence of excessive wear suggests that the floor had not been kept clean from the start, or whether there may have been some floor covering on top, is impossible to tell, and it is hard to make an estimate as to the duration of use. The radiocarbon sample of AD 1288–1393 from well under the floor, suggests that the slate flagging was laid in the fourteenth century. The building was evidently heavily used in the fourteenth century, and potentially into the fifteenth century, when the Golden Horde in the north posed a potential threat, as did the Ilkhanid Empire in the south. In theory, the radiocarbon sample from F.020 could be contemporary with that from the interface between deposits F.146 and F.056 as well as the archaeomagnetic sample. In reality, this seems improbable. We see a sequence of events: a fire, the construction of an internal room division (F.007), the accumulation of some 40 cm of occupation material, followed by a stone box cut into this layer, covered by a slate floor, on which further occupation material built up. We may assume that this represents at least a few

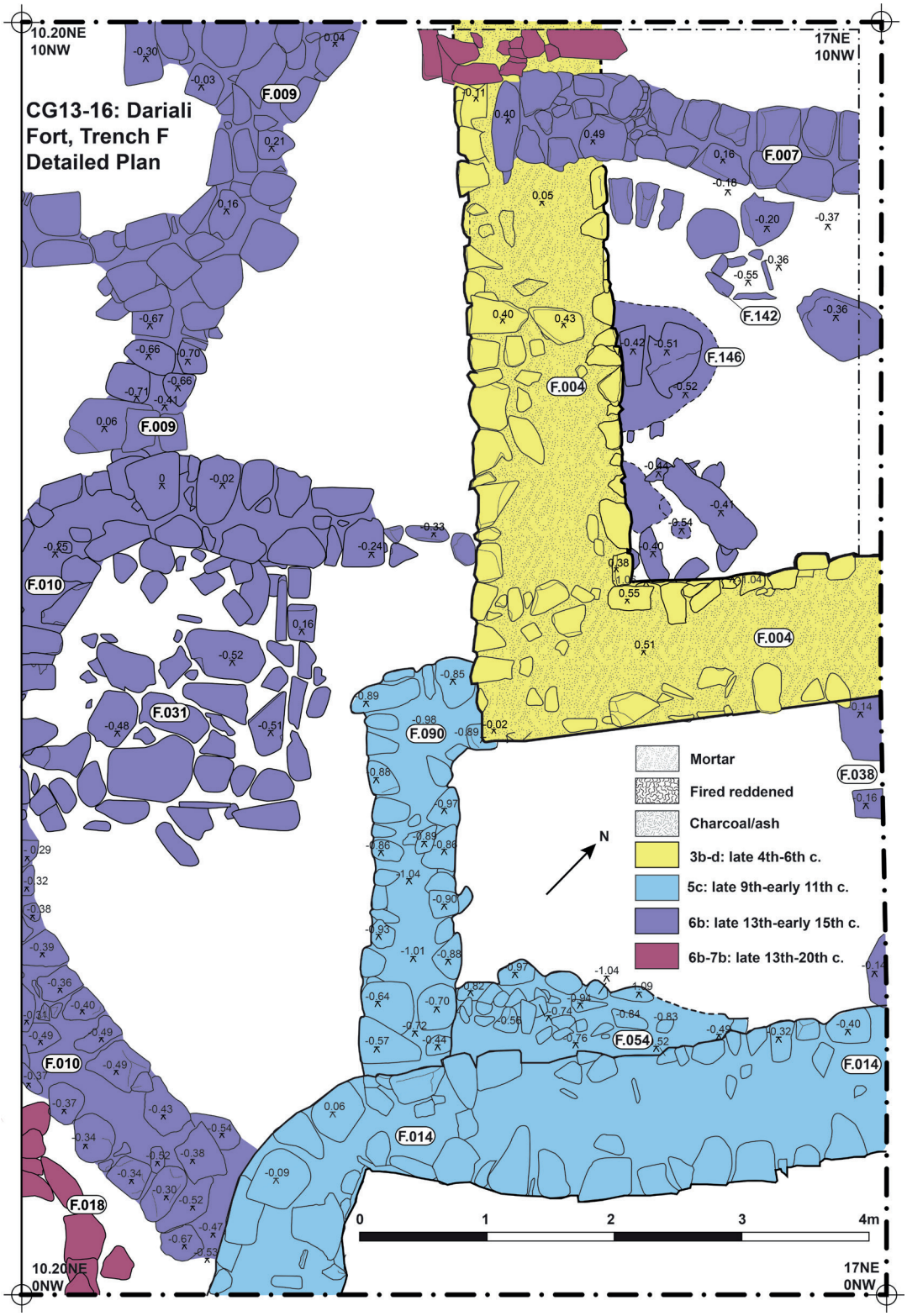


Fig. 2:83: The F.004 building was still a hub of life almost a millennium after its construction: phase 6b prior to laying of stone floor F.024.



Fig. 2:84: As in the casemate, there was an underfloor stone box (F.142) in the F.004 building.

decades and at most a little over a century of occupation – starting no earlier than the 1280s and ending no later than the 1410s.

Deposit F.012 with over 3 kg of finds, abutting wall F.007 in the south-east and overlying F.020, is undated, and we do not know how long or soon after F.020 it accumulated. The same applies to F.008, abutting the opposite side of F.007. F.008 and F.012 are soil horizons in two separate rooms, the distinctly lower quantity of finds in the former no doubt reflecting in part that less of the north-western room was within the confines of our trench. Whether F.008 and F.012 still belong to the fourteenth or fifteenth century or a later era is unknown, but the speed of the build-up of F.056 and F.020, over a little more than a century at most, suggests perhaps that F.008 and F.012 formed within no more than another century at most. Intensive occupation of the F.004 building may not have lasted into the post-medieval era. A possible abandonment of the building in question does not necessarily prove the evacuation of the fort. A reduced garrison may have withdrawn to a keep outside Trench F. Alternatively, occupation may have continued for a while, even if producing few finds and no further structures. There is nothing to suggest that the building collapsed. It may well have been left standing until much of Dariali Fort was razed, probably to prevent rebel occupation in modern times. Walls still standing in the early twentieth century will have provided a convenient quarry for building bunkers and providing military trenches with solid stone lining.

Between F.004 and F.014, the remains of more flagging stones (context F.039) were exposed, notably in the south-west-facing section of the trench (Fig. 2:88). It seems that the patchy paving once extended across the width between the two walls. A gap of c. 65 cm exists between the remaining floor tiles where the floor has been broken (filled by deposit F.005). The elevation of the floor F.039 is fairly consistent between the two walls, -0.13 m (to the south near F.014) and -0.11 m (to the north near F.004), indicating a well-constructed floor that ran from one wall to the other. The floor (F.039) outside the F.004 building is at more or less the same level as F.024 inside (-0.04 m to -0.11 m). Stone flagging F.039 sat on a clay matrix (F.038) of up to 10 cm depth in places. Patches of this material were also found inside the room related to F.024, adding strength to our assumption that both pavements (F.024 and F.039) are of a similar style and date.

As postulated above,[113] walls F.014 and F.090 were probably part of a late ninth or tenth-century annexe leaning onto the F.004 building. If its roof was still intact, some four centuries later, or if a new roof had been put onto the old walls, the paving may attest reoccupation of the annexe. Alternatively, if the old annexe was in ruins by the fourteenth century, there may have been a lane or corridor between two buildings or rooms, haphazardly paved in the Late Middle Ages. We cannot be sure whether this was an outdoor lane or indoor corridor at the time. The latter seems more likely, as it led towards an irregular south-west-facing 'apse' (F.010), with a smooth and relatively flat slate floor inside (F.031), similar to floors F.024 and F.039. Slate floor F.031 is at a lower level (c. -0.48 to -0.52 m) to floor F.039 – probably a result of its position further down the slope.

The 'apse' wall (F.010), a curved double-faced dry-stone wall, c. 60–80 cm across, abuts F.014 and must be of more recent origin. It was preserved to a height of three stone courses towards the north and just one or two in the south. One line of stones, in alignment with the inner facing of F.010, continues to the outer edge of F.004, suggesting that the wall, later demolished, once also abutted F.004. The foundations of F.010 are at a higher level than those of the late ninth or tenth-century annexe (consisting of F.090, F.054, F.076 and F.014), despite being further downhill, and we may assume it belongs to a later phase, probably in the Late Middle Ages. As we will see, F.010 may be as late as the fourteenth century. There were no traces of doorways in F.014 or F.010, suggesting that there were none or that they were at a higher level, and thus not preserved, or in the case of wall F.014, beyond the limits of the trench. F.010 is probably part of a late medieval makeshift annexe to a complex consisting of late antique building F.004 and the early medieval annexe (F.090, F.054, F.076 and F.014). F.010 was potentially abutted by a further dry-stone wall (F.018) in the south-west. Close to the modern surface, only two courses survived of this wall, probably part of a basic annexe to F.010 or no more than a stone-lined pit. As there is no evidence so far for continued occupation into post-medieval times, one is inclined to attribute F.018 to the Late Middle Ages as well or to the twentieth century. The latter may be more likely, as the wall is running over wall F.013, suggesting it post-dates the late antique wall's partial demolition.

The deposit above stone floor F.031 inside the 'apse' (F.029, soft brownish-grey sandy silt) was sampled for floatation, and contained a lower concentration of

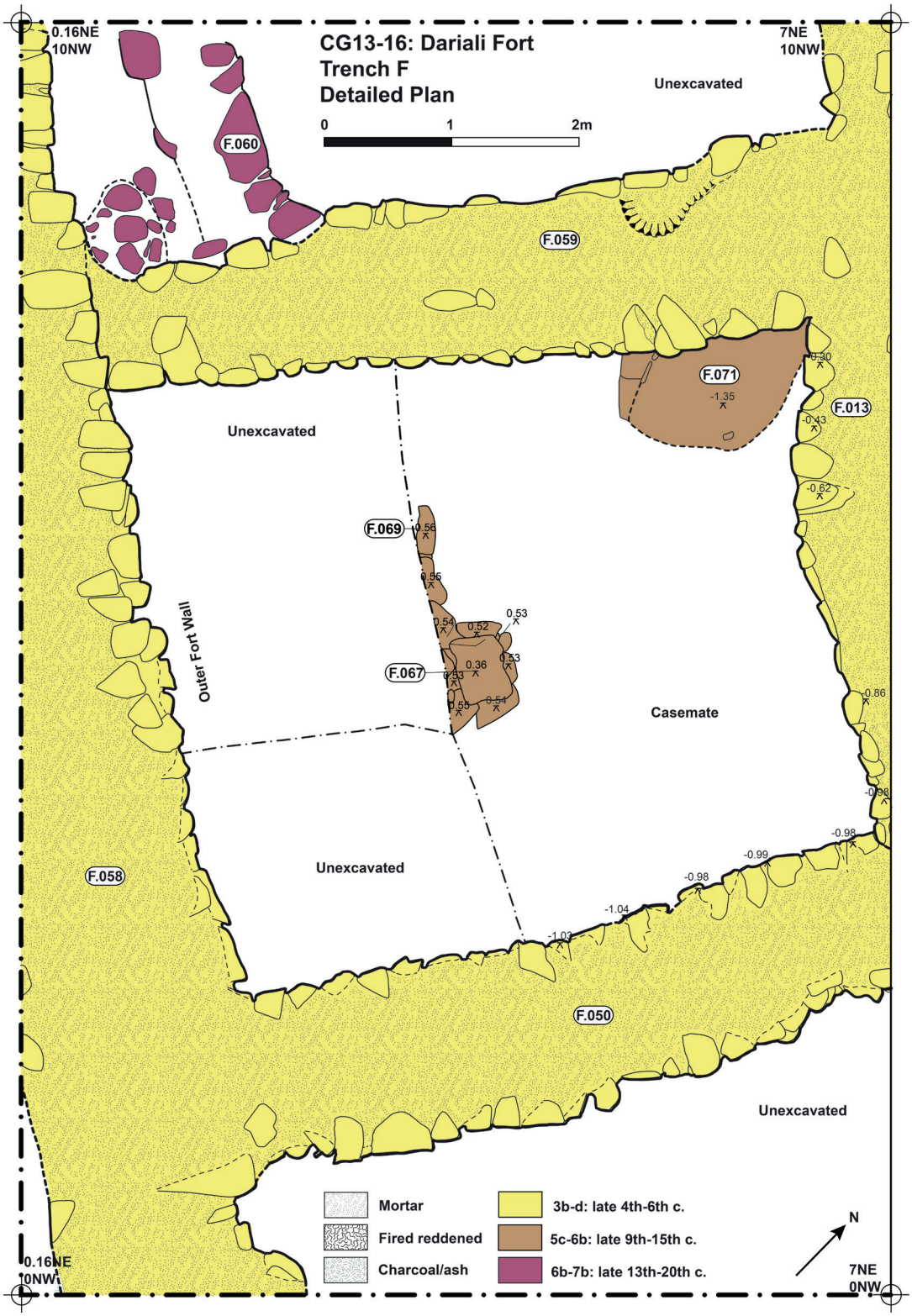


Fig. 2:85: Whether the latest structures found in the casemate belong to phase 5c (c. tenth century) or phase 6b (late thirteenth to fifteenth century) is uncertain.

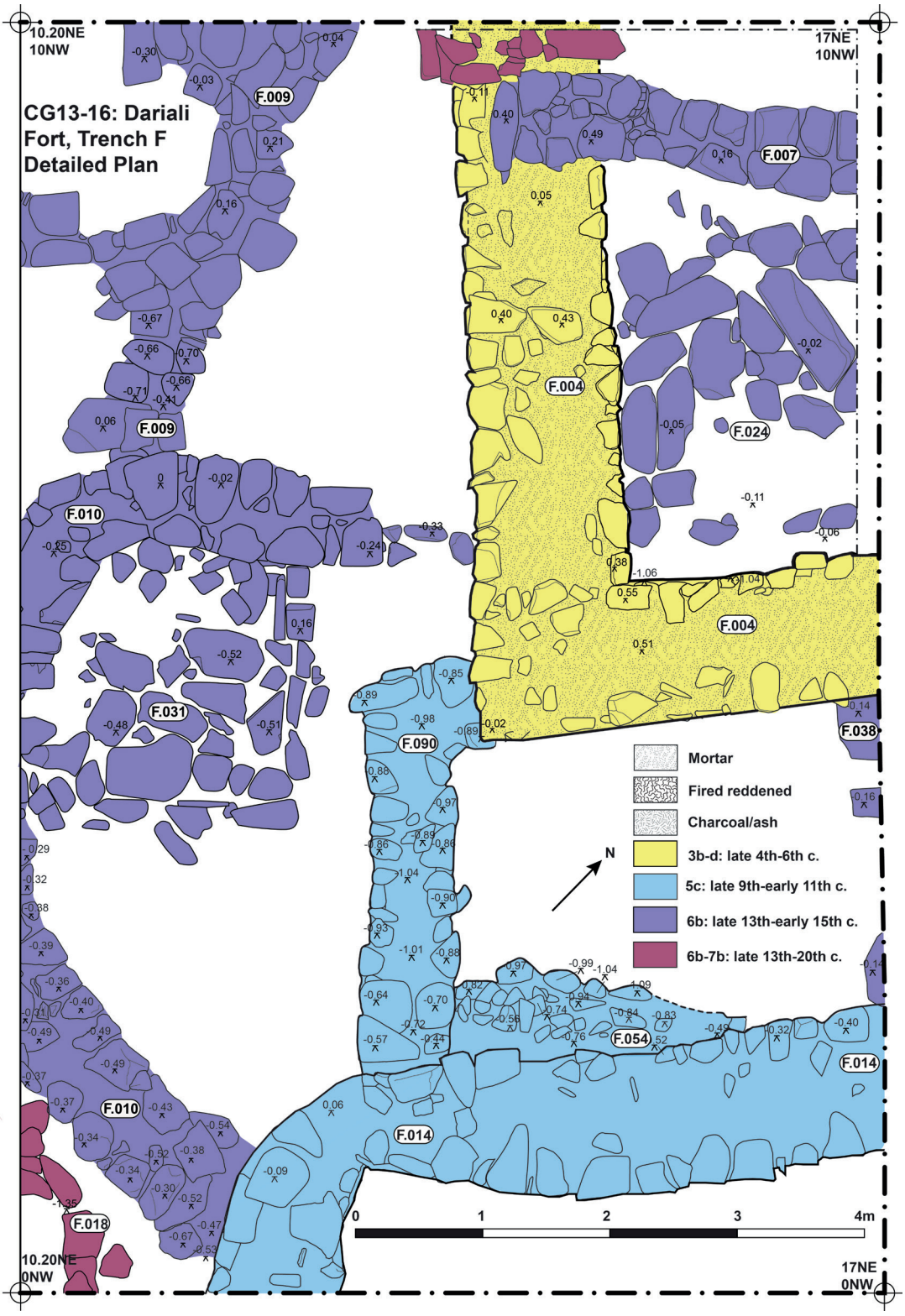


Fig. 2:86: The F.004 building in the latter part of phase 6b, with late medieval slate floor (F.024) covering the stone box.



Fig. 2:87: View from the interior of the F.004 building, with late medieval slate floor (F.024) and room division (F.007), looking south.

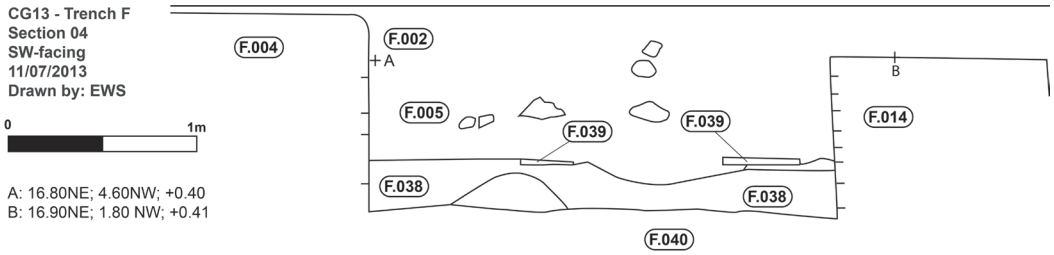


Fig. 2:88: Despite its patchy nature, it is clear that there was also stone paving (F.039) outside of the F.004 building.

charcoal than F.020. A radiocarbon sample (F.029/179, of a pig bone) yielded a date of AD 428–598 (Fig. 2:89; Table 2:28). It provides further unsurprising evidence that pork was eaten in pre-Islamic times – as also confirmed by a pig scapula of AD 427–595 (modelled date, AD 443–573) from Sasanian context F.109.[114] Astonishing, however, is the context. The irregular 'apse' cannot be Sasanian, being built on top of a deep sequence of early medieval deposits. A charcoal sample (F.031/278) from between the slates of the stone paving (F.031) of AD 1299–1408 suggests that the irregular 'apse' was occupied in the Late Middle Ages, at the same time as deposit F.020 built up within the F.004 building. Late antique sample F.029/179 is some 700–1,000 years older than its context. It is, of course, not the only outlier amongst our radiocarbon samples, but is, by a long margin, the one that is furthest out of sequence; none of the other redeposited samples from the top of Dariali Fort (Trenches F and Q) is more than a minimum of 54 and a maximum of 339 years older than the sample underneath, as opposed to sample F.029/179 being 701–980 years too old.[115] It must have been dug up from a much more ancient (and probably deeper) deposit. That much older material was occasionally brought to the surface is unsurprising, notably just outside the F.004 building where ninth or tenth-century disturbance reaches in places down to the bedrock. Any material dug up in the late first millennium could easily have been redeposited again in the Late Middle Ages.

Table 2:28: Radiocarbon dates from late medieval deposits from within and underneath the apse-like structure enclosed by the irregular curving wall (F.010) in Trench F on Dariali Fort (BBM = below benchmark) (see Fig. 2:89 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
F.029/179	OxA-29434	n/a	Bone: Sus scrofa, tibia	1530±26BP	AD 428–598? (outlier, redeposited from earlier horizon)	d13C = -19.00
F.031/278	OxA-31603	n/a	Charcoal: Unidentified outer cortex, young wood	599±24BP	AD 1299–1408 (72.3%: 1299–1370)	d13C = -29.57

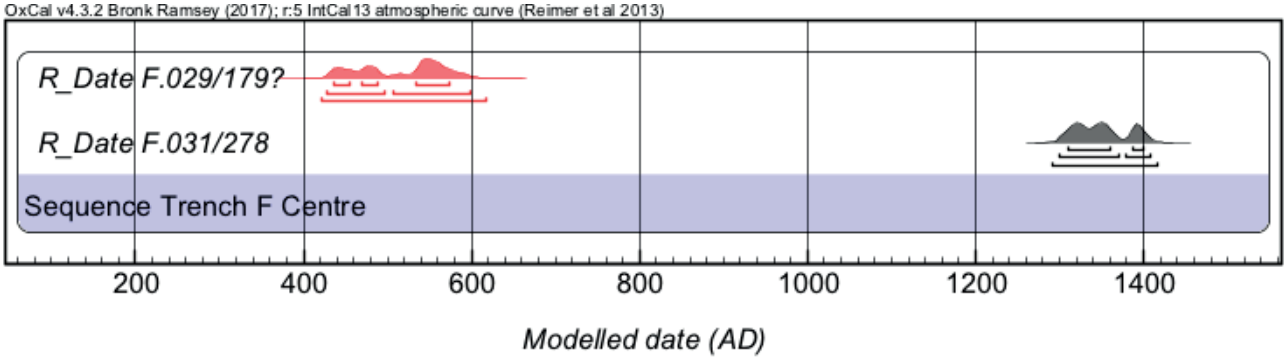


Fig. 2:89: Samples recovered from within and underneath the apse-like structure; the sample marked in red is an extreme outlier, probably dug up from earlier levels (see Table 2:28 for further details).

It is worth noting that we found a large medieval pit in Trench Q,[116] and there could have been others closer to Trench F. The slate flagging in the 'apse' (F.031) and within the F.004 structure (F.024) probably were laid at a similar date in the fourteenth century (or in any case not long before or after). If swept clean initially, then the slate floors could of course also be earlier. One is tempted to attribute these building works to the period well after the conquest of the fort by King Davit IV in the twelfth century – perhaps to the late thirteenth or fourteenth centuries.

The area to the south-west of F.004 revealed further stone flooring. This was poorly preserved and only a few fragmentary pieces of stone flagging remained, even if perhaps once joining up with paving F.039. The elevation of this partial floor was -0.115 m and thus lies at a similar level to F.039. It is possible that there was a continuous paving outside and perhaps a step up into the building via the doorway in F.004 (at +0.05 m). Except for F.010, there are no walls abutting F.004 in the south-west, nor any parallel or perpendicular walls of similar architecture. The patchy paving south-west of F.004 may belong to an access route. The deposits relevant to the floor outside (to the south-west) of F.004 are F.006 (above it), and F.027 below the floor level.

F.009 is a further curved wall north-west of F.010. These two walls are broadly similar in irregular curved alignment and dry-stone construction technique. They are both double-faced in places. Where there is just a single stone alignment, this may be the result of stone robbing or partial collapse. We do not know the full plan of F.009, as it extends beyond the limits of Trench F. Unlike the interior of F.010, we found no stone paving inside F.009, and it is tempting to think that it forms the outer wall of a dwelling. F.009 sits directly on top of early medieval deposit F.022, whilst F.010 is built on top of what appears to be a foundation platform (F.032 and F.016 = F.046) mentioned above. This need not indicate that F.010 is later. It may, like stone floor F.031, merely point to higher status. Despite the rather basic dry-stone construction, the builders may have been conscious that dry-stone walls erected directly on soft sediments were prone to collapse and stone floors not likely to remain level. Superimposition over early medieval deposits need not indicate that F.009 and F.010 were built towards the end of the early medieval era in the late tenth or early eleventh century. Since we cannot trace any activity in the area of Trenches F and Q for much or all of the first quarter of the second millennium, the area may have been largely abandoned for some time. As early occupation in the F.010 structure appears to commence in the fourteenth century or not much before, it seems likely that similar structure F.009 was also erected in the Late Middle Ages, probably on land that had been largely unoccupied for two or three centuries.

The building platform and stone floor prove that more effort was invested in erecting F.010 than F.009 and suggest a higher status function or occupants. Could

the apse-like structure indicate a religious function? The date, clearly after the Georgian conquest, rules out its interpretation as a mosque. The basic construction and irregular curvature, far from a perfect semicircle, render also an ecclesiastical interpretation unlikely. More probably, the room attached to the old F.004 building served a secular function. It may have been part of the residence of a higher-ranking fort occupant.

Walls of the Late Middle Ages (probably F.007, F.009 and F.010) in Trench F have some characteristics in common, some of these they share with early medieval walls:

- they employ no mortar;
- their alignment is invariably non-geometric (never perfectly straight nor forming a regular curve);
- courses are not very neat;
- they tend to be double-faced.

There is nothing that sets all late medieval walls apart from all their early medieval counterparts, but it is worth noting that (within our admittedly small sample), unlike the Early Middle Ages, there are no longer:

- walls that reach or exceed a width of three feet;
- walls that reach down to the bedrock.

The general characteristics of this phase are:

- The construction of new walls, thinner and less solid than earlier walls left standing, never perfectly rectilinear and always overlying earlier deposits (levelled out to a greater or lesser extent).
- A resumption of the early medieval tradition of laying of slate floors, with the odd covered stone box sealed underneath.
- Reuse of solid standing structures built long before (notably the F.004 building).
- Much-reduced build-up of sediments and occupation debris, in comparison with the last three centuries of the first millennium,[117] be this as a result of a reduced number of occupants, greater tidiness leading to extramural rubbish disposal or both.

2.6. Gunmen's backyard: modern activity in the west of the fort (Phase 7b)

So far, we have no firm evidence for any structural changes or significant activities within the fort between the fifteenth and early twentieth centuries. The last phase of building activity that we can detect is late medieval. As we have seen, the fort was certainly still occupied in the fourteenth century. We find, however, also a modern narrow military trench near the western edge of our Trench F, with a partially preserved concrete cover. This modern military construction faced the western edge of the plateau. Any hostile forces attempting to make their way past the fort on this side, or to storm the military stronghold from its only accessible side, would have been within easy firing range. This modern trench continues along the north-western side of Trench F, without a preserved concrete ceiling in this section. Our trench was deliberately placed to avoid this and two deep rooms or cellars to the south-east and north-east of Trench F (the latter explored via Trench O). It is possible that these, subterranean, rectangular structures, with mortared stone lining all around, might also have been occupied when independent Georgia anticipated Soviet aggression and/or during the Second World War. They would have offered shelter to troops and protection from wind, weather and artillery. These military trenches, bunkers and walled cellar-like structures may well have used surviving walls as quarries, perhaps suffering further destruction where impeding surveillance or artillery.

Unsurprisingly, being located next to a recent military concrete-covered construction, the trench was not devoid of evidence for modern activity. Contexts F.005 and F.006 covered much of the trench and contained a wide range of material that included some twentieth-century finds such as bullet casings that may have come from Kalashnikov rifles.[118] Deposits F.005 and F.006 may well largely consist of upcast from the excavation of modern military trenches and the associated small concrete-covered bunker, which might explain their mixed contents.

Notes

1 Eve MacDonald produced the first version of the excavation report of the 2013 season in Trench F, and we owe to her much of the detailed stratigraphic recording and interpretation of the trench, whose excavation she supervised most of the four seasons. The 2013 report was subsequently much expanded and sections on our fieldwork in 2014–2016 added by Eberhard Sauer. The trench was co-supervised over the years by many other team members, notably, Lana Chologauri and Ana Gabunia, as well as temporarily by Seth Priestman, Julian Jansen Van Rensburg, Steve Usher-Wilson and Emanuele Intagliata. Koba Koberidze, David Gagoshidze, Graeme Erskine, Daniel Lawrence and Kristen Hopper all contributed to the excavation and recording as well as our workmen. Fido Efkhoshvili and Bachuki Quqishvili in particular made an outstanding contribution to the success of the excavations of this trench.

2 Between 24 June and 13 July 2013, between 2 July and 9 August 2014, between 8 July and 8 August 2015 and between 8 and 18 July 2016.

3 See chapter 18.

4 Examples in the Roman world are too numerous to list. For Sasanian casemates, see Kleiss (1989, 290–91 with figs 2–3) on Qal'eh Gabri, a c. 175 ha mega-fortress likely to be of Sasanian date (Sauer *et al.* 2013, 372, cf. 321–22, 360; Sauer *et al.* 2017, 257–58; Sauer *et al.* forthcoming 2020). The possibly Sasanian Qal'eh Seidj Dukkan features well-preserved casemates all along the inside of its walls: Kleiss 1975; surface pottery indicates (continued?) occupation in the Islamic era and the postulated Sasanian foundation is possible, but unproven. Interesting are also

internal structures that may form casemates in the Fulayj fortlet of the fifth or sixth century (and many parallels for it throughout the ancient world): Al-Jahwari *et al.* 2018; Priestman *et al.* forthcoming 2020. Casemates along the walls of the fort at Paykand near Bukhara have also recently been attributed to the Sasanians, and were perhaps already constructed under the reign of Shapur I (Omel'chenko 2016, especially 81, 83, 85–86, 95 fig. 5, 97 fig. 8; cf. *id.* 2015).

5 See chapters 2.6, 3.6, 4.3 and 25.7.

6 See chapters 2.4.7.2 and 2.4.7.4.

7 On the north-east face of wall F.013 we also observed a cavity filled with very soft light greyish brown sandy silt (F.115). The depth of the cavity suggests that it was intended for a wooden beam, rather than being the result of a facing stone having fallen out. Its base, at c. -1.90 m, is at a similar level to that of a blocked-up window, at c. -2.00 m to -1.95 m. Yet, deposits built up rapidly in the Early Middle Ages, reaching and soon burying the cavity, probably in the eighth or ninth centuries. If indeed of structural significance, then it may have held a beam (perhaps supporting scaffolding or a wooden floor), whose opposite end may have rested on bedrock. If intended to hold a beam, it may be an original feature. This is the only cavity we observed on this face of wall F.013, but there is another on the opposite side. Less has been exposed of the side of F.013 facing the casemate. The small cavity (F.160) on this side of F.013. at -2.67 m to -2.77 m, is flat at the bottom and semicircular on top (12 cm wide and 10 cm high). It was filled with very soft mid yellowish brown silt (F.161). It might have held a beam too, but could also have formed as a result of a stone breaking out of the wall.

8 See chapter 13.

9 See chapter 2.4.4.

10 The trench coordinates are 1.54 m north-east, 3.39 m north-west.

11 Wall F.013 was thinner at the level reached. Further excavation is required to tell whether this might indicate that there was a doorway here. If so, the location of doors varied: sometimes being in the right corner (seen from the interior of the fort) and at least once in the left.

12 Alternative scenarios worth considering are: 1. that the samples are from an undefended hilltop settlement, established on a virgin site, to be succeeded by a fort only a few years or decades later; 2. the rock was occupied prior to the fourth century and the entire hilltop cleared of soil twice in the fourth century, the second time in preparation of fort construction – the bones discarded between these two clearance events. Both scenarios seem unlikely. Even disregarding the written sources, suggesting Dariali had been occupied since the first century AD or even before (see chapter 25.2), this is not an obvious place for a hypothetical undefended settlement established in the fourth century prior to fort construction. Assuming there had indeed been an earlier fort here, it seems improbable that people would have demolished it and cleared all sediments down to the bedrock for no obvious reason decades before the start of building works and then lived on an undefended hilltop, devoid even of traces of substantial buildings to weather the harsh climate.

13 See chapter 2.2.7.

14 See chapter 2.2.1.

15 An excavation technique we deliberately employed, as it allows later correction of potential mistakes during excavation (and the sub-division of any bulk deposits that built up over a long period). One deposit excavated in multiple spits can always be combined for post-excavation. Two deposits accidentally mistaken for one during excavation can no longer be subdivided and the mistake is irreversible. Indeed, it now seems that also the bottom of F.109, reaching at one point down to the bedrock, should be considered part of the earlier levelling horizon.

16 The deposits of this levelling horizon contained c. 5% small stones. The depth of the artificial spits was as follows: F.124 (= top of F.152) from -3.10 m to -3.23/-3.25, F.126 (= middle of F.152) from -3.23/-3.25 m to -3.34 m and F.127 from -3.34 m down to the bedrock. Subsequently, F.127 was split up further, the level above -3.42 m corresponding to the bottom of F.152, overlying F.153 (down to -3.63 m) and F.154 at the bottom of the sequence. F.191 soft mid greyish brown sandy silt, from 4.30–6.10 m north, east of F.013, is a further early deposit in the area, from -3.13 m downwards (the top elevation similar to that of deposit F.124). The surface of the bedrock was uneven, but near the hoof (F.127/1065) in our small sondage its deepest point was reached at -3.64 m, just 13 cm lower than the top of the hoof. Above F.152, and in places directly over the bedrock, we encountered F.149 with a higher concentration of stones. Its elevation corresponds to the top of F.124 and the bottom of F.109/F.117.

17 The 3D of this sample, found only just above the bedrock which rises higher at this point, suggests that it should be attributed to the lower levelling horizon, even if recorded as a sample from the bottom of F.109.

18 This sheep bone (F.191/1640) from the levelling horizon has, interestingly, also yielded the highest d13C value (-17.9) of all animal bone samples from Dariali analysed during our project, a possible indication that the animal had consumed food growing in areas of warm temperatures and long growing seasons. It is tempting to think that the animal was part of a herd brought, by or for the new garrison, from the lowlands in the south and consumed during construction works. It has also yielded a higher d13C value than all charcoal samples, excluding just one charcoal sample (from deposit Q.148, interestingly millet grown in a warmer climate) with a higher d13C value, processed at Poznan. We understand, however, that d13C measurements from Poznan cannot be used for palaeoecological reconstruction, 'as they reflect the original composition in the sample only very roughly,' but are 'fully suitable for fractionation correction of 14C/12C ratios' (kind information provided by Professor Tomasz Goslar, 2/10/2017). Other late fourth to early fifth century animal bone samples, however, have yielded far lower d13C values, and no clear pattern emerges.

19 We cannot exclude the possibility that the two samples found in proximity, might be part of the same animal. The hoof (F.127/1065) belongs clearly to a horse, but no cheek teeth were present in the fragmented mandible (F.191/1635) and it is difficult to identify it to species, *e.g.* horse or mule (Marjan Mashkour, pers. information, 15/8/2017). Evidently not in anatomical context, it seems more likely that the bones belong to different individuals.

20 Balādhurī 210 = trans. Hitti 1916, 328–29.
21 See chapter 7.
22 Sauer *et al.* 2016, 21–22.
23 See chapter 25.3.1.
24 This levelling horizon consists of deposits F.124, F.126, F.127, F.149, F.152, F.154 and F.191.
25 See chapter 22.1.
26 We do not know if there were stairs, a ramp or just a step of 45 cm or so inside the entrance to the casemate.
27 Deposit F.180, soft mid greyish brown sandy silt, at a similar level to F.174 contained few stones. It may have been part of the postulated mini barrage.
28 The sample might provide a *terminus ante quem* for F.155/174. Based on the 3D, it is however from the interface to the lower levelling horizon, so that is it safer also to allow for the possibility that it might predate F.155/174.
29 See chapter 3.2.2.
30 See chapter 2.3.
31 See chapters 2.2.2 and 23.7.
32 See chapter 2.3.
33 See chapter 2.2.1.
34 See chapter 2.4.7.
35 See chapters 15.2.2.3 and 15.2.2.9.
36 See chapter 2.4.7.2.
37 See chapter 15.2.1.2.
38 See chapter 22.2.
39 See chapter 2.4.2.
40 See chapter 11.11.
41 See chapter 2.5.
42 See chapter 11.11.
43 The clayey nature of the two deposits also raises the question if the basement, with its mortar floor and lining, might have been used as a cistern. The presence of bone and pottery and the absence of pure clay or iron-staining, not to mention the hilltop location, are, however, arguments against drinking water being collected in the basement of the building, unless three fragments of broken pipes in deposit F.206, sealed under the mortar floor, attest work on a flowing water supply to the top of the hill even before the mortar floor was laid; see also chapters 4.5 and 17.
44 Zoroastrianism is, of course, opposed to contamination of water, one possible reason why the canal next to Fort 9 on the Gorgan Wall appears to have been kept clean initially (Sauer *et al.* 2013, 166 fig. 5:15, 170–71). It is best not to speculate, however, whether this would have prevented a possibly Zoroastrian garrison in Late Antiquity from depositing rubbish on the side of the Tergi. One has the impression that most ancient and medieval communities in Europe and the Near East tended to dispose of rubbish where they lived, preferring squalid conditions to the efforts involved in disposal elsewhere. All the more is the low level of intramural rubbish disposal at Dariali Fort in the pre-medieval era worth noting.
45 The top of wall F.013 has been robbed or demolished to a lower level in the south-east where it is overlain by a linear deposit containing much mortar (F.019) filling a shallow robber trench. In the north-west, by contrast, wall F.013 almost reached the modern surface, overlain by the topsoil (F.001) only.
46 See chapter 2.5.
47 See chapter 25.7.
48 See chapters 25.3.1 and 25.4.
49 See chapters 25.3.2 and 25.4.
50 In places there was very soft clayey silt of the same colour (F.095) which is part of the same deposit.
51 See chapters 23.4.4 and 23.7.
52 See chapter 22.1.4.3.
53 See chapter 24. Slate fragments from the burnt horizon may have been part of the roof.
54 See chapter 2.4.3.
55 See chapter 15.2.2.8.
56 See chapter 23, especially 23.7.
57 See chapter 13 on probable glass exports to the north, via Dariali.
58 Mas'udi 17 = Barbier de Meynard and Pavet de Courteille 1863, 44, Marquart 1903, 166–67 and Minorsky 1958, 157. See chapter 25.5.2 on the likely arrival date of the garrison.
59 See chapter 2.2.8.
60 See chapter 4.2.
61 See chapter 2.2.8.
62 There was, however, a possible stone alignment (F.182) in fourth-century levels in the casemate of no obvious structural significance and perhaps part of a levelling operation rather than a proper wall (see chapter 2.2.7). A further late antique dry-stone structure (F.155/F.174; see chapter 2.2.4) may have formed part of a small barrage to prevent water infiltration into the casemate. We may conclude that there were dry-stone structures in Late Antiquity, but that we have found no certain dry-stone walls belonging to the period prior to the eighth century to date.
63 See chapter 11.11.
64 See chapter 11.11.
65 F.022/199 and F.043/1587.
66 See chapter 2.4.6.
67 See chapters 15.2.11 and 25.5.3.
68 Find F.092/1275, at -2.35 m site height, at 9.39 m NE and 1.70 m NW.
69 Theophanes, *Chronographia* 418/A.M. 6235.
70 A further, one course high, dry-stone alignment (F.087), abutting F.064 in the south-west, may have formed part of this late and basic annexe and linked F.064 and F.105.
71 See chapter 11.11.
72 See chapter 11.2.
73 It is worth noting that finds were mostly hand-picked and only a small proportion of the soil sifted (due to the lack of flowing water on top of the fort, not to mention the stony nature of some deposits), so overall quantities, notably of small finds, may be under-represented.
74 See chapter 15.2.1.2.
75 See chapter 12. The vessel was discovered by Ana Gabunia and first correctly deciphered on 23 July 2015 by the Georgian team members on site, including Lana Chologauri, Ketevan Gotsiridze, Emzar Lomtadze and Davit Naskidashvili.
76 Assuming this hypothetical doorway is an original feature, it appears that the doorway was still open when wall F.064 was built on top of F.110. This doorway has been identified tentatively and we may, also tentatively, identify two phases on the south-west-facing side. It may have been blocked up in two phases, reducing an initially 1.62 m wide opening to c. 0.71m average width. It is difficult to see it on the

opposite side, even if there is a suggestion of the narrower doorway. We cannot be sure whether the vertical and steep diagonal joints mark indeed the sides of blocked-up doorways (F.111) or were the result of deficient workmanship.
77 See chapter 2.2.1.
78 The north-west side of the hypothetical wide doorway in wall F.110 is in alignment with the corresponding side of the window (F.151) in wall F.013, perhaps used as a door in the Early Middle Ages. The postulated narrow doorway in wall F.110, which may have succeeded the wider doorway, by contrast, is clearly not aligned with window/door F.151 in wall F.013.
79 We cannot be sure whether there was a further blocked-up doorway, or a succession of two, in walls F.110 and F.064 – or whether the joints are the result of the way they were built. The lack of alignment may perhaps offer support for the latter hypothesis.
80 See chapter 24.
81 See chapter 15.2.1.2.
82 F.121: 683 g of pottery and 149 g of bone, a ratio of c. 4.6: 1; F.119: 930 g of pottery and 582 g of bone, a ratio of c. 1.6: 1.
83 See plan in chapter 2.4.2.
84 See plan in chapter 2.4.2.
85 It is worth noting that the rectangular cellar-like structure south-east of Trench F near wall F.014 employs mortar and a different masonry style. It is likely to be a modern military structure, unrelated to the medieval annexe – even if probably destroying parts of it and undoubtedly reusing stones from ancient and medieval walls.
86 See chapter 2.4.7.4.
87 F.053 was an extensive tumble deposit, on both sides of wall F.090.
88 See chapter 15.2.3.
89 See chapter 11.11.
90 See chapter 23.4.10.
91 See chapter 11.11.
92 See chapter 23.4.6.
93 This may correspond to F.112.
94 See chapters 15.2.5 and 25.5.3.
95 See chapter 25.5.3
96 See chapters 6.9 and 20.
97 See chapter 21.1.3.4.
98 See chapter 2.4.6.
99 See chapter 11.11.
100 See section drawing in chapter 2.4.7.1.
101 See chapter 4.2.
102 See chapter 15.2.2.1.
103 See chapter 15.2.2.1.
104 See chapter 15.2.5.
105 See chapter 15.2.4.
106 *Kartlis Tskhovreba/Life of Kartli* 336 (118 in the Armenian version) = trans. Thomson 1996, 326–28.
107 See chapter 2.4.2.
108 See chapters 23.4.7 and 23.7.
109 See chapter 11.11. F.056 and F.020 above yielded no diagnostic pottery post-dating the late first millennium, but our knowledge of late medieval pottery is based on a far smaller sample than that of the Early Middle Ages.
110 The cause and significance of the fire is unclear. The heat-exposed surface extends over an area of around two metres from the southern corner of the building to the edge of its doorway and from wall F.004 some 80 cm inside, but not as far as the bedrock. It seems too extensive for a fireplace, yet not extensive enough for an ablaze timber ceiling falling onto the ground.
111 An environmental sample was taken and floated, yielding small molluscs.
112 See chapter 22.1.
113 See chapter 2.4.6.
114 See chapter 2.2.2.
115 See chapter 2.4.5.
116 See chapter 3.5.
117 Also worth noting that sherds of the Late Middle Ages (phase 6b) are of a similar average weight as those of Late Antiquity (phase 3) and roughly half that of the Early Middle Ages (phase 5) – suggestive of material embedded in thin surface horizons rather than rubbish dumps, chapter 11.2.
118 Kind information by Bachuki Quqishvili. See also chapter 3.6, on a gun cartridge case of 1916 from Trench Q.

3

Towering over the northern approaches: late antique buildings, medieval food storage and modern military (Trench Q)[1]

3.1. Introduction

Excavations in the 2014, 2015 and 2016 field seasons reached the natural bedrock on top of Dariali Fort at several points in Trenches F, O and Q. With the probable exception of parts of the lowest deposits within a small sondage in the casemate in Trench F, we encountered no layers likely to predate the late antique fort walls. Even these pre-fort horizons yielded radiocarbon dates of no earlier than the mid- to late fourth century. These layers reached back at most two or three generations before fort construction, but they could also be only marginally older than the fort walls and construction-related. They contained no material of the first third of the first millennium and are clearly not occupation horizons dating back to earlier periods when the gorge was reportedly a strategic asset (*e.g.* in the Flavian era or the time of Shapur I's annexation of the Alan Gates in the third century).[2]

Such lack of evidence for early occupation is no proof that earlier textual sources refer to a different site in the gorge, nor should we conclude that the late antique fort was built on virgin land. An unoccupied forested hill would have been covered with humus and no humus was found on top of the bedrock. The absence of older structures, deposits and even humus, can only be explained with deliberate removal of any soil on top of the prominent conical rock, no matter if it had carried earlier settlement or nothing other than wilderness. Such an operation, prior to the construction of the late antique fort walls, made perfect logical sense: heavy mortared walls on soft sediments would have been at risk of sliding or collapsing. Anchoring the walls to the bedrock gave them much greater stability. Before the start of building works, the perimeter will have been cleared of soil, probably tipped down the slope, with little if any evidence of any earlier occupation surviving at the edges of the plateau. Whilst most or all traces of earlier occupation were likely to have vanished here, it seemed important to try to discover such evidence or, alternatively, to find clear proof that there had been no human occupation prior to the fourth century. Most modern scholars do not, of course, believe Dariali Fort to be a construction of the fourth or fifth century in what had been virgin forest before, and neither do the authors of this volume. Persuasive analysis of written sources and the fort's unparalleled strategic location provide powerful arguments to suggest that it was here that there had been a key stronghold already centuries earlier.

Once we had established that no trace of the fort's postulated ancient occupation survived in Trench F, two obvious strategies to shed light on its origins presented themselves:

1. Search at the base of the slope for remnants of the postulated clearance operations.
2. Find an area on the top of the plateau where earlier layers might survive.

The first option was not easy to put into practice. Where there are steep cliffs on the side of the River Tergi, little of the debris thrown down the precipice some 1,600 years ago would have accumulated on the rocky ledges, and little if any of it will remain today. Even if it was possible to identify a promising spot, any exploration would require advanced mountaineering skills. The areas with the highest potential of clearance deposits surviving are to the west and south-west of the fort. The modern gas pipeline trench cuts across promising spots to the west of the fort, but is, for obvious reasons, off limits to archaeologists – not to mention that the earliest layers may be buried at substantial depth under the pipeline and under unstable debris.[3] Even if found, redeposited finds may give an idea of the chronology of early occupation, and might provide clues as to occupants' cultural affiliation and trading links, but



Fig. 3:1: Drone image by Davit Naskidashvili of Trench Q in 2016, with the best-preserved tower of the outer fort walls right and the already partially covered Trench F in the background.

would not shed light on the types of buildings that may have occupied the hilltop at earlier times.

The second option seemed easier and more attractive. It also promised to reveal the nature and intensity of interior occupation in later periods. Trench F had shown that the edge of the hill was not a promising place to search for surviving traces of original deposits. Similarly, areas of exposed bedrock on the surface were evidently unsuitable and their immediate vicinity likely to be of shallow stratigraphy. Significant parts of the plateau are occupied by modern trenches, walled room units and bunkers, likely to date to the period of Georgian independence (1918–1921), the Second World War or other recent episodes of strategic interest. One of these was explored, and we found that it was disturbed in modern times, right down to the bedrock.[4] Choice was thus limited to seemingly undisturbed areas in the centre, with ideally even terrain and deep stratigraphy. The depth of deposits was not easy to predict either, as no auger can penetrate the stony ground.

Eventually, we opted for a strip of land on the north-western side of the plateau, between a bunker in the south, evidently in an area of sufficient depth to conceal it, and rocky ground further north-east. Much of the initially 10 × 2 m large trench was occupied by a double-faced dry-stone wall (Q.004). In the south-east of the trench, it was built on the bedrock which was close to the surface here. In the north, stratigraphy reached much deeper, and thus we extended the trench repeatedly. By the end of the 2015 season, the trench was, more or less, L-shaped and covered 74 m^2. In 2016, it was extended by 130.50 m^2 to 204.50 m^2 overall (Figs 3:1–3:3). As there is bedrock on the modern surface to the south-west and north-east of the trench, and the cited modern bunker to the south, we extended the trench to the north-west, adjacent to an area where we had found late antique horizons in 2015. Whilst rocky ground was near the surface also in parts of the north-western extremity of the trench, deep stratigraphy survived in the centre, filling what appears to be a cleft in the bedrock. The purpose of this trench was not only to search for pre-fourth-century layers, or gain a better understanding of possible reasons for their absence, but also to yield insights into the interior occupation of Dariali Fort more generally, notably in the pre-medieval era. Already the 2015 season had established that a large early medieval stone-lined pit (Q.176) cut late antique deposits, but there was insufficient time to explore these in 2015, let alone to extend the trench.

3.2. The late antique fort walls and intramural life (late fourth to mid-seventh centuries AD/Phase 3)

3.2.1. Earliest occupation within Trench Q (Phase 3)

If pre-fourth-century activity remained elusive in Trench F, Trench Q also failed to shed light on life in the gorge in the early first millennium. Its fame in the first and second



Fig. 3:2: Rectified drone image of Trench Q by Eve MacDonald and Davit Naskidashvili.

centuries, proclaimed by some of the giants of Greek and Latin literature,[5] failed to leave on the strategic hilltop any physical trace detected to date. A small fragment of charcoal, from just above natural soil in Trench Q (Q.061/460), of c. AD 238–384 (modelled AD 252–391) was our earliest sample from the trench (Fig. 3:4; Table 3:1). It could potentially be earlier than the late antique fort, but we cannot be sure if the wood was young or old when exposed to fire. Perhaps it was from the core of an old pine tree, felled during or after fort construction, perhaps from a small branch burnt before building works had started. Even if young wood predating the fort, it neither proves

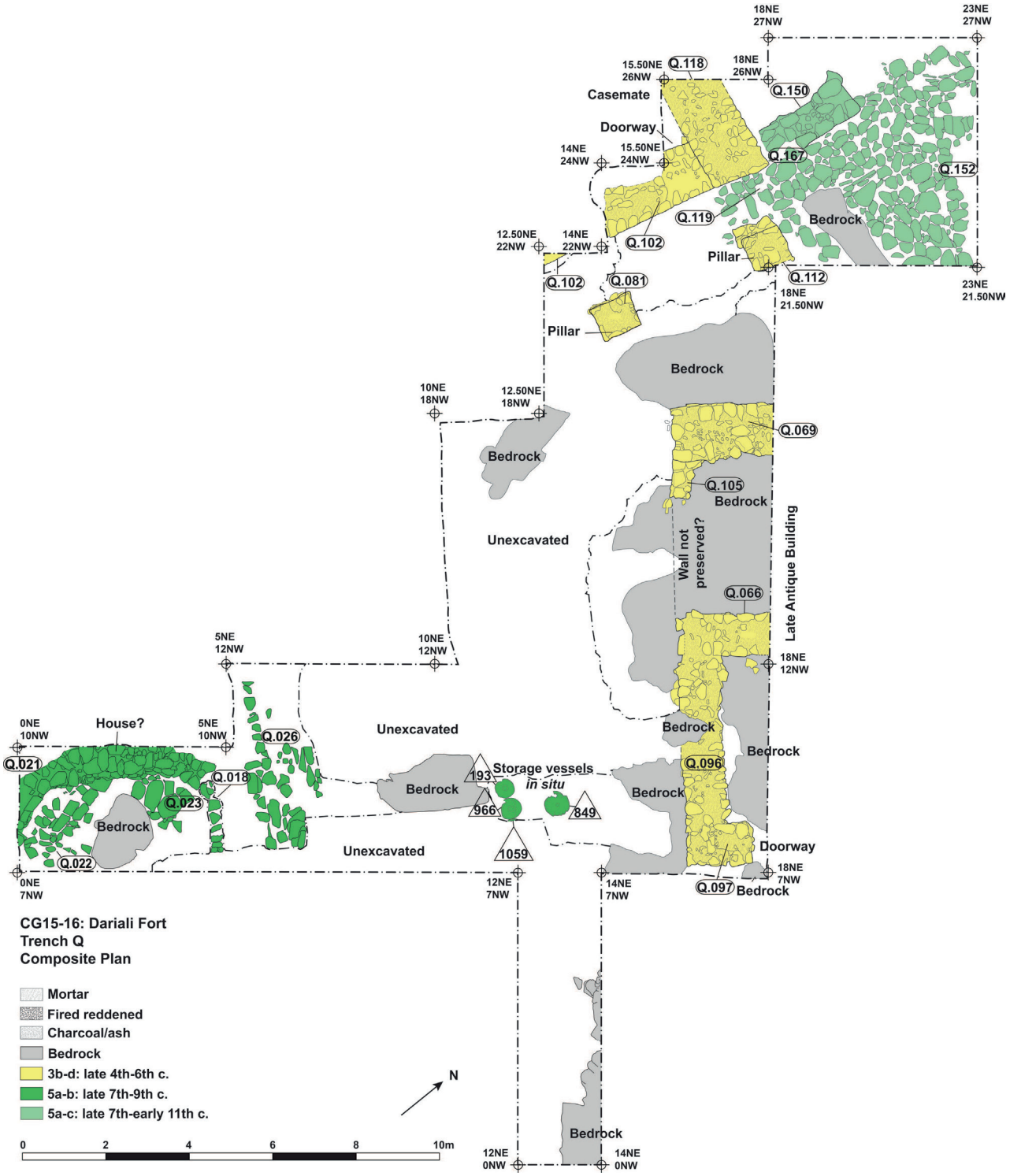


Fig. 3:3: Trench Q overall plan: features dating to phases 3-5a or early within 5b (c. fourth to late seventh, eighth or early ninth centuries).

intensive activity nor any that need be much earlier. This sliver of charred wood was found just 9 cm deeper than another piece of charcoal (Q.061/446) of the late sixth or seventh century (and also not certain to be young). One wonders whether the earlier of the two samples, if not from the core of an old tree, may not be redeposited. The late sixth or seventh century sample may provide a more realistic date for the deposit, as it seems improbable that it would have taken centuries for nine centimetres of fairly sterile soil to accumulate in a deep natural depression in the middle of a densely-occupied fort. Both samples were recovered from soft light brown silt with c. 5% stone

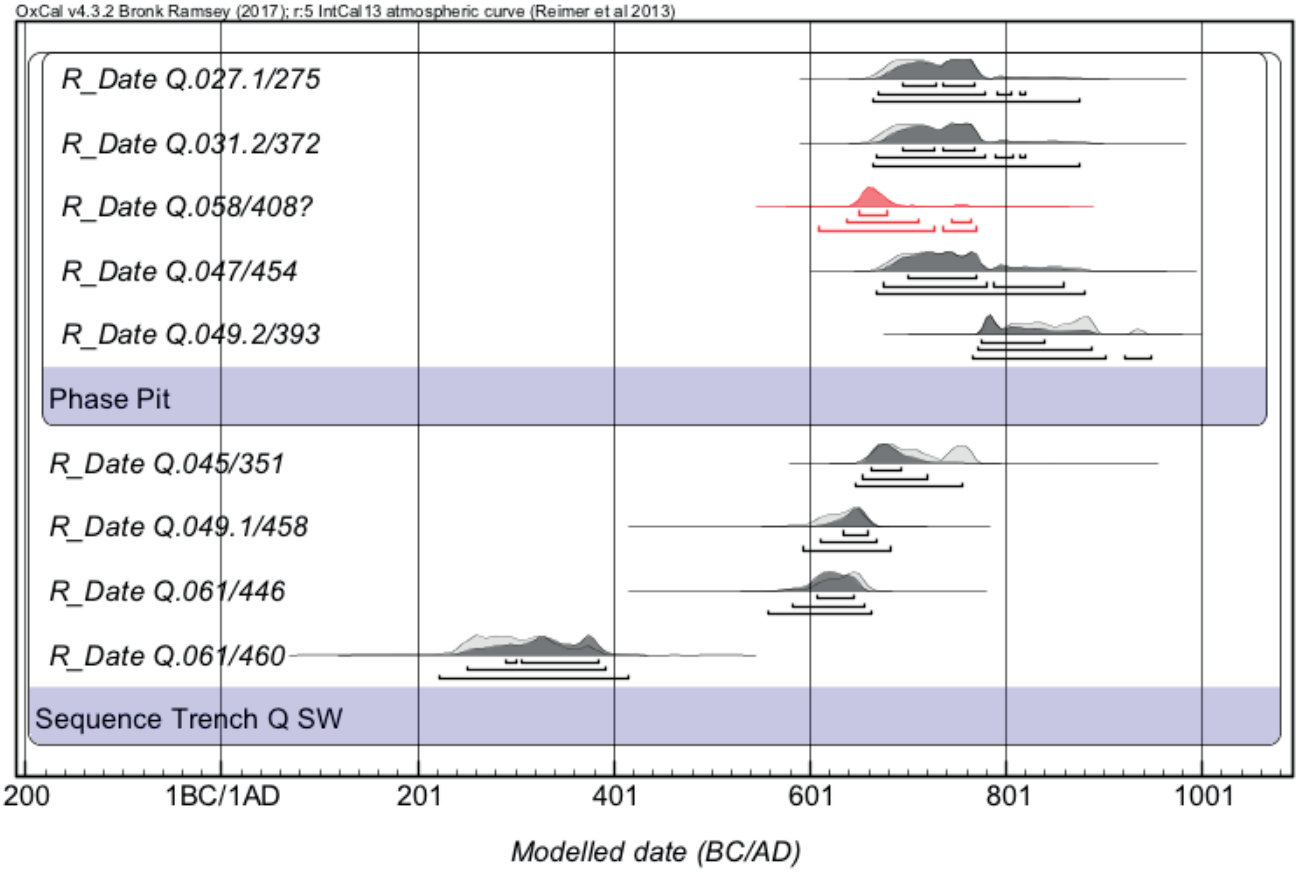


Fig. 3:4: Bayesian model of samples recovered from the south-west of Trench Q, from deposits cut by pit Q.176 and from its fill; an outlier, probably a redeposited sample, is marked in red (see Tables 3:1, 3:5 and 3:8 for further details).

Table 3:1: Radiocarbon dates from late antique deposits to the south-east of the stone-lined pit (Q.176) in Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:4 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
Q.061/446	Poz#2-80697	8.23 m NE, 8.70 m NW, -2.33 m BBM	Charcoal: Hippophae	1408±30	AD 593–666+ → modelled date: AD 583–655+ [sample not certain to be young - even if early date of sample from Q.049.1 suggests that indeed young]	d13C= -27.5
Q.061/460	Poz#2-80698	7.87 m NE, 8.80 m NW, -2.42 m BBM	Charcoal: Pinus	1740±29	AD 238–384+ → modelled date: AD 252–391 [sample not certain to be young]	d13C= -22.5

(Q.061), filling a deep cavity in the bedrock. Apart from the odd charcoal fleck, this inorganic layer on top of the bedrock yielded just some 6 g of animal bones and 81 g of ceramic material. It overlay a thin layer of sterile very soft mid brownish yellow silt (Q.041), immediately on top of edgy and unworn bedrock (Q.055). The sterile silt survived only in places, whilst in most areas late antique or medieval deposits reached down to natural rock.

The survival of pockets of what appears to be natural soil (Q.041), right on top of the bedrock, indicates that the clearance operation in preparation of fort construction in the late fourth or early fifth century did not involve emptying every fissure in the rock. It was humus that could have caused subsidence; leaving in place a little natural silt here or there would not have impeded construction works. There appears to have been no zeal to reduce the plateau to bare rock at every point – which provides grounds for hope that the odd remnant of pre-fourth-century occupation deposits might have escaped the workforce stripping the surface around the late fourth century elsewhere, but none has been found so far in Trenches F or Q. Q.061 above was probably no more than redeposited natural soil, mixed with a small amount of cultural material. The deeper of the two samples has provided a *terminus post quem* some two to four centuries before the second sample at a slightly higher level. It is tempting to think that they were deposited in succession, but both could be old wood and we cannot exclude that it is mixed-up material. If so, all of Q.061 could date to the late sixth or seventh century.

North-east of deposit Q.061, a large early medieval stone-lined pit (Q.176, further discussed below), reached down to the bedrock and was subsequently filled up with debris.[6] The extensive disturbance caused by the large deep pit, in an area of deep stratigraphy, resulted in only pockets of pre-medieval deposits surviving within the west of the trench. These are to the south and east of the pit's stone lining (Q.059). It is likely that there are also pockets of pre-medieval deposits west of the pit's western stone lining (Q.051) and perhaps more extensive deposits beyond the northern limits of the pit. The pit (Q.176) cuts further early deposits (Q.031.1, Q.032.1 and Q.172) with a much higher concentration of finds, including pottery assigned to the seventh century.[7] A similar picture emerges also further north-east, to the south-west of walls Q.096 and Q.097. These mortared walls may be part of a late antique building separately discussed below.[8] A pocket of loose mid greyish brown coarse sand (Q.175), right on top of the bedrock, contained no finds, nor did we observe any organic inclusions. It differs markedly from the natural silt (Q.041) encountered elsewhere. Perhaps this was construction-related debris rather than geology. It is tempting to relate it to the erection of nearby mortared walls, Q.096 and Q.097, on an outcrop of bedrock further north-east, notably if we are right in thinking that these are late antique. If Q.175 consists indeed of debris related to the construction of walls Q.096 and/or Q.097, the latter must be very early, as Q.175 is right on top of the bedrock and buried under deposit Q.137. A sheep or goat radius (Q.137/1097), dated to AD 391–535 and found some 28 cm below the top of the layer, may be contemporary with fort construction or up to a century later (Fig. 3:5; Table 3:2).[9] The deposit, soft mid brownish yellow sandy clay, was rich in pottery (2,895 g) and less so in bone (122 g). It accumulated at the foot of the rock outcrop which carried mortar walls Q.096 and Q.097, probably part of a substantial building. Were its occupants responsible for the outdoor disposal of such rubbish? The rock face has a steep, almost vertical, slope here. It is, therefore, impossible to prove any connection between what accumulated at the base of the rock and what stood on top. The low percentage of bone and yellow colour offer, however, no support for interpreting Q.137 as an outdoor rubbish dump at the doorsteps of a late antique building. The low proportion of organic inclusions and its level top (in places at least) perhaps point instead to a levelling deposit. Such levelling deposits, to create walking surfaces, seem to be typical for phase 3, to judge by our observations in Trench F.[10] The pottery, however, included ninth to tenth century material, indicating that Q.137 is not an uncontaminated late antique deposit,[11] but we do not know if it was a late antique layer with some intrusive later material or an early medieval layer with redeposited late antique finds.

In significant parts of the trench further north, the stratigraphy is shallow, and medieval disturbance often reaches down to the bedrock. As in Trench F, where late antique wall F.004 is abutted by exclusively medieval deposits on the outside of the building, this is no proof that there was no late antique presence – merely of heavy reoccupation of the area throughout the remainder of the first millennium. In many parts of the trench, notably in the north, excavation stopped before reaching natural. In all probability, further late antique deposits await discovery here in future. In one sondage between pillar Q.112 and wall Q.118 (discussed in the next section), however, clearly late antique levels were reached. The deepest deposit in this sondage, friable mid brown sandy silt (Q.162), contained a sheep or goat vertebra (Q.162/1039) of AD 357–531 (and at 85.6% confidence no later than the early AD 430s: Fig. 3:6; Table 3:3). In contrast to Q.137, Q.162 was more organic, and whilst there was vastly more pottery than bone in Q.137, the reverse applies to Q.162, with 670 g bones and only 109 g of pottery. In contrast to Q.137, the small pottery assemblage from Q.162 is typical for Late Antiquity and contains nothing of medieval appearance.[12] Whilst it seems clear that there is overall far less organic debris deposited by tidy (Zoroastrian?) fort occupants in Late Antiquity than their early medieval successors, it seems also evident that the pattern is far from simple and uniform. But it is hard to know the reasons for spatial variation, and little would be gained by speculating.

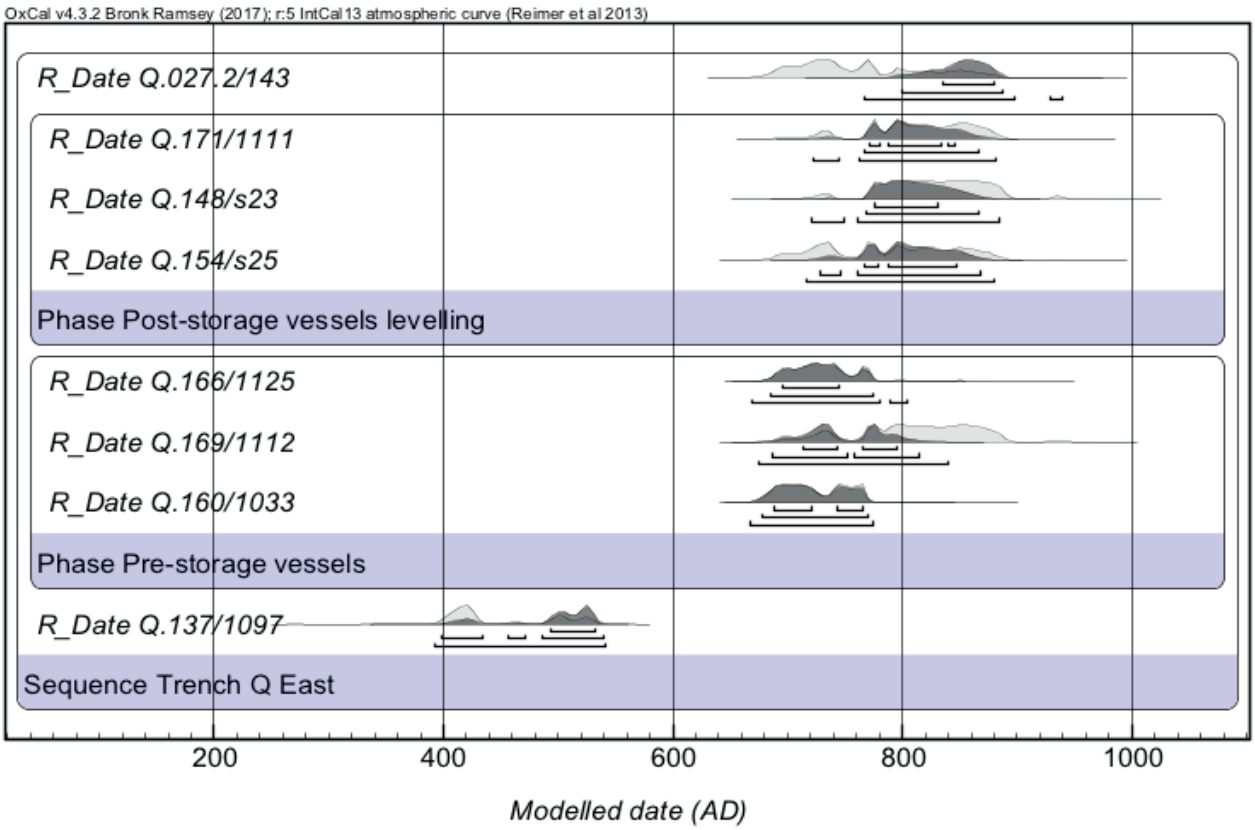


Fig. 3:5: Bayesian model of samples recovered from the east of Trench Q, from deposits under the storage vessel and from their secondary fill and levelling horizon above (see Tables 3:2, 3:6, 3:7 and 3:9 for further details).

Table 3:2: Radiocarbon date from late antique deposits under the early medieval storage jars in Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:5 for a plot of the date).

Context/Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
Q.137/1097	SUERC-71946	14.009 m NE, 9.167 m NW, -0.62 m BBM	Bone: Caprinae, radius	1617±18	AD 391–535 [→ modelled date 397–539; 78.0%: 456–539; 75.0%: 485–539, best disregarded; unmodelled date likely to be more reliable, as there is no obvious reason why the much later upper samples should have a bearing on the earliest sample below]	d13C= -19.7

3.2.2. Late antique fort walls, casemates and a porticus in Trench Q (Phase 3a–d): a mirror image to their counterparts in Trench F?

In the north-west of Trench Q, we found mortared walls (Q.102 and Q.118), c. 1.30 m and 1.44 m wide respectively, separated by a doorway. Their masonry style (employing strong mortar, plastered over and with an 0.16 m wide mortar ledge on the plateau-facing side: Figs 3:7–3:10), is strikingly similar to that of wall F.013 and other late antique walls (such as F.004) in Trench F. We may assume that there was a room to the west of this doorway. The entrance leading into this room is, seen from the inside of the fort, on the right (as is the entrance to the casemate in wall F.013). The width of this doorway of 1.00–1.10 m

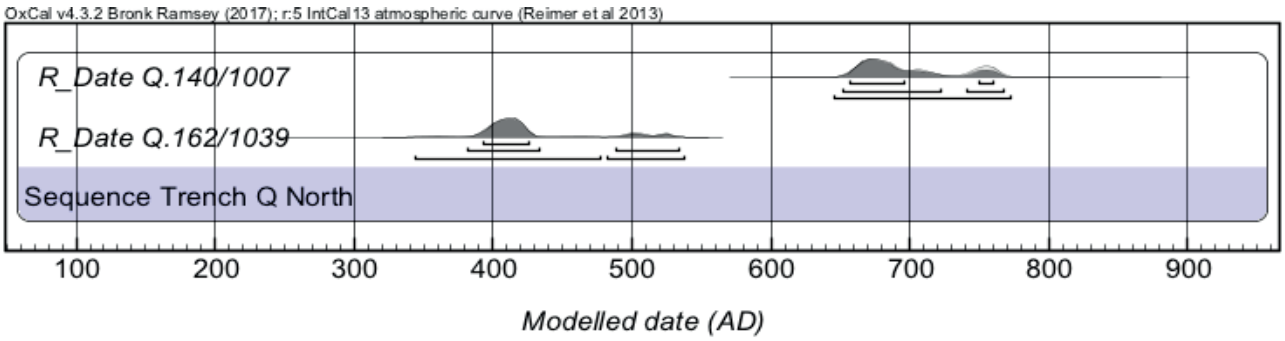


Fig. 3:6: Samples recovered from the north of Trench Q (see Tables 3:3 and 3:15 for further details).

Table 3:3: Radiocarbon date from late antique deposits in the north of Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:6 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [no modelled dates indicated, due to small number or samples (two) and one of them not certain to be young]*	*Comments*
Q.162/1039	SUERC-71953	16.799 m NE, 22.681 m NW, -2.351 m BBM	Bone: Caprinae, vertebra	1633±18	AD 357–531; 85.6%: 357–432; 84.8%: 381–432	d13C= -19.4

is also more or less identical to that of its counterpart in Trench F. Unlike Trench F, the bottom courses of the late antique wall (Q.102) run under the doorway. We do not know if this was original or if the threshold was raised at a later stage. There was no trace of a mortar floor in the entrance, as there was in Trench F (F.173/F.195), but this could easily be at a deeper, unexcavated, level or could have been destroyed. In all probability, these walls belong to the original construction of the fort in the late fourth to early fifth century, and form part of a room that is a further casemate on the inside of the outer fort walls. There was only part of a single casemate in Trench Q and no second such room north of it. Perhaps this suggests that there was a corner in the double-wall at this point. If so, the adjacent rooms would have been to the south and to the west, an area of heavy destruction and erosion where parts of the walls will have been entirely destroyed. Exploring better preserved sections further west and further north should reveal more of the fort's double-walls.

We do not know the reasons for the likely destruction of the outer walls in this area. Uneven ground may mean that the foundations on bedrock may have been at a much deeper level here, whether preserved or not. If built on sloping rock, they might have collapsed. Natural causes will have led to the collapse of some sections of the fort walls; indeed, a part of the east wall of Dariali Fort, collapsed since, still features on old photographs.[13] The disappearance of most of Dariali's wall circuit, except for courses buried below ground or to a low elevation above, despite their solid construction (Fig. 3:11), can hardly be the result of natural causes. More probably, this and many other sections of the outer walls of Dariali Fort have been deliberately blown up in modern times. The fort's prominent position meant that Czarist Russia, once in control of Georgia, had an interest in slighting the defences that would have been an attractive place to occupy for rebels.[14] Furthermore, whenever modern artillery was stationed on the fort, sections of old walls would have impeded effective surveillance of traffic routes on the west and east sides of the fort. High walls in the Trench Q area would have prevented effective shelling of hostile forces, attempting to make their way past, on the west side of the fort. Whatever stretch of wall was in the firing line, notably at the northern approaches to the fort, will have been flattened.

Little of the interior of the casemate has been excavated, and it was furthermore affected by heavy erosion in the west, whilst on the south-east side of walls Q.102 and Q.118, a medieval pit has caused much disturbance.[15] Unlike the casemate in Trench F, with multiple occupation levels on the inside from Late Antiquity to the tenth century, we cannot reconstruct the history of occupation of its equivalent in Trench Q. One may hazard the guess that it was similar to Trench F and the other rooms in the shadow of the fort walls all around the walls circuit. If anything, there may have been an incentive to guard the northern edges of the plateau more thoroughly. Flat terrain was in short supply within the small hilltop stronghold,



Fig. 3:7: The mortared pillars and walls found in the north-west of Trench Q are similar to structures in Trench F and likely to be part of the same row of rooms and the same porticus on the inside of the fort walls.

and all of Dariali Fort's plateau would probably have been used in periods of dense occupation. Yet, the northern part will have been of particular significance whenever Dariali Fort served as a strategic asset rather than a mere refuge. It is from this vantage point that any approaches from the north can be detected early, and, if necessary, hostile assailants could have been deterred from approaching, or decimated if undeterred, with arrows, stone missiles or rocks. Effective surveillance and the ability to target any would-be trespassers was vital to control the movement of travellers or to block the advance of invaders from the north.

Parallel to walls Q.102 and Q.118, we found an alignment of two rectangular pillars (Figs 3:7–3:9, 3:12–3:14). A comparison with pillars found in Trench F before reveals close architectural parallels. Like their counterparts in Trench F, they employ mortar and rest, in part at least, on bedrock. One also notices that their dimensions, distance to each other and to the respective late antique walls they line (Q.102 and F.013) are similar, even if not identical (Table 3:4).

It thus seems reasonable to propose that the pillars in Trenches F and Q are part of a single scheme, likely to have served the same function. They probably carried a porticus that lined the inside of the ring of rooms at the edge of the plateau. Such a veranda would have provided a dry space at the entrance to living rooms and a roofed walkway, allowing garrison members to reach other rooms or the gate without unnecessary exposure to the rain. Early imperial as well as late Roman military barracks were often lined by porticos serving similar functions.[16]

There is no evidence for the row of pillars continuing further to the north or north-east; nor is there any trace of pillars parallel to wall Q.118, following the postulated bend in the fort walls. We do not know whether any further pillars in this area of shallow stratigraphy were later demolished or if the porticus came to an end at this point. Even one of the pillars in Trench F (F.147) had, of course, been largely destroyed, despite being in an area of deep stratigraphy. Notwithstanding their partial survival, the four pillars in Trenches F and Q have enough in common to suggest that they were elements of the same scheme.

If indeed all four pillars are part of a porticus, then it seems reasonable to suggest that they were all erected at a similar date. The pillars in Trench F rest in part on the bedrock and in part on an early levelling horizon (F.124, F.126, F.127 and F.149). Evidently later than the fort walls (including F.013), this levelling horizon could be as

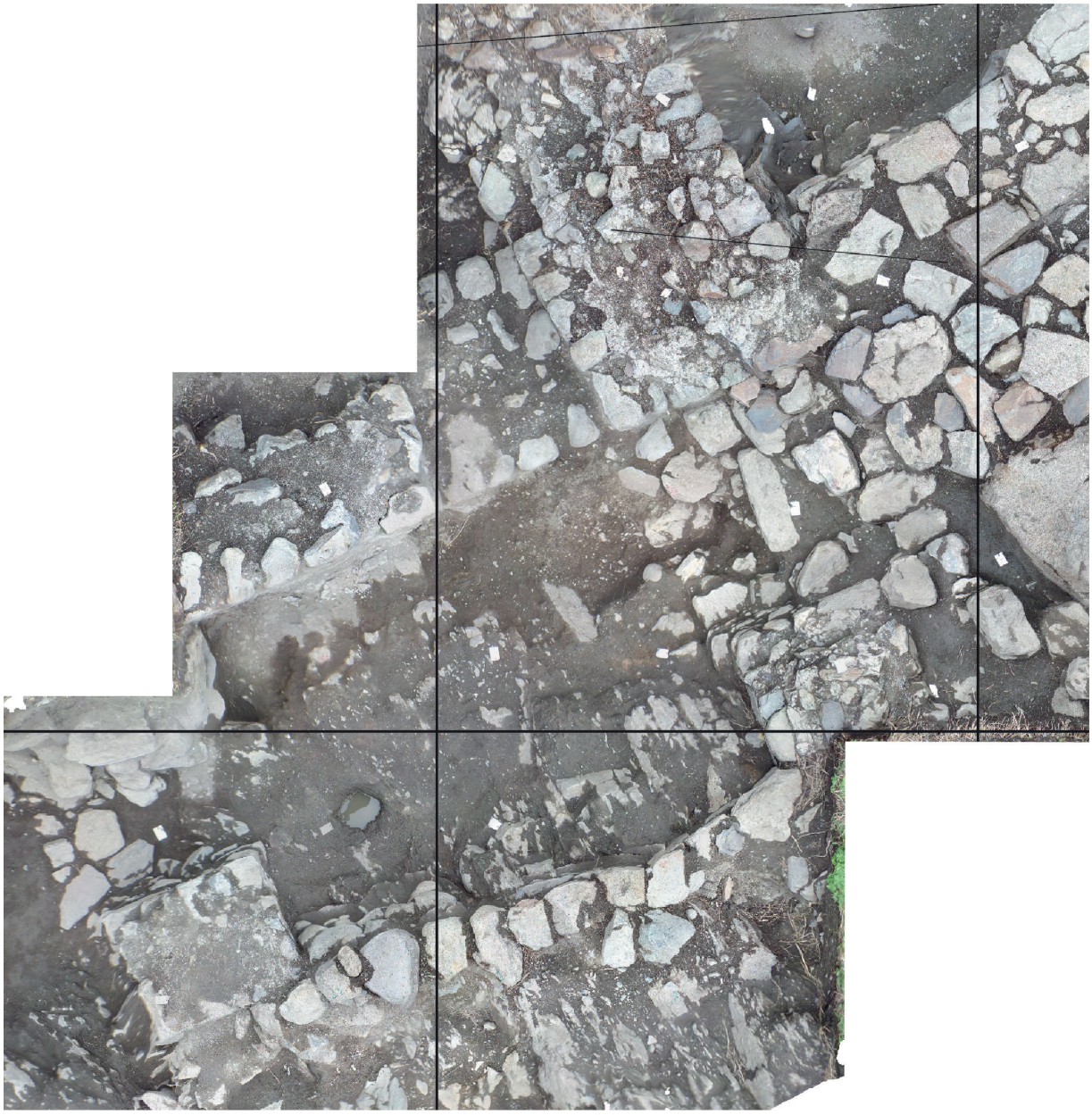


Fig. 3:8: The porticus alongside the late antique walls. Rectified pole photograph by Eve MacDonald et al.

early as the early fifth century, perhaps only a few years or decades younger than the double-ring of fort walls and built as part of the same project. It is possible too, but unlikely, that the levelling horizon is as late as the mid-fifth century.[17] The pillars are abutted the mid- to late sixth-century deposit F.129 and the burnt horizon (F.096), roughly one century younger, above. A bone sample (F.162/1039) found between the stepped foundations of pillar Q.112 and walls Q.102 and Q.118, even if just 4 cm higher than the foundations of the pillar, provides a likely *terminus ante quem* of AD 432 (at 85.6% probability or AD 531, at 95.4% confidence). We may conclude that the porticus was probably built between the AD 410s and 430s, perhaps soon after construction of the double-ring of fort walls and the subsequent creation of the earliest levelling horizon in Trench F. The pillars may well have been part of the original fort design, but are in any case no later than the first third of the sixth century.[18]

3.2.3. Barracks for the garrison? A probably late antique stone building in Trench Q (Phase 3c–d?)

The ring of rooms encircling the hilltop had evidently been occupied, but how much or how little additional housing was there in the interior? One of the key aims of Trench Q had been to shed light on the nature of intramural occupation, notably in the pre-medieval era. In the south-western part of the trench extensive dry-stone structures came to light, invariably of

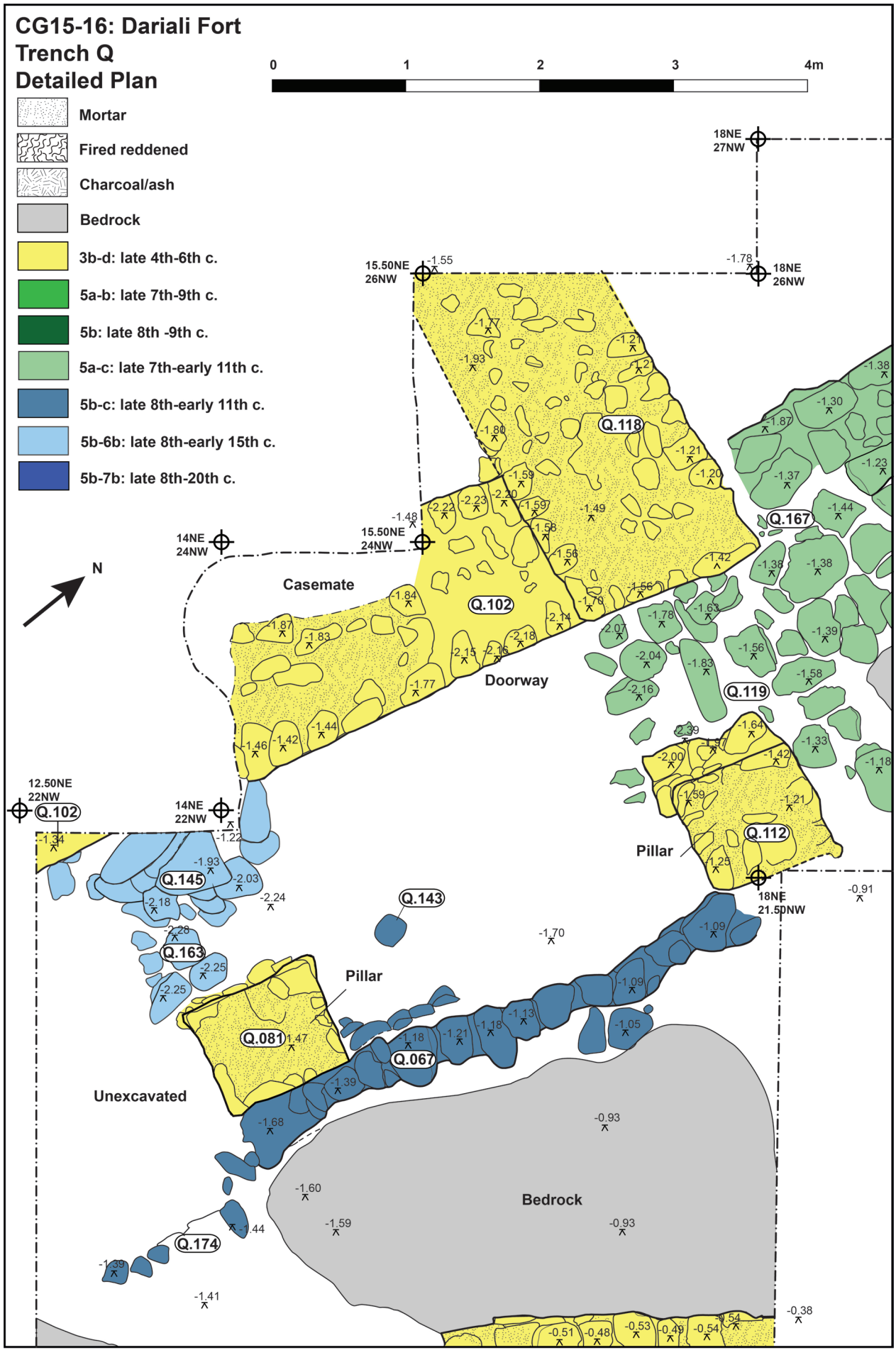


Fig. 3:9: Plan of the late antique walls and pillars in Trench Q.

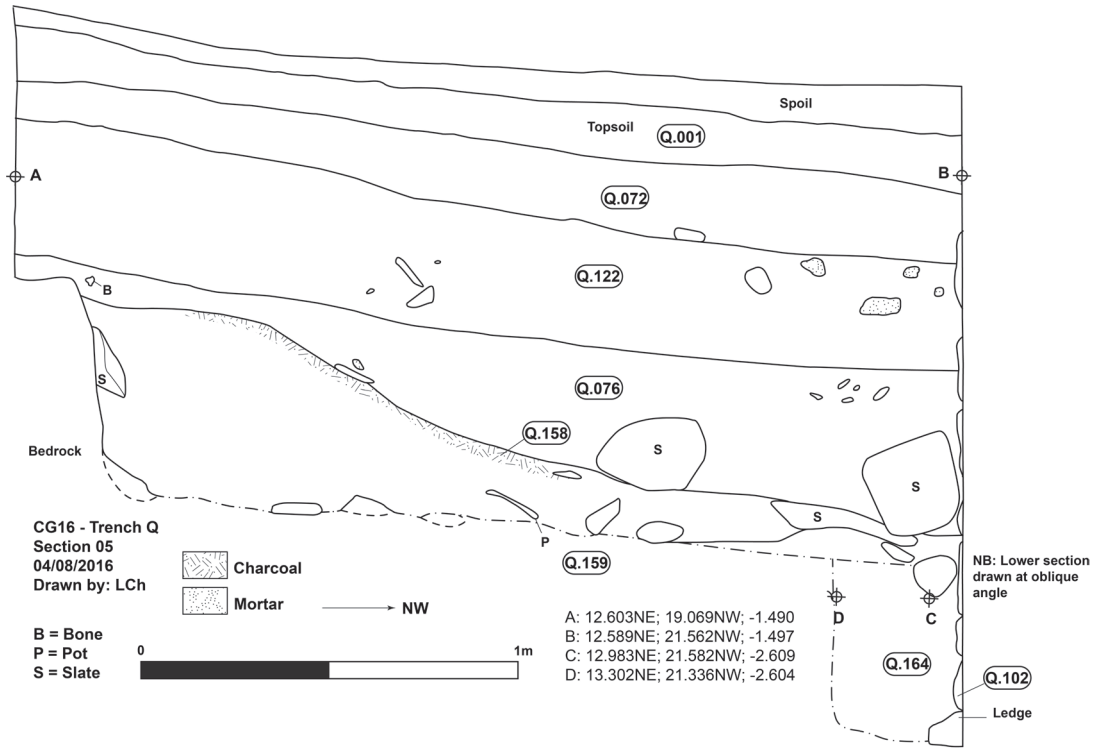


Fig. 3:10: Whilst only exposed in a small sondage, it is clear that wall Q.102 had a mortared ledge, like late antique walls F.004 and F.013.



Fig. 3:11: Only the eastern walls of Dariali Fort survive to substantial height.



Fig. 3:12: The late antique walls Q.102 and Q.118 were of solid mortar construction.



Fig. 3:13: Pillar Q.081 also employed mortar, like the other pillars in Trenches Q and F.



Fig. 3:14: Pillar Q.112 with similar mortar masonry and with deep foundations on the sloping bedrock.

Table 3:4: Mortared pillars in Trenches Q: part of a covered walkway on the inside of the casemates?

Pillar	*Dimensions*	*Alongside wall*	*Distance to wall (edge to edge)*	*Distance between pillars (edge to edge)*
F.082	1.00×1.00 m	F.013	1.40 m	2.75 m
F.147	0.96×>0.62 m		1.53 m	
Q.081	1.00×0.80 m	Q.102 & Q.118	1.37 m	3.05 m
Q.112	1.00×0.80 m		1.35 m	

medieval date and to be discussed separately below. Some of these, notably walls Q.095 and Q.104, abut an earlier well-built mortared wall of 11 m length (Q.096 = Q.105), running southeast-northwest (Figs 3:15–3:17). Three walls (Q.069, Q.066 and Q.097) branch off its north-east side and whilst only a small part of them was within the excavated area, their continuation to the east is still visible in places, as low walls overgrown by grass. One can follow them for up to 11.50 m beyond the south-west face of wall Q.096. Evidently, they have been largely demolished, with only the bottom courses left in place. There is no visible trace on the grassy surface of any wall between the terminals, perhaps a result of complete or more systemic robbing in the north-east, rather than one side being open to the elements. The known remains are shaped like the letter 'E'. The overall block is not far off a rectangle, even if the north-western prong (Q.069) is not parallel to the south-eastern two and slightly bends to the south-east. The overall shape of the building is not perfectly symmetrical: Wall Q.096 is c. 11 m long, whilst at the terminal points of walls Q.097 and Q.069 the building is narrower, i.e. c. 10 m. The overall extent of the

building is at least c. 10–11.50 m south-west-north-east and c. 10–11 m south-east-north-west. The two rooms, or rows of rooms, were around four metres wide internally, not much narrower than the casemate in Trench F. As only the south-westernmost part of the building (some 2.10–2.50 m including the c. one metre wide wall Q.096) has been excavated, we know no room partitions. Each row could have formed a single elongated room, or it may have been split up into two or more smaller rooms. Assuming there were rooms of similar size to the casemate in Trench F, there would have been space for four rooms of similar dimensions within the block. We cannot be sure how much further the building may have extended to the north-east beyond the detected remains and whether or not it may have stretched in other directions too. There is no evidence of wall Q.096 continuing to the south-east beyond its junction with wall Q.097. This may indicate that Q.097 forms the southern outer wall of the building. If so, the postulated doorway (only the western side of which was within our trench) in Q.097 formed an entrance to the building, rather than an internal door. Alternatively, it is possible, if perhaps less likely, that wall Q.096 continues south, but that there is another doorway to the south-east of its junction with Q.097. It is worth noting that the late antique, wall (F.004) of an internal building in Trench F was of similar width (c. 1.08 m) to those of the rectangular building in Trench Q (c. 0.98–1.20 m). They also all employ mortar, are of similar masonry style and built on bedrock. This need not indicate that F.004 and the walls of the rectangular structure in Trench Q were part of the same building, although they might have been, if of irregular shape. More probably, they belong to two separate buildings of similar architectural tradition and date.

Unfortunately, we encountered no occupation horizons, nor floors, nor indeed any finds certain to be associated with the well-constructed mortar-wall building in the north-east of the trench. It is worth noting, however, that the pottery from Q.079, the deposit on top of the bedrock abutting wall Q.066 in the north-west, has yielded pottery of late antique date. As there is only 173.5 g of pottery

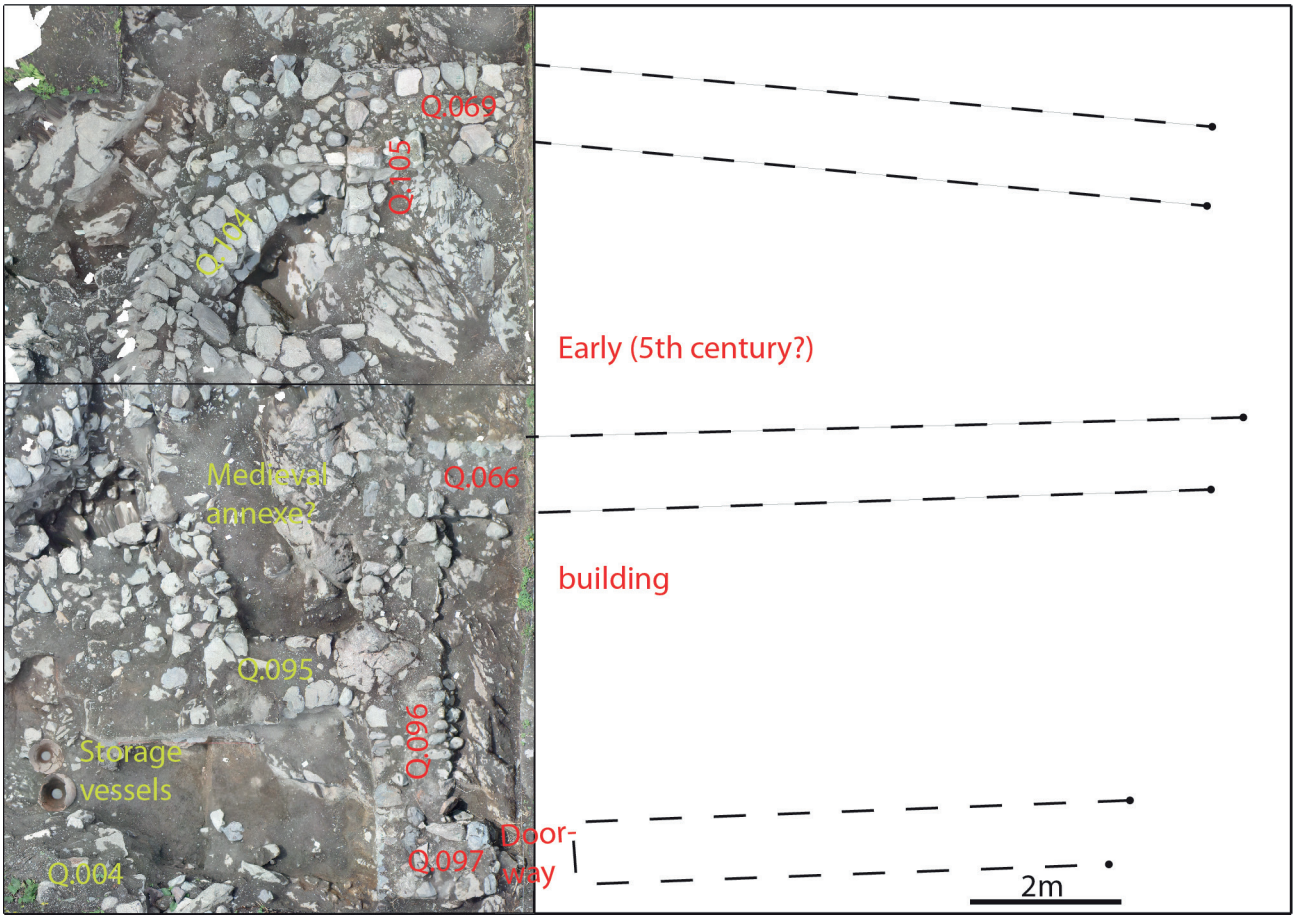


Fig. 3:15: Rectified images (by Eve MacDonald) of Trench Q, showing a probably late antique building (mortared walls Q.066, Q.069, Q.096, Q.097 and Q.105). Traces of the continuation of the walls in the grass to the north-east (right) of the trench are shown by dotted lines. (The terminal points have been measured in by total station. These are only approximate, as the overgrowth has not been cleared.) Probably early medieval (eighth-ninth-century) dry-stone walls (Q.004, Q.095 and Q.104 in yellow) belong to later annexes built against the earlier and more solid building. The storage vessels buried partially by wall Q.004, are earlier than the annexes (and later than the mortar-wall building, if the late antique dating proposal is correct).



Fig. 3:16: The late antique building overlooks the northern approaches to the fort.



Fig. 3:17: Only the bottom courses of the walls of the long building survive and even these have vanished in places. The south-west-facing side of wall Q.096 (= Q.097) shows that it employs mortar and is built on the bedrock, suggesting it is a late antique construction.

and the same context also contained a bone sample of the late tenth or early eleventh century, this is evidently no late antique occupation layer – but it may well represent pre-medieval occupation, disturbed and mixed up with more recent material at a much later date.[19] The absence of any original floors or deposits should not be surprising, as the stratigraphy is shallow within the interior of the building and any floor or occupation layers could easily have been erased by later occupants. Like other well-built structures, it would probably have been occupied for many centuries – and, unlike those with uneven ground in the interior (F.004) or at risk from water or mud being washed in from above (the casemate in Trench F), there was no strong incentive to preserve raised floor horizons. As discussed above, it is possible that some sterile coarse sand (Q.175), at the base of the rock the building stands on, may be construction-related debris; a late antique deposit (Q.137) above, and also at the base of the rock, may represent a levelling horizon rather than an outdoor rubbish dump.[20]

How old was this building? Examination of the mortar failed to reveal any organic components suitable for dating.[21] There is, however, circumstantial evidence to suggest late antique origins:

- The walls employed mortar, and so far all securely dated mortar walls at Dariali (leaving aside twentieth-century military constructions of different appearance) belong to the late fourth to sixth centuries (or a shorter period in the late fourth to early fifth centuries). All medieval walls for which secure dating evidence is available, by contrast, are dry-stone constructions, suggesting that the mortar building is pre-medieval.
- The south-west side of the building is rectilinear over a greater distance than any medieval wall on the fort we know.
- The walls were of similar width to wall F.004, which is firmly dated to the fifth or sixth century.
- They were, like other late antique walls and unlike most medieval dry-stone walls, built on bedrock.
- The building was abutted by dry-stone walls (such as wall Q.104) of likely late eighth or ninth-century date and must be earlier.

None of the final three points provides certainty that the building is pre-medieval, as there are medieval walls of similar width, in part built on bedrock in areas of shallow stratigraphy, even if a much higher proportion of late antique walls reached such width and rested on

bedrock. The annexes leaning against its south-west side only prove that it cannot be later than the ninth century. Yet, the first, of these five observations, provides a compelling argument for a late antique date, further strengthened by the second – as both the use of mortar and rectilinear alignment over more than six metres are unparalleled in the medieval structures on Dariali Fort. This complex is of major significance, as is the late antique F.004 building. Late antique occupation was evidently not confined to a ring or rooms on the inside of the fort walls, but there were also large buildings inside. This has major implications for the potential number of occupants that could have been housed within Dariali Fort.

3.3. The seventh to early eighth century: plus ça change, plus c'est la même chose: political upheaval and archaeological continuity (Phase 4)

The transitional period between Late Antiquity and the Muslim conquest of c. AD 727 has left fewer clear traces in Trench Q than in Trench F. We do not know how long the Sasanian Empire or any (Iberian?) allies stayed in charge of Dariali, nor if the garrison changed or stayed on. What is certain is that by the mid-seventh century the Sasanian state ceased to exist and may not have been effectively in charge during its death throes in the years before. Whilst world order changed beyond recognition in the seventh century, as did the political landscape in the Caucasus and Transcaucasia, occupation at Dariali appears to have continued unabated in both trenches.

As already mentioned,[22] the upper of two charcoal samples from deposit Q.061 belongs to the later sixth or the seventh century. The deposit above, soft mid brown clayey silt (Q.060) with 465 g of pottery and 70 g of bone, appears to be an occupation layer of around the first half of the seventh century. Samples of c. AD 612/669, from the next layer (Q.049.1), and of c. AD 655/720, from Q.045 (Table 3:5), appear to form part of a gradual build-up of occupation layers throughout the seventh century, if not beyond. Q.045, friable mid brownish grey sandy clay, yielded 3,617 g of bone and 1,024 g of pottery, as well as a copper alloy bracelet, slag and a glass sherd. It is the most prolific deposit of this phase, south-west of, and cut by, the large eighth or ninth-century pit (Q.176). Further north-east, deposit Q.147, containing some 2,000 g of pottery and 572 g of bone, formed at some stage between the fifth and the eighth century (to judge by stratigraphy and scientific dating), perhaps towards the end of this period, as the pottery assemblage would be compatible with the ninth or even tenth century.[23] Despite the lack of chronological precision, it seems likely that the deep horizons in Trench Q built up gradually with nothing to suggest any period of abandonment.[24] It appears that there was continuous occupation throughout the imperial power vacuum between the fall of the Sasanian Empire and the advent of Muslim forces.

The fire that had engulfed a small part of Trench F and led to the formation of F.096 in the second half of the seventh or early eighth century appears to have been a local phenomenon. There were no traces of a burnt horizon of this (or any other) period anywhere in Trench Q – nor is there evidence that it affected even all of Trench F. At no stage did Dariali Fort burn down, nor will there have been much combustible material apart from roof timbers.

It was the deep part of Trench Q, later partially disturbed by a deep stone-lined pit (Q.176), in which the highest quantity of late antique and early medieval material survived. Between the late seventh century and the third quarter of the eighth century organic soil (soft dark brown sandy silt, Q.160), built up here. This occupation layer (on top of Q.147), with a radiocarbon sample (Q.160/1033) of c. AD 678–769, dates to a generation or

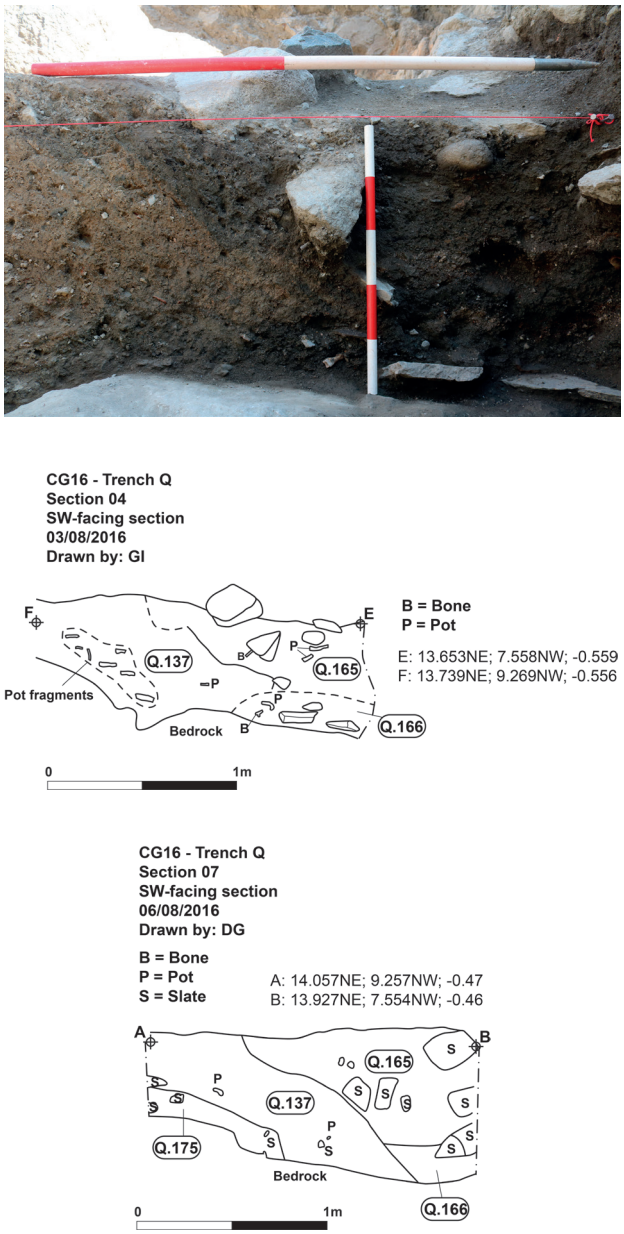
Table 3:5: Radiocarbon dates from c. mid-seventh to mid-eighth century deposits under the stone-lined pit (Q.176) in Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:4 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
Q.045/351	SUERC-63217	6.25 m NE, 11.5 m NW, -0.72 m BBM	Bone: Bos, ulna, proximal medial, left side, fused	1304±31	AD 657–770 → modelled date: AD 655–720	d13C= -18.3
Q.049.1/458	SUERC-63219	7.52 m NE, 9.52 m NW, -1.96 m BBM	Bone: Ovis, scapula, right side, complete	1406±33	AD 585–669 → modelled date: AD 612–669	d13C= -21

two before and/or after the Muslim conquest. It was rich in finds and contained 4,436 g of pottery and 1,769 g of bone as well as three glass sherds (11 g). At a similar date a pit (Q.177), dug into late antique layer Q.137 and down to the bedrock (Figs 3:18–3:20), filled up with clayey and sandy material (Q.157, Q.165 and Q.166). The purpose of this feature (perhaps material extraction or storage) is unknown, but it proved remarkably rich in finds, yielding 5,890 g of pottery, 1,166 g of bone, 474 g of brick, 29 g of glass and 8 g of worked bone. The latter categories include large parts of a glass goblet and a beautifully carved spoon[25] – evidence that some early medieval occupants of this remote mountain outpost enjoyed a refined lifestyle. These items need not bear any connection with the pit, but may simply have accumulated in this deep feature. It is possible that they point to continued occupation of the substantial (Q.096) mortar building to the north-east of the pit, but they could also have fallen into the deep hole from other directions. A sheep or goat femur (Q.166/1125) of c. AD 686–774 from the lower fill (Q.166) at the transition to the upper fill (Q.165) provides a likely late seventh-century or eighth-century date for the assemblage[26] (see Table 3:6 below).

Evidently, the interior of Dariali Fort continued to be occupied into the eighth century. Like in the seventh century before, there is no evidence for construction works or structural alterations of existing buildings in the early to mid-eighth century. The solid late antique mortar buildings appear to have lasted for centuries (and eventually often for more than a millennium) and provided the garrison with adequate housing to weather the harsh climate. Construction works at Dariali, leaving aside a single phase 4 posthole in Trench F,[27] appear to have ceased altogether for centuries. Even if there should have been the odd minor structure that has vanished since, the contrast with the preceding late antique era (late fourth to fifth or sixth century) as well as to the period that followed (starting in the eighth or ninth century) is stark. Whereas these two eras saw both the erection of a significant number of walls and other structures, there was not any stone construction, recognised to date, between the fifth or sixth and the eighth or ninth century.

Whether the Iberians, northerners or local communities were in charge,[28] Dariali's occupation appears to have continued unabated throughout the interlude between the fall of the Sasanian Empire and the rise of the Caliphate and its expansion into the Caucasus. The lack of any clear destruction horizon neither proves nor disproves that peaceful conditions prevailed. With only the lower courses of stone walls surviving, any potential siege or assault need not have left detectable traces – and the strong natural and artificial defences may, of course, have deterred enemies from even trying.



Figs 3:18–3:20: An inconspicuous pit (Q.177, filled with Q.166 and Q.165) near the storage vessels yielded material of the late seventh or eighth centuries.

3.4. Resurgence: dry-stone building boom and life from the eighth to the tenth/eleventh centuries (Phase 5)

3.4.1. Introduction

If the most solid and well-built walls in both, Trench F and Trench Q, are late antique, it was the last three centuries of the first millennium that have left the clearest imprint in both trenches. Whereas the seventh to early eighth century phase 4 was marked by continued occupation of existing structures and intramural rubbish disposal on a modest scale only, it is in the eighth century that we see a marked increase in the build-up of occupation debris,

Table 3:6: Radiocarbon dates from c. late seventh to eighth deposits under the early medieval storage jars in Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:5 for a plot of the dates).

Context/Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
Q.166/1125	SUERC-71954	14.009 m NE, 7.92 m NW, -0.916 m BBM	Bone: Caprinae, femur	1254±18	AD 678–777 → modelled date: 686–774	d13C= -20.3
Q.169/1112	Poz-89858	11.22 m NE, 8.29 m NW, -1.08 m BBM	Charcoal: Salix/ Populus	1212±29	AD 695–890+; 83.2%: 764–890+ → modelled date: 687–815+ [not certain to be young]	d13C= -27.8
Q.160/1033	SUERC-71952	12.922 m NE, 9.194 m NW, -1.041 m BBM	Bone: Ovis, phalanx 1	1274±18	AD 677–770 → modelled date: 678–769	d13C= -20.7

culminating in deposition of more bone, pottery and glass than ever before or since, between the eighth century and the turn of the millennium. The sudden acceleration of rubbish dumping in the eighth century is followed by a resumption of building work, later in the eighth or in the ninth century. The new walls were invariably basic dry-stone structures.

3.4.2. Food storage in the fort (Phase 4/5a–b)

As with some of the events and developments described in the previous section, our chronology is not precise enough to assign all deposits and events with absolute certainty to the period of either before or after the Islamic conquest of c. AD 727. This applies also to one of the most interesting discoveries, four large storage vessels *in situ* (Figs 3:21–3:25), dug into earlier horizons. These were cut into deposits Q.160 (with a sample of c. AD 678–769) and Q.169 (AD 687–815, based on a small piece of charcoal of unknown age: Table 3:6) either whilst Dariali Fort was still under Iberian, local or northern control – or after it had again become the outpost of a Near Eastern Empire. Both samples are from just underneath the level from which the pits were cut. At a later stage (probably between the AD 770s and 860s) the vessels were filled and covered with debris (Q.171), to create a stable and level surface for a dry-stone wall (Q.004) built on top. It was this process that ensured the survival of the vessels, sealing and protecting them. We have no way of estimating how long they were in use; if for a few decades, one may hazard the guess that a date before the mid-ninth century at the very latest, may be likely. At the earliest, the vessels could date to the final years of the seventh century (based on stratigraphy and scientific dating), but the typologically late ceramic assemblage from Q.147 (under Q.160) below[29] suggests that this, or even an early eighth century date, is unlikely. They could be contemporary with the stone-lined pit Q.176 (discussed below), a little earlier or a little later.

It is tempting to attribute such systematic storage in rows of vessels to the period after Dariali Fort had become an outpost of the Caliphate, supplied and sustained with provisions from warmer and more fertile lands. On the other hand, similar vessels have traditionally been used for wine storage,[30] raising the questions of whether the vessels are pre-Muslim, whether the Muslim garrison adapted to local drinking habits (despite wine prohibition already in early Islam[31]) or if the vessels may have been the property of non-Muslim occupants, such as mercenaries or perhaps a hypothetical later Khazar garrison. Wine, if indeed stored in the vessels, must have been a sought-after import from the lowlands. Alternatively, the jars may have been used or reused for storing other commodities. As none of the original contents of the vessels survived, we cannot offer any precision-dating or decide between these possibilities.

Three of the four large storage vessels found *in situ* were lifted. The fourth (Q.031.1/1059), buried under (an unexcavated section of) wall Q.004, could not be recovered and is still in place. Three of them were in a row, almost touching each other (from north-west to south-east: Q.031.1/193, Q.031.1/966 and Q.031.1/1059) and a fourth (Q.160/849) some 55 cm north-east of Q.031.1/966 (rim to rim). No evidence for the latter forming part of a second row of vessels was found, but it is worth noting that whilst the row of three vessels was buried under wall Q.004 and thus protected, vessel Q.160/849 was only partially covered under the wall. Whilst heavily fragmented, this fourth vessel could also be largely reconstructed – crushed through later activity, but not removed.[32] It is possible that there are more jars further south-east, beyond the limits of the excavated area.

Interestingly, a sample from the fill (Q.148) of vessel Q.160/849 yielded 20 charred seeds of millet (*Panicum miliaceum*). There was a further millet seed as well as one

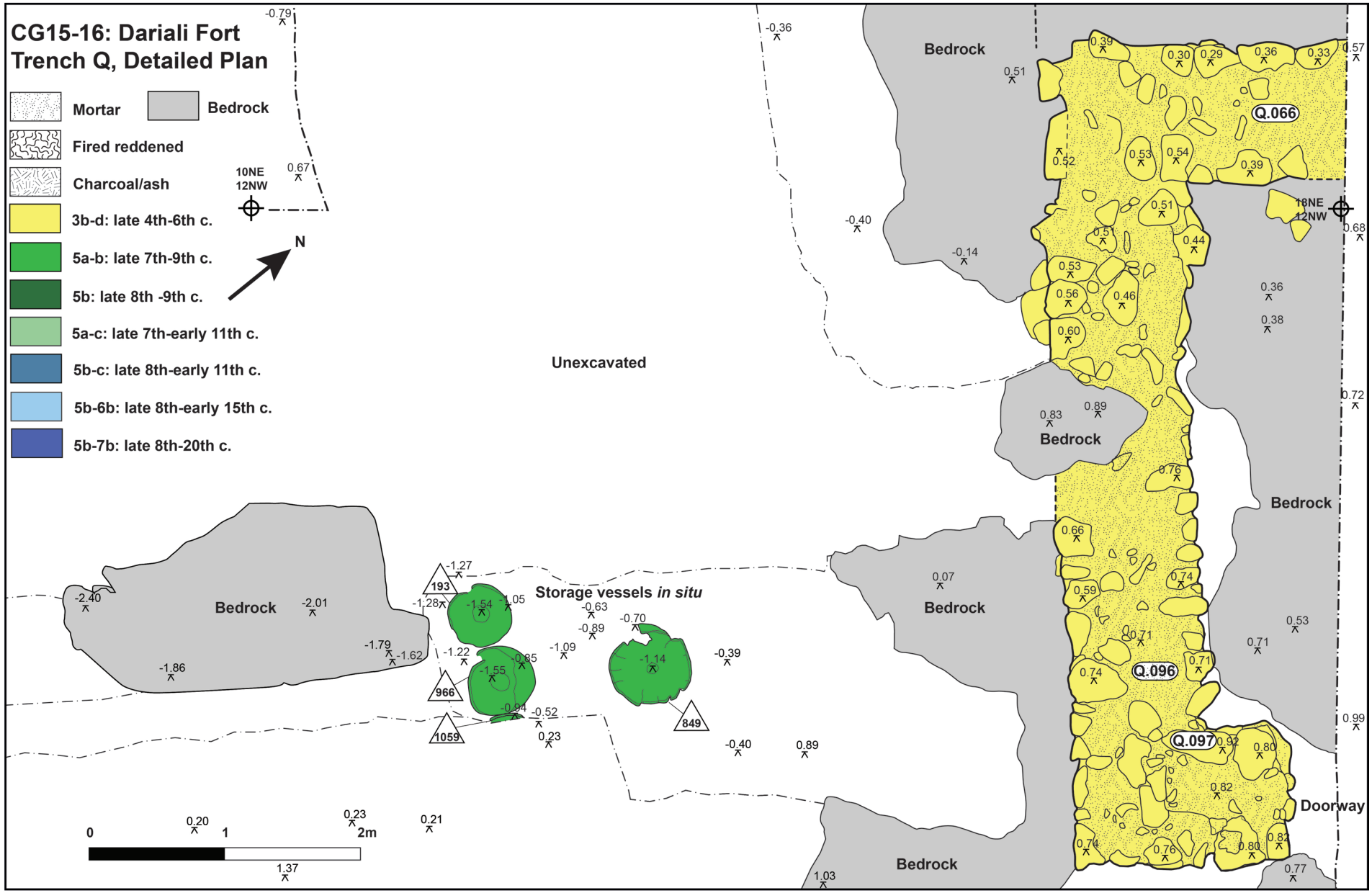


Fig. 3:21: Location of the four storage vessels in an area of deep stratigraphy outside the late antique building, plus other features dating to phases 3-5a or early within 5b (c. fourth to late seventh, eighth or early ninth centuries).



Fig. 3:22: One the four large storage vessels found in situ*: Q.031.1/1059 under the early medieval wall Q.004.*

seed each of bromegrass (*Avena/Bromus*) and rye (*Secale cereale*) from the fill (Q.154) of vessel Q031.1/966.[33] Are the charred millet and rye seeds remnants of cereals once stored in the vessels? This seems unlikely. Had the contents of the vessels been exposed to fire, one would expect a much higher concentration of seeds. Furthermore, we observed no trace of fire exposure on the vessels or the ground nearby. The vessels did not contain organic material, suggestive of decayed foodstuffs. Nor were there voids, which would have formed in sealed vessels had the contents been allowed to rot *in situ*. All four jars were filled with loose mid greyish brown silty sand, rich in animal bones.[34] This material is clearly redeposited occupation debris used to fill the empty vessels, raise the ground and create a building platform for wall Q.004. The seeds, just as the bones, are unrelated to the original use of the vessels, but are of major interest for early medieval diet in the period preceding these construction works. Whether their presence attests food storage in the area or simply food preparation, as one might expect throughout the fort, the discovery of millet is interesting. Growing normally in climates warmer than alpine Dariali Gorge,[35] the seeds provide further evidence for food provisions being brought to Dariali Fort from afar, probably Transcaucasian Iberia. Perhaps we should assume that the vessels held liquids, probably wine, but that a variety of food crops were stored in the fort too, to keep the garrison in strength throughout the year, notably the long and harsh winter. The millet of c. AD 769/866 and the rye of c. AD 761/869 (Table 3:7) evidently predate the construction of wall Q.004, and their deposition or redeposition postdates the use of the storage vessel. Soil composition and animal bones suggest that the cereal seeds were probably part of earlier occupation debris dug up to raise the ground, rather than remnants of food consumed during the construction works. The cereal import is thus likely to be earlier than the construction works on top of a disused storage area. Perhaps it was contemporary with the use of the vessels. We may conclude that the millet was imported in the late eighth or ninth century, probably before the start of construction works. Such food supply from afar was no unique event. Mas'udi attests that convoys still brought food to the fort from as far as Tbilisi in the AD 940s – and we may assume that there will have been a large number of such missions over the centuries to sustain the garrison.[36]

3.4.3. A stone-lined pit (Phase 5b)

To the west of the vessels, a deep stone-lined feature (Q.176) cut through and will have erased most of pre-medieval layers in Trench Q (Figs 3:26–3:27). Only in a sondage in the south-east did we excavate the fill down to the bedrock (Q.055). We assume, but cannot be sure, that it reached down to the bedrock elsewhere too. Cutting deposits Q.049.1 and Q.045, it cannot be earlier than the AD 650s at the earliest. A sample (Q.049.2/393) from its bottom fill, however, dates probably to the AD 770s to AD 880s (Table 3:8). This sample makes it more likely that the stone-lined feature was created in the eighth or ninth century, rather than the later seventh. Found just c. 15 cm above the bedrock, it seems unlikely that, despite continuous occupation nearby, the interior of the feature would have been kept scrupulously clean for a century or so – and that a bone of the AD 770s–880s would have been near the bottom of a much earlier pit.

The stone lining in the south-west (Q.051) is fairly rectilinear and may also have formed a terrace wall, to make the most of the limited intramural space. Only the bottom courses of a curving wall (Q.059)[37] survived in the west, and we cannot be sure about the stratigraphic relation between Q.059 and Q.051 in the west. Q.059 may abut wall Q.051 or both may be part of a single stone lining. In the north-west of the trench, walls Q.051 and Q.059 seem to curve inwards, perhaps suggesting that the feature enclosed was a pit, lined by stones also in the north. Alternatively, the walls may all have been terracing walls at the edges of an oblong ditch following a natural cleft in the bedrock. What might the function of this feature



Fig. 3:23: Two of the four large storage vessels found in situ*: Q.031.1/193 and Q.031.1/966 (left to right).*

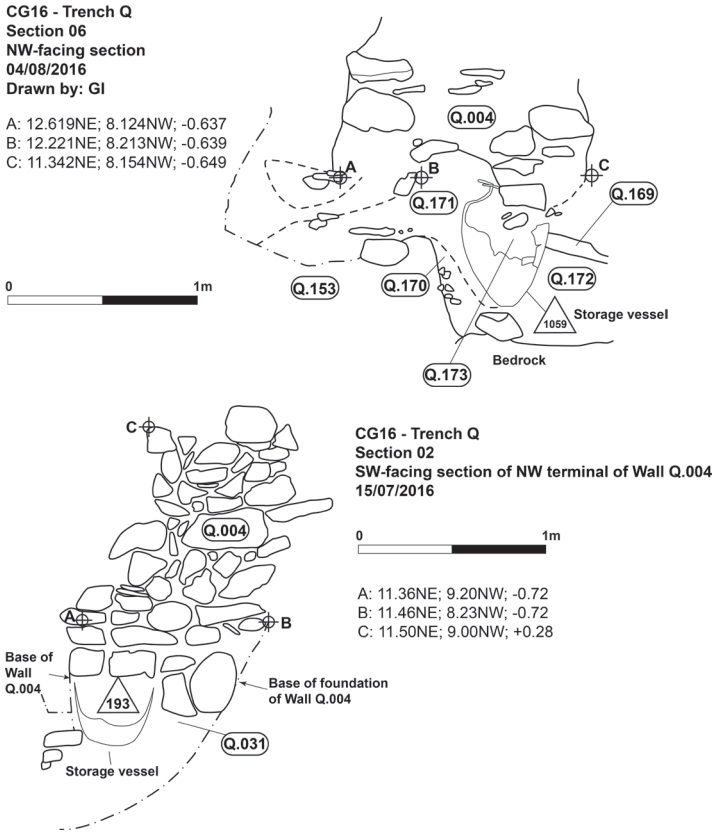


Fig. 3:24: Three of the four large storage vessels were buried under wall Q.004 (and all were filled with debris prior to its construction): section, showing vessel Q.031.1/1059 under the wall.

Fig. 3:25: Section showing storage vessel Q.031.1/193 under wall Q.004.

Table 3:7: Radiocarbon dates from the secondary fill of the storage jars in Trench Q on Dariali Fort and the levelling horizon above (BBM = below benchmark) (see Fig. 3:5 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
Q.171/1111	SUERC-71955	11.428 m NE, 8.206 m NW, -0.872 m BBM	Bone: Ovis, right talus	1213±18	AD 726–883; 90.6%: 767–883 → modelled date: 767–866	d13C= -20.5
Q.148/s23	Poz-89917	lower pot fill	Charred seed: Panicum milliaceum	1197±27	AD 722–938; 91.2%: 766–894 → modelled date: 769–866	d13C= -12.7
Q.154/s25	Poz-89918	pot fill	Charred seed: Secale cereale	1228±27	AD 690–883 → modelled date: 729–869; 91.0%: 761–869	d13C= -20.1



Fig. 3:26: A large stone-lined pit (Q.176 – or, less probably, terracing walls around a depression), with 3m vertical and 2m horizontal scale on the south-east-facing profile. Stone lining, marked with 1m vertical and horizontal scales survived to a much greater height in the south-west (left) and north-east (right) than in the south-east (centre). Excavation reached the bedrock only in the south-east.

have been? The absence of mortared walls or clay lining, as well as of any evidence for alluvial deposits or iron staining in the interior, suggests that it was no cistern. There were no compacted earth floors or other evidence for use as an underground dwelling, not to mention that it would have been difficult to prevent water infiltration during episodes of rain. It seems improbable too that it was a stone-lined drainage channel, in the light of its massive dimensions (some three-and-a-half metres across) and that there should have been no problems in natural drainage. Perhaps it served as a storage cellar for a period, before being abandoned and filled up with rubbish. The dry-stone walls lining the feature, of at least 1.04 m height in the south-east (Q.059) and c. 1.80 m in the south-west (Q.051), were certainly built for a purpose, and it must have been more than a soil extraction pit. To give them added stability, the walls are not perfectly vertical, but lean in places slightly against the soil outside. In contrast to the tall walls

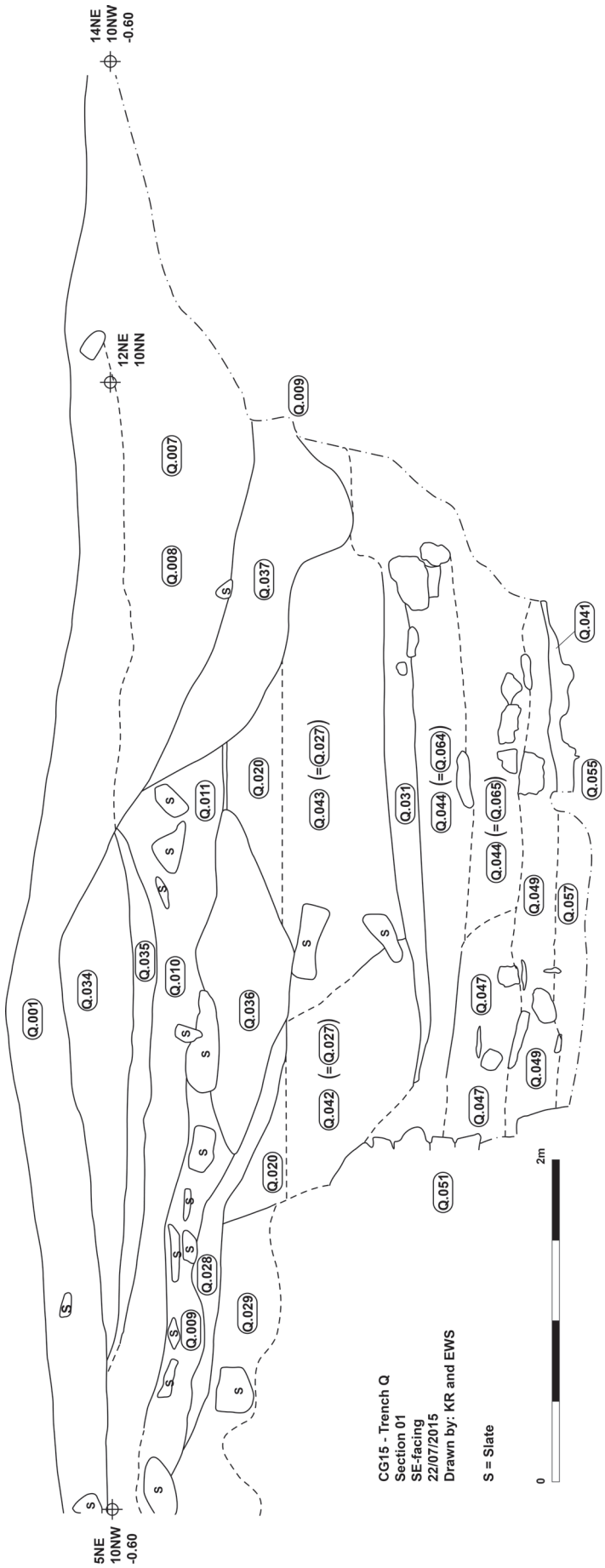


Fig. 3:27: Section through the stone-lined pit (Q.176) and deposits nearby, including the fill of a deep twentieth-century pit (Q.009) above.

Table 3:8: Radiocarbon dates from the early medieval fill of a stone-lined pit (Q.176) in Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:4 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
Q.027.1/275	SUERC-63211	8.24 m NE, 9.90 m NW, -1.27 m BBM	Bone: Caprinae, atlas vertebra, complete	1275±33	AD 660–861 (91.6%: 660–778) → modelled date: AD 669–823 (92.5%: 669–779) [NB: C14 age identical to Q.031.2/372; difference in calibrated age within modelling margin of error; probability of date post AD 823 very low.]	d13C= -20.4
Q.031.2/372	SUERC-63216	8.56 m NE, 9.90 m NW, -1.38 m BBM	Bone: Caprinae, cervical vertebra, complete	1275±33	AD 660–861 (91.6%: 660–778) → modelled date: AD 669–851 (94.6%: 669–805; 93.0%: 669–779) [NB: C14 age identical to Q.027.1/275; difference in calibrated age within modelling margin of error; probability of date post AD 823 very low.]	d13C= -20.1
Q.058/408	SUERC-63220	8.30 m NE, 10.75 m NW, -1.70 m BBM	Bone: Bos, metatarsus, medial distal	1349±29	AD 638–764 (89.5%: 638–712) → outlier	d13C= -20.3
Q.047/454	SUERC-63218	8.56 m NE, 9.90 m NW, -1.90 m BBM	Bone: Caprinae, radius, medial part	1259±33	AD 669–867 (81.0%: 669–779) → modelled date: AD 676–856 (92.6%: 676–832; 83.9%: 676–780)	d13C= -19.4
Q.049.2/393	SUERC-63183	8.46 m NE, 9.90 m NW, -2.19 m BBM	Bone: Caprinae, radius, proximal medial, right side	1172±17	AD 775–939 (91.9%: 775–895) → modelled date: AD 773–889	d13C= -20.7

in the south-west and north-east, in the south-east, the curving wall (Q.059) was only a foot to half a metre high. We observed no lining at a higher level. The edge of the pit appears to have been disturbed in the area. Selective stone robbing could easily account for the incomplete survival. Prior to filling up the pit, its lining was probably partially demolished, perhaps to furnish building material. Despite its low elevation, wall Q.059 clearly separates pit fill from distinctly earlier material the pit was cut into. To the south of the curving pit lining, there appears to have been a terrace. From pit lining Q.059 a poorly constructed dry-stone wall (Q.120) branches off and runs to the north.[38] It appears to abut Q.104 and is probably part of the same complex and (marginally) later.

As to the sequence of events, the most plausible scenario is as follows:

1. The storage vessels were buried under a building platform for wall Q.004.
2. A large annexe was constructed, consisting of walls Q.104, Q.095, Q.004, Q.179, Q.120, Q.025 and the pit lining (Q.059 and Q.051), leaning against the late antique mortar building (discussed above[39]).

The modern pit Q.009 has destroyed parts of walls Q.004, Q.104 and Q.120 making the proposed sequence likely rather than certain. Yet wall Q.004 seems to run towards the terminal of wall Q.120 and the north-eastern pit lining (Q.059), suggesting the pit forms part of the annexe.[40] Subsequently, the pit was filled up intentionally with debris at once or over a short period. The deepest stratified sample (Q.049/393) from the pit suggests that it is not likely to have been filled up before the AD 770s at the earliest. Even if all five samples from the fill date to the mid seventh to ninth centuries, they may not all come from a chronologically uniform horizon. A bone (Q.058/408), not likely to be later than AD 764 (the period of AD 639–712 being most probable) at a level above the cited post-AD 773 sample, may be redeposited from a slightly earlier context than the remainder.[41] The other three samples from the pit fill (Q.047/454, Q.031.2/372 and Q.027.1/275) all provide *termini ante quos* between the AD 820s and 860s (at 95.4% confidence) and are all more likely to date to the eighth than the ninth century. The diverse mix of pottery from the pit, sometimes with material of different ages from the same depth (*e.g.* the fourth to seventh centuries from Q.065, and perhaps the

ninth to tenth centuries from Q.047),[42] provides further circumstantial evidence against it slowly silting up. The scenario of the pit being filled up rapidly in the AD 770s, or not long after, is thus more likely than it slowly filling up with debris over decades. But as the pit filling could consist of redeposited material, a date in the ninth century is possible too. The stratigraphy is consistent with the hypothesis of the hole having been filled up rapidly rather than gradually. Whilst excavated in numerous artificial spits, there were no well-defined deposits with sharp boundaries. Q.028, a c. 10 cm thick band of very soft mid greyish brown sandy silt, over the south-western part of the pit is no exception. It was probably a paved track running alongside the south-west, as well as over one edge, of the pit. Where overlying the pit, subsidence resulted in it later slumping into the filled-up feature. The seemingly deliberate rapid filling-up of the pit, perhaps half a century or more after the Muslim-led garrison had taken up residence within the walls of the old fort, was perhaps part of an effort to create additional level space. Yet, no medieval walls were built over the filled-up feature, and we do not know how it was subsequently used.

It is worth noting that the highest concentration of bone was in the west of the probable pit, and the five dated bone samples out of the pit are all from this side. The distinct concentration of bone in the west suggests it was on this side of the pit that most domestic rubbish was produced, and it is also from the west of the pit that there are two further bone samples (Q.029/297 and Q.012/122), which could be contemporary, earlier or later, but can all be assigned to the Early Middle Ages (late seventh to ninth century) with certainty. East of bone sample Q.029/297 (32 cm) and 3 cm higher, at the top of deposit Q.029, we found a nicely carved bone arrowhead (Q.028/296), with a broken tip, and we may be confident that it belongs to the same period. Perhaps it was indeed used as a weapon at a time of possible metal shortage, but that it is unique so far, and of a material unsuitable for reuse, is a strong argument against such devices ever being in widespread use. It certainly could have caused injury, but would not have been capable of piercing armour. Furthermore, it would have been too light for precision-targeting, notably over a distance or in windy conditions. Even if iron arrowheads should have been in short supply at the time (and we found, of course, a small number of iron arrowheads in Trenches F, G and L), throwing or slinging stones at any hostile forces on the road below, would have been more effective. Stones were an ammunition in unlimited supply, whilst carving bone arrowheads would have required considerable skill and time. It is hard to decide if the early medieval arrowhead was an elaborate, if not very effective, weapon, or a decorative item.[43]

Amongst the items recovered between the pit lining (Q.059) and the walls of the building (Q.004 and Q.025), from a level not far above their base, a small copper alloy cosmetic applicator (Q.027.2/147) is worth noting.[44] It is tempting to think that a bone sample (Q.027.2/143) of AD 681–876 (Table 3:9) from a level 10 cm higher than the applicator (but almost three and a half metres further south-west) provides a likely date for this instrument.[45]

There is little firm evidence as to the use of space in the north-west of Trench Q whilst the pit (Q.176) was open. The sloping terrain probably made this area unsuitable for habitation, but it may have been an area for waste disposal. Beneath the level of wall Q.104, evidently predating its construction in the late eighth or ninth century, we encountered loose mid greenish brown coarse sand (Q.108), with 1,009 g of bone and a mere 11 g of pottery. The greenish discolouration might indicate sewage and the marginal land being used as a rubbish dump. In contrast to the wall tumble mixed with occupation debris (Q.099) above, Q.108 contained only small stones. The phasing of Q.110, under Q.108, is unknown, but it must be earlier than Q.108. Bone (629 g) is again represented in greater quantities in Q.110 than pottery (128 g), if the difference is not quite as extreme as in Q.108 above. The small ceramic assemblages from Q.108 and Q.110 contain no diagnostic wares later than phase 3.[46] In part this may be redeposited material. The level of Q.108 would suggest early medieval rather than late antique origins, if a late antique date for Q.110 is possible.

Table 3:9: Radiocarbon date from early medieval deposit to the south-east of the stone-lined pit (Q.176) in Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:5 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
Q.027.2/143	SUERC-63210	7.43 m NE, 8.36 m NW, -0.86 m BBM	Bone: Bos, mandible with teeth, second premolar to third molar, right side, teeth worn from bridle bit	1243±30	AD 681–876 → modelled date: 801–887? [but only 53.0% agreement: maybe redeposited]	d13C= -19

3.4.4. Housing expansion (Phase 5b)

What was the nature of occupation to the east of the pit? The solid probably late antique walls (Q.066, Q.069, Q.096, Q.097 and Q.105) appear to have stood the test of time, and the building they formed part of was still standing. It probably was occupied continuously for centuries and would have provided an attractive shelter from the elements – but, as no associated occupation horizons survive in Trench Q, we cannot be sure how intensively it was occupied or otherwise used. Nor do we know if all rooms were required or if any rooms might temporarily have been left standing empty. By the late eighth or ninth century, it seems that it was no longer large enough. Early medieval dry-stone annexes (including walls Q.104 and Q.095) leaning against its south-western wall (Q.096) in Trench Q prove that the earlier wall was still standing and in good condition – and, probably, that all indoor space was in use, and no longer enough for the occupants' growing needs (Figs 3:28–3:35). Continued occupation of the most solid structures in the fort is unsurprising. Similarly in Trench F, the late antique F.004 building appears to have been occupied at least until the fourteenth century, for perhaps as long as a millennium (whether continuously or with a probable phase of abandonment in the eleventh to thirteenth century or so). Their superior construction, built on the bedrock and employing strong mortar, made this building and its counterpart in Trench Q much more durable than medieval dry-stone walls, prone to collapse.

Wall Q.095 abuts not only late antique wall Q.096, but also appears to connect this wall with late eighth or ninth century wall Q.004. (Most of the junction between walls Q.004 and Q.095 was destroyed by a modern pit, Q.009, but one corner survived, suggesting that the latter abuts the former.) Wall Q.095 probably served as an internal division, which could be of similar date to Q.004. Abutted by a probably early medieval deposit (Q.113), wall Q.095 must have been built in the later first millennium as well. Much of the system of walls forming irregular annexes to the south-west of the late antique building may well be of similar date to wall Q.004 and in any case not much later. Their chronology and relation to each other is worth closer scrutiny, and important evidence comes from the west of the trench. Parallel to the early medieval pit's western stone lining (Q.051), and c. 1.20 m further west, we found a stone alignment as well some slate and other flat stones in the southern section (Q.026 and Q.048), but no systematic paving in the north. It was first thought to be a partially destroyed drainage gully. More probably it was a haphazardly paved track, intended to allow water to drain, but no elaborate piece of infrastructure. It may be significant that this probable track appears to have led past the western terminal of the contemporary early medieval wall Q.025. Wall Q.025 abuts wall Q.004 at a slightly oblique angle.[47] Q.004 is evidently earlier with slightly superior, double-faced masonry, evidence to suggest that it forms part of a building rather than a terracing wall. In the south-east of the trench, Q.004 is skilfully built on the bedrock, with a broader stone foundation for added stability. In the north-west, where the bedrock dips down at a steep gradient, a levelling platform (above the storage vessels, as discussed above) was created as a foundation for the wall. Q.004 is fairly straight in the south-east, but bends slightly westwards in the north-west. Both walls (Q.004 and Q.025) are dry-stone walls, and the 3.80 m-long wall Q.025 may form part of an additional annexe built against Q.004. As only the northern facing side and part of the core of wall Q.025 were within the trench, its western terminal in part overlain by later wall Q.024, little can be said about the type of annexe. It is possible that there was a flight of rooms, but the bunker south of walls Q.024 and Q.025 will have erased any remains in the area. A significant part of wall Q.004 has been destroyed through a modern pit (Q.009), probably dug to quarry stones for this bunker or other military structures and stone-lined trenches in modern times.[48] Walls Q.104 and Q.120 could be contemporary to wall Q.004, and walls Q.004 and Q.104 are also similar in width and construction and may form part of a large annexe to the earlier, late antique, building. Dry-stone wall Q.104, surviving just three to five courses high, follows the lay of the land and curves towards the western corner of the late antique building. On the slope to the west of wall Q.104, we found a substantial deposit of stone tumble in a matrix of soft dark greyish brown sandy silt (Q.099). Its base was at a similar level to that of wall Q.104 near its foundations. The estimated 60% of large stones in Q.099 must be the result of the upper part of the wall collapsing. The wall collapse was mixed up with occupation debris, and Q.099 contained as much as 6,814 g of pottery, 2,319 g of bone and 417 g of brick.[49]

The basic late-eighth or ninth-century dry-stone annexes to the late antique building increased the indoor space available for accommodation, work or storage. There is a small area where floor levels and associated occupation horizons and structures of this annexe appear to survive. Abutting the north-east side of wall Q.004, we found remnants of a fire-exposed feature (Q.109) with a c. 3 cm wide rim, smooth on the inside and rough on the outside – evidently an oven, with fires once burning in the interior. Much of it has been destroyed by a later stone box (Q.017), discussed separately below.[50] Judging by the surviving part, the oven (Q.109) may have been round and perhaps reached a diameter of up to 82 cm. It could have served the dual purpose of food preparation and heating. North-west of the later stone box (Q.017), and under the deposit (Q.015), cut by the box on this side, was a fire-reddened patch with charcoal (Q.016: Fig. 3:36). This was probably a fire-place, and part of a floor horizon (Q.113) haphazardly paved with fired brick and, at a later stage, with the odd slate (Q.161: Fig. 3:37). The oven (Q.109), the floor horizon, with patches of brick paving (Q.113 and Q.133), and the fire-place (Q.016) all

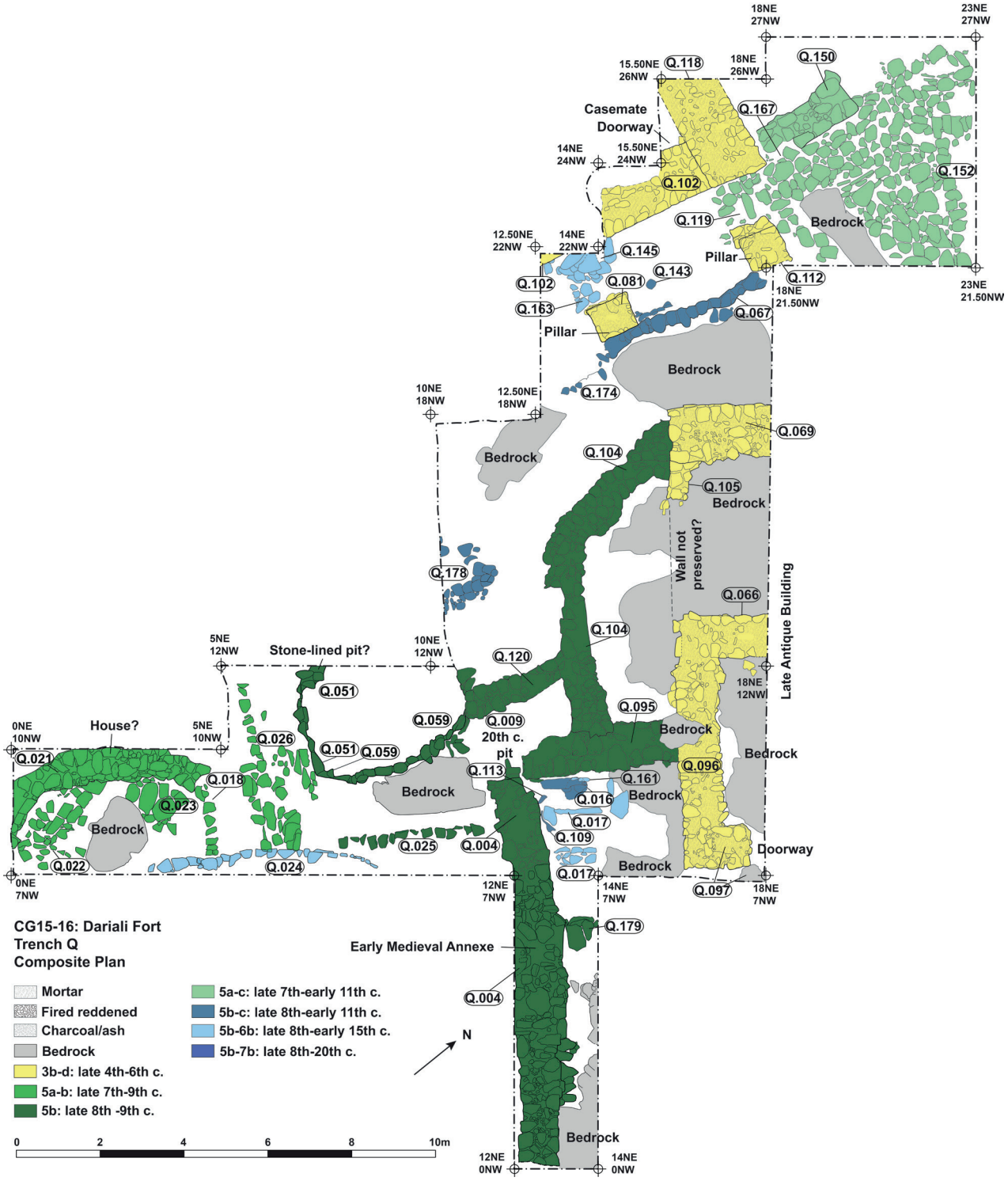


Fig. 3:28: Trench Q overall plan: features dating to phase 5b (c. late eighth or ninth century) and later, as well as earlier structures that were, or may have been, still standing.

suggest that this part of the annexe was used for domestic purposes. A stone lining (Q.179) abutting wall Q.004 appears be the edge of the room with oven Q.109 and is likely to be early medieval too. Deposits cut by the box (Q.017) in the south-east (Q.013) and north-west (Q.015 above Q.016) contained comparatively few finds and may be part of a levelling horizon, cut later by stone box Q.017.

Outcrops of bedrock to the south-east of Trench Q suggest that, if the building should have extended in this direction, little of any associated walls and deposits are



Fig. 3:29: Trench Q saw extensive dry-stone construction in the Early Middle Ages: wall Q.004 (within the narrow part of the trench, running toward the edge of pit Q.176 with scales marking its lining) is abutted by wall Q.025 (with 2m vertical scale in front). Note also the stone paving (Q.026) to the south-west (right) of wall Q.025 and the stone-lined pit Q.176. Wall Q.024 (with a 1m vertical left of it) is of medieval date too, but cannot be dated precisely. The north-west (front) part of wall Q.004 has been destroyed through a modern pit (Q.009).

likely to be preserved. Walls Q.025 and Q.004 are abutted by early medieval deposits and must have been built in the Early Middle Ages. Their construction date appears to fall in the late eighth century, not before the AD 770s, or in the ninth century. For wall Q.004, the samples from within the storage jars and the levelling horizon on top provide a likely *terminus post quem* in the early AD 770s. Wall Q.025, abutting Q.004, must be later, but probably not much later. Sample Q.029/297 was c. 90 cm above the base of wall Q.025 on top of the possible track (Q.026). This sample dates to AD 663–863 at 95.4% confidence, and to AD 663–779 at 88.8% probability (Fig. 3:38; Table 3:10). We cannot exclude redeposition, but the absence of even a single tenth-century sample from the west of the trench raises doubts that there was much activity in the area after the ninth century. One is inclined to think that wall Q.025 forms part of a further annexe built against wall Q.004, perhaps just days later and probably no more than a few decades later at most. Walls Q.004, Q.179, Q.025, Q.095, Q.120 and Q.104 all appear to belong to irregular annexes to the late antique building, as well as probably the stone-lined pit (Q.176, lined by Q.051 and Q.059).[51] We do not know, as discussed above,[52] whether the old late antique building extended further south-east and the annexes were just in the south-west or whether much of Q.004 formed part of a southern annexe.

Shallow stratigraphy not only means that there is little certainty about the occupation history of the casemate in the north-west of Trench Q, but also that we are largely ignorant of the later occupation of the old mortar-wall building and its annexes. A sheep or goat tibia (Q.079/548) recovered from 20 cm south-east of late antique wall Q.069 and only some 5 cm below its preserved top, in a matrix of soft dark brown sandy clay (Q.079), yielded a date of AD 987–1040 (Fig. 3:39; Table 3:11) – suggesting that occupation of the building continued until the late tenth or early eleventh century (or at least that it was still visited). Perhaps the scarcity of evidence for tenth-century occupation in Trench Q is in part a result of shallow stratigraphy of large parts of the trench and disturbance of deposits close to the modern surface. The difference to Trench F, where the tenth century seems as strongly represented as the centuries before, is perhaps indeed a result of better preservation in Trench F (rather

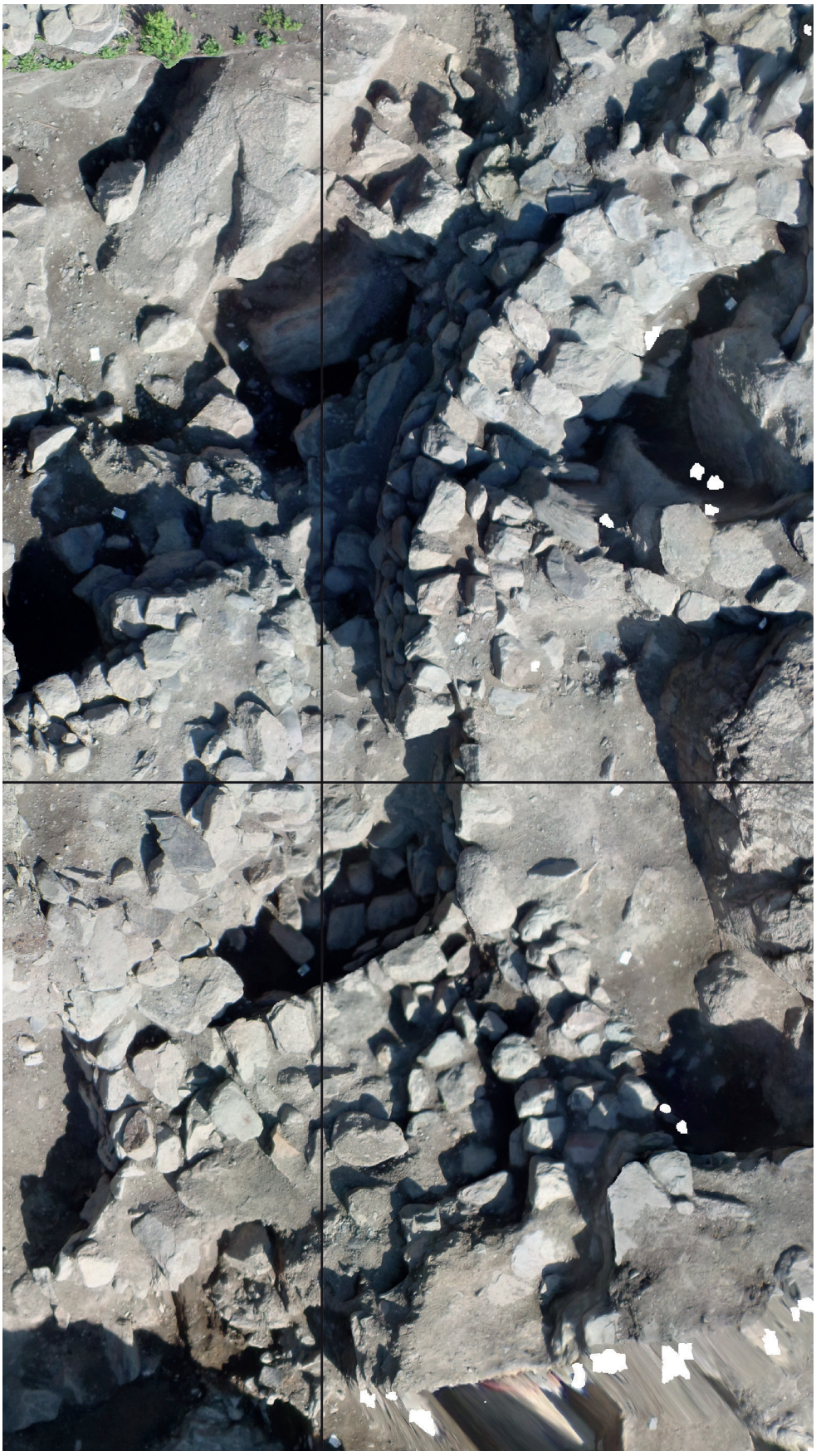


Fig. 3:30: Curving wall Q.104 (right), abutted by wall Q.120 that leads to stone lining Q.059 (bottom left) are all early medieval structures erected south-west of the late antique building. Rectified pole photograph by Eve MacDonald et al.

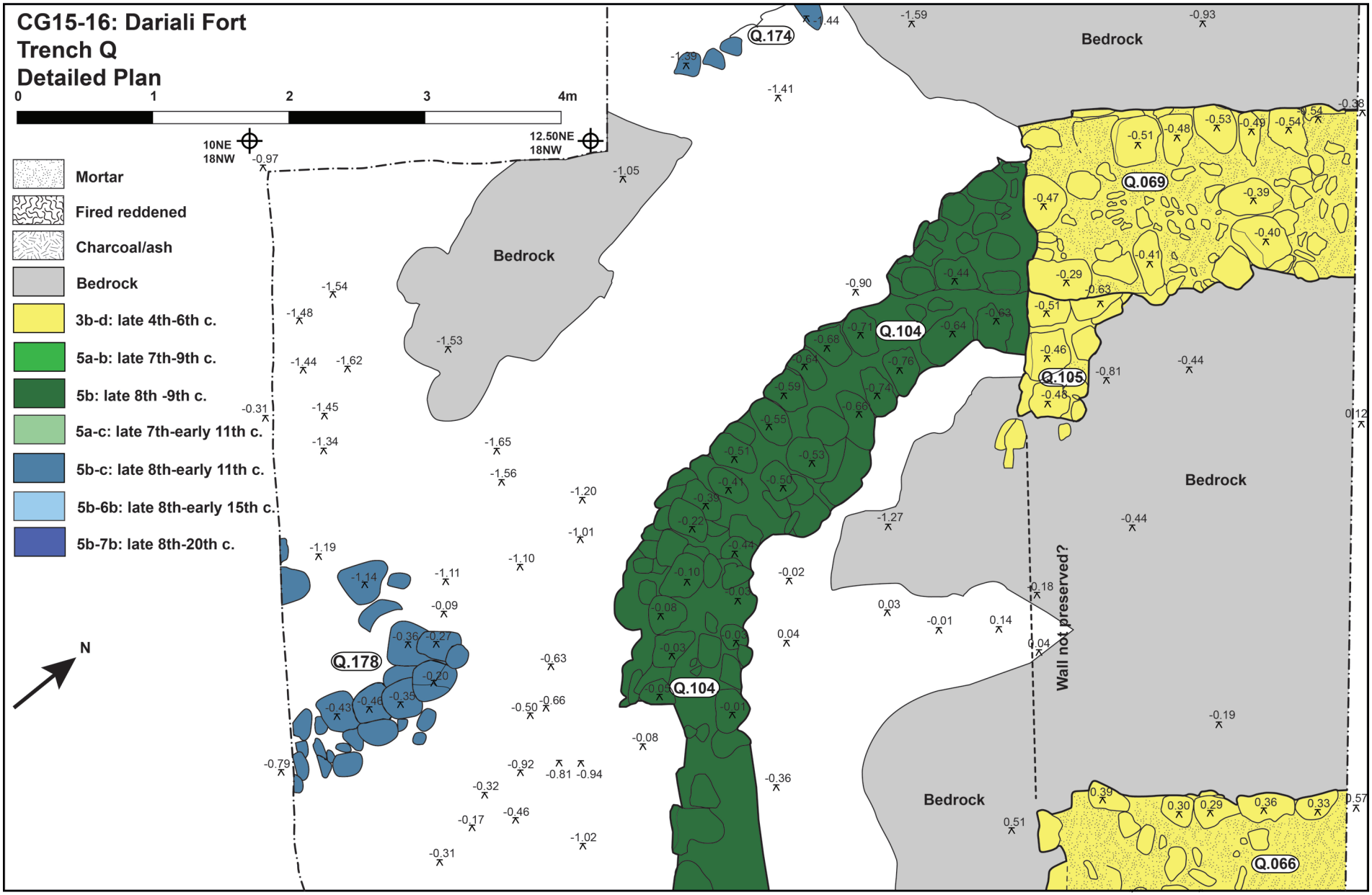


Fig. 3:31: Plan of the north-western part of the early medieval annexe to the late antique building.

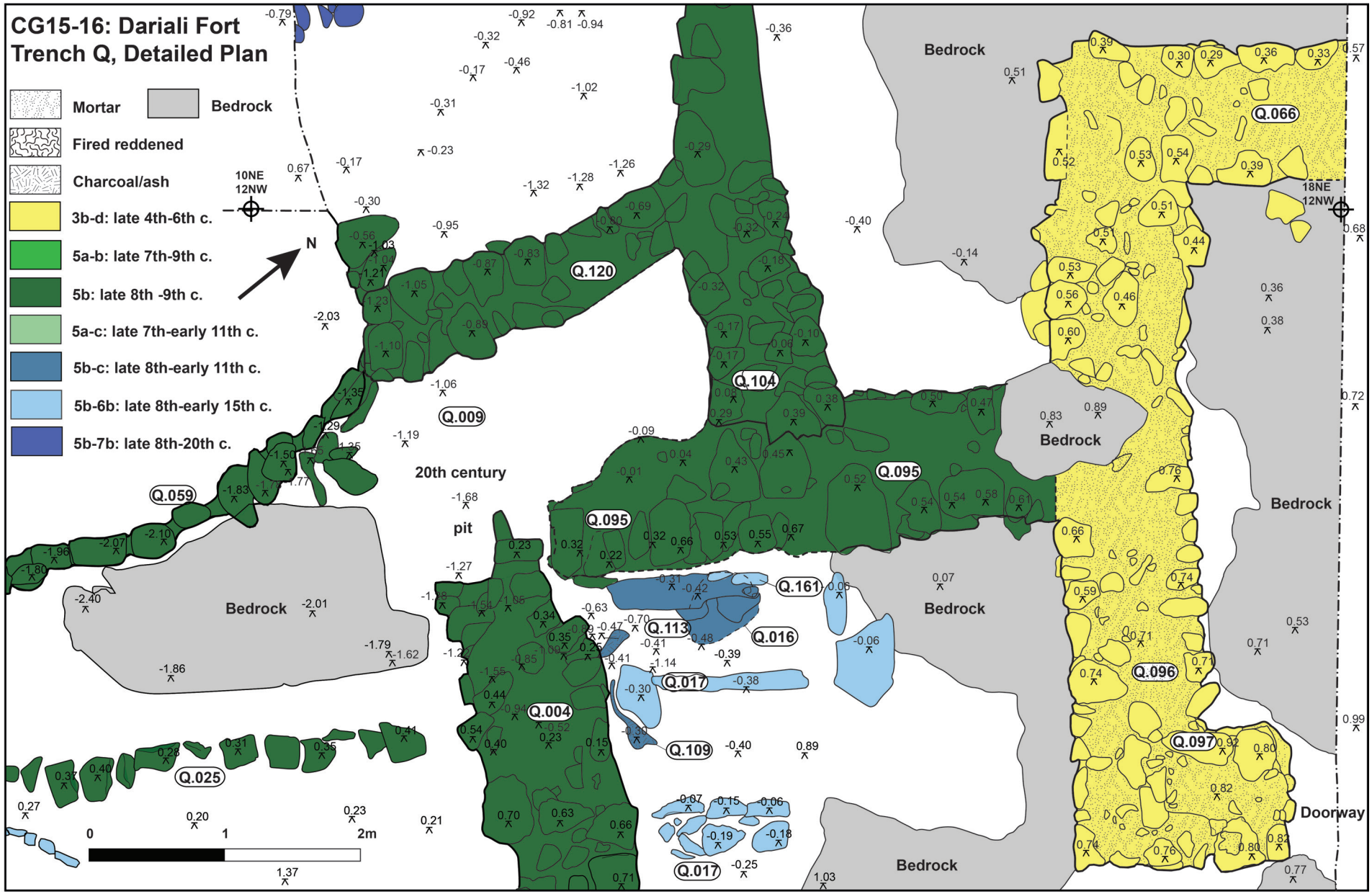


Fig. 3:32: Plan of the central part of the early medieval annexe to the late antique building.

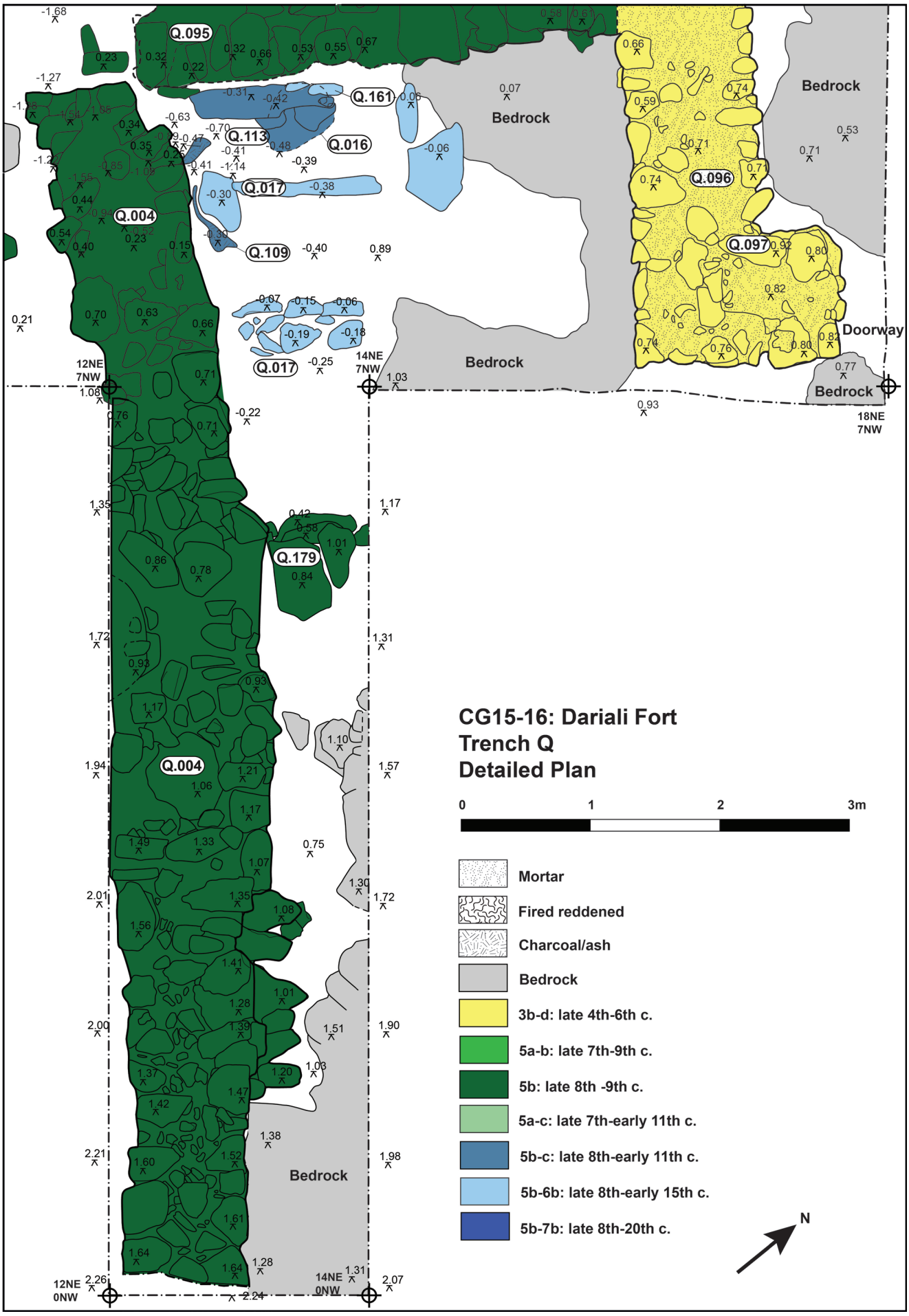


Fig. 3:33: Plan of the south-eastern part of the early medieval annexe to the late antique building.





Figs 3:34–3:35: Wall Q.004 is rectilinear and built on bedrock in the south-east, but overlying sediments and curving in the north-west.



Fig. 3:36: The fire-exposed floor surface Q.016 (foreground) and curving oven rim Q.109 (right) are both clearly earlier than stone box Q.017. The vertical slate in the background forms the north-west side of the box.

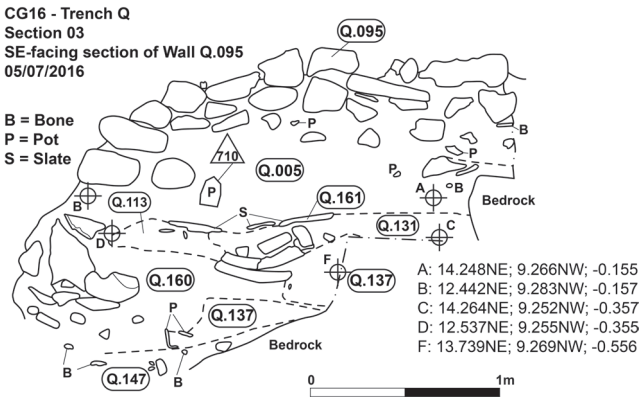


Fig. 3:37: Section through wall Q.095 and early medieval layers (over late antique deposit Q.137) south-west of the late antique building.

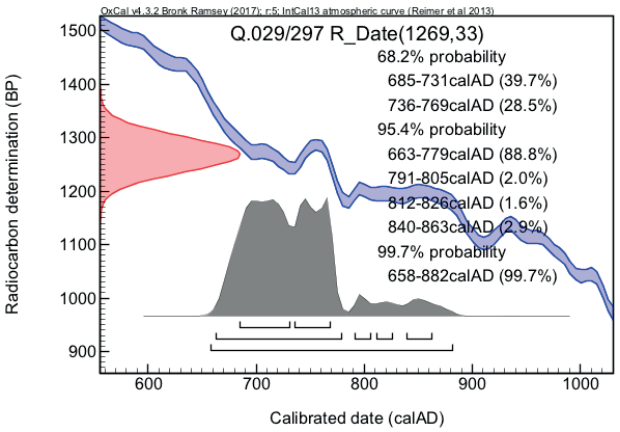


Fig. 3:38: Radiocarbon date from deposit Q.029 (see Table 3:10 for further details).

than occupation already then becoming confined to parts of the plateau). Whether intensity of occupation declined in Trench Q (as in Trench F) only around AD 1000 – or up to a century before – there is no firm evidence from either trench for much activity in the early second millennium. So far, there is no archaeological proof of any activity on top of Dariali Fort for the remainder of the eleventh, the twelfth or early to mid-thirteenth century. Perhaps the garrison was small then, potentially living in a keep and as yet undetected. It seems likely that the building complex in Trench Q continued to be used until its likely

Table 3:10: Radiocarbon date from early medieval deposit south-west of the stone-lined pit (Q.176) in Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:38 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
Q.029/297	SUERC-63215	5.77 m NE, 11.14 m NW, -0.22 m BBM	Bone: Large mammal, lumbar vertebra, complete	1269±33	AD 663–863 (88.8%: 663–779)	d13C= -20.8

Table 3:11: Radiocarbon date from early medieval deposit in the north-east of Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:39 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
Q.079/548	SUERC-71944	16.835 m NE, 16.803 m NW, -0.446 m BBM	Bone: Caprinae, cf. wild, tibia	1006±18	AD 987–1040	d13C= -20

abandonment around the turn of the millennium, but we cannot pinpoint when precisely it went out of use, nor do we know if and when it may have been reoccupied later.

3.4.5. A second stone-lined pit (Phase 5b–5c?)

A further pit (Q.178: Fig. 3:40),[53] in the western part of Trench Q, cannot be dated with precision, despite a precisely dated sample from its fill. The lowest fill excavated (Q.085) yielded a sample (a sheep or goat metacarpal, Q.085/613) of similar date (c. AD 679–775: Fig. 3:41; Table 3:12) to the sample from the fill (Q.166 of c. AD 686–774) of pit Q.177. Only a corner of this feature was within the trench, and it was not fully excavated and neither were the deposits it was cut into. It was provided with a basic dry-stone lining. The two sides exposed are rectilinear and join at a right angle, suggesting it was once rectangular, unlike the large round pit (Q.176). The south-east side is parallel to wall Q.120, whose terminal is abutted by the curving dry-stone wall (Q.059) lining the large pit – raising the question whether the roughly parallel alignment suggests construction at a similar date or whether it is coincidence. Unlike Q.059 and Q.120, Q.178 has not been truncated by the modern pit (Q.009) and its top is much closer to the contemporary surface. Its fill contains far fewer stones (and a lower proportion of bone to pottery)[54] and is more organic than the soft grey to brownish grey silty clay (Q.074 = Q.086)[55] on the outside of the stone lining, which must be earlier. This deposit, cut by pit Q.178, abuts wall Q.104. It is rich in occupation debris (including 14,624 g of pottery and 4,332 g of bones), perhaps contemporary to the occupation of the annexe and later than its construction in the late eighth or ninth century. Pit Q.178 was only cut after a substantial amount of debris had built up outside wall Q.104, not only suggesting that it is later than the late eighth century, but significantly later. If so, the late seventh or eighth-century

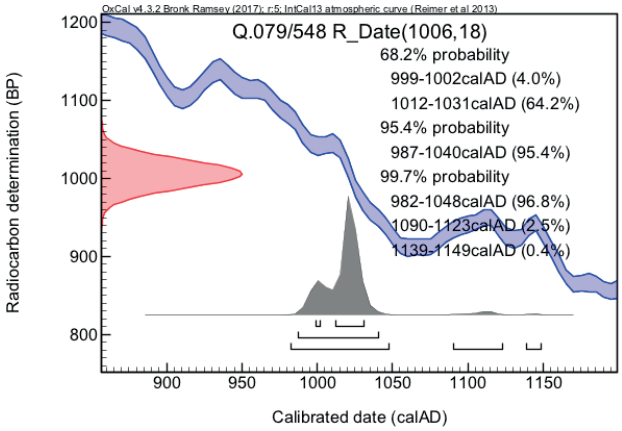


Fig. 3:39: Radiocarbon date from deposit Q.079 (see Table 3:11 for further details).

sample from its fill must have been redeposited, but it is hard to be sure at what date. The basic dry-stone lining without concrete or associated modern finds suggests it is not a modern military feature. The absence of any certain late medieval construction in the area of Trench Q implies that the area of Trench Q was largely abandoned and that a date in the later first millennium is more likely. As the pottery assemblage is exclusively early medieval (mid-seventh to ninth centuries), without a single modern artefact,[56] we may tentatively suggest a date in the ninth century or not much later.

3.4.6. Habitation to the south-west of the first stone-lined pit (Phase 5a–c)

South-west of the stone-lined pit (Q.176) there appear to have been further dwellings, of basic construction as far as excavated (Figs 3:42–3:43). One associated slate floor (Q.022), also employing some other flat stones, survived in the west of the trench. On top of it, we found soft

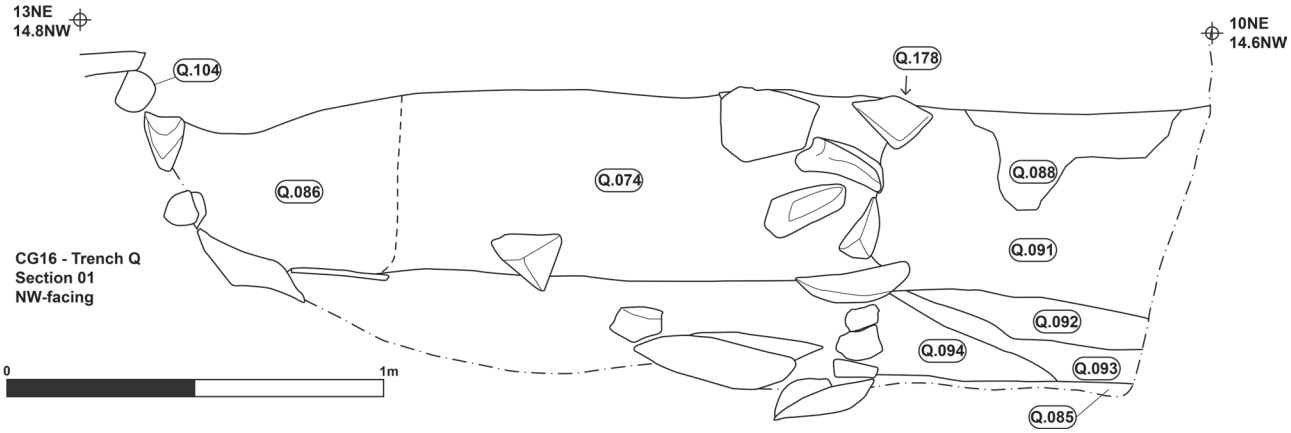


Fig. 3:40: Section through stone-lined pit Q.178 (right), filled with deposits Q.085, Q.094, Q.093, Q.092, Q.091 and Q.088.

Table 3:12: Radiocarbon date from rectangular stone-lined pit Q.178 in Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:41 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
Q.085/613	SUERC-71945	10.273 m NE, 14.209 m NW, -1.082 m BBM	Bone: Caprinae, metacarpal	1256±18	AD 679–775	d13C= -18.5

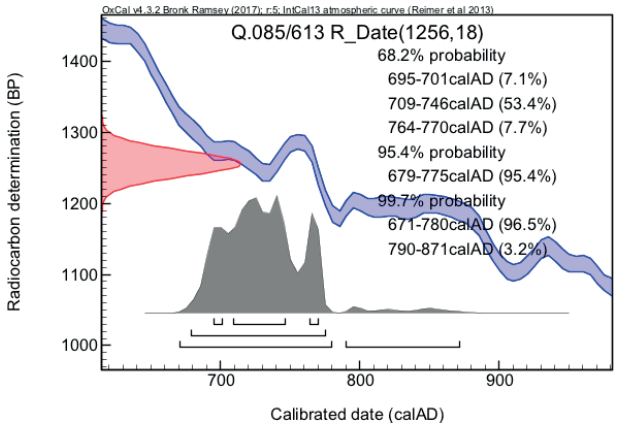


Fig. 3:41: Radiocarbon date from deposit Q.085 (see Table 3:12 for further details).

dark greyish-brown clay (Q.012) with a bone sample (Q.012/122: Fig. 3:44; Table 3:13) of AD 685–880 (and pottery assigned to the ninth or tenth century[57]), proving occupation on top of the floor contemporary with the burst of activity further east in the area of Trench Q – or in any case not much earlier or later. Deposit Q.012 was overlain by a later wall (Q.021), and no wall associated with floor Q.022 was found. It could easily have been outside the trench or later demolished or there might have been walls of timber and soil, providing better insulation, if leaving fewer, if any, remains. Q.012 contained 2,476 g of bone and 1,517 g of pottery – which seems little in comparison to the trench overall (c. 405 kg of bone and 509 kg of pottery), but is not inconsiderable in the light of the deposit covering only some four square metres and reaching a maximum depth of 20 cm.

A further stone floor (Q.023) was laid to the east of an outcrop of bedrock. It is at a higher level than the stone floor (Q.022) further west and at the same level as the top of Q.012. Both floors are paved densely in places and patchily elsewhere, as far as preserved. The similar design of floor Q.023, also using much slate, makes it tempting to assign it to the same phase as floor Q.022, the latter under eighth or ninth-century deposit Q.012. Whether this is true, and we are dealing with a stepped floor of the same era, or whether the two floors were laid in different phases, it is important to note that the base of the curving wall north (Q.021), surviving to a height of up to 0.55 m, is at the same level as the upper floor (Q.023). Whether the stone floors date to a single phase or two, wall Q.021 can only have been built after deposit Q.012 had accumulated. There is no new paving at its foundation level in the south-west – an observation that may offer support for dating both floors to the same era, even if one was already buried when wall Q.021 was built. A basic, one course wide, stone wall (Q.018) lining the unit in the east may be contemporary to Q.021, if less well built or, more likely, partially demolished. It is probably part of the same wall. Q.024 is a dry-stone

wall, built on top of wall Q.025, surviving to a maximum height of 1.08 m (+0.27 m at the base to 1.35 m maximum at the top) and overlain by modern topsoil (as walls Q.018 and Q.021, the latter even reaching the surface in places). Only the gently curving northern face of Q.024 is within the trench. These basic structures may have served as dwellings. Tumble (Q.019) to the east of the walls may be the result of the collapse of such structures.

Whilst the sample suggests an early medieval date for these structures, a stone floor (F.024) in Trench F, similar to floors Q.022 and Q.023, is late medieval (probably fourteenth century), an argument for keeping an open mind about the dating of the paving. Indeed, it is not beyond possibility that both floors could be late medieval and bone sample Q.012/122 merely redeposited. Little would be gained by speculating further. What is clear is that wall Q.021 is later than deposit Q.012, which has provided a *terminus post quem* of AD 685–880. Above Q.012 and paving Q.023, and abutting dry-stone wall Q.021, we found the latest occupation deposit in the area, soft mid greyish brown silty clay (Q.006), yielding 1,721 g of pottery and 337 g of bone. Stratigraphy and parallels for the stone floor allow for a date between the eighth and fourteenth century for this latest phase of occupation. Q.006 need not, however, be much later than Q.012. The striking similarity between paving Q.022 (under Q.012) and paving Q.023 (under Q.006) are a strong argument against a long interval between the dates when these two floors were laid. It seems far more likely that the upper stone paving (Q.023) and the occupation layer above (Q.006) still belong to the first millennium rather than the Late Middle Ages.

3.4.7. Early medieval occupation near the fort walls in Trench Q (Phase 5a–c)

Space was at a premium in the small fort. Not only did the Early Middle Ages witness the construction of annexes to the (late antique?) mortar-wall building, there also appears to have been much activity in the area of the old porticus, erasing earlier occupation levels in places. A round posthole (Q.143), of c. 25 cm diameter and c. 20 cm depth and cut into the bedrock near pillar Q.081, yielded birch charcoal (Q.144/901) of AD 730–951 (Fig. 3:45; Table 3:14) from its fill (Q.144, very soft dark greyish brown clayey silt). The wood was not certain to be young; whilst clearly not likely to be earlier than the AD 730s, it could even be later than the AD 950s. No other posthole was observed in the area, and we cannot be sure what structure it formed part of. Did the timber post form part of a makeshift repair to the old roofed walkway? This seems improbable. The postulated roof is unlikely to have lasted for centuries or to have been constantly maintained. The Trench F section of the porticus, with only one of the two pillars surviving into the Middle Ages, no longer seems to have been standing. More probably perhaps, the post may



Fig. 3:42: Stone flagging and a curving wall may be part of an early medieval habitation.

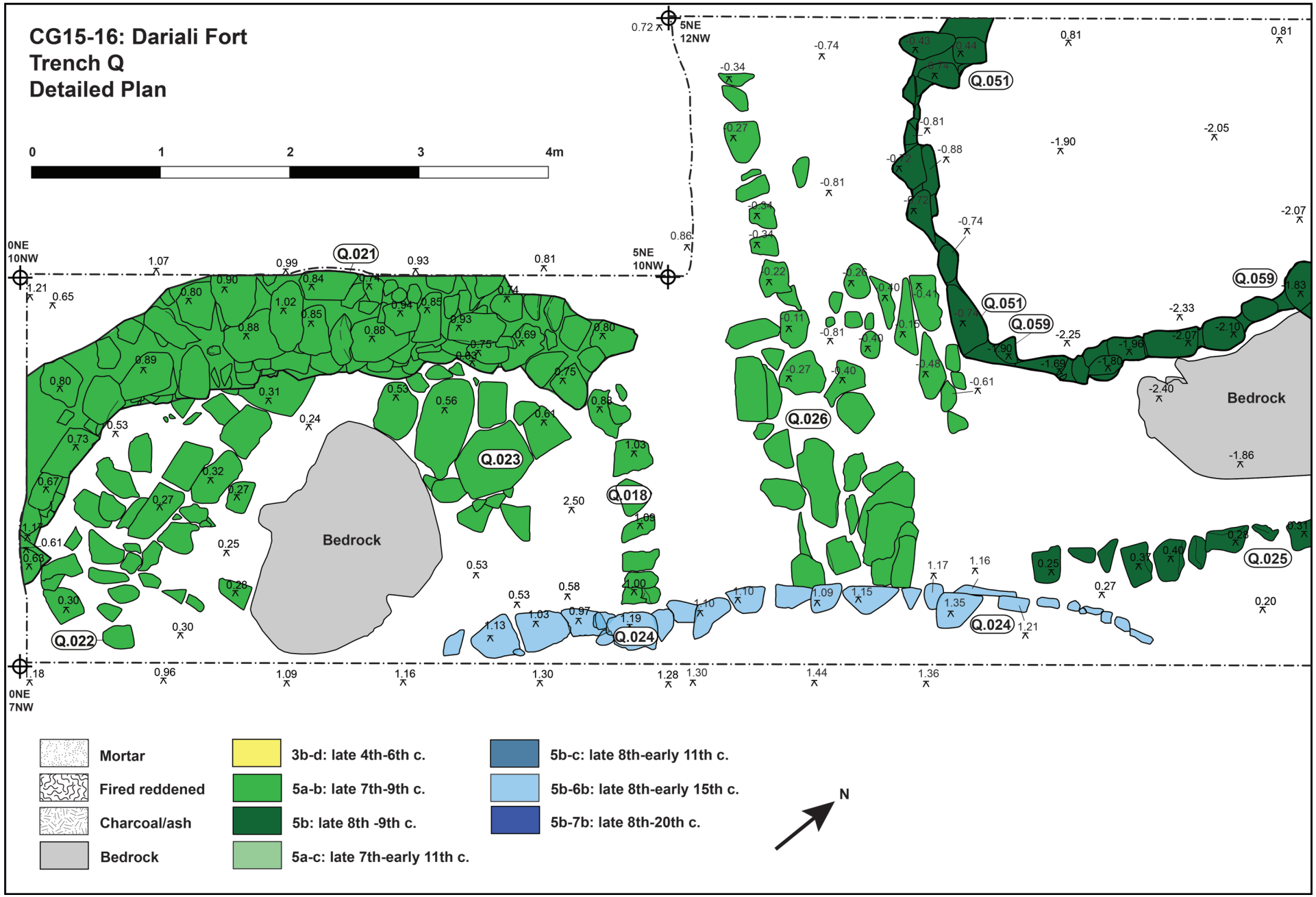


Fig. 3:43: Plan of the probable early medieval dwelling, enclosed by wall Q.021, a possible early medieval track (Q.026), the pit lined by Q.051 and Q.059 and various walls nearby.

have been part of a new smaller structure, leaning against wall Q.102 and perhaps using the pillars in Trench Q as the principal roof supports. Whatever purpose the post served, the fact that the ground was cleared down to the bedrock suggests that the area in the shadow of the old walls and pillars was in heavy use. Further circumstantial evidence for early medieval activity in the area is provided by a further birch charcoal sample (Q.080/554) from deposit Q.080, covering the posthole fill, dating to AD 776–975 (and also not certain to be young). Q.080, mid greyish brown clayey silt, was surprisingly sterile, yielding no more than 60 g of pottery, some charcoal and decomposed bone. The sample was from near the posthole and just 5 cm above the level of the cut. It seems that soil had been cleared down to the bedrock in the area in the Early Middle Ages, perhaps in preparation for cutting the posthole (Q.143) into the ground, possibly before building wall Q.067. The sample also furnishes a *terminus post quem* for this dry-stone wall (Q.067) above Q.080. Wall Q.0067 abuts the south-east (uphill) side of both pillars (Q.081 and Q.112). Was it the inner wall of the postulated early medieval structure built against wall Q.102? Perhaps, but we found no connecting walls between Q.102 and Q.067 nor any evidence for intensive occupation or heating, perhaps pointing to an open structure rather than a dwelling. A further dry-stone wall (Q.174), leading from pillar Q.081 in a southerly direction – probably the continuation of wall Q.067 – is significant. These walls (Q.067 and Q.174) are best interpreted as segments of a terracing wall, enabling fort occupants to make maximum use of the intramural space. Similarly, of course, pillar F.082, surviving into the Middle Ages, formed the buttress for a later, eighth or ninth-century terracing wall (F.110) with a similar wall (F.064) of the ninth to eleventh century on top. In Trench F, copious rubbish was continuously deposited between the terracing wall and the late antique wall F.013. The uneven surface of the heap of rotting debris between walls F.110 and F.013 leaves little doubt that this was open wasteland in the Early

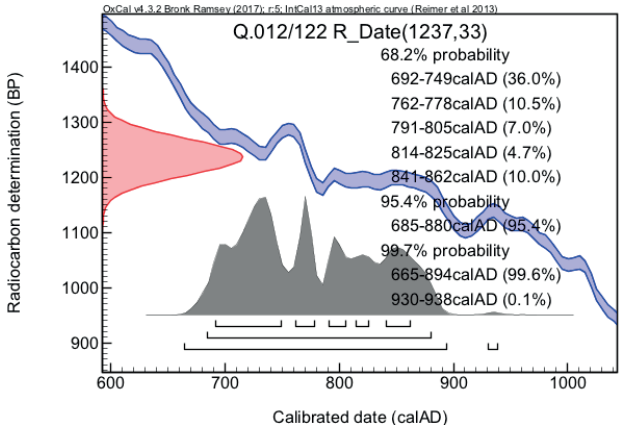


Fig. 3:44: Radiocarbon date from deposit Q.012 (see Table 3:13 for further details).

Table 3:13: Radiocarbon date from an early medieval deposit in the western parts of Trench Q on Dariali Fort (ABM = above benchmark) (see Fig. 3:44 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
Q.012/122	SUERC-63209	0.65 m NE, 8.00 m NW, 0.27 m ABM	Bone: Small ruminant, tibia, medial part	1237±33	AD 685–880	d13C= -20

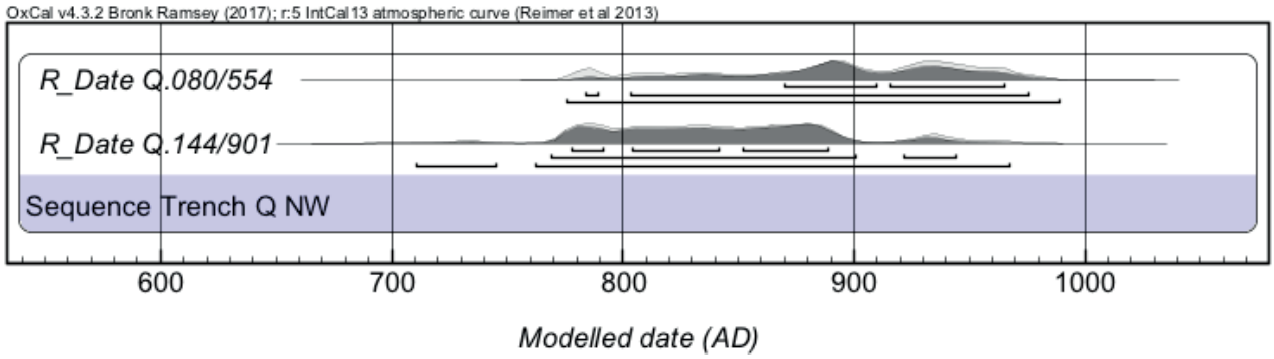


Fig. 3:45: Bayesian model of samples recovered from the north-west of Trench Q (see Table 3:14 for further details).

Table 3:14: Radiocarbon dates from early medieval deposits from the vicinity of the fort walls in the north-west of Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:45 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [no modelled dates indicated, due to small number or samples (two), neither certain to be young]*	*Comments*
Q.080/554	Poz-89861	15.36 m NE, 20.81 m NW, -2.06 m BBM	Charcoal: Betula	1145±30	AD 776–975+; 88.4%: 800–975+ [not certain to be young]	d13C= -28.2
Q.144/901	Poz-89860	15.27 m NE, 21.13 m NW, -2.27 m BBM	Charcoal: Betula	1180±30	AD 730–951+; 87.5%: 769–901+ [not certain to be young]	d13C= -28.2

Middle Ages and not a dwelling. F.110 almost certainly formed an early medieval terracing wall, and the same is likely to be true for Q.067 and Q.174. It appears that similar measures were taken, both in Trench F and Trench Q, to create terraces with old solid mortar pillars reused as buttresses for dry-stone walls, and perhaps at a similar date. This does not mean that land use was identical. The posthole and clearance of sediments down to the bedrock in Trench Q (quite unlike Trench F where the growing rubbish dump in the old porticus remained undisturbed) suggests that the area temporarily at least was used for purposes other than waste disposal.[58]

3.4.8. Early medieval paving in the northern part of Trench Q (Phase 5a–c)

North of late antique pillar Q.112 and wall Q.118, we uncovered a dry-stone wall (Q.150), in a similar alignment to the southern segment (Q.102) of the late antique wall, and abutting its northern segment (Q.118). Its basic dry-stone architecture and shallow foundations differ from the solid late antique mortar walls built on bedrock, and there is no serious doubt that it belongs to a later phase. This wall forms the western edge of a c. 1.40 m wide possible stone-lined and stone-paved track (Q.167), leading towards the porticus and following the same alignment (Figs 3:46–3:49). This track is likely to be contemporary to a stone-paved area (Q.152) at a similar level further east. Q.152 employs many large slate plaques and is similar to stone paving encountered elsewhere in the trench (notably Q.022, Q.023, Q.026 and Q.048) of likely or certain early medieval date. It is also similar to the, probably fourteenth-century, paving F.024. No great ingenuity was required in selecting flat stones for basic paving and it is hardly surprising that the same technique was applied centuries apart. Interestingly, Q.152 employs a fragment of a broken rotary quern, using whatever suitable material was available. On top of the paving there was stone tumble (Q.151), possibly the remains of collapsed dry-stone walls, such as Q.150. This short wall, perhaps partially robbed later, was the only wall in the area, possibly suggesting we uncovered a paved open yard, rather than the floor of a building.

If parallels for the paving allow for an early to late medieval date, what does stratigraphy contribute to its chronology? On top of the tumble (Q.151), there was topsoil (Q.001). With no associated occupation horizon found, we have to rely on the structures' relations to other features and material embedded underneath. Wall Q.150 abuts late fourth or early fifth-century wall Q.118. It was not built on bedrock, but on at least half a metre of deposits.[59] Stratigraphy and construction both suggest that the wall and the associated paving are medieval. As there is no evidence so far for intensive occupation anywhere within our trenches on top of Dariali Fort beyond the fourteenth or early fifteenth century, we may quite safely exclude a later date. Overall, occupation was more intensive in the Early Middle Ages, and one is inclined to think that the paving is perhaps more likely to date to the eighth to tenth rather than the fourteenth century or so. Furthermore, where we find high or late medieval activity it tends to be above early medieval layers and there is no positive evidence so far for demolition or replacement of early medieval structures in the High or Late Middle Ages. With the bedrock protruding to the modern surface in places, one senses that it seems unlikely that the paving overlies significant features sealed underneath, pointing to an early medieval date for the paving.

The paving (Q.152) was left in place, and we recovered no sealed artefacts or samples from underneath the stones. In the south, however, we excavated a small sondage into the soft reddish brown silty clay (Q.140) under stone paving Q.119 between pillar Q.112 and wall Q.118. Whilst sloping down to a deeper level than Q.152, stone paving Q.119 is of similar style and, almost certainly, a contemporary paved walkway following the terrain. A sample (Q.140/1007), of birch charcoal found 18 cm below the top of the nearest paving stone, provides a *terminus post quem* of AD 654–768 (Table 3:15) for paving Q.119. Even if the wood was not certain to be young, it indicates that the paving above is not likely to

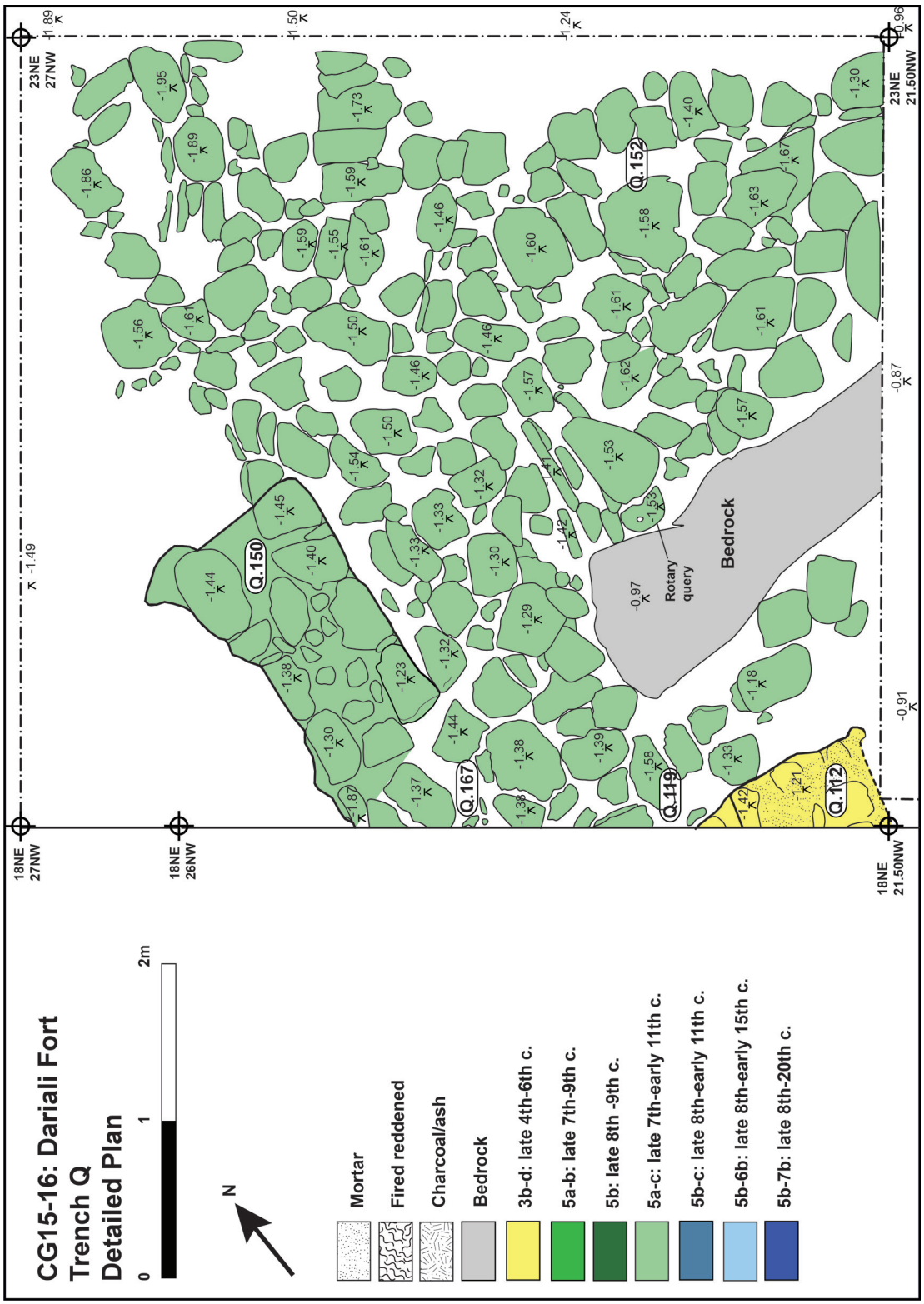


Fig. 3:46: Early medieval stone paving (Q.152) and wall (Q.150) in the northernmost part of Trench Q.



Fig. 3:47: The paving seen from the north-east.



Fig. 3:48: A broken rotary quern was re-employed in paving Q.152 (which extended to wall Q.150).



Fig. 3:49: Wall Q.150 (left, showing its west-facing side abutting the north-facing side of wall Q.118, right) was a basic dry-stone construction built on sediments, clearly much later than late antique mortar wall Q.118 with much deeper foundations.

be later than the Early Middle Ages, and it is certainly not earlier. Q.140 contained no finds other than small charcoal fragments. Its sterile nature and its distinctly inorganic composition suggest that it was a levelling deposit, laid down as a matrix for paving Q.119. Q.140 overlies late antique deposit Q.162 (with a sample of AD 357–531). All indications, and most importantly the cited charcoal sample from just underneath paving Q.119, provide strong

Table 3:15: Radiocarbon date from an early medieval deposit under paving Q.119 in the north of Trench Q on Dariali Fort (BBM = below benchmark) (see Fig. 3:6 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [no modelled dates indicated, due to small number or samples (two) and one of them not certain to be young]*	*Comments*
Q.140/1007	Poz-89862	17.42 m NE, 22.46 m NW, -2.01 m BBM	Charcoal: Betula	1318±29	AD 654–768+; 72.3%: 654–722+ [not certain to be young]	d13C= -30.2

circumstantial evidence for an early medieval date of the paving in the north of Trench Q.

3.5. A derelict backyard in the medieval castle (Phases 5b–6b)

Not a single one of the 25 radiocarbon samples from the trench is later than the tenth or early eleventh century. This may in part be a result of heavy disturbance in the west of the trench, where a large modern material extraction pit (Q.009) erased recent layers and structures. Deposits under the topsoil in much of the rest of the trench showed no obvious signs of modern disturbance, but the surviving stratigraphy above the bedrock was shallow in places, and various bulk deposits encountered under the modern topsoil could not be clearly associated with any particular event or occupation phase and thus seemed unsuitable for sampling. We cannot assign any structure or deposit in the area of Trench Q to the High or Late Middle Ages with certainty, but there are some that cannot be tightly dated.

It is possible that the stone box (Q.017) east of early medieval wall Q.004 could be early or late medieval.[60] As far as excavated, it consisted of a single monolithic slab in the north (1.07 m long, c. 0.05 m thick and 0.40 m high) and three stone blocks in the south. The very soft mid greyish brown sandy silt (Q.014) filling the stone box, yielded an abundance of pottery (4,280 g, as opposed to 232 g in Q.013 south of the box and 146 g in Q.015 north of it).[61] A glazed sherd in Q.014 is worth noting, but there is no pottery from the deposit that need be later than the ninth or tenth century.[62] Q.014, reaching down to the base of the stone box, differed markedly from the deposit underneath: very soft mid yellowish brown clay with c. 50% stones (Q.038). The box's fill (Q.014) must be later, even if the shattered nature of the pottery suggests that the original contents of the (storage?) box did not survive, at least not intact. Any lid that may once have covered it did not survive either. Underfloor storage boxes were of course also found in Trench F: F.142, probably of the fourteenth century, and less precisely dated boxes F.067 and F.209 (tenth to fifteenth century). Perhaps these three, and stone box Q.017, larger than its three counterparts in Trench F, are all of a similar age and belong to the Late Middle Ages, perhaps the fourteenth century. The pottery from Q.014 has been assigned to the ninth to tenth century (as opposed to the mid-seventh to ninth century for Q.038 underneath). As some late medieval deposits in Trench F failed to produce diagnostic second-millennium pottery, we can neither exclude that the stone box dates to the late first millennium nor around the fourteenth century.[63] That box Q.017 was placed on the north-east side of wall Q.004 (and cut into one side of the wall) suggests perhaps that, despite its basic dry-stone construction, the wall and the associated building were still standing.

The building complex in the north-east of Trench Q seems to have been in use until shortly before or after AD 1000. Unlike the F.004 building, reoccupied in the late thirteenth and/or fourteenth century, we have no positive evidence for renewed activity in the similarly constructed mortar-wall building in Trench Q. The stratigraphy is, however, shallow, and there is no way of telling if there ever were late medieval occupation layers or if any such horizons may have been erased through modern activity close to the surface.

On the inside of wall Q.102, a large pit (Q.149 = Q.168) has been dug. The deposits in its fill contained mostly ninth to tenth-century pottery (Q.139 and Q.164), as observed by Seth Priestman.[64] It extended from pillar Q.081 along the inside of wall Q.102 to wall Q.118 as well as into the entrance of the casemate. The absence of any modern finds makes it more likely that it was indeed in the Middle Ages that this pit was excavated, rather than in the more recent past. There were no diagnostic second-millennium finds from the pit, but even certain late medieval (phase 6b) deposits in Trench F yielded no diagnostic pottery and were dominated by residual earlier material.[65] Perhaps it was no more than a quarry pit to extract soil and stones needed for construction purposes elsewhere in the fort. Whilst it is possible that the pit was dug in the first half of the second millennium, a date in the ninth or tenth century seems more probable, bearing

in mind that there is no other known structure of the High or Late Middle Ages nearby for which a material extraction pit would have been needed. Whatever the original purpose, the large and irregular pit may have impeded internal pedestrian traffic along the walls, and we find that its bottom fill (Q.089 = Q.159, Q.139 and Q.164) was covered in places with a slate and stone paving (Q.145 and Q.163). This must also be medieval, suggesting that easy access to the late antique fort walls remained important centuries after their construction.

Deposits building up successively on top of this paving can be no earlier than the ninth or tenth century at the earliest, but include, of course, redeposited older as well potentially more recent material. Significant finds include a possible iron projectile (Q.076/962). Its functional identification is not certain. Neither is, of course, its date; coming from above the pit, it could be ninth or tenth century or later or an earlier redeposited object. This potential additional evidence for the use of long-range weaponry, whilst no surprise, is worth noting.

Many of the upper bulk deposits in Trench Q cannot be dated with precision and cannot be related to any particular occupation phase or event, and some of them are clearly disturbed. Little would be gained by meticulous listing and description. Worth noting are Q.127, soft mid greenish grey clayey silt, with early medieval pottery,[66] overlying deposits Q.113 and Q.133 within the early medieval annexe. The greenish hue might be suggestive of sewage, circumstantial evidence that this deposit may have formed during the latest phase of human occupation nearby. It also contained patches of mortar and was overlain by Q.126, a tumble deposits of collapsed angular stones, averaging 20–30 cm in diameter and large patches of mortar. There is no clear evidence for any medieval structures employing mortar at Dariali Fort and, being at the base of the (late antique?) mortar wall Q.096, Q.126 is most probably related to the destruction of the upper sections of the wall. Like Q.127 and Q.113 below, there is no pottery later than the mid-seventh to ninth century from Q.126.[67] This does not prove demolition in the later first millennium, but suggests that it affected a building largely abandoned since. In the light of the solid construction of this wall and other related mortar walls in Trench Q, preservation to a few decimetres height at most, never rising more than a few centimetres over the present surface and never lined by heaps of stone, this is not likely the result of natural collapse. Walls may have been demolished, perhaps blown up, to deprive potential rebels (against nineteenth-century Czarist Russia?) not just of the outer defences, but also of a solid shelter from the elements. Demolition in the early twentieth century is possible too. Whatever the precise date of destruction, the absence of stone collapse is best explained by modern reuse, to provide building material for bunkers and the stone lining of modern cellar-like structures and military trenches.

Not a single structure or pit in Trench Q can be assigned to the time between the eleventh and early twentieth century. Even if any of the not closely datable features described in this section should belong to this period, the area of Trench Q seems to have been largely abandoned for most of the second millennium.

3.6. Attempting to halt Soviet aggression (Phase 7b)

The magnificent view that one enjoys from the northern plateau towards the northern approaches to Dariali Fort, enabling total surveillance of all traffic, explains its great strategic significance, in Antiquity and the Middle Ages as well as in modern times. Whilst no obvious modern military architecture was visible on the surface within Trench Q, it proved to be heavily affected by the latest burst of activity within the former fort.

The earliest modern feature was a depression (Q.040), roughly two metres wide and half a metre deep, with some fragments of modern glass from its fill, soft mid brown sandy clay (Q.036).[68] Its boundaries were diffuse, except where over paving Q.028, and it could not be clearly seen in plan. The depression probably formed as a result of subsidence over the filled-up pit, in which material lost by visitors in recent centuries accumulated over time. More significant are other modern features and structures on the hilltop and in nearby sections of the gorge. The bunker south-west of Trench Q has already been referred to and other features, including a tunnel system under the fort, leading to concrete-lined gun emplacements over the River Tergi, are discussed elsewhere.[69] Did these installations date to the Second World War, perhaps 1942 when German troops pushed towards Dariali in their attempt to cross the Caucasus, beaten back only some twenty miles north in November 1942? Perhaps but it is also possible that another threat triggered modern re-fortification of the strategic rock.

The findings from Trench Q are important in this context. A substantial pit (Q.009) in the trench, destroying significant structures, notably sections of early medieval walls, has already been mentioned repeatedly. A deposit (Q.046) at its base yielded modern glass as well as rotted wood, and there was bottle glass and metal wire from its fill above (Q.037 and Q.008), pointing to a comparatively recent date of the feature. It was lined in the west by a semi-circular dry-stone wall (Q.039) of 1.43 m height.[70] In the south-east, the pit was unlined and of irregular shape. It cut across and destroyed the northern section of wall Q.004. An upcast mound (Q.035 and Q.034) in the west is likely to be associated. This pit may have served multiple functions, including stone quarrying, probably for the nearby bunker immediately to the south of Trench Q. The basic stone lining may suggest that it was at one stage also intended as a military trench. Reusing the stones from medieval structures and collapse layers when

building the bunker would have been easier than carrying building material up the slopes of the fort. We do not know if the pit provided building material for the bunker only or also for other modern military features on the fort. The former seems more likely, notably as the upcast from the military trench and the cellar-like structure probably would have contained as much stone as was needed to line them. In contrast to the military trench and cellar-like structures, that remain open to the present day, pit Q.009 is filled up with sediments (Fig. 3:50). This cannot have been the result of natural erosion on the hilltop, but must have been a deliberate act – perhaps to reduce the risk that freshly disturbed ground attracted the attention of aerial reconnaissance.

Of special interest for the age and possible military context of the pit is a modern artefact produced precisely 100 years before its recovery in 2016. A gun cartridge case (Fig. 3:51) was found in deposit Q.129 at the base of pit Q.009 and on top of wall Q.120. It is possible that the pit destroyed the upper courses of this early medieval wall. The brass case carried the following embossed inscription in two lines: Л/916. We understand that these abbreviations can be restored as follows: Л(уганск)/(1)916 – signifying production in Luhanks in Eastern Ukraine in 1916.[71] It is hard to know how soon after production it may have been used. If we are right in thinking that the pit was dug and filled in by those constructing the nearby bunker, the cartridge is more likely to have formed part of the ammunition of a soldier encamped on the fort than any potential assault unit. Loss at the time of construction works seems most likely, even if it is not beyond the realms of possibility that later pit-digging (*e.g.* during the Second World War) resulted in redeposition of the cartridge long after it had been discarded. What is certain is that Dariali was a site of armed conflict, or expected conflict, on one or more occasion(s) in the twentieth century. Dariali was not close to any of the battle grounds of the First World War as far as we are aware, even if German troops reached the fort in 1918 (Fig. 3:52).[72] Perhaps the Georgian Democratic Republic, after gaining independence in 1918 and before the Soviet invasion of 1921 put an end to its existence, stationed soldiers to guard the main access route from Russia in anticipation of Soviet aggression.[73] When in February 1921 the Soviet army attacked, one of the invasion routes, from Vladikavkaz along the Tergi/Terek and the Dariali Gorge to Kobi and Tbilisi,[74] indeed must have led past Dariali Fort. The modern stone-lined trenches on Dariali Fort, as well as tunnels and gun emplacements underneath and bunkers towering over the western valley edge, may well be related to the historical turning point

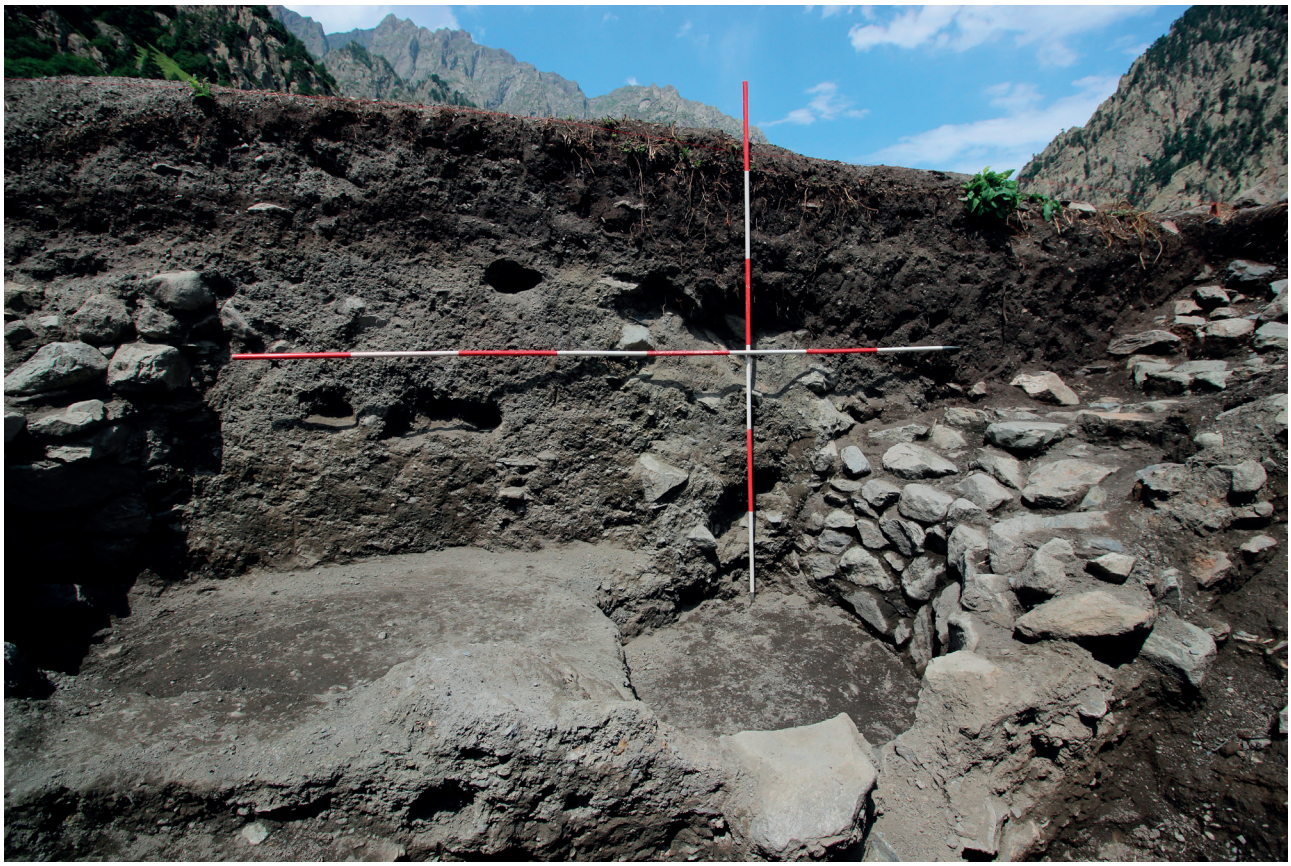


Fig. 3:50: A large pit (Q.009) (bottom under the right pointed end of the horizontal scale), filled with redeposited topsoil, yielded modern material and may be a material extraction pit.



Fig. 3:51: A gun cartridge case of 1916, manufactured at Luhansk, from near the base of a large modern pit, suggests that stones from medieval walls and tumble were extracted to build modern military stone-lined trenches and bunkers on the plateau, perhaps when Dariali Rock, between 1918 and 1921, regained its former strategic significance as a frontier post.

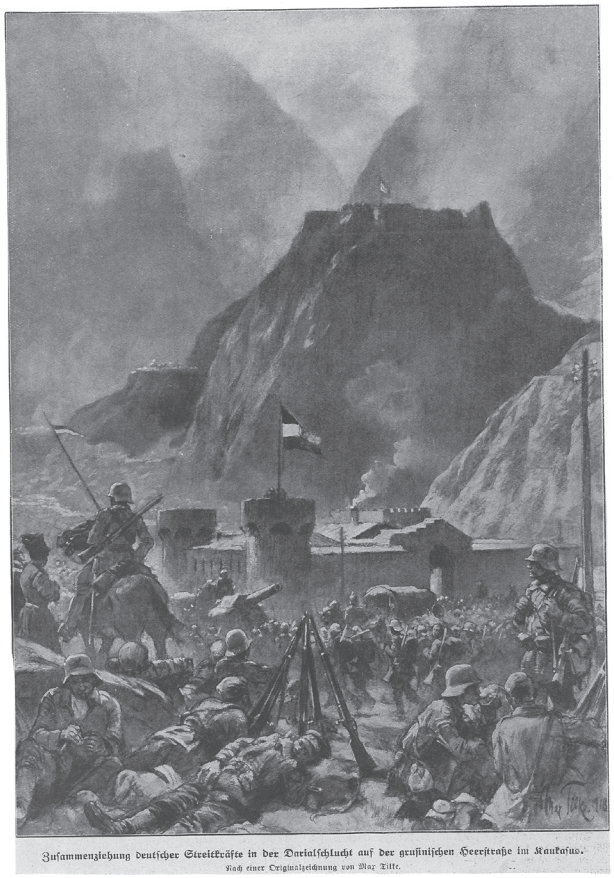


Fig. 3:52: German troops, operating in Georgia towards the end of the First World War, reached Dariali Gorge in 1918, an event vividly depicted on this drawing by Max Tilke. The drawing features German troops assembled in front of the (now demolished) nineteenth-century fort in the valley, with German flags flying over the modern fort in the valley as well as over the ruins of the old fort in the background.

of 1921 (followed by 70 years of Soviet occupation) or events leading up to it. Whilst it seems unlikely that ammunition of 1916 would still have been in use in the 1940s, it is of course possible that some of the modern military features may have been built or reused then. There may well be archival records for operations and military entrenchment in the twentieth century, but we carried out no modern architectural or archival research or interviews with elderly locals as to the date of these modern military features. Archaeological exploration of these monuments was confined to a small sondage (Trench O) and the modern features in Trench Q. That they date to the twentieth century, employing concrete and yielding distinctly modern material, and at least some to no earlier than 1916, is beyond doubt. Whilst ceasing to be a state boundary for some two centuries (from Russian occupation until Georgian independence in 1991, except for the brief period of the Democratic Republic of Georgia from 1918 to 1921), Dariali Gorge did not cease to be of great strategic importance, still being the principal route from Russia into central Transcaucasia.

Notes

1 Numerous team members played a crucial role in excavating this large trench, supervised in 2016 by Eve MacDonald.
2 See chapter 25.2.
3 See chapter 4.2.
4 See chapter 4.3.
5 See chapter 25.2.
6 See chapter 3.4.3.
7 See chapter 11.11.
8 See chapter 3.2.3.
9 See chapter 3.3 on the location of Q.137.
10 See chapters 2.2.3–2.2.5.
11 See chapter 11.11.
12 See chapter 11.11.
13 *E.g.* Cit'lanaże 1971, 65.
14 See chapter 25.7.
15 See chapters 3.5 and 11.11: Q.139, the bottom fill of the pit, yielded glazed pottery tentatively dated to the ninth–tenth century.
16 *E.g.* Davison 1989 *passim*; Gregory 1997 *passim*; Johnson 1983, 166–76.

17 See chapters 2.2.2–2.2.4.
18 See chapter 2.2.4.
19 See chapters 3.4.4 and 11.11.
20 See chapter 3.2.1.
21 See chapter 18.
22 See chapter 3.2.1.
23 See chapter 11.11.
24 Q.030.1, Q.031.1, Q.032.1 and Q.033.1 also formed in the period, but can also not be dated as yet with any precision.
25 See chapters 13 and 15.2.2.4.
26 The pottery from the pit would be compatible with a ninth or even tenth century date (chapter 11.11) but, being sealed by the building platform for wall Q.004, a date much beyond the middle of the ninth century seems impossible and a date in the eighth century more likely.
27 F.136: see chapter 2.3.
28 See chapter 25.4 on hypotheses as to the ownership of the fort in this era.
29 See chapter 3.3 and 11.11.
30 See chapter 11.3.2; cf. P'ach'ik'ashvili 2014, 29, 32–33, 160–64.
31 Wensinck 1978; Sadan 1978. See also chapter 25.5.2.
32 Whilst cut into deposit Q.160, most of the sherds (Q.016/668, Q.113/849, Q.113/887 and Q.148/891) recovered have been attributed to the context (Q.113) above, as well as one each to Q.016 and the fill, Q.148. Most sherds belong to the main group (Q.113/849). Three further sherds (Q.016/668, Q.113/887 and Q.148/891), all from the rim region, belong to same vessel – perhaps a result of later earthmoving operations affecting the upper parts of the vessel and redepositing fragments thereof. All fragments of the vessel were from the same area.
33 See chapter 22.2.
34 315 g of animal bone was recovered from Q.148 filling vessel Q.160/849, 922 g in Q.154 in Q.031.1/966, 292 g from Q.156 in Q.031.1/193 and 1 g from Q.173 in Q.031.1/1059, the latter of course of course not excavated, except for a small sample from the profile. Q.154 contained a small amount of redeposited late antique(?) pottery, Q.148, ceramics attributed to the ninth or tenth century (chapter 11.11).
35 See chapter 22.2 for growth conditions of millet and the lack of ethnographic evidence for local cultivation in the recent past.
36 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 156–57.
37 Originally the wall in the east (Q.053) and in the south-east (Q.059) were given separate context numbers, but they are clearly part of a single wall, now called Q.059.
38 Q.120 was initially interpreted as one side of a stone-lined box, filled from bottom to top by deposits Q.135, Q.130 and Q.115. Yet, walls Q.059 and Q.104 form the two other sides of the putative lining, whilst there were no clear traces of lining in the north-west, other than stone tumble. There is modern glass from Q.130, suggesting that it is still fill of the modern pit (Q.009), containing much redeposited material, whilst we observed no recent finds in Q.135. The pottery from Q.135 has been assigned to the seventh century: see chapter 11.11.
39 See chapter 3.2.3.
40 As an alternative scenario we may propose the following sequence:

1. Pit lining or curved terracing wall (Q.051 and Q.059) were built as part a larger complex, including walls Q.120 and Q.104 – all part of an annexe to the late antique building.
2. The pit was filled up at a similar date to the burial of the storage vessels and when a building platform for wall Q.004 was erected.
3. Wall Q.004 forms part of a later extension to the annexe.

The calibration curve does not allow us to precision-date the filling of the pit and the burial of the storage vessels, which could have occurred at the same time or up to a century or so apart. As pit Q.009 has erased part of the annexe, we cannot rule out either scenario, but wall Q.004 running towards the edge of the pit makes the scenario presented in the text more plausible.

41 This sample was recovered 0.85 m north-west of the drawn profile (the other four samples were taken from the profile), and whilst there is no clear evidence for layers sloping up from south-east to north-west, it is possible that the material thrown into the pit formed irregular piles, so that it is hard to be confident about the relative sequence.
42 See chapter 11.11.
43 See chapter 15.2.1.2.
44 Found at 10.78 m north-east, 9.00 m north-west and -0.96 m: see chapter 15.2.7.1.
45 One wonders if this sample, found half a metre north-west of wall Q.025 and 31 cm above its base, also provides a *terminus ante quem* for the construction of this wall and the early medieval annexe? Perhaps, but a Bayesian model placing it above the levelling horizon under wall Q.004 produces poor agreement. Whilst it is possible that the sample post-dates the construction of the annexe, it could be a redeposited older piece. Alternatively, it could be part of the uppermost pit fill with any shallow foundation trenches for walls Q.025 and Q.004 leaving no clear traces. Similarly, the cosmetic applicator could predate or postdate the annexe. Given the broad, almost 200-year, date range for the sample, the question as to precise sequence is somewhat theoretical, as all events under discussion could have taken place within these two centuries. The relation between the deposit (Q.027.2) abutting wall Q.025 and the upper pit fill (Q.027.1) is unclear, as the pit lining was largely destroyed in this area.
46 See chapter 11.11.
47 The base level of the walls of this annexe, evidently built on the slope on top of earlier deposits or levelling horizons, is significant. The base of wall Q.004 was between c. -1.06 m and -0.95 m trench height, between the point where cut by pit Q.009 and where abutted by wall Q.025 and c. -0.65 m where over vessel Q.031.1/1059. The base of wall Q.025 was at -1.07 m in the north-east, where abutting the former wall, dipping down to -1.17 m in the south-west.
48 See chapter 3.6.
49 Pottery, surprisingly, suggests a seventh-century date for Q.099 (chapter 11.11), whilst stratigraphically it is later than wall Q.104.
50 See chapter 3.5
51 See chapter 3.4.3.

52 See chapter 3.2.3.
53 See chapter 3.4.4 for plans.
54 6,207 g of pottery and just 117 g of bone, a ratio of c. 98:2, as opposed to c. 77:23 in Q.074 plus Q.086.
55 These two deposits, with a ceramic assemblage attributed to the seventh century (chapter 11.11), must be part of the same, being similar in colour and composition (except for a brownish hue of Q.086, probably the results of root disturbance) and elevation (except for the bottom of Q.074 being deeper following the slope); there was no clear boundary and no signs of a cut.
56 See chapter 11.11.
57 See chapter 11.11.
58 Overall, there is far less bone and pottery from deposits in the area than their equivalent in Trench F. Clearance of sediments in the Early Middle Ages, followed by pit digging (Q.149 = Q.168), caused, however, heavy disturbance in Trench Q – making it difficult to compare patterns of early medieval waste disposal in the two trenches: see chapter 3.5.
59 Only a small sondage was excavated into these undated deposits (Q.142, mid greyish-brown silt, below wall Q.150 and above Q.146, very soft light brownish yellow sandy silt, above the bedrock). Pottery from Q.146 may suggest a date between the mid-seventh and ninth century (chapter 11.11).
60 See also chapter 3.4.4.
61 In terms of bones, Q.014 dominated less, at 340 g, as opposed to 321 g in Q.013 and just 8 g in Q.015.
62 See chapter 11.11.
63 See chapters 2.5 and 11.11.
64 Seth Priestman, pers. comm., 2018; Q.089 = Q.158 could potentially even be as early as the seventh century.
65 Seth Priestman, pers. comm., 2018.
66 See chapter 11.11.
67 See chapter 11.11.
68 See section drawing in chapter 3.4.3.
69 See chapter 25.7.
70 C. 9.00–10.20 m north-east/10.10–11.90 m north-west, from -1.19 m to +0.24 m. The association of this dry-stone wall with the modern pit (Q.009) is tentative. It is possible that the dry-stone wall is earlier, but re-exposed by the later pit.
71 We lack expertise in modern ammunition, and this reconstruction is based on internet resources (http://www.patronen.su/forum/index.php?action=gallery;sa=view;id=3029 and http://www.patronen.su/forum/index.php?action=gallery;sa=view;id=11171) which seem plausible to us, but whose reliability we cannot vouch for. Neither do we know which army units were supplied with cartridges manufactured at Luhansk and how long these may have remained in use. Perhaps there is archival information on cartridge supply to assess if such material was more likely in use by Czarist soldiers and/or after 1917/1918 by Soviet or Georgian forces.
72 Copies of this drawing are on sale via the internet (as first spotted by Davit Naskidashvili) under the heading, 'Zusammenziehung deutscher Streitkräfte in der Darialschlucht auf der grusinischen Heerstraße im Kaukasus' ('Gathering of German troops in Dariali Gorge on the Georgian Military Road in the Caucasus'). We found no academic source.
73 A plan for a Bolshevik invasion of Georgia via Dariali was in place in 1918: Fähnrich 2010, 444. German troops, operating in Georgia in 1918 are depicted on a drawing by Max Tilke reproduced in this chapter.
74 Prokhorov 1976 and 1980; Kazemzadeh 1951, 323.

4

Barrier, bastion and aqueduct: sondages and surveys on and around Dariali Fort (Trenches L, X and O)

4.1. A tower at the southern approaches to the Dariali Fort: Trench L (Phases 3–5)[1]

South of Dariali Fort and separated from the main fort by a narrow cleft, there is a distinct rock outcrop surrounded by walls (Figs 4:1–4:2). The spot was an obvious choice to be fortified. Whilst the summit is small and comprises just a few square metres of flat ground, it offers excellent views over the southern approaches to the fort (Fig. 4:3). Not only was it useful as a watchtower for surveillance purposes, but also for fending off any hostile attempt to climb the steep southern slope, taking advantage of what would otherwise have been a blind spot for the fort's garrison. The outcrop would have been ideally located for hurling rocks down the slope or targeting any assailants via missiles. Leaving the spot unoccupied, on the other hand, entailed the potential risk of enemy occupation of a spot dangerously close to the fort itself and within easy shooting range for archers. Today the walls survive to a lesser height than the top of the rock. Whether they were slighted deliberately at some stage, or collapsed as a result of natural events, is unknown. Undoubtedly, they once were at least high enough to provide a safe parapet around the rock. More probably, there was a tower here, with at least one roofed room or multiple storeys. We do not know whether it was an isolated tower or whether it might have been connected with the main fort via a bridge.

In 2014, Steve Usher-Wilson excavated a small (1 × 1 m) sondage (Trench L) centrally on top of the rock outcrop (Fig. 4:4), with a view of recovering material that might shed light on the date of occupation. The bedrock (L.005) was reached at c. 0.55–0.80 m below the modern surface. The deepest deposit above, soft mid brown clayey silt (L.007) yielded no finds and is probably natural. A single find (L.006/5, an artefact, perhaps a knife handle, made of a cow rib) proves that L.006 above formed during the rock's occupation. A sample from this object, the deepest stratified find from Trench L, unfortunately failed to provide a radiocarbon date. L.006 was similar to L.007 underneath, except for being grey rather than brown. A stony deposit (L.004) above, in the north-western corner of the small trench, yielded lumps of solid mortar as well as two cow ribs. One of these was successfully dated (Fig. 4:5; Table 4:1). The bone dates to between the late ninth and the early eleventh century. The mortar may indicate that this layer postdates the partial crumbling, collapse or demolition of the once taller walls. The deposit may thus be attributed to the later first millennium, a period which saw also heavy occupation, and certainly intensive rubbish deposition, in Trench F on Dariali Fort itself. In the south-western corner, there was a further mortar deposit (L.003), but no other finds. It may well be of similar date.

Above L.003 and L.004, we encountered a deposit (L.002) of yellowish grey clayey silt, with large rocks, covering the entire sondage. It yielded far more finds than all other deposits combined, 221 g of pottery and 689 g of animal bones, as well as a three-winged iron arrowhead (L.002/3). This will have been part of the arsenal of garrison members on guard duties in the tower in the late first or early second millennium. The pottery sherds belong to cooking pots that could be as late as the radiocarbon sample, even if a date as early as the eighth century cannot be excluded.[2] The cooking pots suggests that the occupants of the small bastion cooked at least some of their meals, rather than being provided with warm food in the main fort that they could have reached in a few minutes. It also suggests that those present had a roof over their head, rather than being dispatched for short-term guard duties in an open-air bastion. A spindle whorl (L.002/1) is further evidence for people living and working in the tower.[3] The topsoil (L.001) proved largely sterile, but interestingly yielded pieces of slate, perhaps

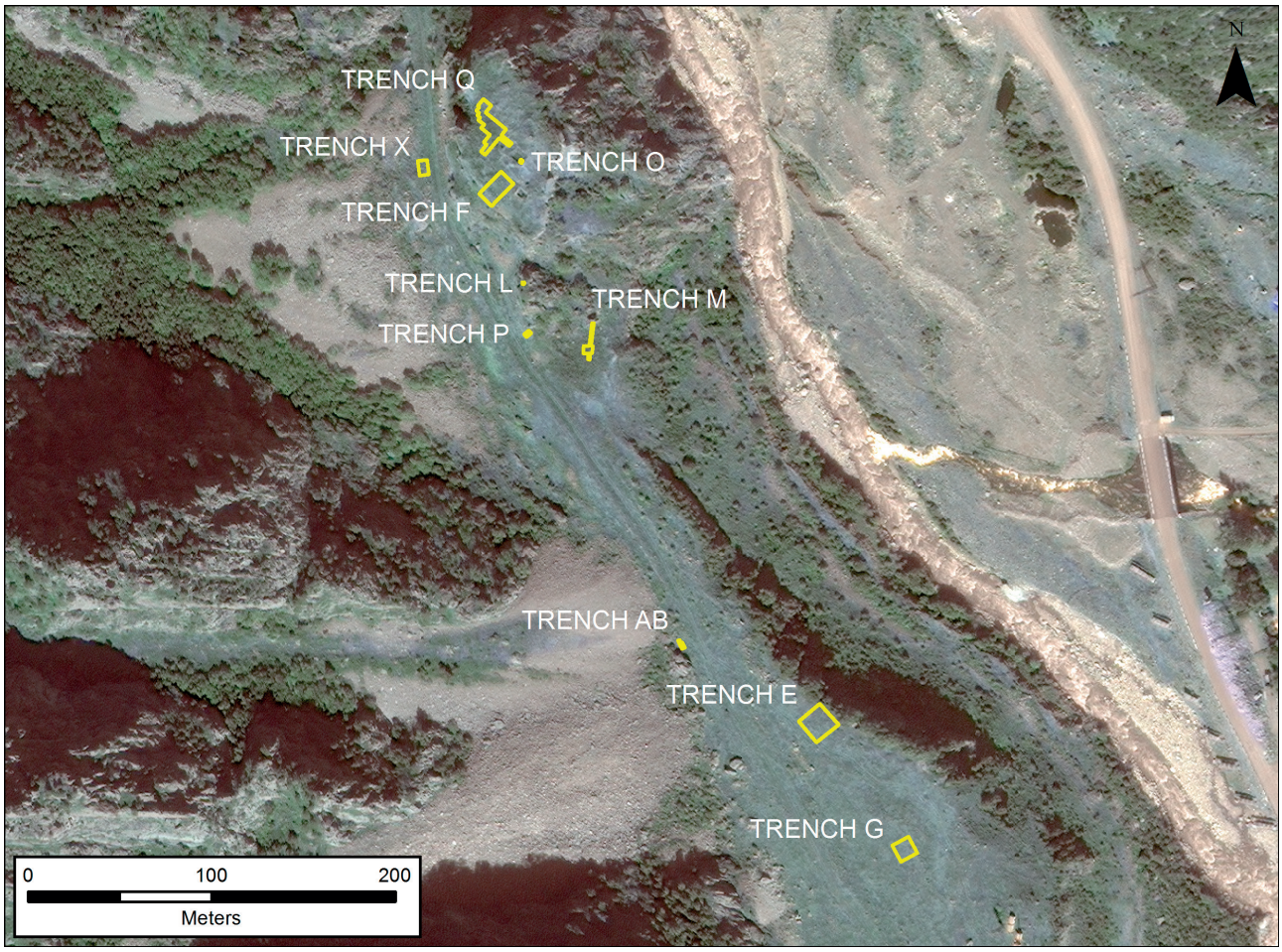


Fig. 4:1: Plan of trenches on Dariali Fort and in its surroundings, compiled by Kristen Hopper and Nadia Khalaf, based on information supplied by the project. There are inaccuracies in the positioning of some of the trenches due to the way in which the satellite captured the steep topography. Trench X is on the slope and to the east of the modern track; not to the west, as the image implies. The size, shape and relative position of trenches above is, however, reliable and, with the stated exceptions, the position of trenches in relation to landscape features is also broadly correct. Note that the imagery is a reflection of what was recorded by the satellite; it should not be used as a guide to the width of slopes. See the contour lines of our laser scanning map in chapter 1.2 (compiled in 2015 and prior to the excavation of Trench X) for the width and gradient of Dariali Rock's western slope as well as that of its very steep and narrow eastern slope. Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).

part of an interim floor or the roof and thus adding strength to our assumption that the structure was at least one storey and, quite possibly, several storeys high. To judge by the absence of pottery and bone, the topsoil will have formed after the fortified lookout's abandonment, but, in part at least, before its destruction, if the pieces of slate were once part of it.

The dating of the occupation of the tower-like structure to the late ninth/early eleventh century (phase 5c) is of significant interest. It adds plausibility to the impression gained also from excavations on Dariali Fort itself, the associated cemetery and Gveleti Fort, that defensive efforts devoted to the pass defences were as great or greater in the late first millennium as they had been during the gorge's period of greatest fame in Antiquity. Yet the material recovered dates a phase of occupation, but not necessarily the earliest, let alone the construction of the bastion. It is also interesting that the structure employs a distinct masonry technique. The walls are built of medium stones of similar size in neat rows, bonded with mortar. A similar technique has also been observed on the most massive surviving wall on Dariali Fort, on its east-facing side as well as on the steep ridge approximately one kilometre north of the fort.[4] The masonry style of the late antique walls in the casemate in Trench F is similar to that of the Trench L tower too, in stone size and neat layering, even if (just as the upper courses of wall F.059 and of F.004) the latter has lost its plaster cover due to prolonged exposure to the elements. We may thus suggest that these walls all belong to the late fourth, fifth or, at



Fig. 4:2: The tower, explored via Trench L in its interior, seen from the north-west. Its mortar walls employ similar masonry (with layers of stones of similar size) to the outer walls of Dariali Fort and Bakht'ari Fort.



Fig. 4:3: The tower controlled the southern approaches to Dariali Fort: view down to the track.



Fig. 4:4: Trench L, reaching the bedrock at a shallow depth, revealed that little occupation deposits remained in the interior of the tower. Each segment of the small scales measures 10cm, each segment of the ranging poles, 50cm. View towards the cemetery in the south.

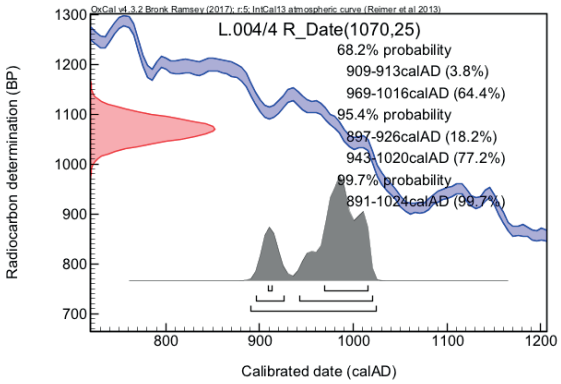


Fig. 4:5: Radiocarbon date from Trench L (see Table 4:1 for further details).

the latest, sixth century, as all other pre-modern walls at Dariali employing mortar. Whilst not quite as high and fatally dangerous as the cliffs on the east and north face of Dariali Fort or those of Bakht'ari Fort, the outcrop towers precariously high over the surrounding terrain. Building a bastion along its edges was a risky undertaking for the construction team. Yet, a bastion on this prominent hill, that no garrison would have wished to fall into the hand of enemy archers, would have added much to the impregnability of the fort as a whole.

If the late antique dating proposal for the bastion is accepted, how do we explain the gap of half a millennium between the postulated architectural date of the Trench L bastion and the earliest known occupation? With so little surviving of the structure and associated cultural layers, our answer is inevitably speculative. Worth noting is a Sasanian bone sample of AD 400–545 (P.006/31) from Trench P at the base of the rock, sandwiched between early medieval samples of the late seventh to ninth centuries from below and above.[5] It is tempting to think that this bone belongs to late antique material (of phase 3c-d) fallen or cleared off the rock in the Early Middle Ages (phase 5a or 5b). Perhaps the interior of the bastion was cleared out then, to keep it habitable, as deep indoor deposits would have reduced the room height of the bottom (or only) room in the bastion. Whilst at Dariali Fort some late antique mortar walls proved impressively stable, it is possible that the odd structure collapsed, whether as a result of the cumulative effects of frost-cracking over centuries or perhaps an earthquake, as attested in the sources for AD 742/743.[6] We do not know if the isolated late antique tower stood intact throughout the Middle Ages, its lower courses evidently surviving until today, or if it had been damaged at some stage and if any potential damage was repaired with the typical early medieval dry-stone masonry. There is no evidence for renewed occupation in the Late Middle Ages (phase 6b), but we cannot tell if the tower had already vanished or perhaps still stood until Russian explosives flattened the fort some two centuries ago. Facing a threat from the Golden Horde in the north as well the Ilkhanids in the south, the bastion in the south may still have been an asset at times of danger in the Late Middle Ages, but its permanent occupation was perhaps not a priority for a reduced garrison.

Table 4:1: Radiocarbon date from Trench L (see Fig. 4:5 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
L.004/4	OxA-31646	n/a	Bone: Bos, rib	1070±25BP	AD 897–1020 (77.2%: 943-1020)	d13C = –19.79

4.2. Buried beyond reach: in search of the earliest occupation debris at the base of Dariali Fort's steep western cliffs: Trench X (Phases 5–7)[7]

A stepped trench, covering 40 square metres at the top (and just two square metres at the bottom), was excavated on the western slope of the fort, immediately at the base of the western cliff of the fort (Figs 4:6–4:8). It now seems clear that, when the late antique fort was built, most occupation debris must have been cleared away to enable wall construction on top of the bedrock. Anything thrown down the steep eastern cliffs of the fort would have fallen into the Tergi/Terek and washed away by its fast-flowing waters. On the west side, by contrast, there was a chance that redeposited material from the fort may still survive. The purpose of this trench was to examine whether such deposits indeed exist and what light they may shed on the fort's early occupation.

Soon it became clear that there were indeed vast quantities of dumped debris. Due to their depth, it was necessary to step and shore this trench, and we were able to excavate it to a depth of over six metres on the side of the cliff. Except for the material (X.001) near the surface having a more brownish hue – the unsurprising result of a higher contents of organic matter – we observed no context changes. We divided what was effectively a single deposit underneath into five artificial spits (from top to bottom, X.002 to X.006), in order to gain an idea of the chronology of the build-up of material at the base of the fort. The soil was loose, mid to dark greyish brown to brownish grey medium to coarse sand. There were overall far fewer stones, notably large ones, than there were in the soil on top of the fort. Even when buildings were demolished or structures collapsed, it made perfect sense to keep the stones for reuse, to avoid the unnecessary exercise of selecting suitable material and carrying it up the hill. The low stone content may thus be expected. This observation and the high contents of pottery and bone indicate that it was material dumped by the occupants. There was also the odd glass sherd, bead and iron nail and a polished knuckle bone that had probably been used as a gaming piece. The trench yielded chronologically heterogeneous finds assemblages, but even at the base,



Fig. 4:6: Trench X (right, with timber shoring) was excavated on the western slopes of the fort, below vertical cliffs. Drone image by Davit Naskidashvili.





Figs 4:7–4:8: Trench X demonstrated that the sheer cliffs of the fort were much higher in Antiquity than they are now – buried under vast quantities of occupation debris.

there were still medieval sherds. The top 70 cm (contexts X.001 and X.002)[8] contained diagnostic twentieth-century finds, such as pieces of concrete, and may date to the time when bunkers and military trenches were dug on top of the rock. Except for one piece of modern glass from X.003,[9] we observed no modern artefacts in spits X.003 to X.006, suggesting that these represent predominantly dumping during earlier periods when the fort was occupied.

We submitted the deepest bone sample recovered, from 6.60 m below the trench benchmark near the base of the trench and of spit X.006, for radiocarbon dating. Its date of c. AD 776–969 suggests that we have reached early medieval layers of the late eighth, ninth or tenth century (Fig. 4:9; Table 4:2). Less probably, it could be mixed up with more recent material, but the overall strong representation of early medieval finds makes it much more likely that we have indeed reached dump deposits of the later first millennium. Ceramic dating confirms this and points perhaps to a later ninth or tenth century (phase 5c) date for the deepest spit (X.006).[10]

Whilst we did not succeed in reaching layers predating the late antique fort, or even undisturbed late antique layers, four important conclusions emerge:

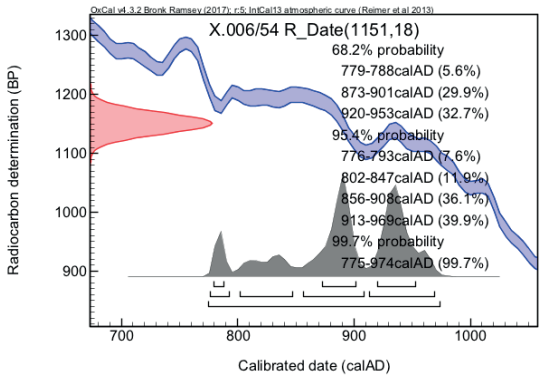


Fig. 4:9: Radiocarbon date from Trench X (see Table 4:2 for further details).

1. The 'untidiness' of Dariali's medieval occupants was not confined to intramural disposal of rubbish. With no regard for the gradual weakening of the fort's natural defences, the garrison also disposed of whatever was surplus to requirements by dumping it at the base of the nearest fort walls. The build-up of a ramp, that would have facilitated scaling the fort, could have

Table 4:2: Radiocarbon date from Trench X on Dariali Fort (BBM = below benchmark) (see Fig. 4:9 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4%*	*Comments*
X.006/54	SUERC-71962	2.35 m E, 3.65 m N, –6.60 m BBM	Bone: Capra, mandible	1151±18	AD 776–969; 77.9%: AD 802–969	d13C= -20.6

been avoided, had there been a policy of disposing of rubbish exclusively in the east, where the Tergi would have washed it rapidly downstream. Of course, the natural defences were so strong that the garrison may not have been concerned. Whilst a steep slope (unlike the earlier cliff) could be scaled, any assailant from the north could only do so after succeeding in breaking through the road-blocking wall. Even if achieving this, hurling down rocks would have meant a high risk of death for anybody venturing up towards the fort walls. Furthermore, the gradual accumulation of material would have made little difference during the average lifetime of a medieval occupant.

2. The quantity of debris provides further evidence for heavy occupation.
3. As deep as we dug, the cliff continues, more or less, vertically. With over six metres buried by debris, the natural defences of the fort in Antiquity must have been much stronger than they appear to be now. It is furthermore likely that the six metres we were able to expose are no more than the proverbial tip of the iceberg. The base of the vertical cliff could be much deeper. Dariali Fort, with its steep cliffs still prominently visible on the east- and north-facing sides, may have been protected by steep cliffs in the west too, until increasingly buried under debris in the Middle Ages.
4. The mass of late first to second-millennium debris unearthed in Trench X provides us with an idea of the scale of deposition. Short of much more ambitious earth-moving operations in future, we have no way of quantifying how much early medieval and ancient debris may be buried underneath. We do not know how deep the earliest remains may be buried, but one cannot help the impression that there must have been intensive occupation and rubbish disposal over a long period of time.

It would be interesting to excavate a deep trench down to the bedrock on the west side of Dariali Fort at the site of Trench X or perhaps a little further west (as we cannot know how far down the cliff is more or less vertical and if and what its gradient may be deeper down). Such a trench would have a good chance of revealing a finds assemblage from the earlier fort that was demolished when the late antique fort was built. Yet, such an undertaking would be difficult. The soil is loose, and natural ground may be many metres or even tens of metres below the level we reached. Such a trench would require rock-solid shoring to be extended further downward as excavation progresses. It would require a safe lifting mechanism for all material excavated, that entails no risk of material falling back into the shaft. It would have to keep a safe distance from the nearby gas pipeline, whilst also keeping some distance from the rock to increase the chances of reaching the deepest point of the saddle (where the most ancient material is likely to survive) rather than the edge of the sloping rock. It would, in short, require a professional mining operation. A large drill-hole (by a machine capable of drilling through fallen rocks, yet without destabilising the pipeline) would probably be easier and safer to accomplish, but probably only yield a small sample of early material – if perhaps large enough to establish the date of the earliest fort. Prior geological survey and remote sensing may help to pinpoint where the deepest point of the saddle was. Drilling multiple drill holes may also answer this question and yield more material. Are there alternative locations where early material, dumped down the rock, may still be *in situ*? The terrain in the east is dangerously steep, even where there is no near vertical cliff-face over the river. We know of no promising spot. In the south, there is little flat ground and most material dumped on this side would probably either have found its way into the Tergi River Valley too or onto the western slope. There might be a chance in the north, but here too the gradient at the foot of the rock is such that one has little confidence that much debris dumped here would have remained in place. Most would probably have slid into the river valley as well. This leaves only the west side with its massive accumulation of unstable debris and a major gas pipeline running across it. Dariali Fort, in one of the most dramatic and extreme landscape settings imaginable, poses similarly extreme challenges to the excavator.

4.3. A modern military shelter: Trench O (Phase 7b)

A small (1.50 × 1.50 m) sondage was dug within a walled room unit on top of Dariali Fort (Fig. 4:10), similar to a smaller cellar-like structure east of Trench F. Being over two metres deep in places, we assumed that the modern and much or all of the medieval layers had already been

removed in the area and that we would be able to reach ancient horizons more rapidly and without the need to excavate and record later layers. Within a few hours it became clear that, whilst indeed any medieval and pre-medieval layers had been removed in the area, little soil survived on top of the bedrock. There was modern glass embedded in the topsoil, dark greyish brown clayey silt (O.001), as well as in the subsoil, mid greyish brown clayey sand (O.002), down to the bottom. Beneath, there were pockets of mid brownish grey clay (O.003) in places, without finds and thought to be natural. Leaving these in place made sense, as clearing out every fissure in the bedrock (O.004) would have been arduous and created an uneven floor surface. This cellar-like room unit of modern date evidently has erased all traces of earlier occupation. It is likely to date to the twentieth century, perhaps, akin probably to the large pit in Trench Q, the late 1910s or early 1920s when the Soviet threat to Georgian independence may have provided an incentive to station troops on the strategic rock. A date during the Second World War, when German troops (in November 1942) came within c. 30 km of the stronghold, is possible too. Deep trenches and bunkers offered protection from enemy fire and inclement climate. The most unusual find of Trench O was a film canister with messages from 1964 and the 1980s in Russian, the former by an Ossetian expedition with a list of names – evidence for visits in the post-war era.

4.4. A gated road-blocking wall west of the fort (Phases 3a–5b/c?)

All traffic in Antiquity and the Middle Ages followed the left bank of the Tergi as a short distance north of the fort the route on the right bank reached a dead end, blocked by insurmountable rock cliffs and the fatal torrents of the Tergi at their base. Even the only viable route on the left bank was narrow in places. At Dariali Fort all traffic had to squeeze through the passage between the fort and the rock cliffs west of it. This was controlled via a gated barrier (Figs 4:11–4:19).[11] Part of it has been destroyed in the wake of excavating pipeline trenches. The section in the valley-bottom is buried under or abutted by vast quantities of fallen stone, making excavation difficult, and it is for this reason that it has not been possible so far to explore this major monument via fieldwork, except for a brief survey of the visible elements and the examination of mortar samples.[12] One rectangular tower survives here, guarding what appears to be a minor gate. The main gates were more likely in the central part that is not preserved. They may well have been protected by further towers.



Fig. 4:10: Trench O: a sondage within a cellar-like structure, with stone and mortar-lined walls, revealed that only a thin layer of soil with modern finds survived on top of natural geology: a twentieth-century construction to accommodate troops, supplies or military hardware?

On the western slope, one finds a prominent buttress in mortar masonry on top of a sheer cliff, towering high over the path. A dry-stone wall connects the buttress with a further cliff behind.[13] There are no known occupation layers associated with the buttress or the dry-stone wall, but no attempt has been made to clear the area.

Despite the lack of independent dating evidence for the road-blocking barrier or any associated occupation, the masonry of the mortar walls is strikingly similar to that of the fort itself, suggesting a similar date of construction to the fort. If we are right in thinking that the Hunnic threat was the key factor in building the bulwark,[14] then this suggests a date similar to the outer fort walls (phase 3a) – and prior to construction of the latest mortar buildings in the interior. Whilst we may postulate late antique origins for the section of the road-blocking wall on the slope of Dariali Fort, across the valley underneath and the buttress on the cliff opposite, all built of the most solid mortar masonry, a dry-stone wall leading from the buttress to a further cliff east is likely to be later. It is perhaps most plausibly assigned to phase 5b or 5c (late eighth to late tenth or early eleventh centuries) when most dry-stone architecture was built within the fort. Perhaps the narrow gap, accessible to energetic climbers approaching it from the north but vulnerable to missiles whilst on the ascent, had been left undefended before. Alternatively, it is possible that any earlier mortar wall had been destroyed through rock-fall and replaced. If our tentative dating proposal of the dry-stone wall to the Early Middle Ages is correct, it points logically to continued maintenance and defence up to the late first millennium or beyond.

Any would-be trespassers would have been within easy reach of archers posted here high above the road, on Dariali Fort or the tower-enforced wall blocking the passage. Hurling rocks would have provided a simple alternative of decimating hostile forces trapped in the passage on either side of the wall. Dariali's garrison would probably have channelled all authorised traffic through the main gate, able to regulate what persons and goods were admitted to Iberia or the wider Sasanian Empire



Fig. 4:11: A key feature of Dariali Fort was the road-blocking wall, making it virtually impossible to bypass the fort in the west. The central part has been destroyed through modern pipeline construction alongside the track, but parts of the wall on both sides of the track survive. Foreground, centre: massive mortared masonry buttress (with 2m-scale on top), overlooking the track; middle ground, left: tower-reinforced wall leading up to the fort (background).

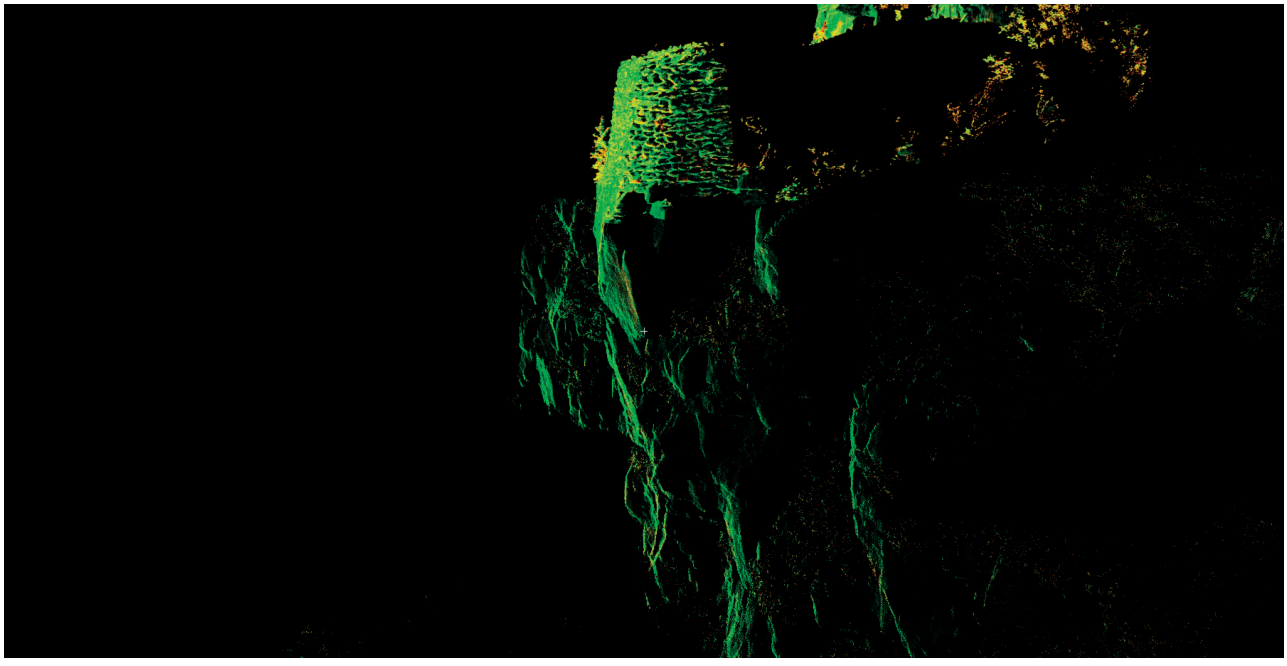


Fig. 4:12: The massive mortared masonry buttress towering over a sheer cliff, laser-scanned by Malkhaz Datukishvili and Giorgi Kvaratskhelia.



Fig. 4:13: The wall led from Dariali Fort to a steep rock cliff opposite. Note the human scale next to the tower. It is possible that the tower flanked a narrow (perhaps blocked-up) gate (left). We do not know if the main gates were here or, more probably, in the, now destroyed, central section alongside the modern track. Drone image by Davit Naskidashvili.



Fig. 4:14: Despite partial demolition, the road-blocking wall is still of impressive dimensions.



Fig. 4:15: Wall leading up to the fort east of the road. The masonry style of the mortared wall is virtually identical to the late antique walls on top of the fort, making it a near certainty that it is contemporary.



Fig. 4:17: The tower survives to a height of at least five metres (and perhaps much more, as its base is buried in stone collapse). The tower is abutted by a massive pile of stone collapse. Its interior is filled with stones, and there are remains of a partially collapsed vaulted roof – making safe excavation of this key feature very difficult.



Fig. 4:16: Wall leading to rock cliff opposite the fort, seen from the north.

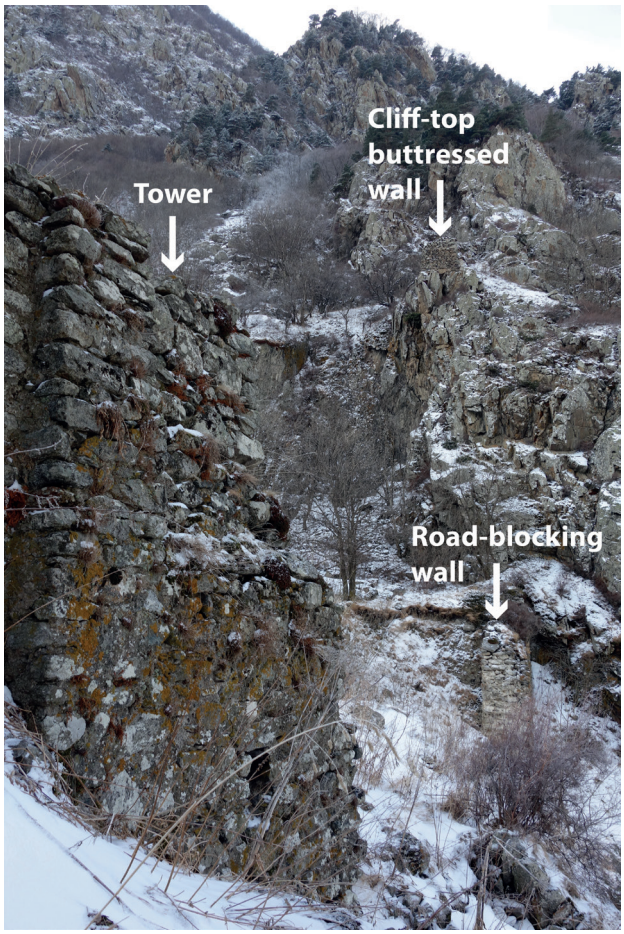


Fig. 4:18: The tower with continuation of the road-blocking wall and the cliff-top wall in the background.

or the Caliphate later. Similarly tight control could have been exercised on the export of goods, diplomatic gifts or flow of personnel.

4.5. Vital water supply: piped water from the mountains above and staircase to the river below (Phase 3a–d?)

In the light of the prominence ancient sources attribute to the Alan or Caspian Gates, one is surprised how small Dariali Fort actually is. And not all accessible terrain was necessarily occupied. The wall-enclosed plateau could have been as densely occupied as fortifications of similar size on flat terrain, and our investigations have yielded ample evidence for heavy occupation from Late Antiquity to the end of the first millennium. A slope south-east of the plateau might potentially have been at the disposal of the garrison too. This slope is, however, dangerously steep (Fig. 4:20) and terminates at a cliff over the Tergi. Other than a well-built staircase, lined by walls (Figs 4:21–4:22), leading down to the river, there are no known buildings on the slope. We visited the upper sections on the slope, now covered in stunted trees and safe to access, but ventured no further down the hill. It seems doubtful that the precipitous slope was ever occupied, but no excavation or proper survey has, to our knowledge, ever been conducted here. Fieldwork would be difficult here, due to the steep gradient of the terrain and the substantial quantity of large stone blocks, notably at the top of the slope, due to the partial collapse of the fort walls. It is inconceivable that dry-stone walls could have been erected here without instantly collapsing. Making effective use of this land would have been difficult, but perhaps not impossible for those mastering the construction of solid concrete walls on bedrock. Mortar construction would have been possible, at least of walls of low elevation as shown by the staircase. Yet, the fact that the staircase prominently survives, whilst no other wall does, suggests that it was the only structure ever to have been built here. And the reasons for building it was not to make effective use of space, but to provide a lifeline. There are springs providing fresh drinking water at the south-eastern base of the rock, and it seems likely that access to them, rather than the dirty river water, stimulated the construction of the staircase in such difficult terrain. There is no dating evidence for the staircase, but its solid construction reminds one of late antique rather than medieval structures.[15] We are inclined to think that this vital access to water was built by the same workforce that built the late antique fort. Secure water supply was crucial to survival in the case of a siege, and Dariali Fort's architects were not alone in making extraordinary efforts to ensure permanent access. Tmogvi Castle, near Vardzia, was provided with a similarly elaborate staircase down to the Kura River (Figs 4:23–4:24), as was Atskuri Castle,[16] probably also to secure access to river water as a last resort (and to enable the garrison to make sorties).

The major efforts invested in building stairs to ensure access to an abundant spring at the base of the rock near the River Tergi, presumably used to carry heavy containers filled with water to the top, are at odds with the testimony of Mas'udi that the fort benefitted from a spring of fresh water in the middle of its walls and at the highest point.[17] There is no trace of such a convenient intramural spring today, and one wonders, should it have existed in the past, why energy was wasted in building and using a staircase over treacherous terrain. Worth noting, however, is a covered water canal, built of mortar and stones, leading towards the fort from the west, the upper sections buried under fallen rocks. This was already observed, as were the stairs, by Jacob Reineggs, a medical doctor, traveller and confident of the Georgian royal family. In 1781 he crossed the Caucasus, leaving Tbilisi on 10 July and reaching Mozdok on 4 August, a journey that must have led past Dariali Fort. It is possible that he saw it again when travelling in the Caucasus over the next three years.[18] The relevant passage in arguably the earliest description of Dariali Fort by a western traveller is worth citing in full and may anticipate the answer to our question:



Fig. 4:19: Whilst the road-blocking wall leading from Dariali Fort to the cliff opposite employs late-antique style mortar masonry, as does the tower-like buttress on top of the cliff, the latter is connected to a further cliff with a dry-stone wall – probably of early medieval date: an attempt to make it even more difficult for enemy forces to gain control over high ground opposite the fort.

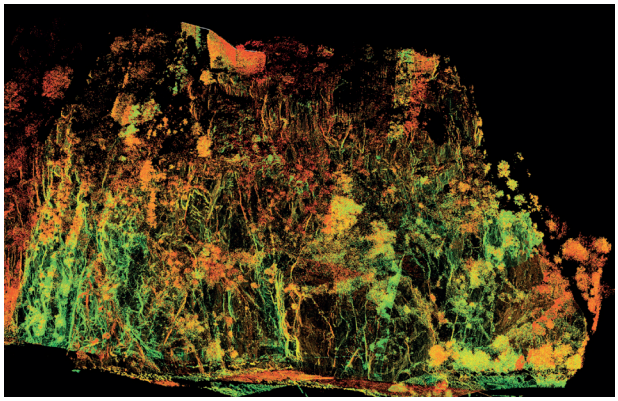


Fig. 4:20: The Tergi/Terek-facing side of Dariali Fort, laser-scanned by Malkhaz Datukishvili and Giorgi Kvaratskhelia.

> It [*i.e.* Dariali mountain castle] must have been built at a time when the great might and power of the founder ensured total peace, as one still sees today, outside its now heavily damaged walls, a beautiful aqueduct cut into the hardest rock and capable of channelling a sufficient amount of water into the fort. Since, however, the flow of water from the mountains did perhaps not always meet the needs, the founder solved this problem through a separate, vaulted and concealed staircase, built of fired bricks, which led over the back of the steep rock down to the bank of the Terek; this river flows, at a depth of 680 feet below, immediately past this rock-castle; it has enough flat fields around its walls which, if used for agriculture and as pasture, can adequately sustain a garrison of a thousand men.[19]

Reineggs' report clearly contains inaccuracies. The real height of the fort above the Terek is only roughly half of the figure cited, but the elevation of the imposing rock could easily have been overestimated. Frédéric Dubois de Montpéreux, who visited the site half a century later in 1834, similarly doubts Reineggs' figures and provides a correct estimate of it rising more than 300 feet over the Terek.[20] The staircase is built of stone, and we spotted no fired bricks when inspecting its overgrown remains. Neither did we see traces of a vaulted roof, whether of brick or stone, but it might of course have collapsed since, and Reineggs probably inspected the staircase from a distance rather than venturing onto the dangerous slope – and fired bricks were indeed used on the fort, if sparingly.[21] The rock-cut aqueduct by contrast, also described by Dubois de Montpéreux, would have been easily accessible, and more of it will have been on view



Fig. 4:21: A staircase lined by walls (foreground, right) led from Dariali Fort down to the river valley. The bottom part does not survive. Note also the rock outcrop left, explored via Trench L. Drone image by Davit Naskidashvili.



Fig. 4:22: Close-up view of the staircase. Drone images by Davit Naskidashvili.



Fig. 4:23: Tmogvi Castle near Vardzia, just like Dariali Fort, was provided with a staircase over bare rock down to the river to ensure access to water.



Fig. 4:24: Close-up view of Tmogvi staircase.



Fig. 4:25: A mortared stone wall/aqueduct with a water pipe (above the horizontal scale) on the western slopes of Dariali Fort supplied water. (Red and white segments of the ranging poles measure 50cm each; those of the small scale, 10cm each.)



Fig. 4:26: Close-up view of the pipe. (The white segment of the scale measures 10cm.)



Fig. 4:27: View from the mortared stone wall/aqueduct (foreground left) on the mortared supplier canal (background, right) on the slope opposite.



Fig. 4:28: Close-up view of the supplier canal.

before roadworks and pipeline-construction. His proposed function of the channel and staircase, echoed by Dubois de Montpéreux,[22] are persuasive and his broader point that such an installation and the fort itself must have been built at a time of stability, when a great power was in charge, is eminently plausible too.

The water canal appears to lead towards a water pipe embedded in a mortared stone wall half-way up Dariali Rock's western slope, the two branches of the water conduit probably once connected via an aqueduct (Figs 4:25–4:28). This may have bridged the ancient road west of the fort, but must have employed a siphon system to channel water to the top of the fort. Already Kruglov spotted this pipe and thought that the wall was a second road-blocking wall, parallel and to the south of the main road-blocking wall, suggesting that this may indeed have been the water supply mentioned by Mas'udi.[23] If so, natural spring water may indeed have been channelled into the centre of the fort from a spring higher up on the slope west of the fort, perhaps so well concealed that visitors indeed thought it was a natural spring. We do not know when this system was first operational, where precisely the water source was that fed it and how vulnerable it was to rock fall or potential sabotage, in the case of a siege (if unreachable for enemies from the north so long as they were unable to make their way past the road-blocking wall). It is interesting to note that ceramic water pipes from our excavations are securely attested from the fifth or sixth century (phase 3d) onwards, but found in greater quantities in medieval contexts and occur in all medieval phases of occupation, throughout the last three centuries of the first millennium as well as in the Late Middle Ages (phases 5a, 5b, 5c and 6b).[24] To what extent this attests maintenance of the system or breakage of earlier pipes is hard to decide, but suggests pipes may have been occasionally on view in Mas'udi's lifetime. The aqueduct may have been built long before Mas'udi composed his report in the mid-tenth century. Four observations may point to late antique construction:

1. The earliest water pipe fragments are found at the fort in a late antique context (F.206). This, incidentally, is within the F.004 building right on top of the fort and sealed beneath its mortar floor, suggesting water pipes were already in use before construction of this interior mortar building was completed.
2. The pipe still *in situ* today is embedded in mortar and it was only in Late Antiquity that we have evidence for mortar construction at Dariali.[25] If it was medieval, it would be the only medieval mortar construction from Dariali known to us.
3. The belief in Mas'udi's days that it was a natural spring may suggest that people no longer remembered construction of the partially concealed system.
4. Aqueducts were also built elsewhere in the Sasanian Empire,[26] and siphon technology was known.[27]

It is interesting to note that there was also a pipe apparently channelling water up to the Gerzeul Fort, associated with the K'lisura Wall.[28] Whilst this wall could be Sasanian, the date of this sophisticated water supply system is unknown. If the Dariali aqueduct was

late antique, it would be (leaving the Gerzeul aqueduct aside) the most remote piece of such advanced hydraulic engineering, suggesting the Sasanian state introduced such technology to an important outpost at the outermost fringes of empire. One wonders how a pipe of c. 8 cm internal diameter could have remained operational for half a millennium without getting blocked with small stones, sediments or incrustation. Was the main supply perhaps via a much more substantial stone and mortar-lined channel? This would have been less easily blocked. Its large cover plaques could perhaps have been lifted, if maintenance was required (although, unless resealed with waterproof mortar or fitted with pipes with strong waterproof joints, the siphon channelling water to the top of the fort would no longer have worked). Did the water pipes serve intramural distribution of water supplied by a much older system? Perhaps, but the above observations make it more likely the piped water supply goes back to the Sasanian era, rather than representing a later modification. This important piece of infrastructure deserves more detailed study in future, and there is much still to be learnt about Dariali's water supply.[29] The staircase might have been a backup or the main source of supply in winter. If indeed of Sasanian origins, the Dariali aqueduct would be a remarkable case of an advanced Sasanian hydraulic monument at the remotest northern edge of its dominion – perhaps involving engineers from afar to ensure that the garrison benefitted from flowing water (if perhaps not always at times of sub-zero temperatures).[30]

Notes

1 Trench L was excavated and recorded by Steve Usher-Wilson.
2 See chapters 11.5.1.1, 11.11 and 15.2.1.2.
3 See chapter 15.2.2.8.
4 See chapter 7.
5 See chapter 5.1.
6 Theophanes, *Chronographia* 418/A.M. 6235.
7 The trench was excavated principally by David Gagoshidze and Koba Koberidze.
8 This is the approximate depth of the two spits combined, both following the lay of the land on the steep slope. The surface of the trench, measuring initially just 3 m (west-east) × 4 m (north-south) was at -0.37 m in the NE, +0.20 m in the SE, -1.79 m in the NW and -1.05 m in the SW (all values in relation to the site benchmark).
9 See chapter 15.2.16.
10 See chapter 11.5.2.5.
11 See Dubois de Montpéreux 1840, 289 for an early reference to this road-blocking wall.
12 See chapter 18.
13 No attempt was made to map this wall, but the following measurements were taken with a hand-held GPS: terminal of the dry-stone wall where it abuts a cliff in the west: UTM 38T 0469238, 4731859; interim points along wall: UTM 38T 0469251, 4731871 and UTM 38T 0469253, 4731867; late antique tower-like buttress overlooking the road-blocking wall: UTM 38T 0469267, 4731860. If not likely to be very accurate in the narrow gorge, these points suggest that the dry-stone wall connecting the top of the lower and the base of the higher cliff west of the fort was approximately thirty metres long.
14 See chapter 25.3.1.
15 Dubois de Montpéreux 1840, 289–90 attributes it to Davit IV – which seems improbable as there is no evidence for medieval mortar construction on the fort nor any archaeological evidence for occupation in the twelfth century from our trenches.
16 Dubois de Montpéreux 1840, 290; Licheli 1998, 31. Tmogvi Castle is first securely attested in the tenth century: Khaburzania and Robinson 2018, 309, 322.
17 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 43, Marquart 1903, 166 and Minorsky 1958, 156.
18 Gerstenberg 1797, 378–80, 384; cf. Schipperges 1967.
19 Reineggs 1796, 226 (translated by EWS). The stairs are also described by Klaproth 1812, 671 and Dubois de Montpéreux 1840, 289, who agree that their purpose was to bring water to the fort; cf. Porter 1821, 72; Kruglov 1937, 247. See chapter 25.3.4.2 on Reineggs' hypothesis that food for a large garrison could have been grown here.
20 Dubois de Montpéreux 1840, 289.
21 See chapter 17. Dubois de Montpéreux (1840, 289) also refers to an underground vaulted and now ruined structure of fired bricks, citing Reineggs and perhaps also based on observation from afar.
22 Dubois de Montpéreux 1840, 289.
23 Kruglov 1937, 247.
24 See chapter 17.
25 We are grateful to Seth Priestman for his advice that the pipe *in situ* may well be ancient as well as to Riley Snyder who also, confirmed, based on studying our photos, that the system could be ancient.
26 Morgan 2003, 328–30.
27 Adams and Hansen 1968, 59–63; Sauer *et al.* 2013, 316–17; Şerifiğlu *et al.* 2016, 408.
28 Paṭsulia 1964, 40–42. See chapter 25.3.4.3 on the K'lisura Wall.
29 There is no evidence for cisterns so far, unless the sealed mortar basement of the F.004 building served as such. At Psitiani there is also a cistern on top of a hill in a late antique fort, but in the case of this fort towering high over the surrounding landscape, it must have been rain-fed, whilst in Dariali it is possible that a pool of water could have been fed via an aqueduct: see also chapters 2.28 and 17. In winter, snow would have been in plentiful supply.
30 Water, if probably not drinking water, was also channelled into Sasanian military sites and a city in the Gorgan Plain, the latter perhaps also using a siphon system: Sauer *et al.* 2013, 200–6, 330–34, 364, 383, 385, 387, 399, 401–3. If different in design and function, it is worth noting that there is evidence for advanced hydraulic engineering also from elsewhere in Sasanian military construction: *e.g.* Wilkinson *et al.* 2013, 27–28, 71–76; Sauer *et al.* 2013, 637–38, 645–46.

5

Extramural areas south of the fort: two-and-a-half millennia of traffic and two millennia of food production in the shadow of the rock (Trenches P and M)

5.1. Trench P: 2,500-year-old campfires to medieval gardening and modern shelters at the base of the tower-crowned rock (Phases 2a–7b)[1]

At the base of the rock outcrop that carried the Trench L tower, we excavated a small sondage in 2015, with two main aims:

1. To shed light on human occupation and possible cultivation on the terrace outside the fort.
2. To establish whether or not there was evidence of demolition debris from a potential predecessor of the medieval tower.

The 3 × 2 m Trench (Figs 5:1–5:3) was located close to a small cave at the base of Dariali Fort, large enough to provide shelter for a small number of people. The cave has not been examined and we do not know whether it is of a geological origin or has been cut into the rock and, if so, at what time. If of geological or ancient origins, it would have provided a welcome shelter and may help to explain activity nearby. The trench was within a, more or less, semicircular enclosure consisting of a bank of loose stones. When the trench was marked out, care was taken to locate it at a safe distance from the bank. Subsequent clearance of parts of the bank brought to light twentieth century finds at the very base of the bank. These included a scatter of glass sherds, parts of a Georgian Coca-Cola bottle pointing to rather recent activity, as well as modern pottery. Whilst some of these items might have slipped through the voids in the loose stone bank, most will have been covered by the bank. The likely time of loss, even of any items that might have fallen through between the stones, is when the area was frequented (and not when the dry-stone bank was heavily overgrown as it was at the start of the season and will have been in most years from spring to autumn). The stone bank was probably no more than a few decades old and may have enclosed a tent or campsite next to the cave. The area of Trench P formed an ideal campsite, evidently popular with recent visitors and, as our excavations should reveal, already occupied by the earliest visitors to venture into the gorge that we know of.

Only a c. 1 × 1 m sondage within Trench P was excavated down to sterile layers. At the bottom of the sondage, we encountered 70% of angular stones in a matrix of soft mid brown clayey silt (P.016) without any artefacts, charcoal or bone. This may be natural soil or potentially the result of a stone avalanche covering earlier layers. The same options apply to the deposit above (P.015), of similar composition, but with fewer stones (c. 30%). As far as observations in a small sondage are reliable, P.015 was sloping at a steep angle from north to south, suggesting that it had been washed down the hill, whilst P.016 sloped only gently, if at all, away from the fort. These two deepest deposits were probably geological, but only extending the trench and deeper excavation, for which there was no time, could have decisively proven the case.

There are no such doubts for the next layers in the sequence, P.014, fire-exposed clay overlain by very soft dark greyish brown clayey silt (P.013) and subsequently mid brown clay (P.011), the latter two deposits both with minute traces of charcoal. The spot at the edge of the rock would have made an attractive campsite, where a fire was lit by early travellers or occupants. The same explanation will apply to the set of deposits a little further up in the sequence: a second burnt clay layer (P.010) with very soft black charcoal and mid greyish white silt on top, undoubtedly decayed ash (P.009). A charcoal sample (find P.009/62) from c. 2.40 m below the present surface[2] dates to 541–387 BC at almost 95% probability and is thus as yet the earliest dated sample from our fieldwork (Fig. 5:4; Table 5:1). The sample from willow or poplar was not from a certain young piece of wood; yet, even if from the core of a tree, it is not thought to be more than a



Fig. 5:1: Fire-reddened soil (P.010) overlain by charcoal and ash (P.009), 2.40m below the surface, at the edge of the rock: a fire lit by the earliest visitors to the gorge known to date.

century old at most.[3] This date is compatible with one of the possible archaeomagnetic dates for the fire-reddened soil (P.010) underneath (whose heat-exposure must be virtually contemporary to the charred material on top), falling within the first seven centuries or so of the first millennium BC.[4] A further charcoal sample from P.009, from young elm, dates to c. 377–204 BC, more probably the last quarter of the fourth century or the third century BC. It was found 11 cm higher than the sixth to early fourth century BC sample and is likely to be later, unless the lower sample was indeed from older wood. In the latter case, a date in the fourth century BC would be compatible with both samples. Alternatively, ash layer P.009 may represent a succession of at least two campfires lit in the shadow of the rock decades or even a few centuries apart. P.014 must relate to an earlier fire, but we do not know whether it predates P.009 and P.010 by years, decades or centuries. A further charcoal horizon (P.012) above P.009 may have formed on a similar occasion. Whether these fires were lit by travellers on their way from Transcaucasia to the steppes or vice versa, resting or spending the night at the spot – or by early occupants – is unknown. The former seems more likely, as the summit of the rock would have formed a more obvious place for a permanent settlement than the land at its base. The early campfires provide certain evidence for human presence, but not necessarily for permanent occupation at the time.

Above the sequence of early fires, the stratigraphy changes markedly. More substantial deposits built up (P.008 to P.001) with no further evidence of *in situ* burning. Similar to Trench M, on the same terrace further south, the area of Trench P was probably used for growing food for the fort's garrison. Unlike Trench M, the ceramic assemblage from Trench P contained no diagnostic late antique (phase 3) material. Even the three sherds from the highest charcoal horizon (P.012), more likely material ploughed onto the surface of this thin layer than broken pot in use at the time the fire was lit, have been assigned to the mid-seventh to ninth centuries. Perhaps this suggests that cultivation was only extended to the edge of the rock in the Early Middle Ages (phase 5). In light of the deep sondage measuring only 1 × 1 m and the pottery assemblage being small, it is, however, hard be sure how meaningful the absence of late antique pottery is.[5] Gardening, whenever first practised here, will have erased any shallow features or deposits, so that any later fireplaces on the spot will have left no trace. P.008 in particular was rich in charcoal and may well contain remains of disturbed burnt horizons. Stoney throughout,



Fig. 5:2: West-facing profile of Trench P.

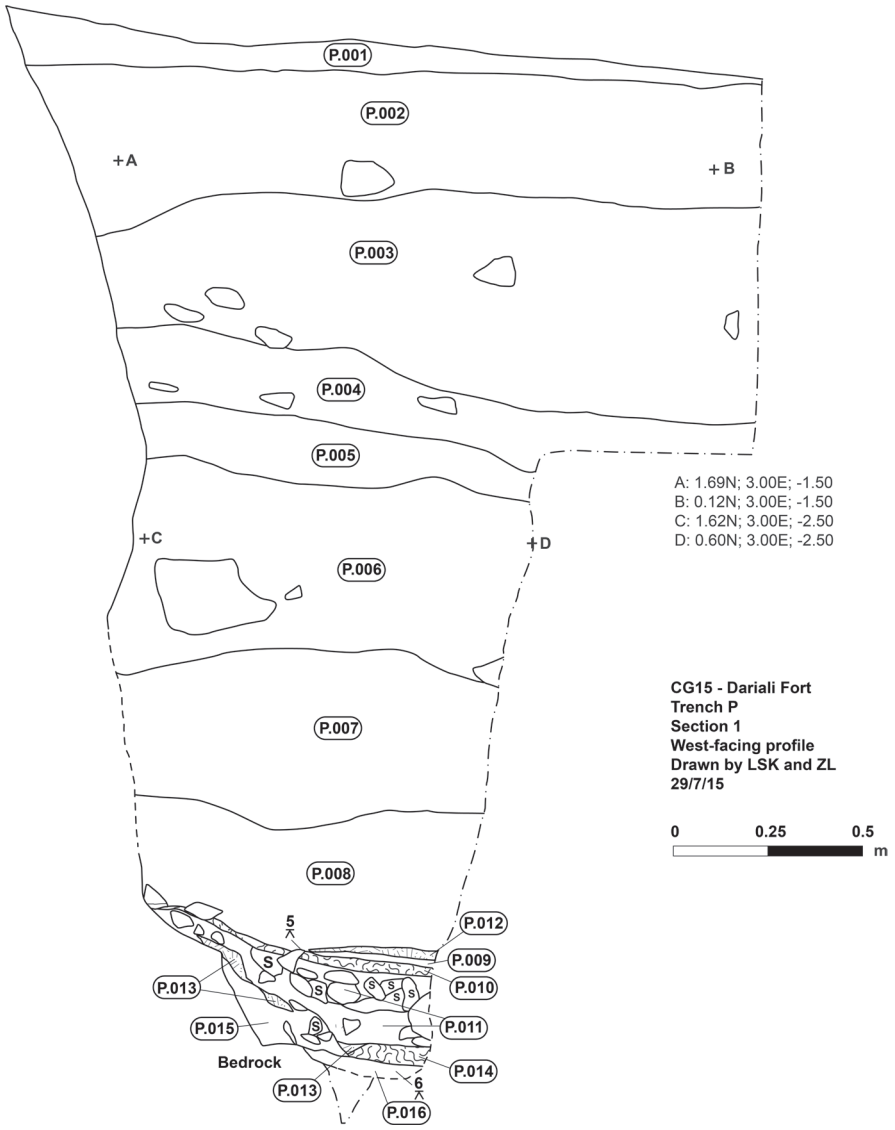


Fig. 5:3: West-facing profile of Trench P.

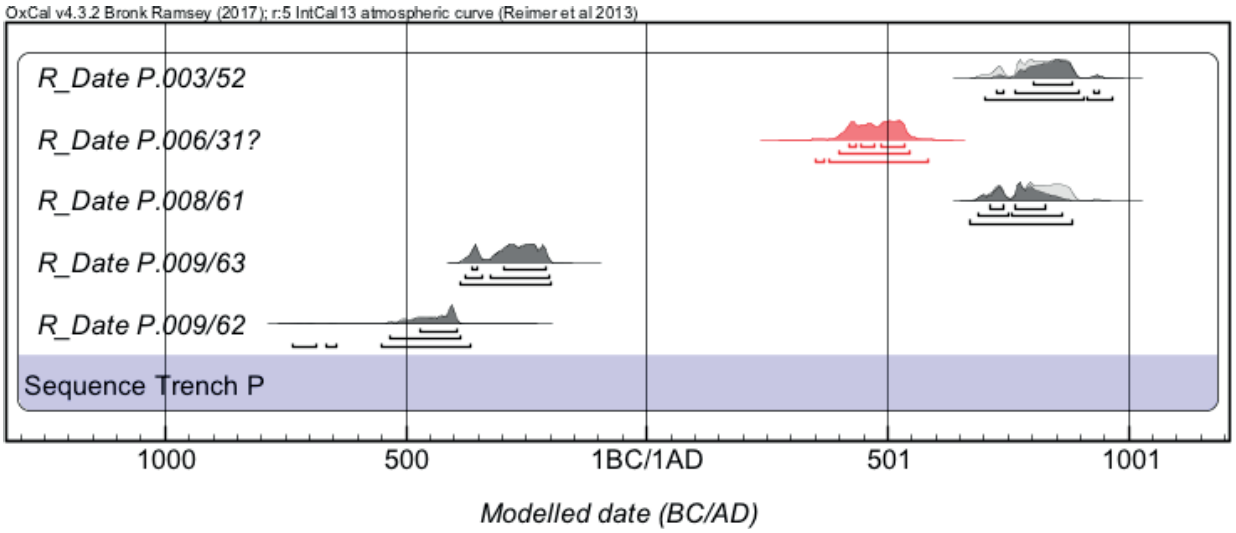


Fig. 5:4: Bayesian model of samples recovered from Trench P. An outlier is marked in red (see Table 5:1 for further details).

the deposits changed from silty clay (P.008 and P.007) at the bottom of the sequence to clayey silt (P.006), sandy silt (P.005), clayey silt (P.004) and sandy silt (P.003, P.002 and P.001) at the top. The dominant colour was mostly brown, indicative of decayed organic matter, logical if the plot was cultivated or if overgrown by tall grass and shrubs, as it is today. The brownish yellow P.007 and brownish grey P.003 may have formed at a period of reduced plant growth. P.003, with c. 50% stones and sloping down from north-west to south-east, may also contain a higher than average proportion of material washed down the slope.

We processed three bone samples from these cultivation horizons: from c. 0.72 m (P.003/52), 1.43 m (P.006/31) and 2.14 m below the present surface (P.008/61). The upper and lower of the three were both datable to the AD 690s–890s, whilst the sample in between was the earliest, dating to AD 400–545 (all dates at 95.4% confidence). Whilst it seems odd that the deepest and stratigraphically earliest sample is more recent than material 0.71 m higher up, it needs to be borne in mind that there is redeposited material at Dariali, due to extensive reoccupation. In this particular case, it is tempting to think that the fifth to sixth-century bone embedded within late seventh to ninth-century layers may be the result of material from within a late antique fortification on top of the rock outcrop overlooking Trench P having been removed. Excavation of Trench L in 2014 has established activity within the tower between AD 897 and AD 1020. We may assume that, as often the case in Dariali and Gveleti Forts, earlier deposits were cleared off at the edge of cliffs. The surviving mortar masonry of the Trench L tower is of typically late antique workmanship, so there is nothing to suggest that the entire tower was razed.[6] Perhaps the tower still stood in the Early Middle Ages, and indoor debris were cleared out to increase room height and living space. Partial collapse is possible too and earlier occupation horizons may have been cleared to facilitate any makeshift restoration. Any material cleared

Table 5:1: Radiocarbon dates from Trench P (BBM = below benchmark) (see Fig. 5:4 for a plot of the dates).[1]

Context/Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
P.003/52	SUERC-63206	2.60 m E, 0.47 m N, -1.92 m BBM	Bone: Capra, mandible with teeth, second premolar to third molar, right side	1208±33	AD 693–894 (82.0%: 762–894) → modelled date: AD 726–940; 91.5%: AD 765–896	d13C=-20.1
P.006/31	SUERC-63207	2.58 m E, 1.40 m N, -2.63 m BBM	Bone: Small ruminant, long bone, medial part	1589±33	AD 400–545 (outlier; redeposited)	d13C=-19.0
P.008/61	SUERC-63208	1.94 m E, 1.33 m N, -3.34 m BBM	Bone: Bos, carpal, complete	1214±33	AD 690–892 (77.7%: 761–892) → modelled date: AD 687–864	d13C=-18.9
P.009/63	Poz-94212	2.12 m E, 1.38 m N, -3.49 m BBM	Charcoal: Ulmus (young)	2225±22	377–205 BC (79.6%: 324–205 BC) → modelled date: 377–204 BC; 79.3%: 325–204 BC	d13C= -23.85
P.009/62	Poz#2–80696	1.90 m E, 1.19 m N, -3.60 m BBM	Charcoal: Salix/ Populus	2371±31	703–387 BC+ (94.8%: 541–387 BC)+ → modelled date: 535–388 BC+ (sample not certain to be young)	d13C= -22.0
P.010 (archaeo-magnetic sample)[2]	AM241	c. 2.30–2.60 m E, 0.90–1.20 m N, -3.61 m BBM	Burnt soil	n/a	1000–293 BC	Not plotted

[1] Not tabulated and plotted is a sample (Poz-89874) of *hordeum vulgare*, supposedly from P.011, yielding a date of 650±22. *i.e.* c. AD 1283–1392, later than all samples above P.011. This must be a, very rare, mistake in finds processing, as even burrowing animals are not likely to have borrowed so deep in the stony ground.

[2] See chapter 23.7.

Table 5:2: Bone to pottery ratio in Trench P (quantities of finds in grams).

Context	*Ratio (bone: pottery)*	*Bone*	*Pottery*
P.001	42: 58	80.8	109.4
P.002	35: 65	323.2	590.1
P.003	73: 27	4321.9	1637.5
P.004	71: 29	1881.9	767.5
P.005	75: 25	250.1	81.6
P.006	87: 13	818.3	118.5
P.007	76: 24	235.3	74.6
P.008	61: 39	139.5	88.5
P.012	0: 100	0	34.9
P.009	0: 100	0	29.2

off the rock by the occupants would have fallen to the foot of the outcrop, including the area of Trench P.

The samples suggest that approximately one-and-a-half metres of soil built up within just two centuries. Whilst there is no absolute certainty that there was indeed such a rapid build-up of soil in the Early Middle Ages, bearing in mind that the sample at the top of the sequence might well have been redeposited, it makes sense to assume it was in the Early Middle Ages that the ground rose at its fastest pace. It was the same period, of course, when rubbish deposition on top of the fort peaked, when much soil appears to have built up in nearby Trench M too and when, less significantly, the cemetery was in use – all evidence for intensive occupation. Interestingly, in the deposits from P.007 to P.003, bone outnumbers pottery by a ratio of more than 7:3 (Table 5:2), more than tends to be the case on the fort and perhaps an indication that there was less settlement in the vicinity of the trench. The apparent increase in material in P.004 and P.003 is misleading, as these deposits, unlike those underneath, were excavated in the whole trench (except for a step in the south-west where only P.003 was reached), not just the sondage. By contrast, the marked reduction of finds (and bones in particular) per volume[7] in P.002 and P.001 is worth noting. P.002 included glazed monochrome turquoise sgraffiato ware, dated to the eleventh to thirteenth century or, given the lack of evidence for occupation on Dariali Fort at the time, perhaps thirteenth to fourteenth century. Similar material was also found in upper horizons in Trench M, probably indicating that the terrace south of the fort was used for agriculture or horticulture also in the Late Middle Ages.[8] Whilst not scientifically dated, we may tentatively suggest that these largely formed in the second millennium when there appears to have been a significant decrease in human activity. They both yielded twentieth-century finds, but it seems unlikely that the substantial deposit P.002 formed entirely in the recent past. More probably, it built up over many centuries, however heavy a disturbance recent activity may have caused.

5.2. Extramural food production throughout the first millennium: Trench M (Phases 2b–5)[9]

Trench M was excavated in 2014 on a flat terrace south of the fort (Fig. 5:5), intended to answer two sets of research questions:

1. What was the nature, chronology and intensity of any extramural occupation in this area close to the fort?
2. As the 2013 excavations indicated that the cemetery expanded away from the fort, might there also be graves closer to the fort and likely to be earlier, *i.e.* pre-medieval?

The excavations did not succeed in revealing any human graves, and there is no evidence for any cemetery in the area. Inspection of eroded soil profiles on the side of the River Tergi between Trenches M and E also failed to reveal any traces of graves. Even if there should have been the odd burial (and there is no evidence for any), suitable land is in short supply, and it is inconceivable that there would have been enough space on unexplored ground near the rock to bury generations of pre-medieval occupants of the fort. Whilst small parts of the terraces will have been lost to erosion, they cannot not have been much more extensive than they are today. It is inconceivable that any sizeable pre-medieval cemetery was lost to erosion. There does not appear to have been an ancient cemetery at Dariali Fort, at least none that was large, and even if burials should be found in future, the vast majority of pre-medieval fort occupants were evidently not buried in the vicinity of the fort. Perhaps the garrison was Zoroastrian, and this may account for the absence of burials.

Notwithstanding the likely presence of a Persian garrison of Zoroastrian faith, the gorge dwellers' religion and treatment of the dead need not have been uniform. Procopius, of course, attests that Ambazoukes, described as a Hun and, whatever his ethnicity, probably indeed of northern origins, was in control of the Gates around AD 500, shortly before or after.[10] A northern force occupying the area during an interlude between periods of Sasanian control, if there is no positive evidence that it took up residence on the fort, is unlikely to have followed Zoroastrian traditions of avoiding contamination of the soil.[11] There are, of course, burials of the sixth (to seventh or potentially eighth) century at Gveleti,[12] proving that not all the valley's occupants were of Zoroastrian faith. That future excavation may reveal a few ancient burials near the fort is thus possible, but Trench M has added further circumstantial evidence that there cannot have been many (should there be any at all).

As far as extramural occupation is concerned, the trench has yielded a remarkable quantity of finds and occupation deposits, but a surprising scarcity of structural remains. Originally measuring 20 × 1 m from south to north, the trench was subsequently extended (by one metre to the east and three metres to the west, from 3.50 m to 7.50 m north) to 36 square metres (Figs 5:6–5:7). We hoped that this extension would enable us to understand the significance of a rock alignment (M.009: Figs 5:8–5:10). In most areas we only excavated the uppermost one metre, in places more and in places less (Fig. 5:11). At no point had we reached natural soil at this level. In the south-east of the 5 × 4 m extension, we excavated a deep sondage (Fig. 5:12). Here we reached natural soil, sterile very soft yellowish brown sandy silt (M.011). The base of the deepest find-bearing context, soft light yellowish brown clayey sand (M.010), was 2.05 m below the present surface (at -2.43 m below the trench benchmark). The quantity of finds was small (74 g of bone and 61 g of pottery), even bearing in mind that only one square metre of this deposit was excavated. This must have been a period when there was occupation nearby, but no heavy occupation at this spot. A sample (M.010/60) from M.010 submitted for radiocarbon dating in 2014 unfortunately failed, as did another (M.005/57) from deposit M.005 (= M.007) above. Two more samples from M.010 processed in 2015, however, were successfully dated. The lower one (M.010/59 found at -2.22 m below the trench benchmark) is by far the earliest bone sample recovered so far from the project, dating with 95.4% confidence to 37 BC – AD 67 (Fig. 5:13; Table 5:3). It is from an unidentifiable bone fragment, selected for dating as there was no identifiable bone recovered from this level. We thus cannot prove that it attests human presence and food consumption, rather than the remains of a wild creature perished on the spot. It comes, however, from a deposit that has yielded bone, charcoal and pottery and was found c. 21 cm above its base. In all probability, it was embedded in a cultivation layer and attests low-intensity human activity in the area. If so, it provides archaeological dating evidence for activity in the period prior to Pliny's possible reference to the fort as Cumania in the first century AD. One would assume that the fort was occupied at the same time too, and M.010 may attest extramural activity, perhaps early horticulture, possibly corralling animals, perhaps seasonal fairs. Whilst the 11 g bone fragment does not prove that Pliny's Cumania was Dariali Fort, it suggests that human presence at the fort reaches back to the time before Pliny referred to Cumania in his *Natural History*.[13]



Fig. 5:5: The terrace with Trench M in the middle ground and the area of the cemetery on top of the sediment cliffs in the background, seen from Dariali Fort.



Fig. 5:6: Trench M looking north, with the Trench L-Rock in the background left and Dariali Fort in the background right.

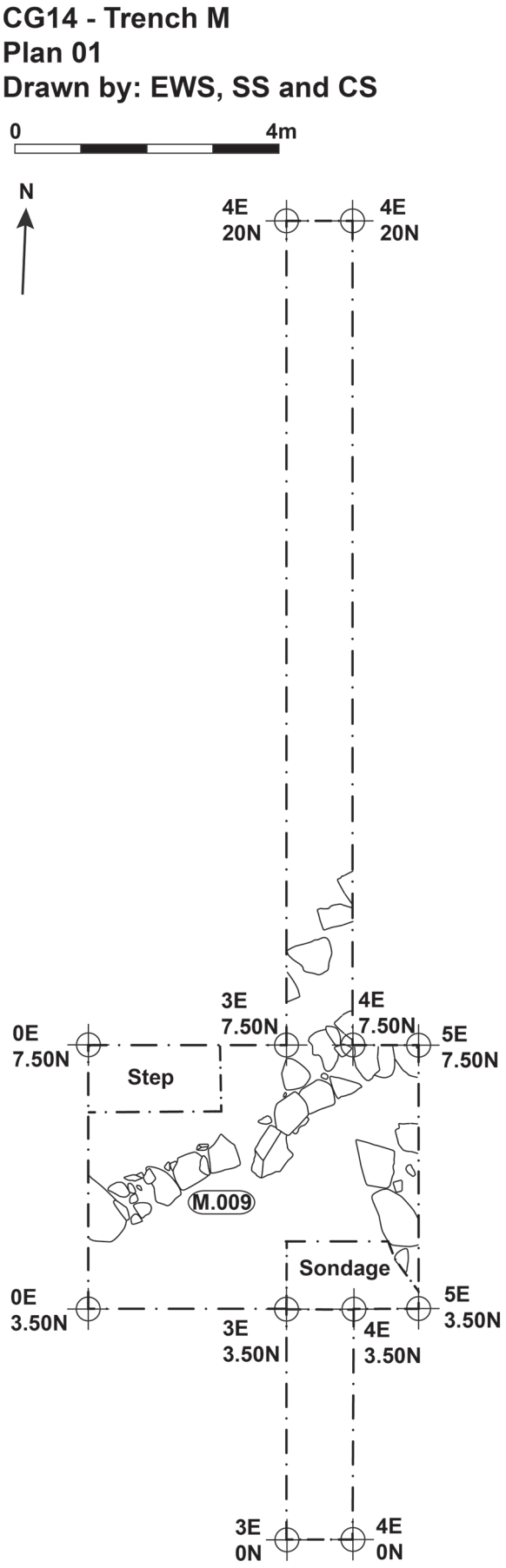


Fig. 5:7: Overall plan of Trench M.

A sample (M.010/58) 26 cm higher proved to be three-and-a-half to six-and-a-half centuries younger, dating to c. AD 428–611, perhaps suggesting that soil built up more slowly than later in the first millennium. If M.010 should be an early cultivation horizon, digging over the soil could easily have displaced any item within the top spit at any one time. The ground may thus have risen by more or less than 26 cm over the first half of the millennium.

The two other successful samples from the trench are both from the top 0.80 m of the stratigraphy. M.005, soft mid greyish brown silty clay, was of similar depth (c. 0.60 m) to M.010 below (c. 0.55 m). It yielded a vastly greater mass of finds (2,257 g of pottery and 4,585 g of bone). This represents a higher concentration of material, even if we take into account that the upper half of the deposit extended well beyond the sondage, and that approximately ten times as much of M.005 was excavated than of M.010 underneath. Seth Priestman observed that sherds in M.005 were on average some three to nine times the weight of those in other deposits, suggesting more rapid build-up and less plough-related breakage. M.010 and M.005 contained a high proportion of classes typical

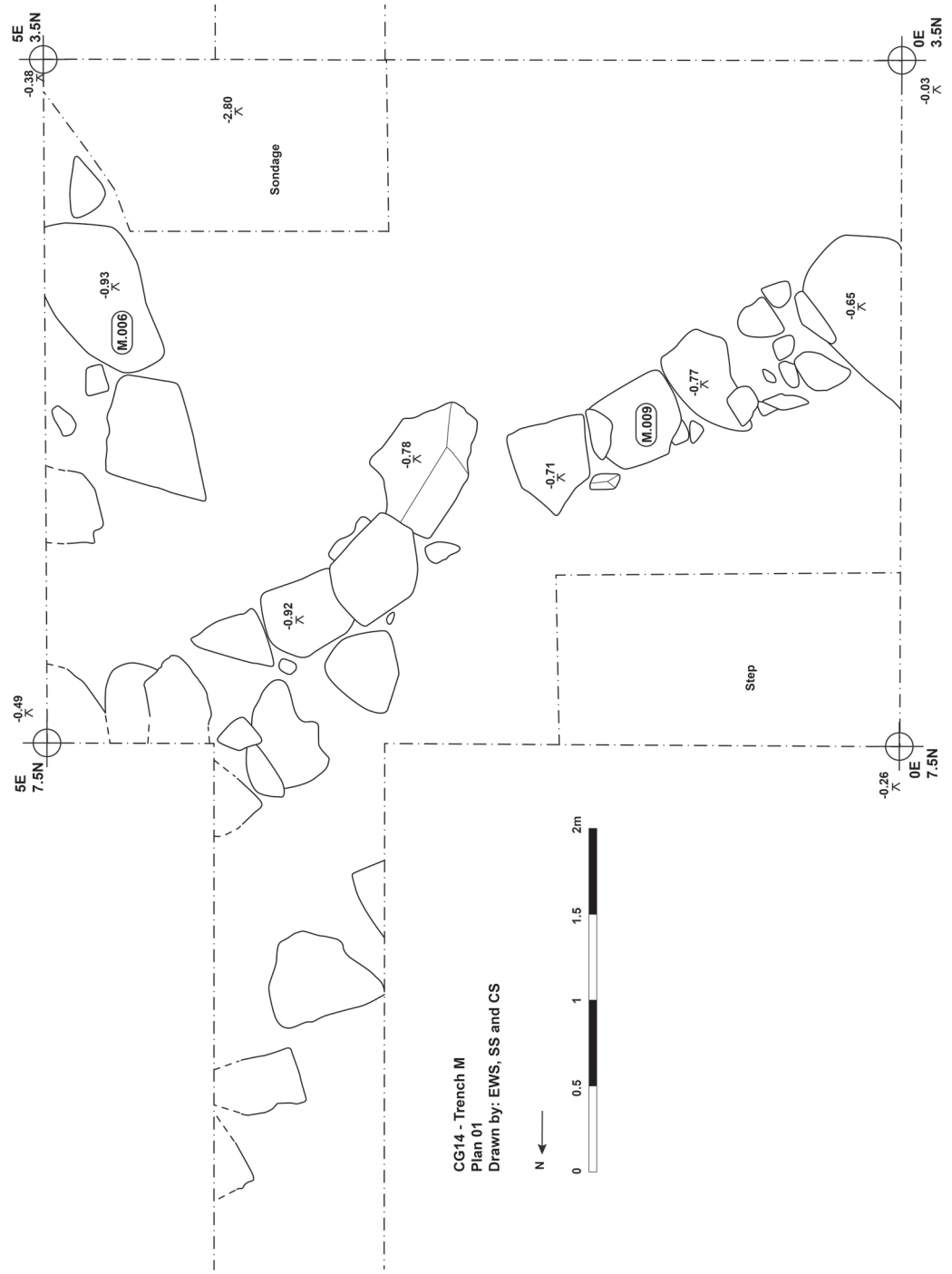


Fig. 5:8: Trench M proved to be featureless, with no buildings or graves. Simple rock alignments may be early medieval plot boundaries.



Fig. 5:9: Rock alignments M.009 and M.006.

for phase 3,[14] suggesting food was grown here for the garrison in Late Antiquity. The depth of these two earliest deposits may suggest intensive pre-medieval manuring (perhaps from around the turn of the millennium to Late Antiquity). The combined depth of c. 1.20 m of M.010 and M.005 (if some of the former may date to the first third of the first millennium) explains perhaps also what happened with the rubbish produced by Dariali's tidy late antique garrison, of which so little remained in the intramural area.

On top of the substantial early deposits, there was dark soft greyish brown clayey silt (M.008), c. 0.20 m thick. It yielded only marginally more pottery (3,301 g) than M.005, but much more bone (13,720 g). It was the deepest layer containing iron (29 g) and glass (10 g). After this deposit had started to form, rocks were placed in rectilinear alignments: M.009 and M.006 resting in places on a layer of smaller stones (M.012). These two alignments join, not far off a right angle, in the north-east of the 4 × 5 m extension. The mostly just one course high and in places double-course lines of rock are not likely to be house walls and certainly not the walls of any solid structure. They are more plausibly interpreted as boundaries between garden plots, an interpretation to which the humus nature of the soil underlying and abutting them (M.008) adds strength. The rocks would have impeded cultivation, and using them to subdivide the area into plots would have made perfect sense. A sheep goat atlas from the upper part of the context (M.008/62) has yielded a date of AD 689–886. Ceramic dating is consistent, pointing to phases 4–5a, *i.e.* mid seventh to early ninth century for M.008.[15] We may thus propose that the terrace at the base of the fort was used in the frost-free season for growing food to supplement the diet of the garrison. The likely seventh to ninth century date makes perfect sense, as this was a period when the fort itself was heavily occupied, to judge by our findings from Trenches F and Q.

A c. 0.50–0.55 m thick layer of very soft greyish brown sandy silt (M.003) overlies M.008 and the rock alignments (M.006 and M.009). With 13,964 g of pottery and 18,831 g of bone (plus a bead, charcoal, 54 g of worked bone and 11 g of glass), it contained a greater quantity of finds than any other deposit in the trench – even if in terms of concentration there is less bone, but more pottery than in the thinner deposit M.008 underneath. A long bone of sheep or goat (M.003/64) yielded an almost identical radiocarbon date to the sample from M.008 underneath. M.003, very soft greyish brown sandy silt, still appears to have formed, at least in part, during the period of early medieval occupation. It overlies the stone alignments (M.009 and M.006) which, if our interpretation as plot boundaries should be correct, were now buried and defunct. The heavy build-up of soil rich in finds is worth noting. As there is no evidence for any housing in the area – even if lightly built seasonal structures erased through horticultural activity later are possible – this may best be explained through accumulation of organic soil, *e.g.* manure.

M.003 and the deposits above also contained glazed turquoise blue sgraffiato ware, dated by Priestman to the same period as the sgraffiato ware in Trench P, *i.e.* to the eleventh to thirteenth century or, as Dariali Fort may have been sparsely occupied at the time if at all, more probably the late thirteenth to fourteenth century.[16] As in the case of Trench P, it seems that agriculture or horticulture was practised in the area of Trench M also in the Late Middle Ages. Concentration of finds in the subsoil, soft mid brown sandy silt (M.002) and topsoil, very soft dark brown silt (M.001) is reduced. These are likely to have formed in the second millennium, when the fort appears to have been less heavily occupied, in part perhaps via continued horticultural activity in part by growth of lush natural grass, as today.

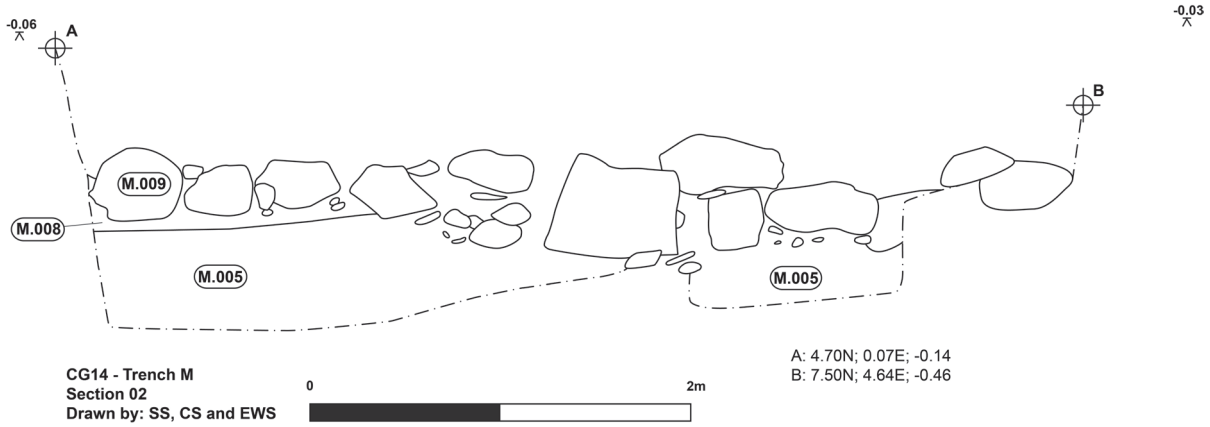


Fig. 5:10: The rock alignments were mostly only one course high, evidently no stable foundation for a building, but boundary markers.



Fig. 5:11: Deep cultivation horizons with relatively few stones suggest the area was used for growing food for the garrison.

Why did over two metres of soil build up in the area of Trench M, whilst there is no positive evidence for any housing? The Trench is too far from the base of the fort for any rubbish thrown over the fort walls to reach it, but the manuring hypothesis proposed above provides a more plausible explanation for the presence of two metres of soil rich in finds. The cultivated area initially probably extended beyond the terrace with Trenches P and M to the area of Trench E, as discussed in the context of this trench.[17]

One wonders why there was no evidence for housing. Were any houses in the area destroyed through later agricultural or horticultural activity? Collapsed stone buildings would have required far more stone than we found within the trench. We encountered no postholes and no evidence for timber structures. Any lightly built structures would have been unsuitable for the harsh winter. We may thus be sure that there never were stone houses in Trench M, unless the area was subsequently cleared of building stones to facilitate cultivation or to reuse them nearby. More probably, settlement never extended into the area of Trench M. Perhaps, despite the road-blocking wall, settlement in the extramural area was considered insecure. According to Kruglov, a cultural layer of an extensive medieval extramural settlement was still visible on the terrace south of the fort in the mid-1930s,[18] but the wording makes one wonder if this hypothesis was based on a medieval artefact scatter covering an extensive area, rather than any structural remains. Kruglov may have concluded, based on the medieval cultural layer observed, that there must have been a settlement, but it may have been no more than the cultivation layer rich in artefacts we found in Trenches M and P. In 1963, however, excavations were carried out on this terrace, revealing a range of dry-stone structures, some of rectangular shape, thought to be stables, connected via irregular walls. There is no precise location plan of the trench excavated then, and we may conclude that there was basic, probably medieval, housing but that Trench M was beyond the area of the extramural settlement or the stables. Interestingly also, local people reported to the excavator, Leila Ts'itlanadze, that agriculture had been practised on the terrace within living memory, even if by the 1960s it was already a hay meadow.[19]

The terrace, used as arable land into the twentieth century, may have been essential for the cultivation of food to supplement supplies from further afield in Antiquity and the Middle Ages. Even if there should have been the odd house or stable, there is nothing to suggest that there ever was a large and vibrant extramural settlement. And it seems unlikely that there would have been housing further west where occasional rockfall from the steep slopes would have posed a mortal danger, even if there are terrace walls of unknown date. The fort plateau was probably large enough to house the garrison and its dependents even in periods when Dariali was densely occupied, and it certainly would have been the safest place.

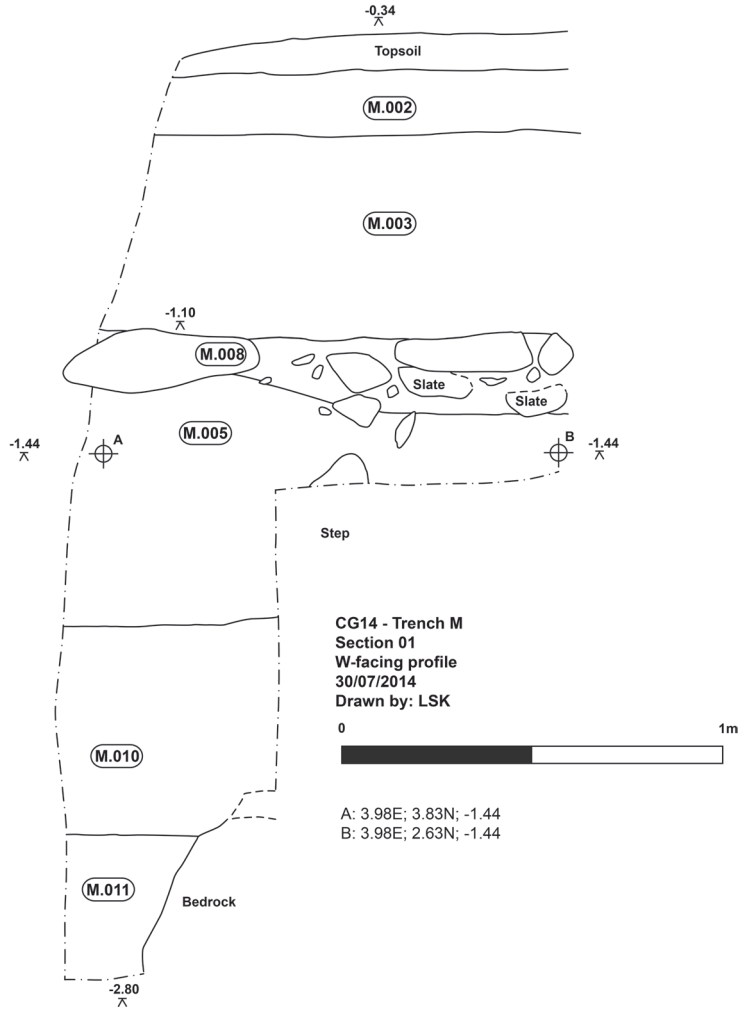


Fig. 5:12: Only in one sondage was the trench excavated down to natural soil – revealing cultivation in the shadow of the fort reaching back two millennia.

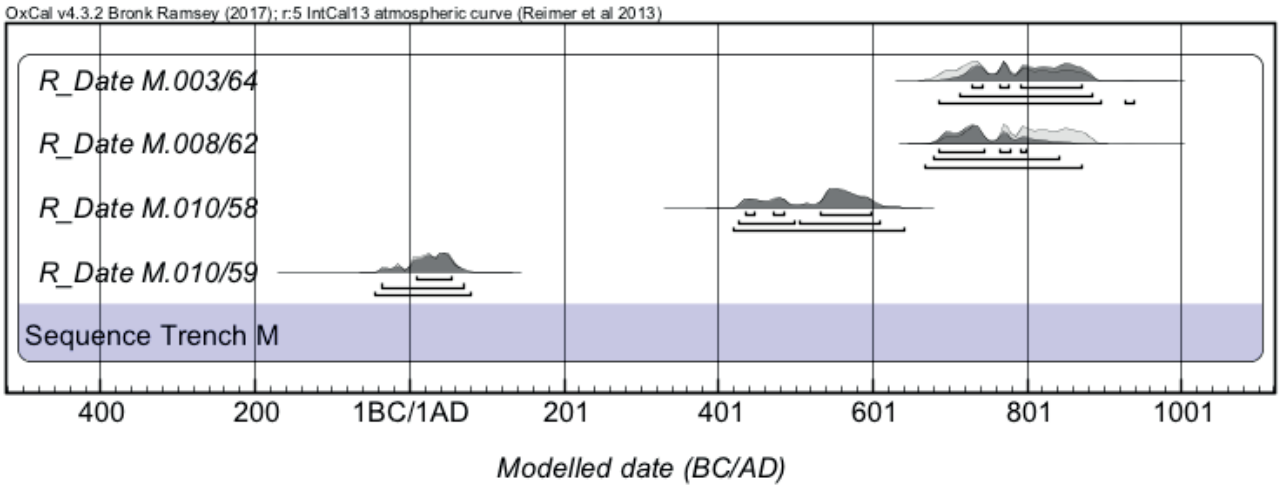


Fig. 5:13: Bayesian model of samples recovered from Trench M (see Table 5:3 for further details).

Table 5:3: Radiocarbon dates from Trench M (BBM = below benchmark) (see Fig. 5:13 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [→ modelled date, taking into account stratigraphy and Bayesian statistics]*	*Comments*
M.003/64	OxA-31502	4.10 m E, 3.67 m N, -0.90 m BBM	Bone: Caprinae, long bone	1236±32BP	AD 685–881 → modelled date: AD 714–885	d13C = -19.57
M.008/62	OxA-31503	4.06 m E, 3.25 m N, -1.13 m BBM	Bone: Caprinae, vertebra, atlas, half	1225±32BP	AD 689–886 (68.4%: 760–886) → modelled date: AD 679–845	d13C = -19.99
M.010/58	SUERC-63201	4.33 m E, 3.98 m N, -1.96 m BBM	Bone: Caprinae, superior tooth	1519±33	AD 428–611 → modelled date: AD 428–610	d13C = -18.9
M.010/59	SUERC-63177	3.95 m E, 3.98 m N, -2.22 m BBM	Bone: Unidentifiable species	1978±18	37 BC – AD 67 (83.7%: 4 BC – AD 67) → modelled date: 36 BC–AD70	d13C = -20.7

Notes

1 Excavation of Trench P was supervised by Maria Buczak and subsequently by Lisa Snape. Crucial contributions to excavating the trench were also made by Zurab Lemondzava and Vazha Alibegashvili I.
2 Found at -3.60 m trench height.
3 Dr Lyudmila Shumilovskikh, personal information, 6/2/2017.
4 See chapter 23.7. Note, of course, that there are a number of possible dates and that only those falling within the period from 1000 BC to the present have been listed.
5 See chapters 11.5.2.3–11.5.2.4.
6 See chapter 4.1.
7 The section drawing of Trench P gives a good idea of the depth of each deposit.
8 See chapters 11.5.2.3–11.5.2.4 and 11.11.
9 Scott Stekiewicz and Catherine Shupe supervised this trench.
10 Procopius, *Bella* 1.10.9–12; see chapter 25.3.2.
11 See chapters 25.3.2, 25.5.2 and 25.5.4 for further discussion of Zoroastrian practices.
12 See chapter 9.1.
13 See chapter 25.2.
14 See chapters 11.5.2.3 and 11.11.
15 See chapters 11.5.2.3 and 11.11.
16 See chapters 11.5.2.3, 11.11 and 25.6.
17 See chapters 6.2, 11.5.2.1–11.5.2.2 and 11.5.2.6.
18 Kruglov 1937, 247.
19 Ts'itlanadze 1977, 95–96.

6

Dariali early medieval cemetery (Trenches E, G and AB)

Eberhard W. Sauer, Anthi Tiliakou, Catherine Shupe, Annamaria Diana, Elena Kranioti and Konstantin Pitskhelauri

6.1. Introduction

Graves south of Dariali Fort were first excavated in 1962 and 1963, when a series of individual graves were found comprising west–east-aligned stone cists, attributed to the Middle Ages. These were mostly without grave goods, but an open bracelet, two finger rings and one glass bead were found. In 1988 to 1989 Dr Davit Mindorashvili excavated 31 individual burials in stone cists in a west–east orientation, with the head to the west, partly of children and partly of adults, some lying on the back and some on their right side. None of them contained any grave goods, making dating difficult, but they were tentatively attributed to the High Middle Ages. Due to the representation of all age groups, Mindorashvili argued persuasively that these graves belonged to families living on the fort.[1] In addition to the cemetery south of Dariali Fort (Fig. 6:1), there was a late antique cemetery at Gveleti,[2] and an early medieval cemetery at Gigias Satibi ('Giorgi's hay-meadow': Fig. 6:2). The latter is located in the Tergi/Terek River Valley on the right bank of the river, 14 km north of Stepantsminda near Upper Lars and the modern Russian border post, and we have not been able to visit it. Thirteen graves in stone cists were excavated.[3] One of them (Grave 3) yielded five black glass rings and one silver ring with an Arabic inscription referring to Allah, as well as a pin. Another (Grave 7) contained a further silver ring, several glass rings and two half dirhams, minted in AD 786–809 or 802 and 809/810 or 821/822. Despite the astonishing number of finger rings per grave, it seems that these were individual burials. These finds are highly significant.[4] One wonders if they indicate that

1. Muslims settled also north of the gates (the cemetery being associated with a postulated settlement);
2. that they lived south of the gates and only buried some of their dead north of the gates for lack of space or
3. that this was a graveyard for a native community having acquired Arab coins and a ring with a Muslim inscription (items strangely missing from Dariali cemetery)?

The first of these explanations is perhaps most plausible. There is another bottleneck just under one kilometre to the north-east of Bakht'ari Fort, on the approaches to the Russian border post. We have not been able to survey this area, but one wonders if the cemetery is related to a further outpost garrison in charge of guarding another narrow section of the gorge. Yet, whichever hypothesis is true, the influx of Arabic coins and a ring with a Muslim inscription suggest Muslim influence remained prominent into the ninth century at least.

During our project, we excavated medieval burials, all to the south of the fort, in two seasons (Fig. 6:1): in 2013 (Trenches E and G) and in 2016 (Trench AB).[5] The cemetery is approximately 250–400 m SSE of the southern edge of Dariali Fort. Before our first site visit in April 2013, an area c. 80 m (north-west to south-east) by 50 m (north-east to south-west) had been cleared for a proposed development (the construction of a now partially completed nunnery), revealing the locations of several cist burials. The full extent of the cemetery was difficult to determine due to vegetation cover. The survey team led by Kristen Hopper was, however, able to pinpoint a total of 84 graves or possible graves with varying levels of certainty. The number of graves and possible graves are, unsurprisingly, much higher in the cleared area, but our subsequent excavation proved that the cemetery extended well beyond. Only two possible grave features were located to the south-east beyond the limits of the cleared area and both are far from certain.[6] We cannot tell if this means that the cemetery's south-eastern limit is near Trench G or if it may extend well beyond, as it was only possible to identify graves on the surface in areas affected by modern earth-moving operations or erosion. The eastern edge of the cemetery extended right up to the edge of the plateau and a grave could be seen eroding out of the section overlooking the river (Fig. 6:3).

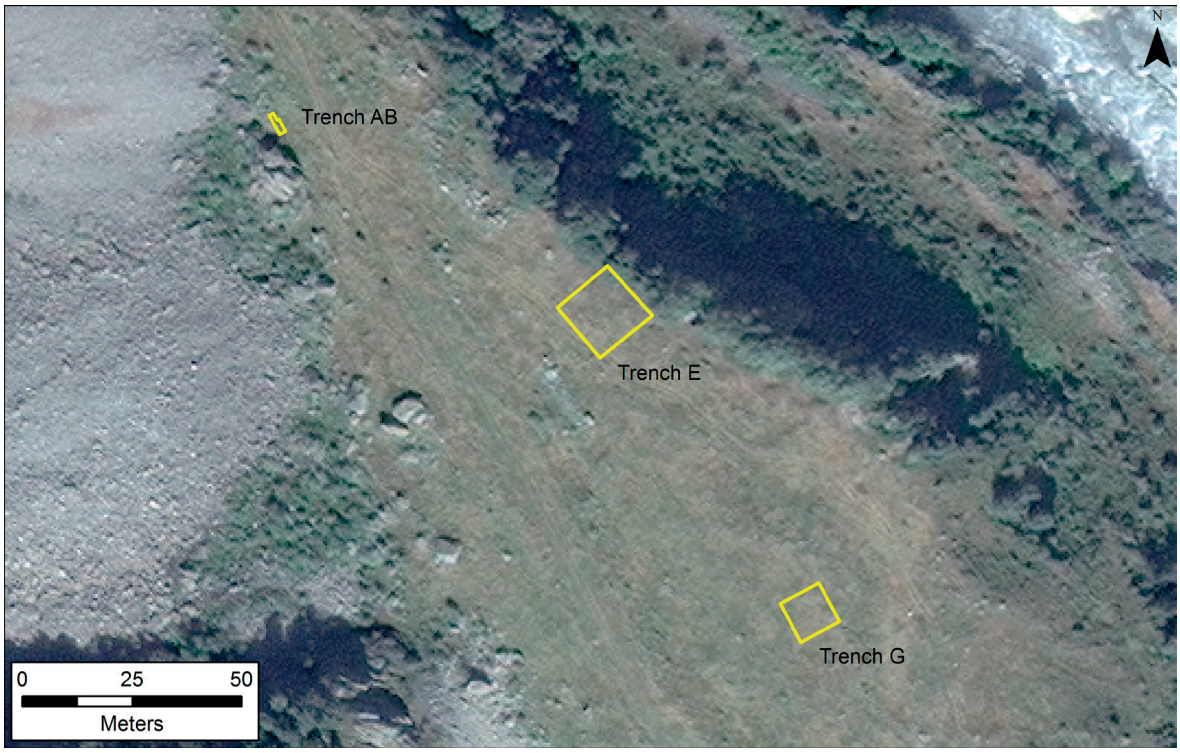


Fig. 6:1: Map of cemetery trenches by Kristen Hopper. Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).



Fig. 6:2: 14km north of Stepantsminda, a cemetery with early ninth-century grave goods was excavated in the 1960s. It was a little to the north of this narrow section of the gorge (here seen from the south c. 1km north-east of Bakht'ari Fort). Was there perhaps an outpost garrison here, guarding the northernmost bottleneck in the gorge and buried nearby?



Fig. 6:3: Part of an eroded stone-lined grave cist near Trench E, at the steep slope facing the River Tergi/Terek. Some of the early medieval cemetery (and potentially other flat ground suitable for graves) has been lost to erosion. There are no traces of eroded graves further north, and the loss of land was probably minimal.

Due to the proximity of the burials to the surface and the rich vegetation, roots frequently reached down to the burials. In addition to the unfavourable pH of the soil, the presence of roots and their secretions can decalcify bone and thus damage it severely or dissolve it altogether.[7] It is thus no surprise that the preservation of human remains was generally rather poor. The skeletal remains were carefully exhumed and recorded, first on site and later at the excavation base.[8]

6.2. Garden plots or arable fields? Pre-cemetery activity in the area of Trenches E, G and AB (Phases 2/3–5)

No structures other than graves were found in any of the three trenches, but there is circumstantial evidence to suggest that some of the land may initially have been used for cultivation. Pottery sherds were found in the fill of several graves, but no complete vessels. There were sherds in the fill of all excavated graves in Trench E (some 14 each in E1 and E3 and between one and four in the other three graves). There were also sherds (typically two or three) in each of the five graves in Trench AB. By contrast only four of the seven excavated graves in Trench G yielded pottery and never more than a single sherd. These sherds were almost certainly redeposited, when the bodies were covered with the upcast from the grave pits or other soil from the vicinity of the grave. There is no evidence for any ceramic grave goods. The greater quantity of sherds from some of the graves in Trench E, as opposed to the smaller graves in Trenches E and AB, will in part reflect the volume of the fill. The small quantity from Trench G, where graves are of larger dimensions than those in Trench AB, if not as big as the largest in Trench E, may indicate that the ancient and medieval soil used to fill the graves contained fewer sherds.

Seth Priestman suggested persuasively that the relatively large quantity of small abraded sherds from Trench E may be material fragmented as a result of gardening or ploughing. There were no graves in the north or west of Trench E and soil depth was substantially lower here than in Trenches M and P. This may suggest that the cultivated area extended to Trench E, the land here perhaps being used less extensively or for a shorter period of time. A larger number of rocks in the area would have impeded cultivation, perhaps explaining why there was less activity than in the area of Trenches M and P. Lesser horticultural/agricultural potential may also be the reason why the cemetery was established here rather than on more fertile plots in closer vicinity to the fort. Cultivation must have ended when the cemetery was created, if not before, certainly for the area covered by (invariably shallow) graves. The grave-free zone in the north of Trench E may conceivably still have been used for growing food while the cemetery was already in existence. Indeed, it is of interest that we found no traces of further graves immediately to the north of this trench. The area of Trench AB may also have been cultivated in pre-cemetery times to judge by the presence of further small sherds. We do not know for sure if the same applies to Trench G. As the topsoil had been stripped prior to our arrival, and we moved little soil outside the exposed grave cists, it is hard to tell if the small number of sherds (just four, and all from the fill of graves, as opposed to 65 in small Trench AB and 379 in large Trench E) is a result of lesser manuring or non-excavation of relevant deposits. Yet the sherds from Trench G were just around 4 g on average, perhaps suggesting that all the land to Trench G and beyond was once cultivated and that the creation of the cemetery substantially reduced land available for growing food in the immediate vicinity of the fort, even if not encroaching upon the prime land on the terrace south of the fort.[9] Decreasing depth of cultivation layers, from a little over two metres in Trenches P and M to one foot or less in the cemetery trenches, suggests that the land at greater distance to the fort was less intensively used. The lesser density of sherds from the grave fills in Trench G than from those in Trenches AB and E indicates that the land in the area of Trench G had probably been used even less intensively, or for a shorter period of time, than land a little closer to the fort.

6.3. Trench E: collective graves of the first phase (5a–b) of the cemetery

Trench E was originally 15 by 15 m in size (Fig. 6:4). An extension of 2.82 square metres was excavated in the eastern corner, where Grave E2 extended beyond the limits of the square. Of the 227.82 square metres marked out, a little over a half (130.12 square metres) was eventually excavated. Unlike Trench G, and like Trench AB, there had been no modern earth-moving operation in the area prior to excavation and none of the graves had been visible on the surface. There were no graves or other structures in the northern and western parts of the trench, but we found a cluster of them in the east, suggesting that the edge of the cemetery ran through the trench.

Our excavations revealed six earth-cut, stone-lined graves (Fig. 6:5). They were all relatively close to the surface and contained commingled human remains from multiple burials. Five were explored (Graves E1, E2, E3, E4 and E6), whilst Grave E5 was only planned, but not excavated, due to time restrictions. They varied in internal dimensions from 0.54 m in length by 0.25 m wide (Grave E4) to 1.94 m in length by 1.05 m wide (Grave E5). The large grave cists were significantly wider and deeper than those in Trench G. Their greater dimensions were perhaps related to the fact that they were intended to contain multiple burials, rather than individual inhumations. The graves in Trench E were orientated west–east, except for the small cist E4 that was closer to SW–NE. They were rectangular in shape, with almost vertical stone-lined sides, most of them filled with soil, and all of them covered with stone (mostly slate) slabs.

Only Graves E1, E2, E3 and E4 produced human skeletal and/or dental material, while Grave E6 was empty. This may be the result of complete decay of the human skeletal remains of what was probably a grave for children, to judge by its small size and similarity to Grave E4. Each of the excavated graves contained multiple inhumations in the form of disarticulated, commingled skeletal remains. The skeletal assemblage comprised one young adult female and one probable adult male (from Grave E2), one probable adult female and a probable adult male (from Grave E3), at least fourteen sub-adults (from Graves E2, E3 and E4) and at least three adult individuals of indeterminate sex (from Graves E1 and E3). Overall, the skeletal remains were poorly preserved, and many were incomplete or even dissolved due to diagenetic processes. Thus, evidence for pathological lesions was hardly observed. A case of *Cribra Orbitalia* could, however, be recorded in Grave E2.[10]

In addition to disarticulated human skeletal elements, two of the graves in Trench E yielded a small number of grave goods, represented by personal items, including one copper alloy bracelet (from Grave E3) and two finger rings of copper alloy (from Grave E3) and one of glass (from Grave E2).[11] Trench E belongs to the earlier phase of the cemetery (seventh/eighth-eighth/tenth centuries: Table 6:1).[12] Immediately to the east of Grave E2 was a modern, stone and concrete-lined military trench.

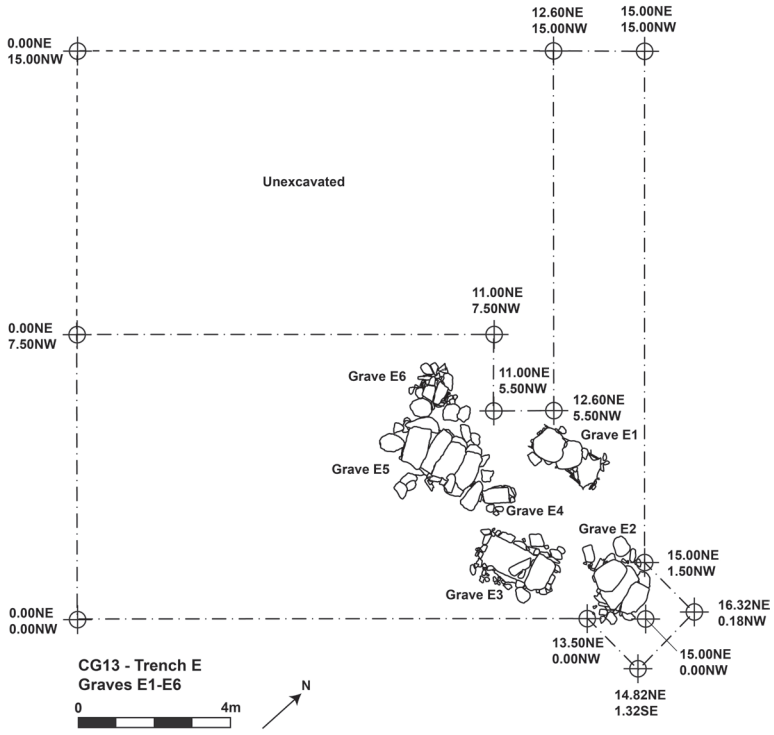


Fig. 6:4: Trench E, with all six graves in the east of the trench, other areas being devoid of burials.

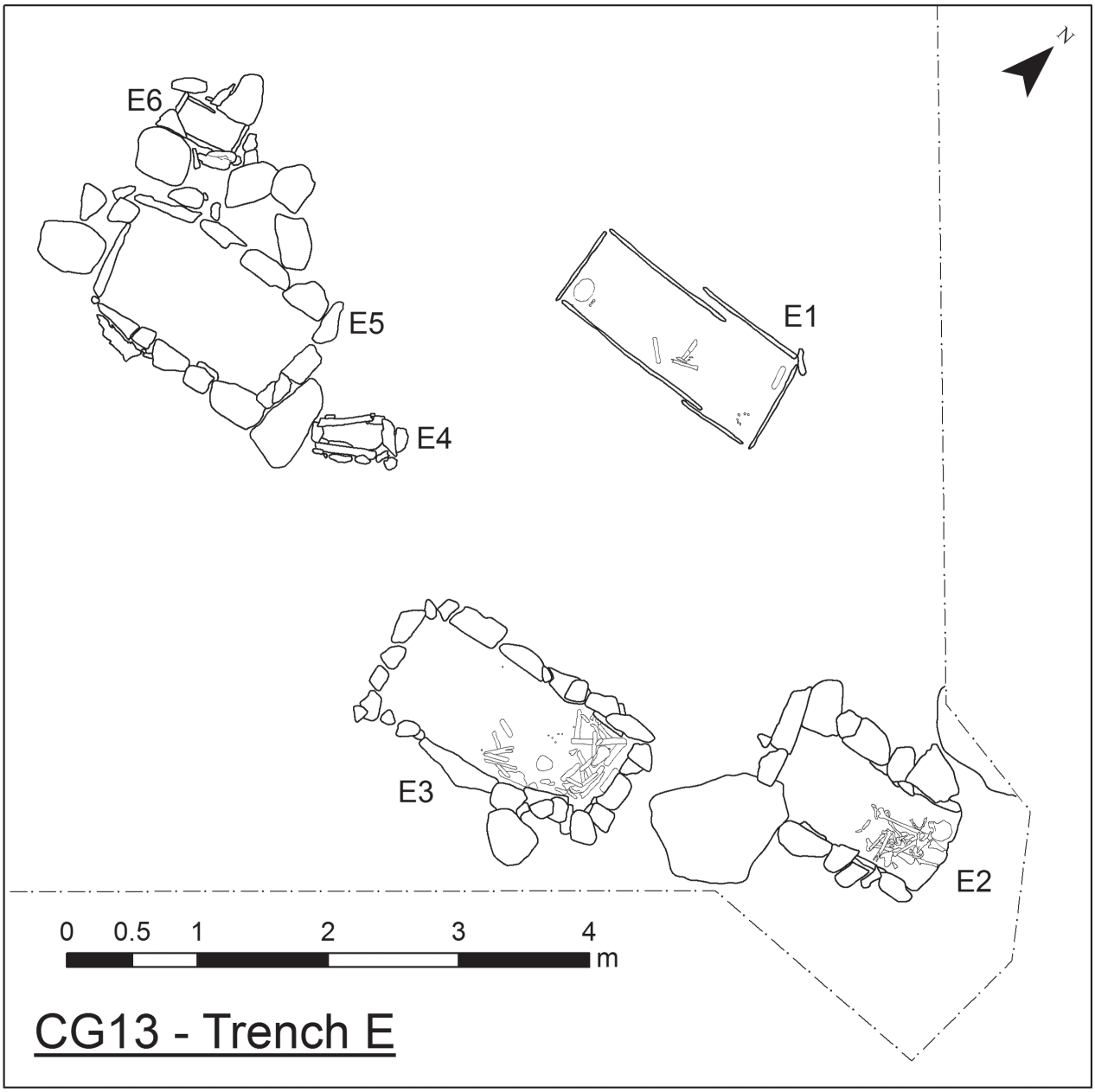


Fig. 6:5: Plan of Trench E, excluding areas without graves.

Table 6:1: Radiocarbon dates from Trench E (see Figs 6:11, 6:17 and 6:21 for plots of the dates).

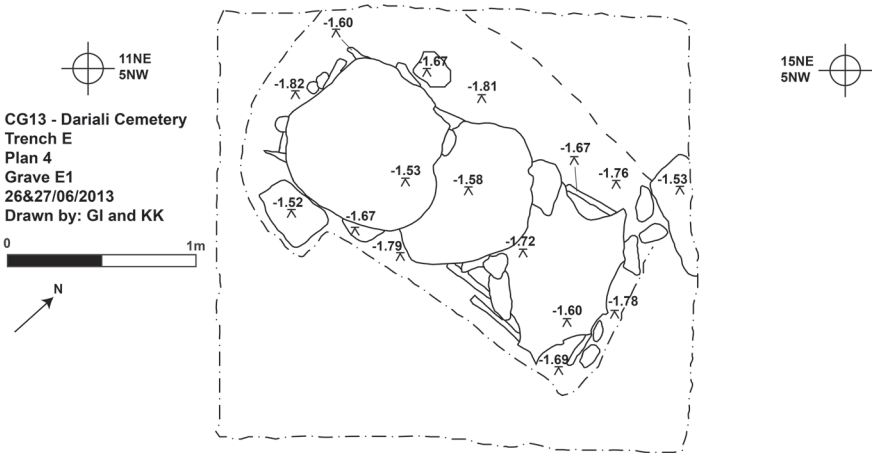
Context	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
E.007	OxA-29038	Grave E1	Human cranium of first individual, aged 18–24	1171 ± 26 BP	AD 771–952 (85.2%: 771–901)	d13C=-14.71
E.010	OxA-29039	Grave E2	Human tooth (root and enamel) of female, aged 25–35	1279 ± 25 BP	AD 671–770	d13C=-15.77
E.019	OxA-29040	Grave E3	Human bone of a child, aged 2–4	1129 ± 24 BP	AD 778–988 (93.0%: 867–988)	d13C=-18.81

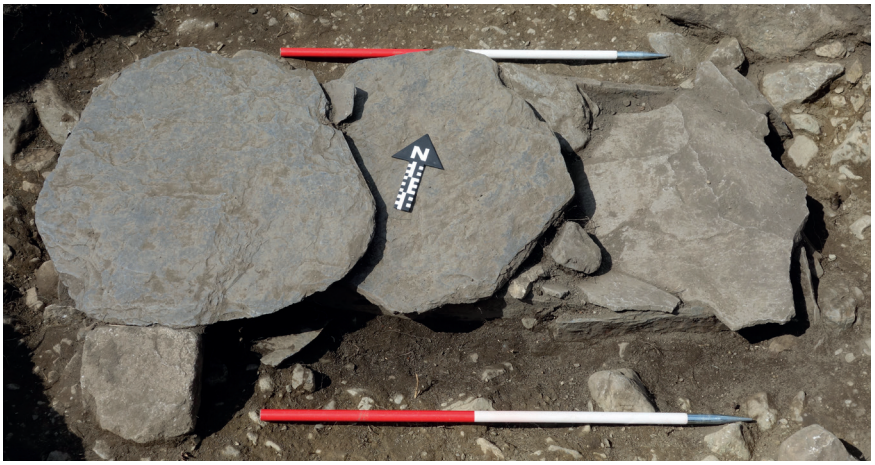
Catalogue of graves explored in Trench E

Grave E1 (Figs 6:6–6:11; Table 6:2)

Orientation: West–east, commingled human skeletal remains, the cranium (to the west) facing south.

Grave dimension: Maximum length: 1.81 m; maximum width: 0.78 m.[13]
Description: Earth-cut, slate-lined grave.
Burial practices: Disarticulated, commingled skeletal remains. Multiple inhumations.
Grave goods: None.





Figs 6:6–6:7: Grave E1 with cover plaques.

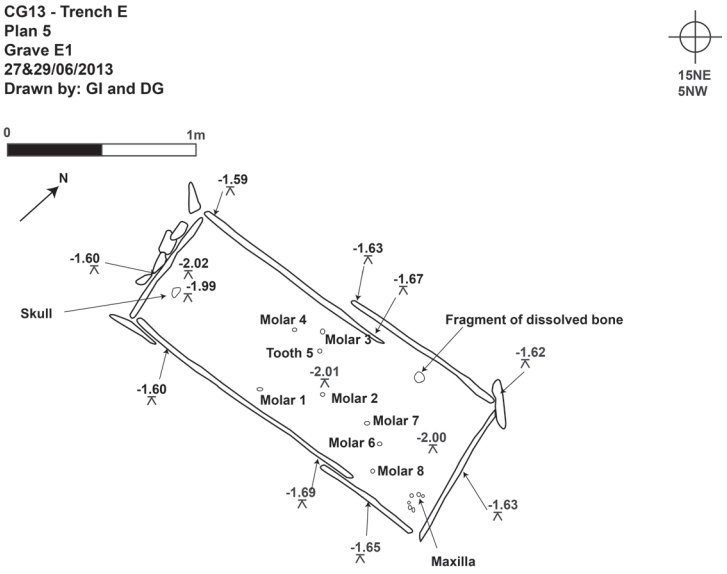
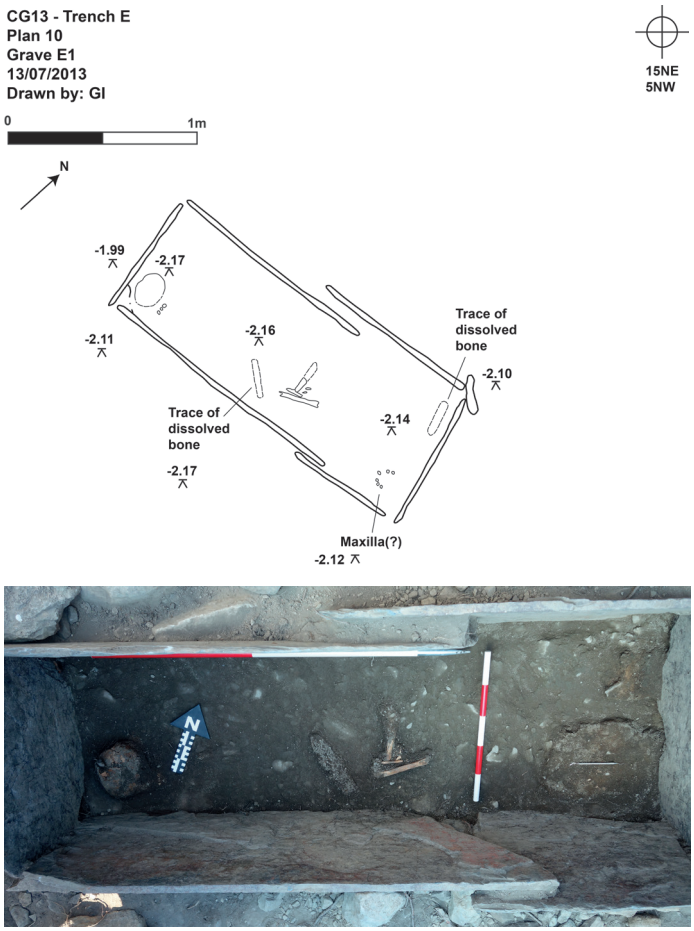


Fig. 6:8: Grave E1 with human skeletal remains at a higher level.



Figs 6:9–6:10: Grave E1 with human skeletal remains at a lower level.

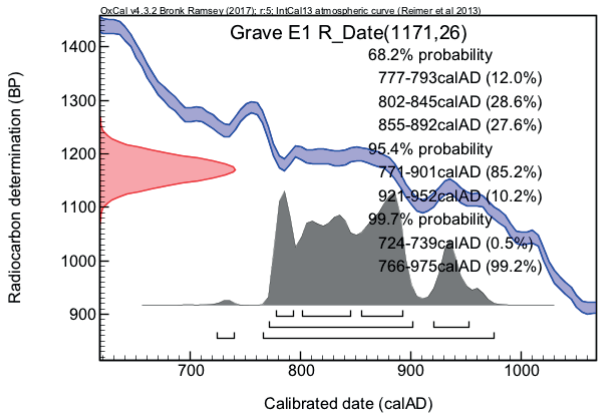


Fig. 6:11: Radiocarbon date of human cranium of first individual, aged 18-24, in Grave E1 (see Table 6:1 for further details).

Table 6:2: Human skeletal remains in Grave E1.

Criteria	*Summary*
MNI	3
Preservation	Poor
Sex	×3 IN
Age	1× (18–24 years), 1× (16–20 years) and 1× (12–18 years)
Stature	n/a
Non-metric traits	n/a
Dentition	Considerable frequency of DEH; moderate attrition; Caries (individual aged 18–24)
DEH episodes age range	4 episodes ranging from 6 months to 5 years for the first individual (18–24 years) 2 episodes for the second individual (aged 16–20 years); the age occurrence was not possible to estimate.

Key for this and the following tables: DEH: *Dental Enamel Hypoplasia*; DJD: Degenerative Joint Disease; F: female; IN: indeterminate; M: male; MNI: minimum number of individuals; n/a: not applicable; P.: probable.

Grave E2 *(Figs 6:12–6:17; Table 6:3)*

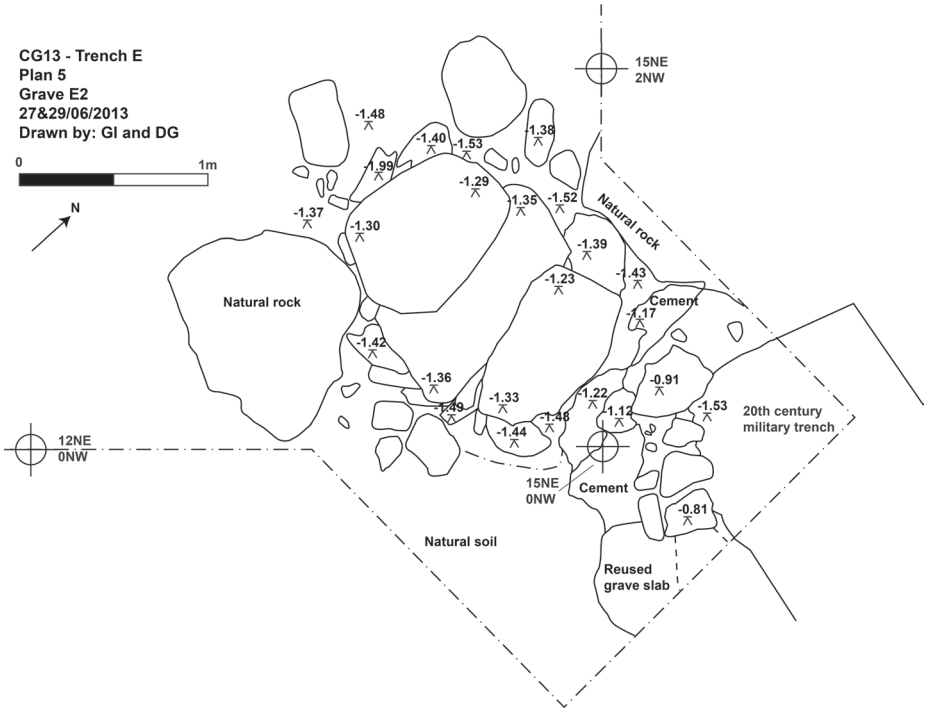
Orientation: West–east, the cranium (in the east) facing south; commingled human skeletal remains clustering in the east.

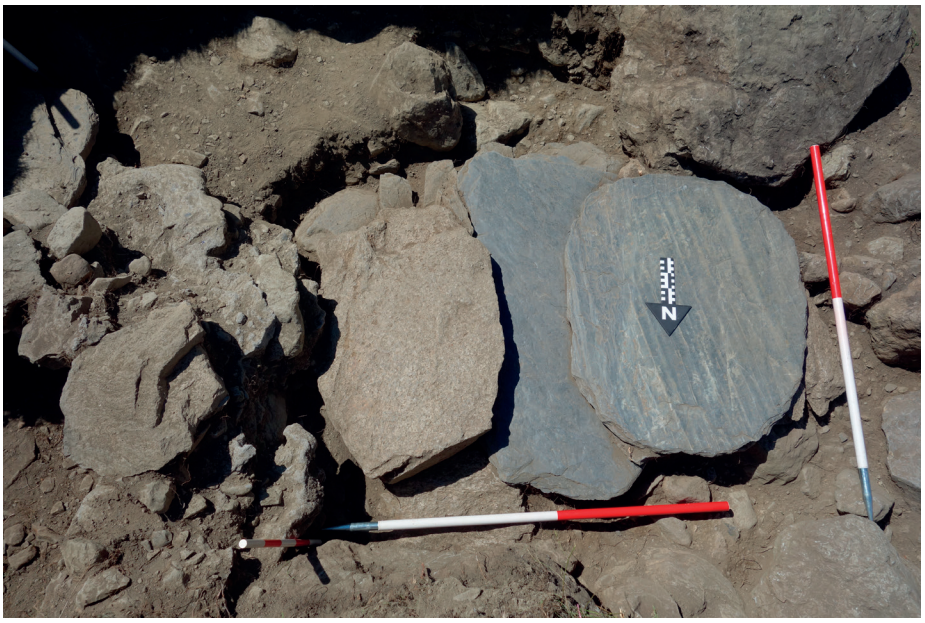
Grave dimension: Maximum length: 1.42 m; maximum width: 0.70 m.

Description: Earth-cut, stone-lined[14] grave.

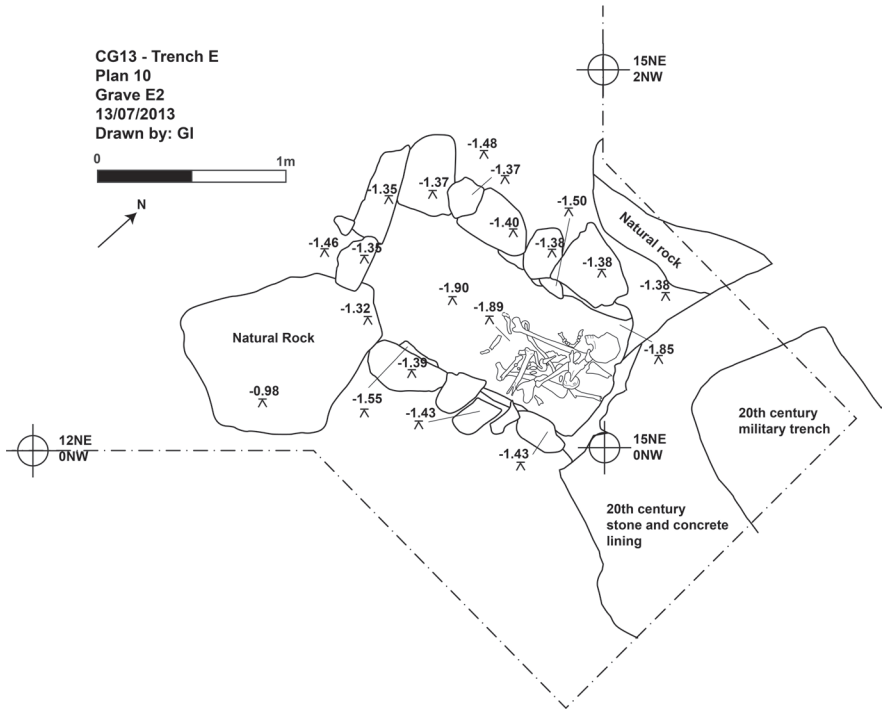
Burial practices: Disarticulated, commingled skeletal remains. Multiple inhumations.

Grave goods: A black glass finger ring from the fill (E.010).[15]





Figs 6:12–6:13: Grave E2 with cover plaques (and a modern stone and concrete-lined military trench east of the grave).







Figs 6:14–6:16: Grave E2 with human skeletal remains of at least six individuals clustering in the east of the cist.

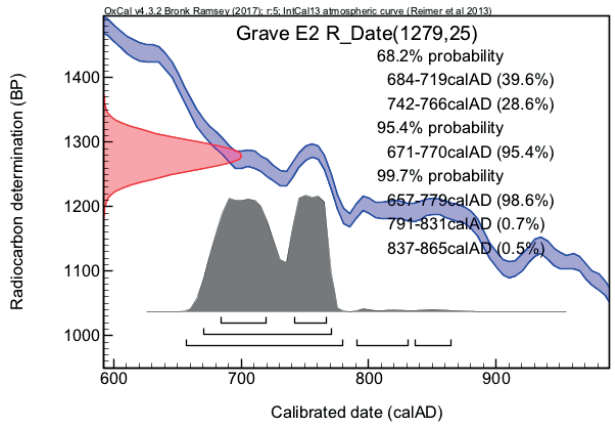


Fig. 6:17: Radiocarbon date of human tooth of female, aged 25-35, in Grave E2 (see Table 6:1 for further details).

Table 6:3: Human skeletal remains in Grave E2.

Criteria	*Summary*
MNI	6
Preservation	Fairly good to poor
Sex	1× adult Female, 1× adult P.Male, 4× IN
Age	1× F25–35 years, 1× P.M20–24 years, 4× IN sub-adults: 1× (3years), 1× (2 years), 1× (1 year) and 1× (9 months)
Stature	n/a
Ancestry	Young adult Female individual displays craniofacial characteristics suggesting Asian ancestry
Non-metric traits	Accessory bones + unfused metopic suture (young female)
Dental Non-metric traits	Bifid roots on URP3-P4
Pathology	Bilateral *cribra orbitalia*; DJD; lytic lesion on sacrum (young female)
Dentition	Considerable frequency of DEH on both F + P.M individuals; extreme attrition on F individual;
DEH episodes age range	1 possible episode for the Female individual 1 episode around the age of 5 years for the P.Male individual

Grave E3 *(Figs 6:18–6:21; Table 6:4)*

Orientation: West–east; commingled human skeletal remains clustering in the east.
Grave dimension: Maximum length: 1.85 m; maximum width: 0.82 m.
Description: Earth-cut, stone-lined grave.
Burial practices: Disarticulated, commingled skeletal remains. Multiple inhumations.
Grave goods: Three copper alloy finger rings, one copper alloy bangle, one copper alloy and two silver hoops and one iron disk from the fill (E.019).[16]

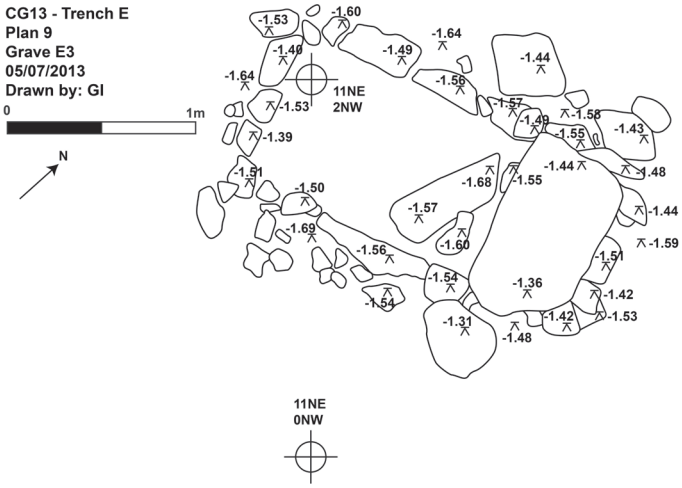
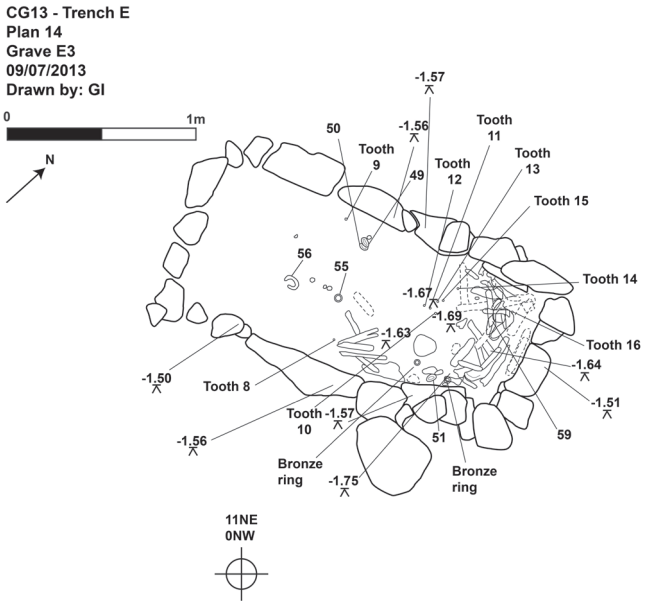


Fig. 6:18: Grave E3 with cover plaques.





Figs 6:19–6:20: Grave E3 with human skeletal remains of at least nine individuals clustering in the east of the cist.

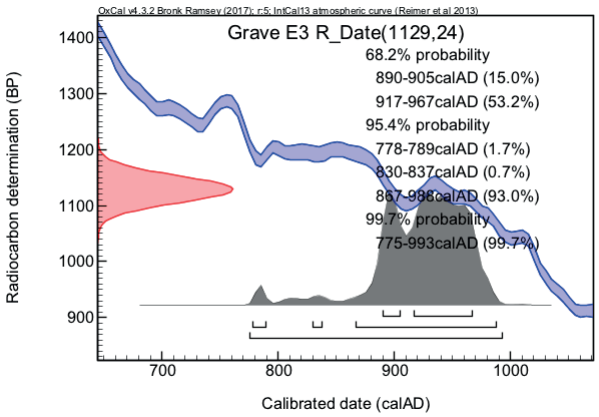


Fig. 6:21: Radiocarbon date of human bone of child, aged 2-4, in Grave E3 (see Table 6:1 for further details).

Table 6:4: Human skeletal remains in Grave E3.

Criteria	*Summary*
MNI	9
Preservation	Poor
Sex	1× P.Male, 1× P.Female, 7× IN
Age	1× P.F?20–30 years, 1× P.M?30–40 years, 1× IN 20–30 years, 2× IN 16–20 years, 1× IN 7–8 years, 2× IN 5 years and 1× IN 2–4 years
Stature	n/a
Dental Non-metric traits	Double *Shovelling*: 1× IN individual 16–20 years
Dentition	DEH; 1× IN individual 16–20 years, Caries 1× IN (12–18 years), 1× IN (16–20 years)
DEH episodes age range	1 episode for one IN individual aged 16–20 years. Age occurrence estimation n/a. 4 episodes attributed to an individual of indeterminate age. Age occurrence estimation n/a

Grave E4 *(Figs 6:22–6:25; Table 6:5)*

Orientation: SW–NE: commingled human skeletal remains.
Grave dimension: Maximum length: 0.54 m; maximum width: 0.25 m.
Description: Earth-cut, stone and slate-lined grave.
Burial practices: Disarticulated, commingled human skeletal remains. Multiple child inhumations.
Grave goods: None.

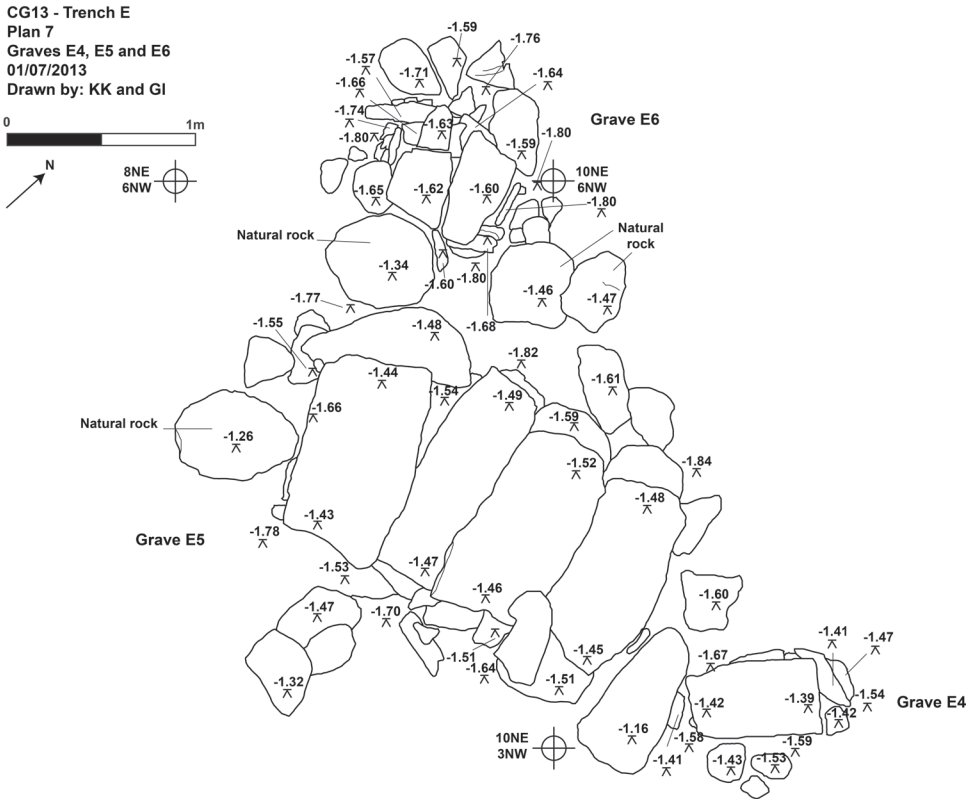


Fig. 6:22: Graves E4, E5 and E6 with cover plaques.

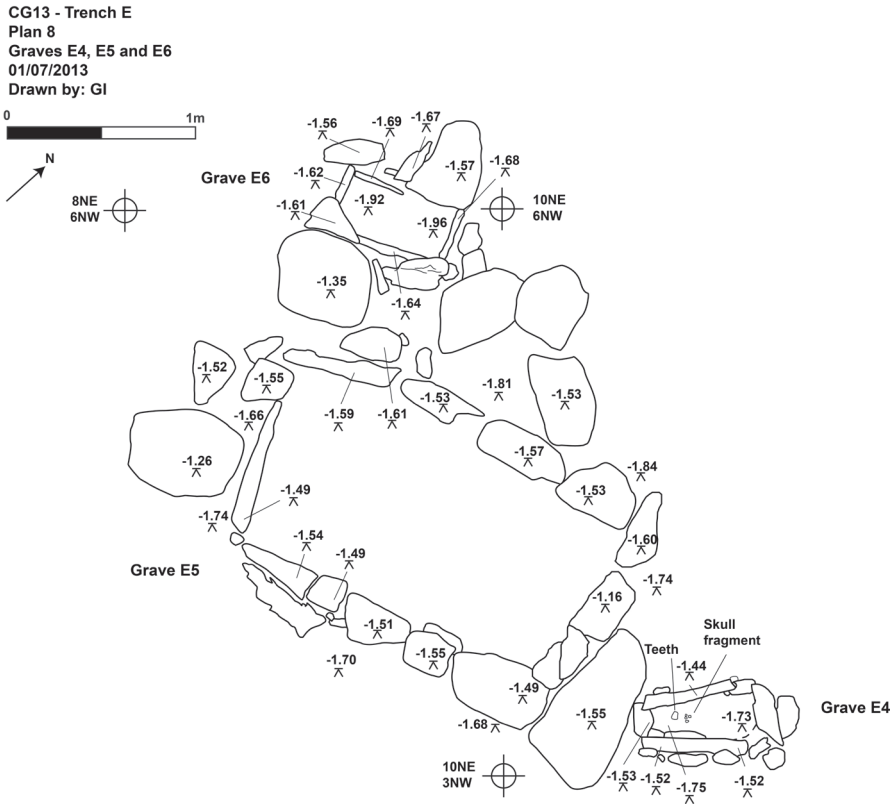


Fig. 6:23: Graves E4, E5 and E6 without cover plaques.



Fig. 6:24: Grave E4, with cover plaque.

Table 6:5: Human skeletal remains in Grave E4.

Criteria	*Summary*
MNI	3
Preservation (teeth)	Fair
Sex	×3 IN
Age	1× (4–5 years), 1× (3 years) and 1× (6–9 months),
Dental Non-metric traits	Double *Shovelling* (second individual, 3 years)
Dentition	No attrition
DEH episodes age range	Not observed



Fig. 6:25: Grave E4, without cover plaque: a small stone cist with the remains of at least three children. Note that north is top right.

Grave E5 *(Figs 6:22–6:23, 6:26–6:27)*

Orientation: West–east.
Grave dimension: Maximum length: 1.94 m; maximum width: 1.05 m.
Description: Earth-cut, slate and stone-lined grave.

Grave E6 *(Figs 6:22–6:23, 6:27–6:28; Table 6:6)*

Orientation: West–east.
Grave dimension: Maximum length: 0.59 m; maximum width: 0.30 m.
Description: Earth-cut, slate and stone-lined grave.
Burial practices: Probably child grave. Empty.
Grave goods: None.



Fig. 6:26: Grave E5, with cover plaques.



Fig. 6:27: Grave E5, without cover plaques. In the foreground, Grave E6 with cover plaques. Grave E5 was not excavated beyond removing the cover.

6.4. Trench G: individual adult, adolescent and child graves of the cemetery's later phase (5b–c)

Trench G formed a square of 10 by 10 m in size (Fig. 6:29). Due to the recent earthmoving operations in the wake of nunnery construction, the graves in Trench G were in part already visible prior to excavation, but more emerged as the trench was systematically cleaned, revealing eventually c. 28 stone-lined graves plus grave context G3 without stone lining. Ten of these 29 burial monuments (Graves G1-G10) were planned and recorded in detail and seven (Graves G1, G2, G4, G6, G8 and G9 and grave context G3) were fully excavated. Due to time restrictions, excavation of an eighth grave (G10) had to be abandoned after only its top fill had been removed and examined. Graves G5 and G7 were not excavated.

Burials in Trench G were narrower and shallower than the large collective graves in Trench E (E1, E2, E3 and E5), but larger than the small stone boxes probably intended for child remains (E4 and E6). The depth of the grave cuts in regard to the surface is hard to assess, as the topsoil had been stripped to the top of the graves, prior to our arrival and in preparation for construction works already mentioned. Seemingly undisturbed ground to the south-east of the trench suggests that the graves were also quite shallow. The graves in Trench G were aligned west–east to SW–NE. They were rectangular in shape with almost vertical sides and slate-lined and covered with slate slabs. They varied in internal dimensions from c. 2.00 m in length by 0.43 m wide (Grave G9) to 1.15 m by 0.29 m (Grave G4). Some of the burials in Trench G were disturbed by the above-mentioned earthmoving operations. These did not normally reach beyond the cover slabs of the graves, but the discovery of two unstratified arrowheads (G.US/14 and G.US/15), both from loose soil above undisturbed stratigraphy, is likely to be the result of redeposition of grave goods in the course of the disturbance of graves.

All excavated graves produced skeletal and/or dental material, and the cists excavated (G1, G2, G4, G6, G8 and G9) each contained an individual, articulated inhumation. The skeletal assemblage comprised three male or probable male individuals (Graves G1, G3, G6), one child of indeterminate biological sex[17] from Grave G4, one adolescent individual of biologically indeterminate sex from Grave G9,[18] one adult female (Grave G2) and one probable sub-adult – judging by the size of the available skeletal elements – of indeterminate sex and age (Grave G8). Scattered dental material was retrieved from the top fill of Grave G10, whose analysis indicated the presence of three sub-adult individuals, two of them children and one an adolescent. This is the only collective burial within the trench. It was found within a slate cist of similar dimensions and construction to the single-body graves, although used differently, for no obvious reason. As the lower fill was not excavated, it is possible that it was an individual inhumation, subsequently supplemented by secondary burials at a higher level. In addition to the six articulated skeletons and the unusual collective grave,



Fig. 6:28: Grave E6, a small stone cist, probably a collective grave for children, even if no human remains survived.

Table 6:6: Human skeletal remains in Grave E6.

Criteria	*Summary*
MNI	0

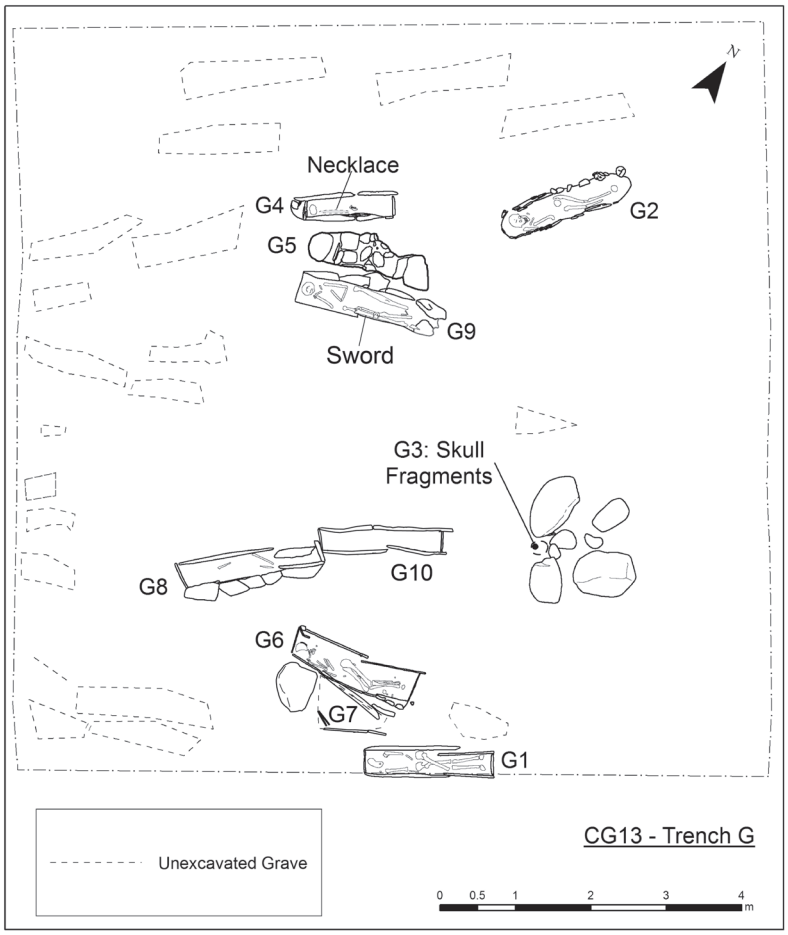


Fig. 6:29: Plan of Trench G.

Table 6:7: Radiocarbon dates from Trench G (see Figs 6:33, 6:37, 6:39, 6:48, 6:57, 6:62 and 6:65 for plots of the dates).

Context	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
G.002	OxA-29041	Grave G1	Human tooth of male, aged 15–20	1149 ± 25 BP	AD 777–971 (87.9%: 802–971)	d13C=-18.14
G.006	OxA-29042	Grave G2	Human tooth of female, aged 21–35	1025 ± 25 BP	AD 974–1035	d13C=-16.39
G.010	OxA-29043	Grave G3	Human tooth of probable male, aged 15–20	1015 ± 24 BP	AD 980–1116 (94.5%: 980–1041)	d13C=-17.05
	OxA-31504		Human long bone fragments of probable male, aged 15–20	990 ± 31 BP	AD 988–1154	d13C=-16.15
	OxA-31505		Human long bone fragments of probable male, aged 15–20	1050 ± 30 BP	AD 900–1027 (86.7%: 948–1027)	d13C= -16.47
	n/a		Combined date based on three samples of probable male, aged 15–20	1018 ± 17 BP	AD 989–1029	n/a
G.013	OxA-29044	Grave G4	Human bone of child, aged 7–10	995 ± 24 BP	AD 988–1150 (91.0%: 988–1125; 73.0%: 988–1050)	d13C=-14.91
G.017	OxA-29045	Grave G6	Human radius of male, aged 35–45	1123 ± 25 BP	AD 780–990 (94.4%: 873–990)	d13C=-18.29
G.026	OxA-29046	Grave G8	Human bone of sub-adult?	1183 ± 25 BP	AD 770–942 (92.3%: 770–896)	d13C=-18.39
G.020	OxA-29047	Grave G9	Human bone of adolescent, aged 15–20, probably 15–17	1033 ± 23 BP	AD 975–1029	d13C=-14.65

a recently disturbed area (G3) containing disarticulated remains, was also explored. Due to its disturbed nature, the absence of many skeletal elements and the lack of stone lining, this is more appropriately described as 'Grave Context G3'.

Overall, the skeletal remains were poorly preserved. We were, however, able to record a case of chronic periostitis (Grave G6). Trauma was positively identified in two cases (Grave G1 and Grave Context G3), in the form of a healed femoral neck fracture and cranial blunt and sharp force trauma respectively.[19]

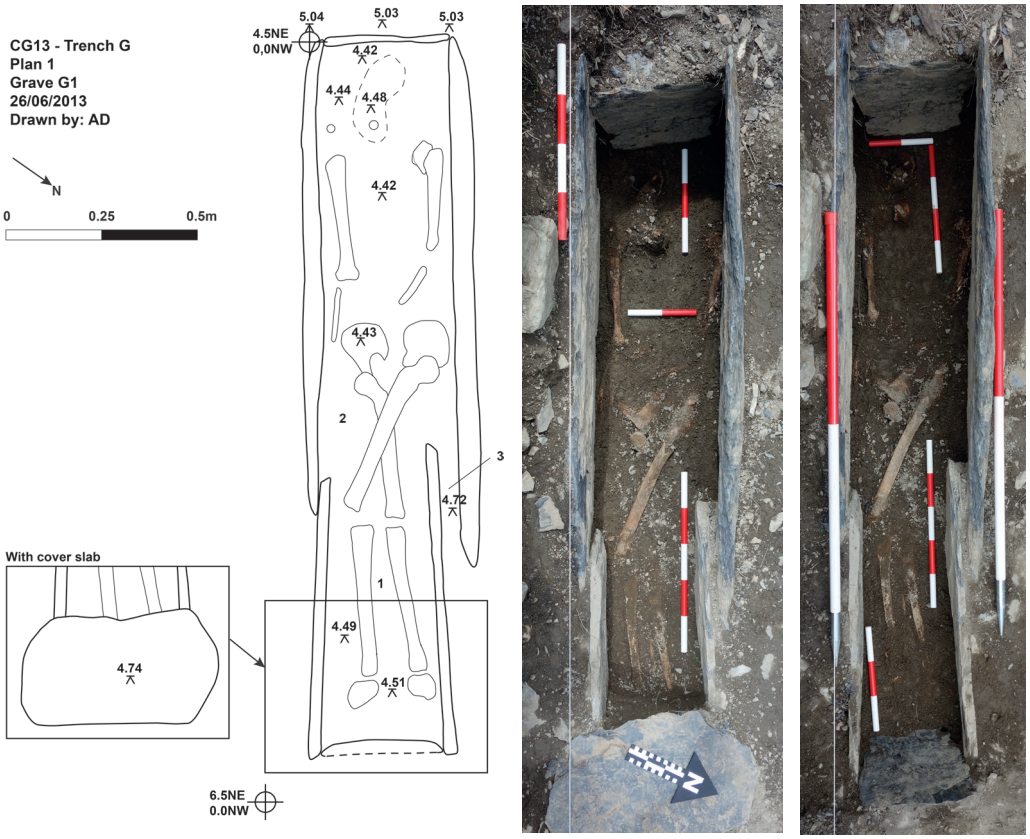
Whilst most graves were devoid of grave goods, two of the latest contained rich assemblages. Personal items, notably beads and copper alloy bells, were also recovered (Grave G4). Graves G4 and G9, both amongst the latest graves in the cemetery from around the turn of the millennium, yielded extraordinary finds, the former, pieces of leather garment with copper alloy rivets, 161 beads of various materials and other items of personal adornment, the latter, a sword with its sheath and suspension mechanism, as well as three arrowheads and a fire striker.[20] Trench G belongs to the later phase of the cemetery (eighth/tenth-tenth/eleventh centuries: Table 6:7).[21]

Catalogue of graves explored in Trench G

Grave G1 (Figs 6:30–6:33; Table 6:8)

Orientation: SW–NE, the cranium (in the south-west) facing south-east.

Grave dimension: Maximum length: 1.86 m; maximum width: 0.40 m.
Description: Earth-cut, slate-lined grave.
Burial practices: Individual inhumation.
Body position: On the right side in a semi-flexed position.
Grave goods: None.



Figs 6:30–6:32: Grave G1 of a probable young male.

Table 6:8: Human skeletal remains in Grave G1.

Criteria	*Summary*	*Criteria*	*Summary*
MNI	1	Trauma	Femoral neck healed fracture
Preservation	Poor	Dental Non-metric traits	*Tuberculum dentale, Odontome, Metaconule*
Sex	Probable Male	Dentition	High frequency of DEH; slight attrition; slight calculus
Age range	15–20 years	DEH episodes age range	2 episodes; age range: 1x unknown, 1x 3 years and 2 months
Stature	163.2cm (±3.27)		

Key for this and the following tables: DEH: *Dental Enamel Hypoplasia*; DJD: Dejenerative Joint Disease; IN: indeterminate; MNI: minimum number of individuals; n/a: not applicable.

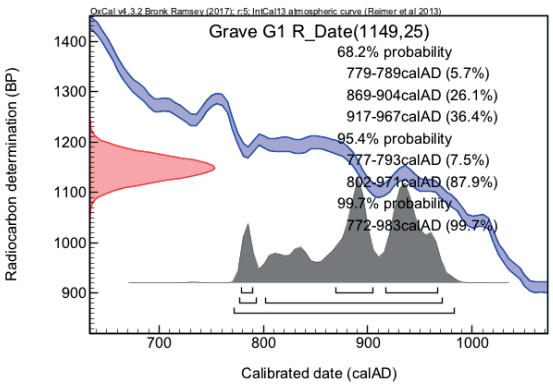
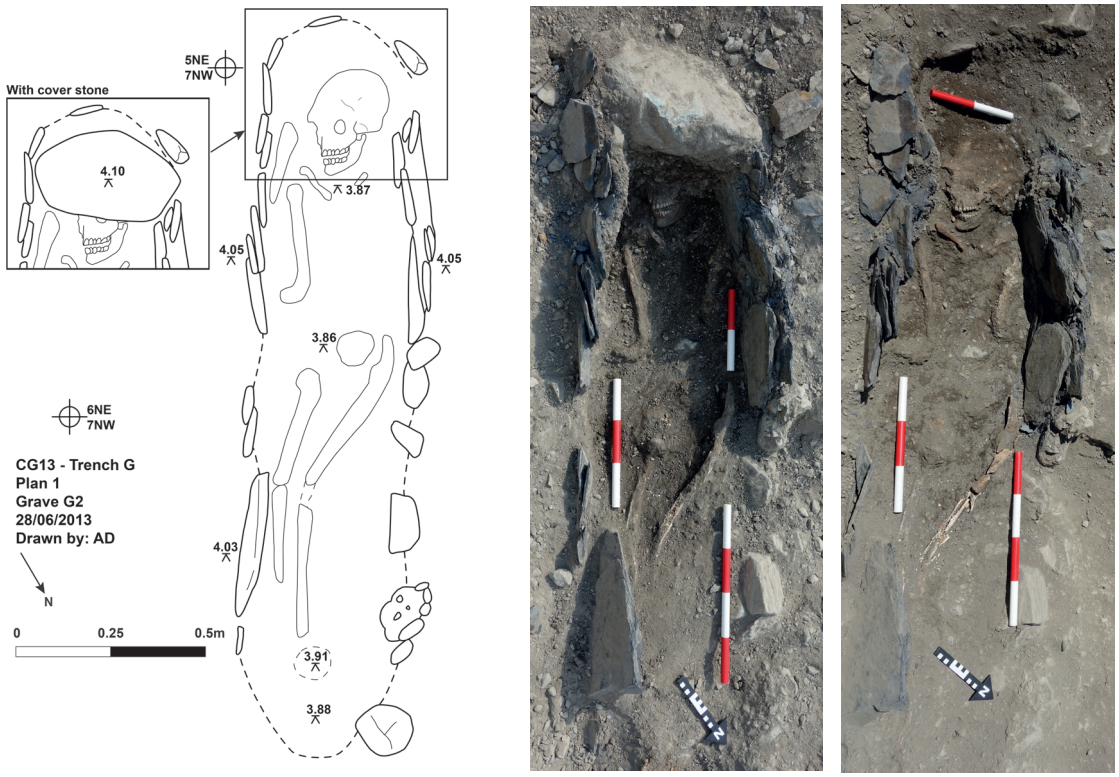


Fig. 6:33: Radiocarbon date of human skeletal remains in Grave G1 (see Table 6:7 for further details).

Grave G2 (Figs 6:34–6:37; Table 6:9)

Orientation: SW–NE, the cranium (in the south-west) facing south-east.
Grave dimensions: Maximum length: 1.95 m; maximum width: 0.40 m.
Description: Earth-cut, slate-lined grave.
Burial practices: Individual inhumation.
Body position: On the right side in a semi-flexed position, facing south-east.
Grave goods: None.



Figs 6:34–6:36: A woman was buried in Grave G2 around the turn of the millennium.

Table 6:9: Human skeletal remains in Grave G2.

Criteria	*Summary*
MNI	1
Preservation	Fair to poor
Sex	Female
Age	21–30 years
Stature	Maximum length of the skeleton *in situ*, measuring from skull to feet bones was 160 cm
Dental Non-metric traits	*Interruption groove, Hypocone*, *Hypoconulid*
Dentition	DEH; slight and extreme attrition; slight and moderate calculus
DEH episodes age range	n/a, due to badly preserved enamel

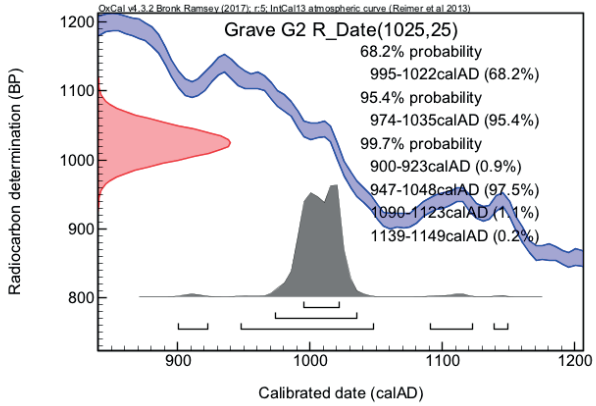
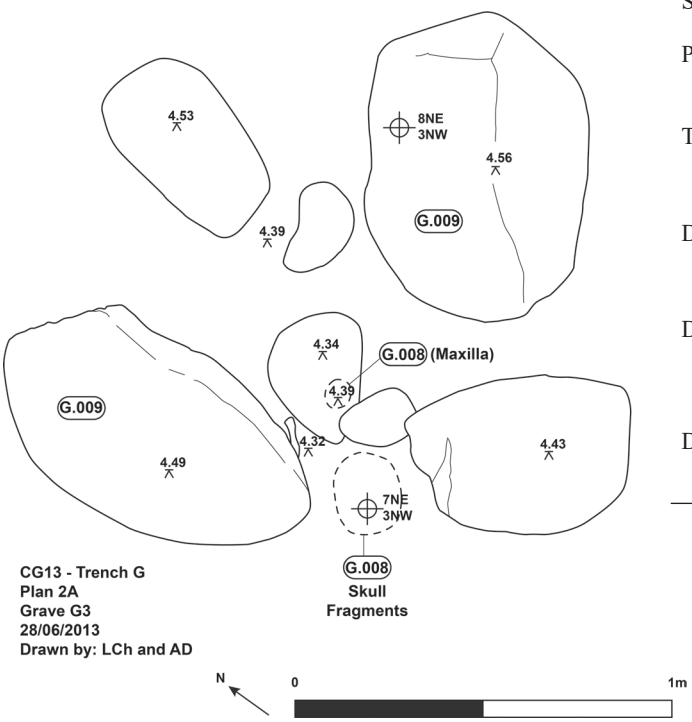


Fig. 6:37: Radiocarbon date of human skeletal remains in Grave G2 (see Table 6:7 for further details).



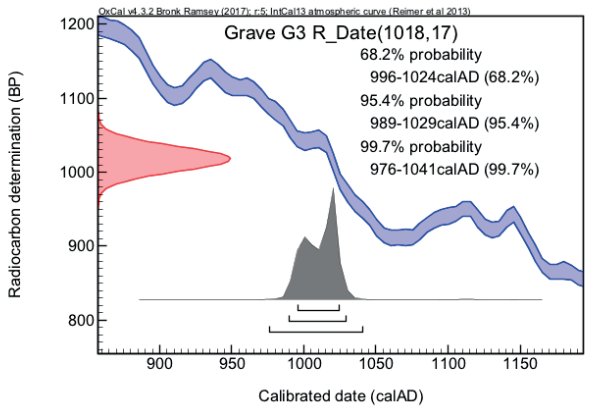


Fig. 6:39: Combined radiocarbon date of human skeletal remains in Grave G3 (see Table 6:7 for further details).

Grave Context G3 (Figs 6:38–6:39; Table 6:10)

Orientation: N/a.
Grave dimensions: N/a: no grave lining
Description: Disturbed context between four large boulders of up to 90 cm diameter.
Burial practices: N/a.
Body position: N/a.
Grave goods: None.

Table 6:10: Human skeletal remains in Grave context G3.

Criteria	*Summary*
MNI	1
Preservation	Poor
Sex	Probable Male
Age	15–20 years
Stature	n/a
Pathology	Bony protuberances in the *sphenoidal sinus*.
Trauma	Sharp force trauma on the occipital bone; healed blunt force trauma on left petrous portion.
Dental Non-metric traits	*Tuberculum Dentale, Multiple lingual cusps, Metaconule, Hypocone, Hypoconulid*
Dentition	High frequency of DEH; slight/moderate attrition; wear facets on URM1, caries.
DEH episodes age range	4 episodes: aged 1x 6–8 months, 1x 8–9 months, 1x 3 years and 5 months, 1x 6 years and 4 months

Fig. 6:38 (opposite): A few fragments of human skeletal elements of a 15-20-year-old, killed with a bladed weapon, were found between large boulders (Grave Context G3): an unceremonious burial or a place of special significance?

Grave G4 (Figs 6:40–6:50; Table 6:11)

Orientation: SW–NE, the cranium (in the south-west) possibly facing south-east.
Grave dimensions: Maximum length: 1.15 m; maximum width: 0.29 m.
Description: Earth-cut, slate-lined grave.
Burial practices: Individual inhumation.
Body position: Extended; probably lying on right side (or possibly lying on back), with arms resting at sides. No certain decision is possible, since the skeleton did not survive the taphonomic processes. As the beads of the necklace(s) were mainly gathered on the region that would have been on the right of the neck, we assume that the individual would have been lying on the right side, facing south-east.[22]

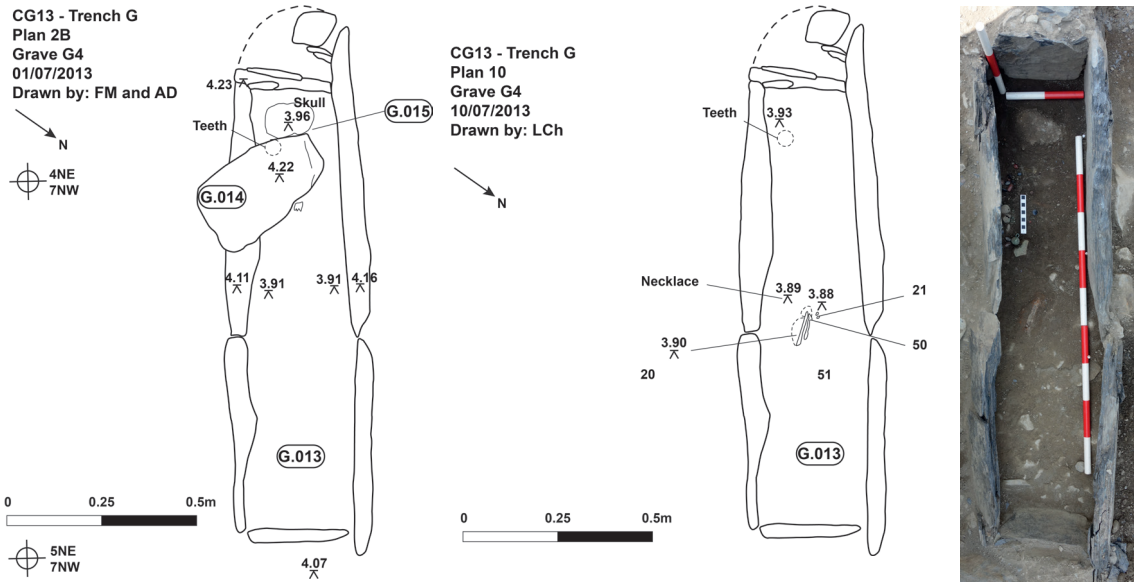
Grave goods: 161 glass, stone, jet, coral and bone beads, many still on a cord when placed in the grave (to judge by the beads found in neat rows), forming part of one or more necklace(s); a broken silver mirror; three copper alloy bells; a copper alloy belt buckle with an iron tongue; fragments of leather garment with numerous copper-alloy rivets; a piece of cloth with a silver chain attached; a bone toggle.[23]

Grave G5 (Figs 6:49–6:50)

Orientation: SW–NE.

Grave dimensions: Maximum length: ≤1.30 m; maximum width: c. 0.30 m: dimensions approximate as cover plaques not removed.

Description: Earth-cut, slate-lined grave; unexcavated.



Figs 6:40–6:42: A 7-10-year-old child in Grave G4 was buried with a rich assemblage of northern-style jewellery.



Fig. 6:43: Cluster of finds in Grave G4 (upper level).

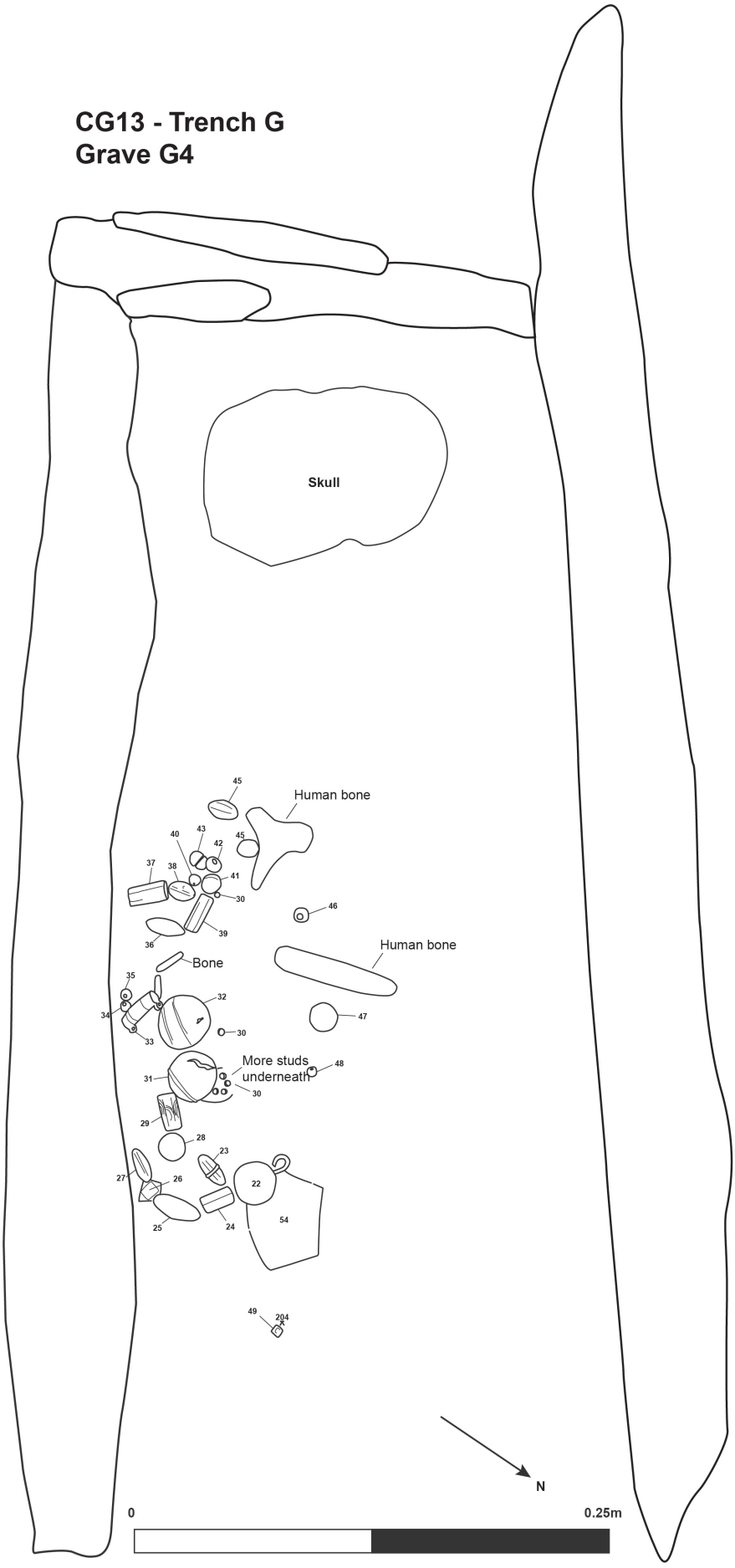


Fig. 6:44: Cluster of finds (upper level) in relation to the very poorly preserved cranium. (Numbers correspond to find numbers: e.g. 22, 31 and 32 are the bells, G.013/22, G.013/31 and G.013/32.)



Fig. 6:45: Close-up, showing the three still functioning copper alloy bells, the broken silver mirror (left) and various beads in situ.



Fig. 6:46: Finds (lower level).

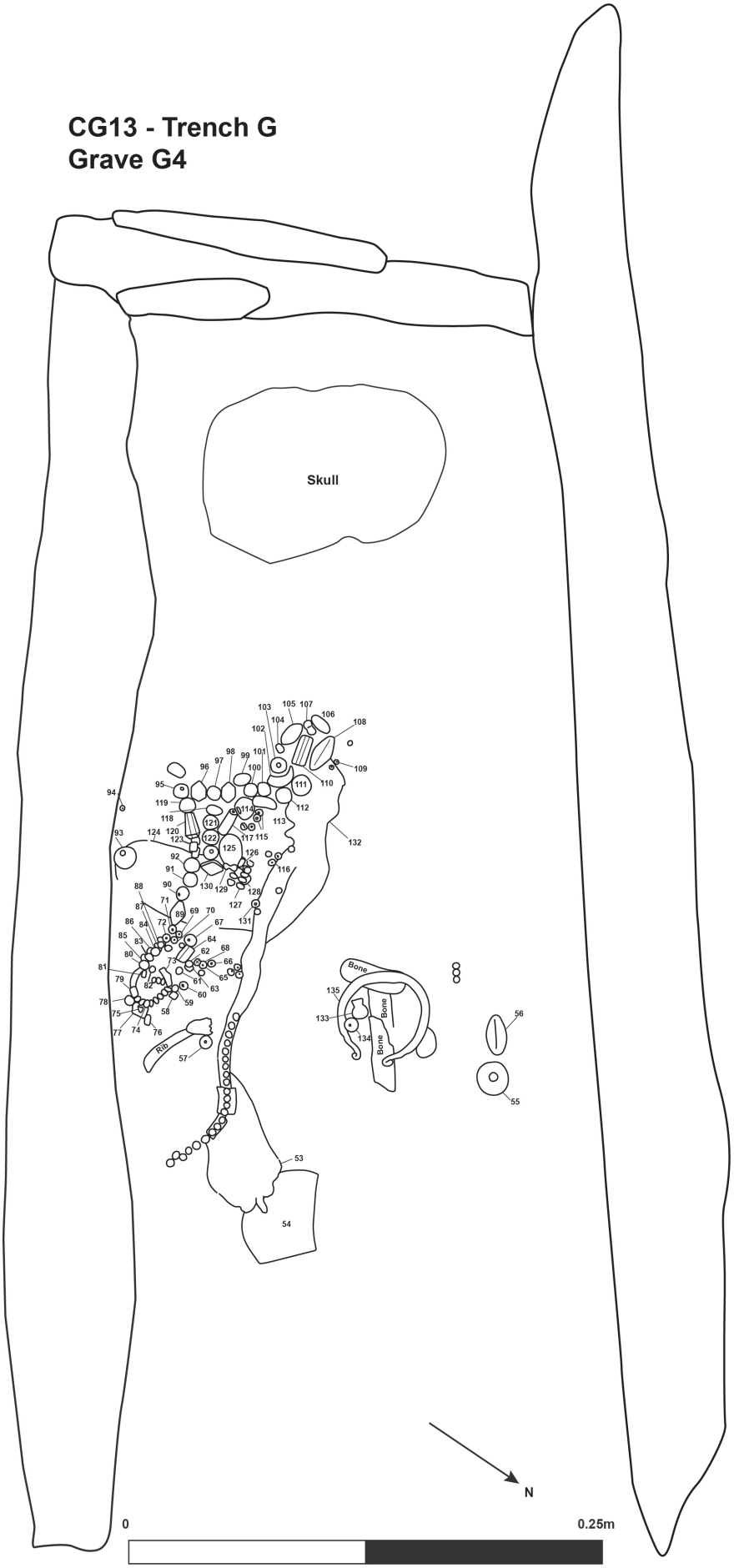


Fig. 6:47: Finds (lower level): beads, evidently strung up on a cord at the time of the burial, formed part of a necklace (or more). (Numbers correspond to find numbers: e.g. 54 is the silver mirror fragment, G.013/54, featuring also on the upper-level plan above.)

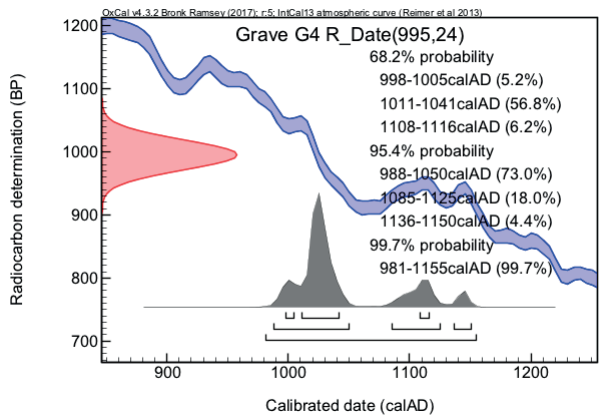
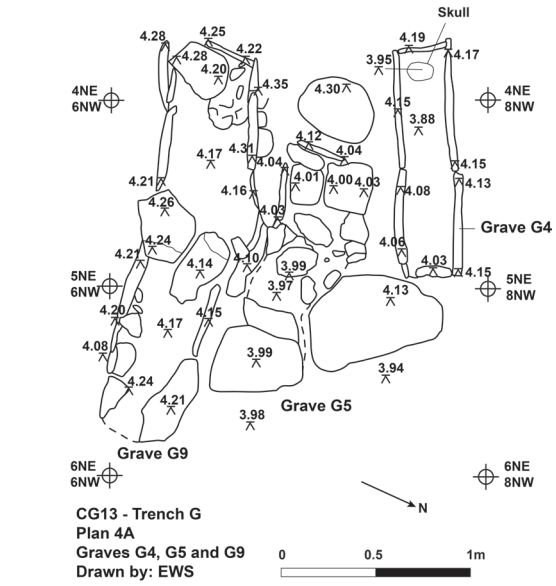


Fig. 6:48: Radiocarbon date of human skeletal remains in Grave G4 (see Table 6:7 for further details).





Figs 6:49–6:50: Graves G4, G5 and G9 appear to form a group, probably all of similar date around the turn of the millennium – perhaps even for members of the same family? G4 and G9 both yielded grave goods with parallels in North-eastern Europe, G5, between G4 and G9, was not excavated.

Table 6:11: Human skeletal remains in Grave G4.

Criteria	*Summary*
MNI	1
Preservation	Very poor
Sex	IN
Age range	7–10 years
Stature	n/a
Dental Non-metric traits	Not observed
Dentition	High frequency of DEH between the ages of 3 and 7 years; extreme attrition

Grave G6 (Figs 6:51–6:57; Table 6:12)

Orientation: West–east; the cranium (to the west) facing south.
Grave dimensions: Maximum length: 1.85 m; maximum width: 0.47 m.
Description: Earth-cut, slate-lined grave.
Burial practices: Individual inhumation.
Body position: On the right side in a semi-flexed position.
Grave goods: None.

Grave G7 (Fig. 6:51)

Orientation: West–east to SW–NE (irregular shape).
Grave dimensions: Maximum length: c. 1.10 m; maximum width: c. 0.45 m.
Description: Earth-cut, slate-lined grave; unexcavated.

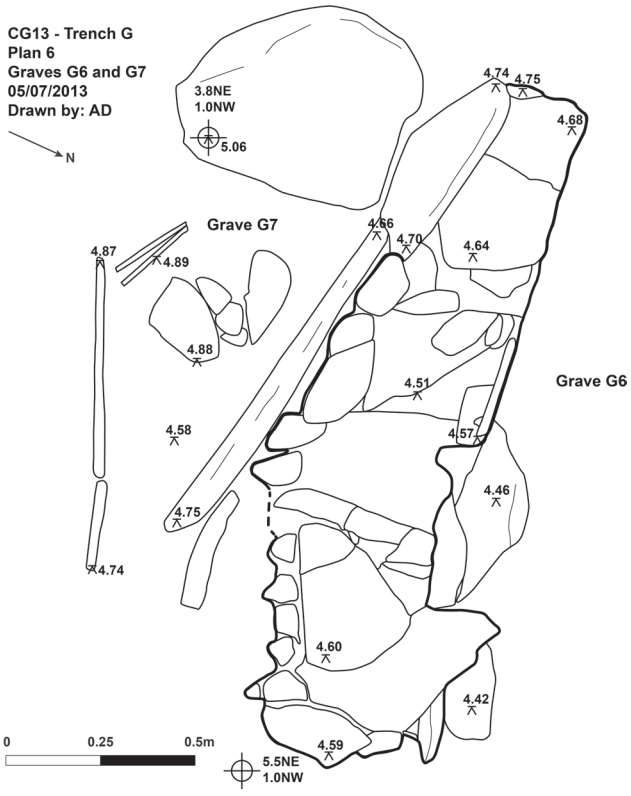
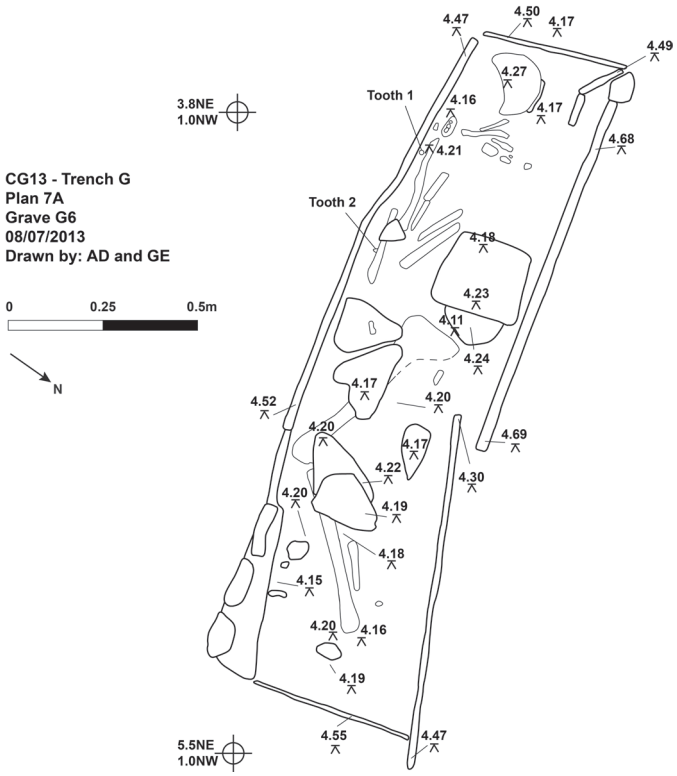


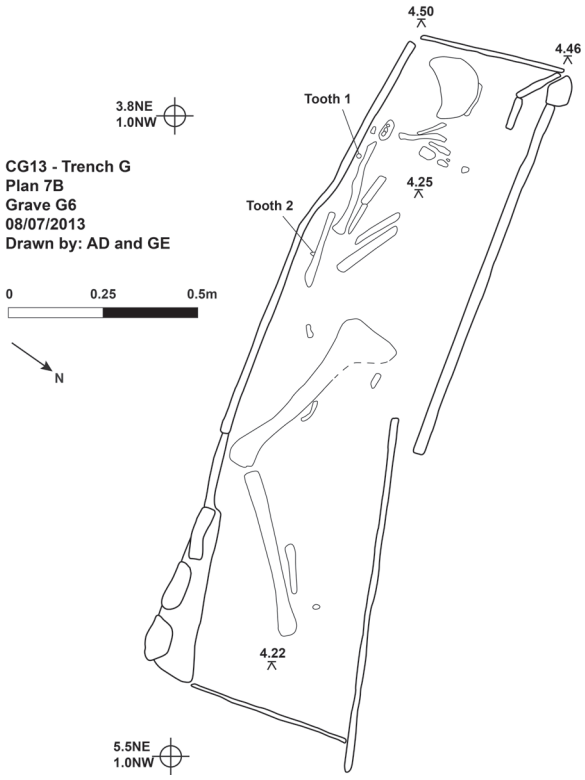
Fig. 6:51: Grave G6 and the unexcavated irregularly shaped Grave G7.

Fig. 6:52: Grave G6's slate cover was well preserved.











Figs 6:53–6:56: Aged 35–45, the man buried in Grave G6 was the oldest individual identified in the cemetery.

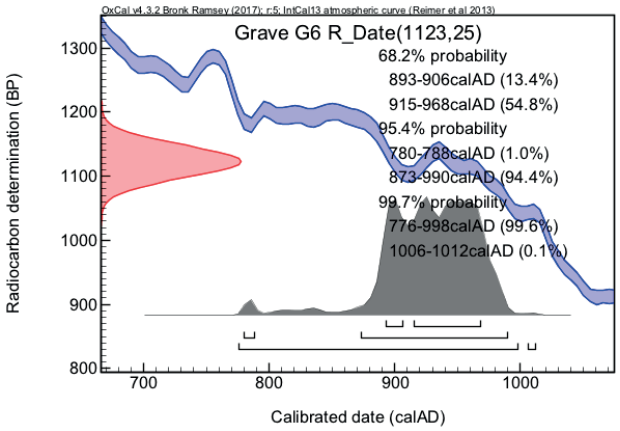


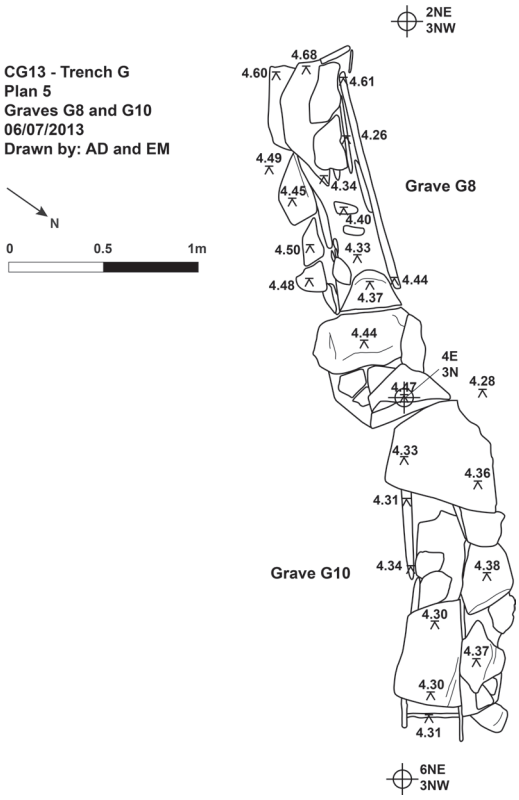
Fig. 6:57: Radiocarbon date of human skeletal remains in Grave G6 (see Table 6:7 for further details).

Table 6:12: Skeletal remains in Grave G6.

Criteria	*Summary*
MNI	1
Preservation	Fair to poor
Sex	Male
Age	35–45 years
Stature	154.8 cm (±4.05)
Pathology	Osteoarthritis and chronic periostitis, DJD; entheseal changes
Dental Non-metric traits	Not observed
Dentition	Moderate attrition

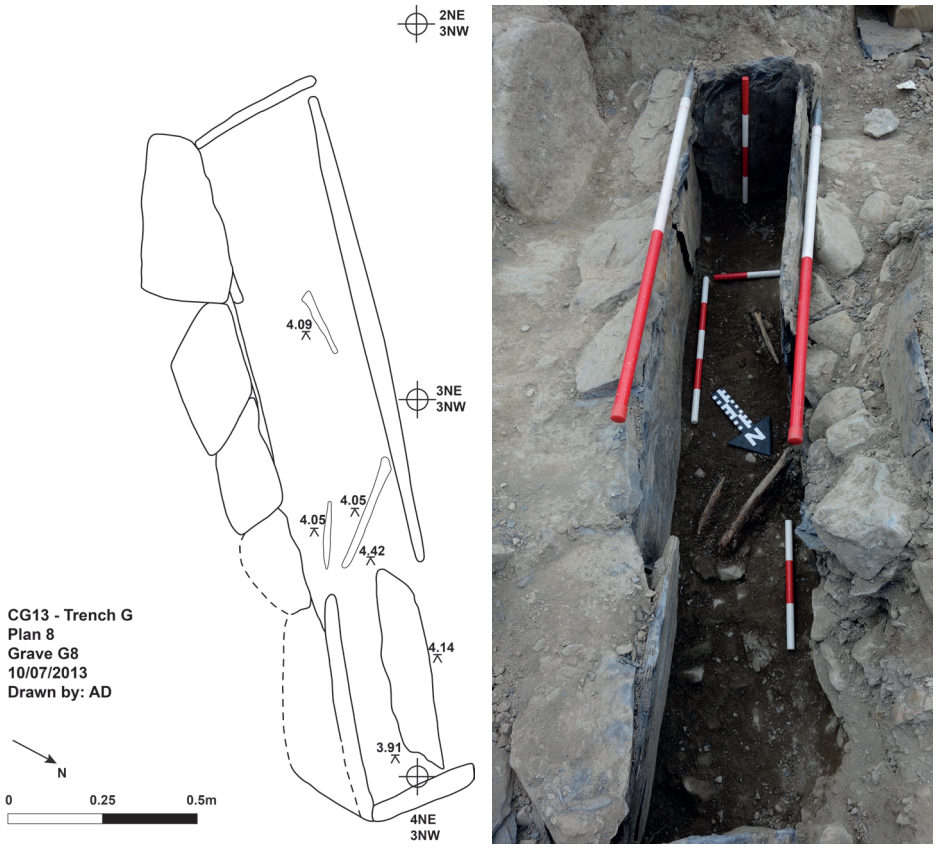
Grave G8 *(Figs 6:58–6:62; Table 6:13)*

Orientation: SW–NE.
Grave dimensions: Maximum length: 1.84 m; maximum width: 0.30 m.
Description: Earth-cut, slate-lined grave.
Burial practices: Individual inhumation.
Body position: On the right side in a semi-flexed position.
Grave goods: None.





Figs 6:58–6:59 (opposite top & bottom): Under a continuous (c. 3.50m long) slate cover, we found two separate stone cists: Graves G8 and G10, the latter only partially excavated and the only grave in Trench G to yield the skeletal remains of more than one individual. Note that the photo and plan face in opposite directions.



Figs 6:60–6:61: Grave G8, probably dating to the ninth or even late eighth century, was the earliest, or amongst the earliest, individual inhumation(s) found in the cemetery.

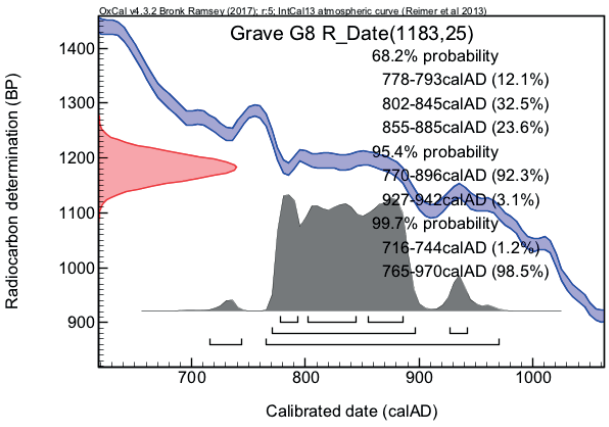


Fig. 6:62: Radiocarbon date of human skeletal remains in Grave G8 (see Table 6:7 for further details).

Table 6:13: Skeletal remains in Grave G8.

Criteria	*Summary*
MNI	1
Preservation	Very poor
Sex	n/a
Age	Probably sub-adult – estimation in years n/a
Stature	n/a
Dental Non-metric traits	n/a
Dentition	None present

Grave G9 *(Figs 6:49–6:50, 6:63–6:65; Table 6:14)*

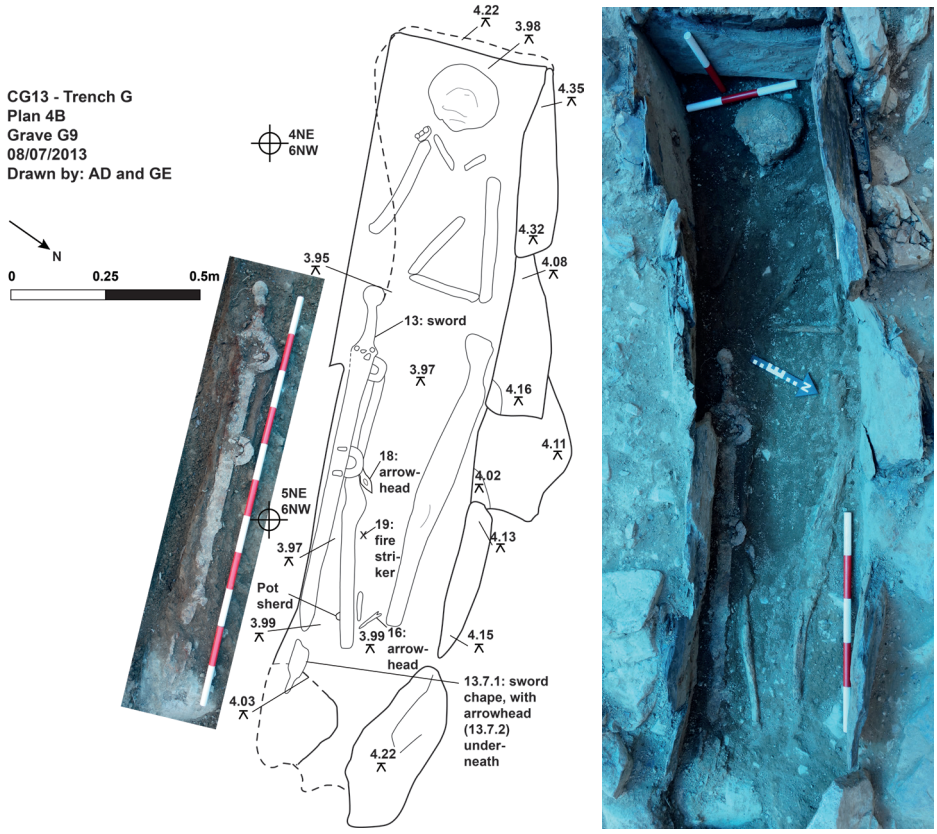
Orientation: SW–NE; the cranium (in the south-west) facing south-east (or upwards?)

Grave dimensions: Maximum length: c. 2.00 m (not clearly defined in the NE); maximum width: 0.43 m.

Description: Earth-cut, slate-lined grave.

Burial practices: Individual inhumation.

Body position: Supine, with arms resting on the abdomen/torso/chest? The legs were slightly flexed and turned towards the right; the head might had been looking south-east as well, but this could be due to taphonomy, as the ligaments around the cervical region are among the first ones to break down during decomposition. If this happens, it usually causes the head to rotate either towards the



Figs 6:63–6:64: A mid to late teenage adolescent, buried in Grave G9, with a sword in its scabbard, three arrowheads and a fire striker.

Table 6:14: Human skeletal remains in Grave G9.

Criteria	*Summary*
MNI	1
Preservation	Very poor
Sex	IN[1]
Age range	15–20 years[2], most probably 15–17 years[3]
Stature	n/a
Ancestry	n/a
Dental Non-metric traits	Not observed
Dentition	Slight attrition[4]

[1] Due to under-representation of the skeletal elements and the ambiguous anatomical characteristics of the available ones (contrary to the preliminary identification as male proposed in Sauer *et al.* 2015, 896 Table 1, 901), no certain conclusions can be drawn on the biological sex of the individual. The excavators think, however, the deceased may have been male, based on the grave goods, a sword, three arrowheads and a fire striker – admittedly a potentially circular argument.

[2] Based on dental attrition: Brothwell 1981 and Lovejoy *et al.* 1985a.

[3] Based on dental eruption: Hillson 1996.

[4] Sauer *et al.* 2015, 896, stating that there is evidence for DEH at G9, appears to have been based on an error.

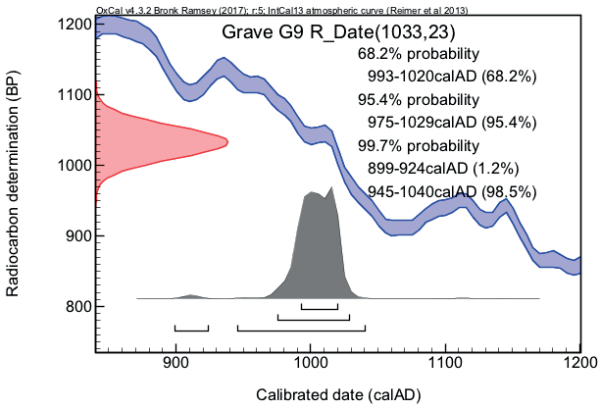


Fig. 6:65: Radiocarbon date of human skeletal remains in Grave G9 (see Table 6:7 for further details).

right or the left. There is no evidence that the head was intentionally positioned so as to look south-east.

Grave goods: Iron sword, with parts of its scabbard and suspension mechanism preserved; three iron arrowheads; an iron fire striker.[24]

Grave G10 (Figs 6:58–6:59; Table 6:15)

Orientation: SW–NE.

Grave dimensions: Maximum length: 1.58 m; maximum width: 0.27 m.

Description: Earth-cut, slate-lined grave; loose teeth retrieved from the top fill, but most of fill unexcavated.

Table 6:15: Human skeletal remains in Grave G10.

Criteria	*Summary*
MNI	3
Preservation	Very poor
Sex	IN
Age range	1× 12 years (±30 months), 1x 2 years (±8 months) and 1x 6–9 months (±2–3 months)
Stature	n/a
Dental Non-metric traits	Not observed

Burial practices: Probably multiple inhumations, unique in Trench G.

Body position: N/a.

Grave goods: None observed, but only top fill excavated.

6.5. Trench AB: individual child graves of the cemetery's later phase (5c)[25]

Trench AB originally measured 1 metre by 5 metres, orientated north-west to south-east. In the south-east, the trench was subsequently extended by a half metre to the north-east, so that the excavated area eventually encompassed 6.55 square metres (Figs 6:66–6:69). Five burials were excavated in total. All five graves were aligned in a row and had a stone lining; in addition to the stone lining, Graves AB3 and AB4 were covered by thin slate slabs. The graves were quite shallow, and it is possible that the other three graves originally had been covered with slate as well, lost through later disturbance. The grave dimensions ranged from 0.15 m to 0.23 m in width internally and from c. 0.44 m to 0.85 m in length.

All five burials in Trench AB contained human skeletal, including dental, remains. The skeletal remains were partially and poorly preserved. While teeth survived, cranial and postcranial remains were minimal. Age estimation was based on dentition, but due to the poor preservation, it was not possible to perform pathological and metric analysis. The five burials excavated in Trench AB were all primary individual inhumations of children.[26] Grave AB1 contained two segmented gilded glass beads.[27] Trench AB belongs to the late phase of the cemetery (ninth/tenth-tenth/eleventh centuries: Table 6:16).[28] There were no grave goods in any of the other burials. Glazed pottery from the topsoil may point to continued visits to the spot, in the shadow of the fallen rock along the main north–south traffic route, in the High or Late Middle Ages.[29]

Catalogue of graves explored in Trench AB

Grave AB1 *(Figs 6:70–6:72; Table 6:17)*

Orientation: SW–NE; body on the right side; the cranium (in the south-west) facing south-east.

Grave dimensions: Maximum length: >0.30 m, c. 0.45 m?; maximum width: 0.17 m.

Description: Earth-cut, stone-lined grave.

Burial practices: Individual inhumation.

Grave goods: Two segmented gilded glass beads from south-east of the skull, probably part of a necklace.[30]



Fig. 6:66: A large rock, embellished by a modern artist with a large human face (background), overlooking Graves AB4 (right) and AB5 (left).

Table 6:16: Radiocarbon dates from Trench AB (see Figs 6:72 and 6:82 for plots of the dates).

Context/ sample no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
AB.004; Grave AB1/s1	SUERC-71963	Grave AB1	Tooth, right perm. max. M1, child (aged c. 3–5)	1126 ± 18 BP	AD 885–977	d13C= -18.6
AB.012; Grave AB4/s5	SUERC-73304	Grave AB4	Tooth, right perm. max. M1, child (aged c. 4–8)	1051 ± 17 BP	AD 974–1021	d13C= -16.9

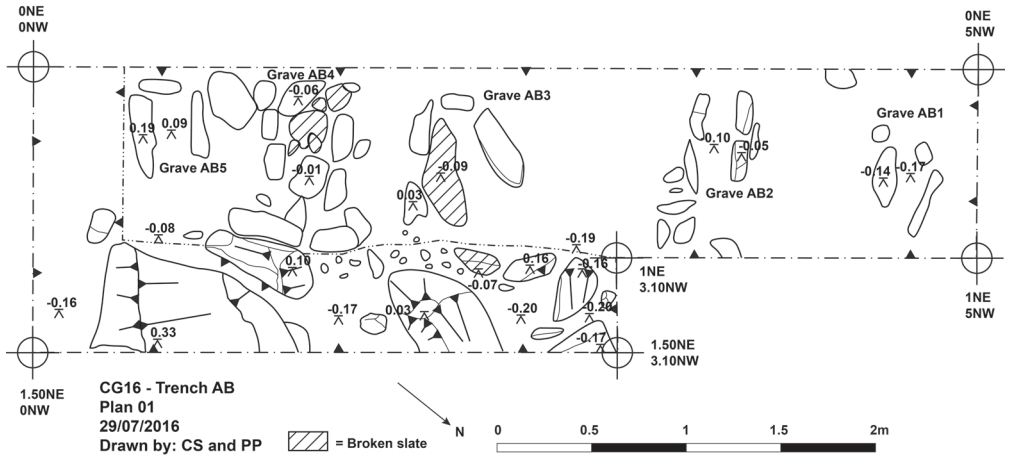


Fig. 6:67: Trench AB, with five child graves and some of the slate cover slabs still in place.

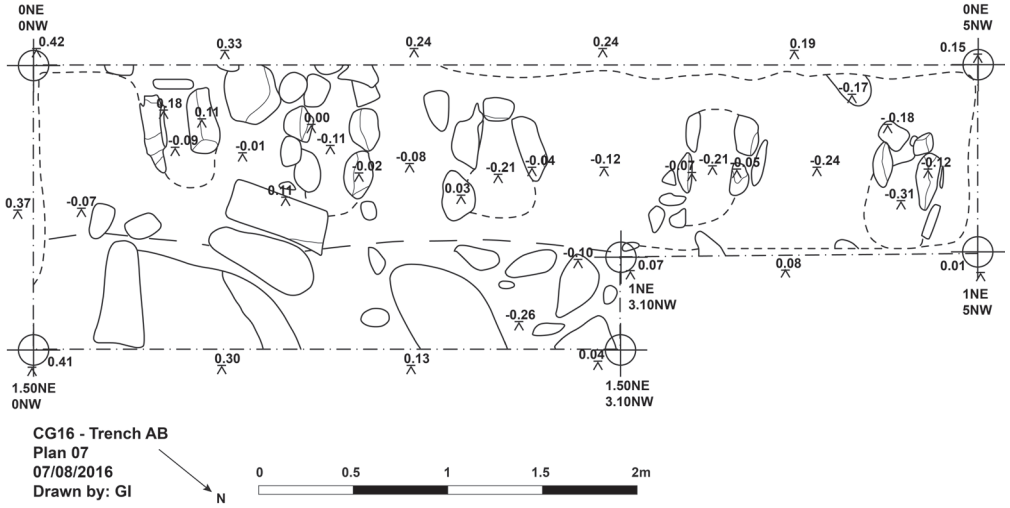
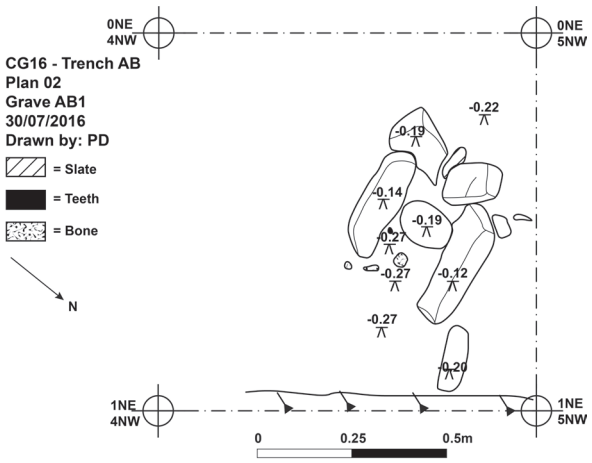


Fig. 6:68: Trench AB, after excavation of the five graves.



Fig. 6:69: Trench AB with five small stone cists after exhumation of the burials. A potential cist in the north-eastern extension of the trench has not been explored. Rectified pole photo by Gabriela Ingle and Eve MacDonald.





Figs 6:70–6:71: Grave AB1.

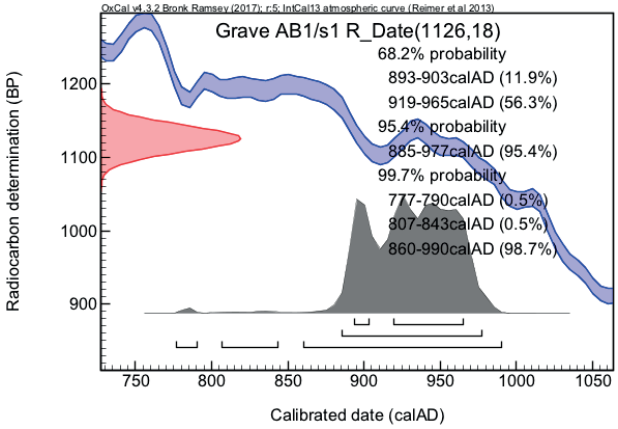


Fig. 6:72: Radiocarbon date of human skeletal remains in Grave AB1 (see Table 6:16 for further details).

Table 6:17: Human skeletal remains in Grave AB1.

Criteria	*Summary*
MNI	1
Preservation	Poor
Sex	IN
Age range	3–5 years
Stature	n/a
Dental Non-metric traits	Not observed
Dentition	Deciduous and permanent

Key for this and the following tables: IN: indeterminate; MNI: minimum number of individuals; n/a: not applicable.

Grave AB2 *(Figs 6:73–6:74; Table 6:18)*

Orientation: SW–NE; body on the right side; the cranium (in the south-west) facing south-east.
Grave dimensions: Maximum length: c. 0.70 m; maximum width: 0.21 m.
Description: Earth-cut, stone-lined grave.
Burial practices: Individual inhumation.
Grave goods: None.

Grave AB3 *(Figs 6:75–6:77; Table 6:19)*

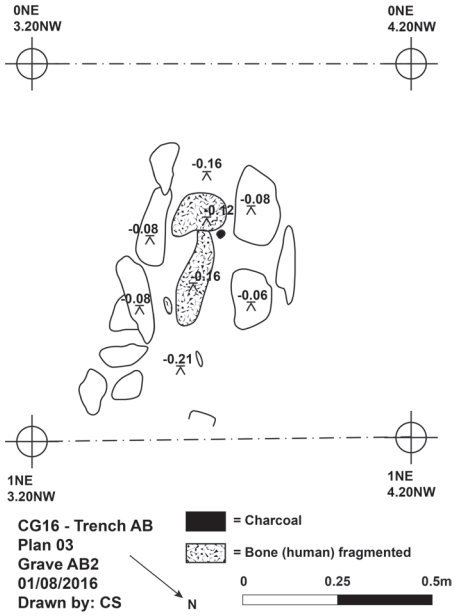
Orientation: SW–NE; body on the right side; the cranium (in the south-west) facing south-east.
Grave dimensions: Maximum length: c. 0.52 m; maximum width: 0.23 m.
Description: Earth-cut, stone-lined grave.
Burial practices: Individual inhumation.
Grave goods: None.

Grave AB4 *(Figs 6:78–6:82; Table 6:20)*

Orientation: SW–NE; body on the right side; the cranium (to the south-west) facing south-east.
Grave dimensions: Maximum length: 0.85 m; maximum width: 0.23 m.
Description: Earth-cut, stone-lined grave.
Burial practices: Individual inhumation.
Grave goods: None.

Grave AB5 *(Figs 6:83–6:86; Table 6:21)*

Orientation: SW–NE; body on the right side; the cranium (in the south-west) facing south-east.
Grave dimensions: Maximum length: 0.44 m; maximum width: 0.15 m.
Description: Earth-cut, stone-lined grave.
Burial practices: Individual inhumation.
Grave goods: None.



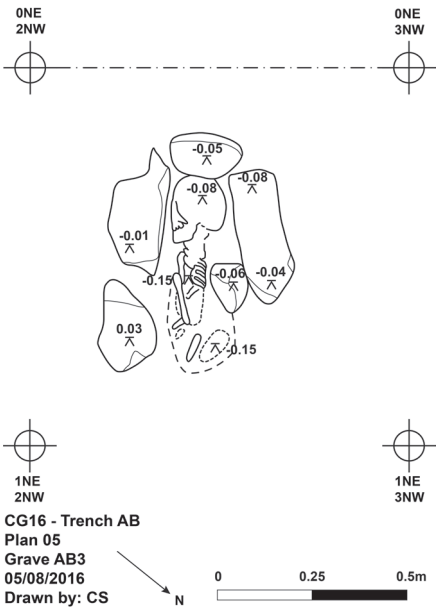


Figs 6:73–6:74: Grave AB2.

Table 6:18: Skeletal remains in Grave AB2.

Criteria	*Summary*
MNI	1
Preservation	Poor
Sex	IN
Age range	3–5 years
Stature	n/a
Dental Non-metric traits	*Shovelling*
Dentition	Deciduous and permanent







Figs 6:75–6:77: Grave AB3.

Table 6:19: Human skeletal remains in Grave AB3.

Criteria	*Summary*
MNI	1
Preservation	Poor
Sex	IN
Age range	7–11 years
Stature	n/a
Dental Non-metric traits	Not observed
Dentition	Deciduous and permanent

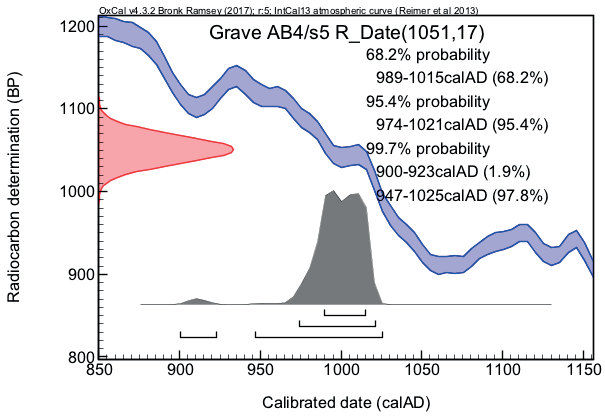


Fig. 6:82: Radiocarbon date of human skeletal remains in Grave AB4 (see Table 6:16 for further details).

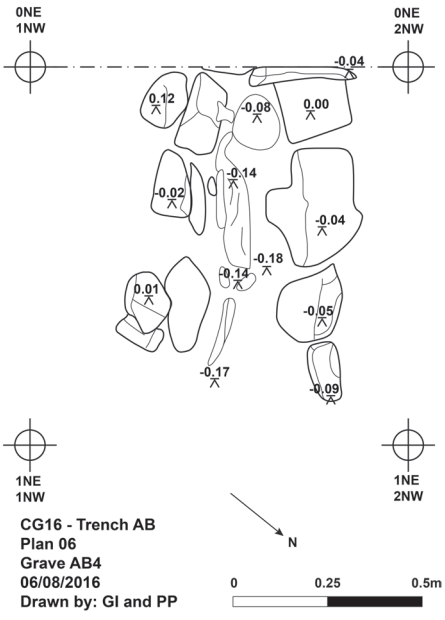
Table 6:20: Human skeletal remains in Grave AB4.

Criteria	*Summary*
MNI	1
Preservation	Poor
Sex	IN
Age range	4–8 years
Stature	n/a
Dental Non-metric traits	Not observed
Dentition	Deciduous and permanent









Figs 6:78–6:81: Grave AB4.



Figs 6:83–6:86: Grave AB5.

Table 6:21: Human skeletal remains in Grave AB5.

Criteria	*Summary*
MNI	1
Preservation	Poor
Sex	IN
Age range	2–4 years
Stature	n/a
Dental Non-metric traits	Not observed
Dentition	Deciduous and permanent

6.6. Burials beyond our trenches (Phase 5b–c)

In addition to the burials recorded within our trenches and those mapped by the landscape team, we were also able to briefly inspect further burials disturbed during modern construction works. Prior to our first visit to the site, the topsoil in and around the area where we subsequently excavated Trench G had been mechanically stripped in preparation for the construction of the nunnery mentioned above. In most areas, these modern earthmoving operations have not destroyed the actual burials and normally stopped above the graves' cover slabs, but removed these occasionally. Near the cliff edge above the River Tergi, east of Trench G, a small area has been more heavily disturbed, perhaps involving the destruction of some graves. During our first visit to the site, on 17 April 2013, we briefly visited this large area cleared by bulldozer. We inspected, at the edge of the most heavily disturbed area, one slate cist, of similar design to those subsequently excavated in Trench G, and found, near the slate lining, a fragment of a skull of a person of c. 18–24 years exposed to the elements. This grave was c. 35 m ENE of the centre of our subsequent Trench G.

Actual construction work on a chapel began only between the 2013 and 2014 field seasons. We do not know if the foundation trench for the chapel dug then disturbed any burials. Considering the general high density of burials nearby and their shallow depth, there is a strong probability that even the foundation trench for this small building will have cut across graves. Towards the end of the 2014 season, the monks dug a foundation trench in the shape of a rectangle of c. 15.50 m west–east by c. 6 m north–south for the nunnery and alerted us to the discovery of a burial. The slate cover plaques of one grave had already been removed, and there was a human tibia on view. Whilst moved by the workmen, the tibia appeared to be in anatomical context, suggesting that it was an individual burial and thus of the same character as the Trench G inhumations. Perhaps it was later than the collective Trench E graves, as also the position between the two trenches in the cemetery (probably generally expanding away from the fort, if not in a neat one-directional manner) may suggest. Nearby, there were two partially exposed slate cover plaques of two further presumed burials, interestingly at a deeper level.[31] A fourth burial was almost completely within the foundation trench.[32] All graves appeared to be slate-lined (also an indication for a later phase), sometimes not in neat west–east orientation, as far as partial exposure in the narrow trench allowed us to tell. South-west to north-east orientation is a further trait these graves have in common with most of their counterparts in Trenches G and AB (as opposed to the east-west aligned burials in Trench E). We cleaned and photographed the graves, but did not excavate them or exhume the remains, nor has it been possible to consider them in our osteological studies.[33]

Catalogue of the inspected graves outside our trenches

Grave c. 35 m ENE of the centre of Trench G[34] (Fig. 6:87; Table 6:22)

Orientation: Unrecorded: SW–NE or west–east.
Grave dimensions: Unrecorded.
Description: Earth-cut, slate-lined grave.
Burial practices: Probably individual inhumation, but disturbed and unexcavated; loose bone fragments observed.
Grave goods: None observed.

Grave between Trenches E and G in the foundation trench of the nunnery[35] (Fig. 6:88; Table 6:23)

Orientation: SW–NE.
Grave dimensions: Maximum length: >0.60 m?; maximum width: c. 0.36 m.
Description: Earth-cut, slate-lined grave.
Burial practices: Probably individual inhumation, but disturbed and unexcavated; loose tibia observed.
Grave goods: None observed.



Fig. 6.87: In the area most heavily disturbed by modern earth-moving operations, to the east of our later Trench G, we saw a slate cist (right), with parts of a human skull lying on top of a rock next to it, in 2013.

Table 6:22: Human skeletal remains at the grave east of Trench G.

Criteria	*Summary*
MNI	1
Preservation	Fairly good
Sex	IN
Age range	18–24 years
Stature	n/a
Ancestry	n/a
Dental Non-metric traits	Not observed

Key for this and following table: IN: indeterminate; MNI: minimum number of individuals; n/a: not applicable.



Fig. 6.88: A narrow foundation trench for one of the buildings of a modern nunnery revealed four probable or certain graves in 2014, including one with the cover plaque removed, framed by slate plaques.

Table 6:23: Skeletal remains in the grave between Trenches E and G.

Criteria	*Summary*
MNI	1
Preservation	Fair
Sex	IN
Age range	Older adolescent or adult
Stature	n/a
Ancestry	n/a

6.7. The chronology of the cemetery (Phase 5)

To judge by the earliest dated human bone sample (from Grave E2), the cemetery was established between AD 671 and AD 770, certainly after the end of the Sasanian era and up to half a century or so before or after the reported arrival of a Muslim garrison in c. AD 727. It remained occupied for a minimum of 219 years and quite possibly for three centuries. In what sequence were the different parts of the cemetery in our three trenches occupied? Below, we have tabulated the maximum and minimum occupation period for the graves in each trench (Table 6:24).

The radiocarbon dates, whilst leaving no doubt that the graves in Trench E are on average earlier than those in Trench G, do not allow us to decide the question as to whether all graves in Trench E are earlier than all in Trench G or whether the two groups of graves might overlap in time. The latest grave in Trench E (E3, dating to AD 778/988) could be up to 164 years earlier or up to 218 years later than the earliest grave in Trench G (G8, dating to AD 770/942) – or more, if going beyond the 95.4% probability range.

Poor preservation also resulted in an unusually low success rate in radiocarbon dating for the child burials in Trench AB. Of five samples submitted for dating (one from Grave AB1, two from Grave AB4 and two from Grave AB5), only two proved to be datable. We are, however, confident that these are representative, in the light of the similarity of the graves and their neat alignment in a row. The samples, dating to AD 885/977 (Grave AB1) and AD 974/1021 (Grave AB4), suggest that the graves in Trench AB may be contemporary to, and certainly overlap in time with, those in Trench G. Whilst the two dated child burials in Trench AB could in theory be contemporary, Grave AB1, the northernmost burial in the trench, is likely to be earlier than Grave AB4, the second burial from the southern limit of the trench. We may thus conclude that the first child to be buried in the row of graves in Trench AB was probably in Grave AB1, closest to the fort, the last, in Grave AB5, at the greatest distance from the fort. The row may well have extended beyond the limits of our trench and there could have been parallel rows, notably in the east. In the west, a large rock, now adorned with a human face by a modern artist, and extensive rock debris (unless a result of rockfall over the past millennium) would have prevented cemetery expansion.

We may conclude that the earliest graves in Trench E are earlier than those in Trenches G and AB, and the latest graves in Trenches G and AB later than those in Trench E. Burial in Trenches G and AB are either contemporary or chronologically overlapping. The latest dated individual in Trench E (from Grave E3) died (at a 93.0% probability) no earlier than AD 867. The earliest dated individual in Trench G (in Grave G8) died (at a 92.3% probability) no later than AD 896. There is a high probability that the cemetery in Trench E continued to be used until at least the AD 860s, whilst the cemetery expanded into, or a second burial ground was established in, the area of Trench G by the late ninth century at the latest, but possibly already a century before. We cannot tell if the earliest grave in

Table 6:24: Occupation of the cemetery within the three excavated trenches.

Trench	*Earliest grave(s) at 95.4%*	*Latest grave(s) at 95.4%*	*Number of dated individuals*
E	AD 671/770	AD 778/988, prob. 867/988	3
G	AD 770/942, prob. 770/896	AD 989/1150, prob. 989/1035	7
AB	AD 885/977	AD 974/1021	2

Trench AB dates to the late ninth century too or only to the tenth century.

Whilst these scientific dates allow for an overlap in time, several observations suggest that either all graves in Trench E are earlier than all in Trenches G and AB, or (if they overlap in time) that they served different communities observing different customs. Perhaps burial rites changed in the last third of the ninth century, perhaps there were separate cemeteries for cohabitant communities of different religion and/or ethnicity. Differences in customs between the graves in Trench E, as opposed to those in Trenches G and AB, may be summarised as follows:

- There appears to be a difference in grave architecture: four graves in Trench E were lined by stone blocks (other than slate plaques) and covered by stone or slate slabs. Only two (E1 and E6) were lined mainly by slate plaques, as opposed to all graves in Trench G being lined by slate plaques. Graves in Trench G were also of smaller dimensions than those in Trench E (except for Graves E4 and E6, probably exclusively for children). None of the graves in Trench AB, all individual and for young children from the late phase of the cemetery, were lined with slate (even if they were covered with slate slabs), suggesting that the shift from using other stone to slate may only apply to larger stone cists or that different materials were employed in different parts of the cemetery.
- Customs appear to have changed in terms of quantities and types of grave goods. Two of the graves in Trench E (E2 and E3) contained a few items of personal jewellery of copper alloy or glass, the three other excavated graves, none. By contrast, in Trench G most burials (four, not counting disturbed context G3 or partially excavated Grave G10) were without any grave goods, whilst two (G4 and G9) were much richer than any in Trench E, in terms of the quantity of items per individual and quality, as far as some of the items are concerned. In Trench AB, just one grave (AB1), out of a total of five, yielded grave goods: two beads that formed probably part of a necklace – a much poorer assemblage than Grave G4's 161 beads plus other artefacts. The two rich graves were both in Trench G, whilst there was none in broadly contemporary Trench AB. This cannot be explained by differences in the age of individuals, those buried in Trench G being on average much older than those in what appears to be a child cemetery in Trench AB. Grave G4 was for a child, aged 7–10 years, of similar age to the oldest individual in Trench AB (in Grave AB3). The two beads from Grave AB1, for a 3–5-year-old, furthermore, prove that there was no taboo against providing even younger children with grave goods. Whilst it is anthropologically impossible to sex young children, research in the Upper Volga region on tenth to thirteenth-century cemeteries has shown that adults were buried with typical male and female gear; children by contrast wore jewellery similar to that of adult women (if with some differences) or were buried without grave goods – suggesting that young boys were normally buried without grave goods or non-organic dress ornaments.[36] Whilst male graves could contain a small number of beads, those with numerous beads appear to be female.[37] Such comparative evidence suggests that the unsexed child in Grave G4 was a girl. The sample, of five to six fully excavated graves in each trench, is too small for meaningful conclusions as to the reasons for the difference. It is worth noting that the two rich graves from Trench G are both of the latest phase, whilst the earliest graves from Trench G are without any grave goods. Overall, there seems to be a shift in Dariali Cemetery from few (invariably modest) or no grave goods in all earlier burials, up to the third quarter of the tenth century, to rich assemblages, but for selected individuals only, towards the turn of the millennium.
- All graves in Trench E, from which human remains have been recovered, are collective graves, whilst all graves in Trench G (with the sole exception of the superficially explored Grave G10) are individual graves, a strong argument for assigning them to different phases, before and after a significant change in burial custom – or to two separate communities partially overlapping in time. In contrast to the previous points, the pattern is almost uniformly different and certainly statistically meaningful.
- There appears to be a spatially separate cemetery for infants in (and around?) Trench AB, contemporary to the cemetery for adults in (and around?) Trench G, but no such age separation in Trench E. There are human skeletal remains of all age groups, including infants and two miniature stone cists specifically for infants (even if in one of them, E6, no skeletal remains survived) from Trench E, but neither any infant skeletal remains nor any small stone cists from Trench G.
- Graves in Trench E are in neat west-east-orientation, whilst graves in Trenches AB and the majority in Trench G are aligned south-west to north-east.

It is normal for cemeteries to be extended, bit by bit, away from the settlement. Assuming those buried lived on Dariali Fort, it would make sense for the graves in Trench G, some 70–90 m further away from the fort than those in Trench E, to belong to a later phase. Trench AB is, of course, closer to the fort, suggesting that there was also a westwards expansion towards the slope. Even within Trench G, the postulated expansion of the cemetery is, of course, not necessarily neat and uniform, and it is worth noting that within Trench G the most recent burials are

closer to Dariali Fort than three slightly more ancient ones further south.

For the graves revealed in the foundation trench of the nunnery, we have no radiocarbon dates and so little has been exposed of them when we were on site that it cannot be established whether or not any of them contained grave goods. These graves, from our limited observations, have much in common with the graves in Trench G (and, to a lesser extent the child burials in Trench AB): slate-lining, similar orientation and individual inhumation(s), if the one grave sufficiently exposed, is representative. Location between Trenches E and G might suggest a later occupation than E and earlier than G, if the cemetery gradually expanded away from the fort. The relative chronology of the graves under the nunnery to those in Trench G is, however, far from certain. The late date of the graves in Trench AB and the fact that the latest graves in Trench G are closer to the fort than the earliest, proves that the expansion of the cemetery was not one-directional. We, furthermore, cannot tell if there was just a single cemetery expanding or if there were separate burial grounds, perhaps growing together as they expanded over time.

If all collective graves in Trench E are earlier than all individual graves in Trenches G and AB (and those under the modern nunnery), then the most likely date for this change in custom may indeed fall between the AD 860s and 890s, although an earlier time, perhaps even as early as the AD 770s, cannot be ruled out. The alternative scenario of two separate cemeteries (one practising collective, the other, individual inhumations) overlapping in time may be easier to reconcile with the evidence. Whether collective and individual inhumation were practised simultaneously for a time or successively, the latter prevailed and became the sole burial form towards the end of the millennium.

How long did the cemetery, as far as excavated, remain in use? Grave G4 could in theory be as late as AD 1150 (the *terminus ante quem* at 95.4% probability). It is worth noting, however, that the latest *terminus ante quem* for the three samples from G3 is similar (AD 1154), whilst combining the three dates provides a much earlier *terminus ante quem* of AD 1029. As Grave G4 is parallel to Grave G9 (and to unexcavated Grave G5), both yielding rich grave goods with northern parallels, it seems a near certainty that the graves form part of one group, sharing similar traditions. Perhaps there were even family ties between the individuals in Graves G4, G5 and G9, dying in succession.[38] Grave G4 thus cannot be much later, nor much earlier, than G9 (AD 975/1029), and it follows that the likely date for G4 is between AD 988 and first third of the eleventh century. No other grave in Trench G has yielded a *terminus ante quem* after AD 1035 (Grave G6), and we assume that none is much later than the AD 1030s at the latest. The end date around the turn of the millennium interestingly matches the results of our excavations on Dariali Fort where intensive activity throughout the tenth century is followed by a long hiatus from the late tenth or early eleventh century until the later thirteenth or fourteenth century with no certain proof so far for occupation within the area of our trenches.[39] Several graves have yielded *termini post quos* in the 970s and 980s and the cemetery cannot have been abandoned before c. AD 989 at the earliest. As far as the excavated areas are concerned, it seems that graves ceased to be dug at some stage between c. AD 989 and 1035. One wonders where the late medieval occupants of the fort were buried – perhaps further away from the fort and to the south of Trench G?

6.8. The early medieval cemetery and the religion of the garrison (Phase 5)

6.8.1. Religion at Dariali, wider Transcaucasia and the steppe world in the Early Middle Ages

Burial practices observed at the cemetery cannot be understood in isolation. Dariali, at the very point where north and south met and clashed, was heavily contested between different faith groups and competing powers. A brief survey of the religious history on both sides of Europe's highest mountain range is necessary to set the scene. Whilst much of the population of Iberia and its successor states (although not necessarily at the northern margins) appears to have retained their Christian faith throughout the period the cemetery was used, Islam made inroads into the region. From the late seventh/early eighth century onwards, the Caliphate was the dominant power in the region. This, in terms of geographic extent, greatest mega-empire the Mediterranean and Near Eastern world had seen, stretched by the AD 710s from the Atlantic Ocean to Western India and from Southern Arabia into Central Asia and the Caucasus. In the AD 730s, it reached arguably the zenith of its power, advancing into Gaul and the northern European Steppes, forcing for a short period even the Khazar khagan to convert to Islam.[40] It was also around this time, perhaps in AD 727 (and no later than AD 732 at the latest), that according to Mas'udi, the Dariali Pass was occupied by an Arab garrison, whose descendants reportedly still guarded this strategically vital site in his own time, some 200 years later. According to the ninth-century historian Baladhuri, a cavalry guard with a stipend was stationed at the Alan Gates in AD 758.[41] We found incidentally no Arab coins in our excavations so far, even if there were two from the Gigias Satibi Cemetery further north,[42] and there is no proof for the garrison having received any monetary stipend. If Baladhuri and Mas'udi are both reliable, this later garrison can only have supplemented and not replaced the earlier garrison attested by Mas'udi to have guarded the Gates for at least two centuries from c. AD 727 onwards.

Already in the AD 730s the tide was beginning to turn, and the rapid expansion of the Caliphate in the west ground to a halt. Eventually, the mega-empire fractured, and principalities

at its margins increasingly gained power and autonomy. The Emirate of Tbilisi,[43] which emerged in the region, will have maintained a strategic interest in the Caucasus and Dariali Fort in particular. Whilst Tbilisi remained under Muslim rule until AD 1121[44] and Dariali Fort reportedly until at least AD 943, Islam did not become the dominant religion practised in the area. According to Mas'udi's testimony,[45] the supply convoys for the garrison from Tbilisi, five days from the Dariali Gorge, had to cross 'infidel' lands.

One wonders how the loyalty of the isolated outpost's garrison to their distant southern commanders or fellow believers could have been safeguarded. Was it indeed through material support or a shared religious conviction or both? Such material support need not have been in coinage that may have been difficult to spend in an alpine economy. Instead, the above-cited provisions from Tbilisi would undoubtedly have helped to sustain the garrison in their inhospitable environment. It is worth noting, however, that Dental Enamel Hypoplasia, an indication for stress episodes in the form of illness and/or malnutrition during childhood, occurred amongst most of the individuals (some in particular having suffered from these frequently).[46] These include those apparently receiving food from the south, suggesting that food provisions were not lavish or did not arrive regularly. This is perhaps unsurprising in the light of the likely difficulties in getting convoys across the Caucasus, notably in winter. Dariali's occupants appear to have possessed no exceptional wealth to attract merchants from afar. It is remarkable that the garrison appears to have maintained its links with the south nonetheless for centuries: from the arrival of the Arabs in the AD 720s (with some descendants reportedly staying on, however much supplemented by potential later newcomers) for over 250 years. They endured harsh living conditions and did not always enjoy a rich diet, despite the recorded supplies from Tbilisi.[47] Interesting in this context is that Vladimir Minorsky argues that the provisions were 'voluntary pious contributions' for fellow Muslims.[48] If these provisions were indeed voluntary donations, rather than part of a state-sponsored military supply chain, this may explain why they did not suffice for a healthy diet, not to mention the difficulties in getting regular supplies over the Caucasus through potentially hostile territory, notably in winter. If food should indeed have been in short supply, then one wonders how this might have affected the garrison's loyalty and whether it might have made it potentially susceptible to bribery. The ties to the south may not have been very tight. The garrison of Dariali Fort may have been Muslim, real or nominal, and may have benefitted from occasional 'food parcels'. They need not have been under a tight regime and to what extent they received and followed orders from Tbilisi is hard to tell.

Constantin Zuckermann is sceptical towards Mas'udi's account, neither believing in the Emirate's continued control of Dariali nor in it providing provisions, whilst Bernadette Martin-Hisard gives credence at least to Mas'udi's claim of Tbilisi sending supplies to Dariali.[49] André Miquel, in opposition to Minorsky's and Zuckermann's points of view, saw the principality of Tbilisi as a vital point in the defence of the Muslim world against the threat from the north, as it provided logistical support for the garrison of the Alan Gates.[50] The truth may well lie in between these divergent hypotheses. Catriona Pickard's isotope analysis and Lyudmila Shumilovskikh's archaeobotanic investigations have clearly proven that food from warmer environments reached Dariali's occupants over centuries,[51] whilst the cited indicators for stress in the form of illness and/or malnutrition might suggest that supplies did not always suffice to ensure a rich and healthy diet for all the fort's inhabitants. One might have expected greater efforts in provisioning the garrison, had the Emirate considered maintaining this strategic frontier post a top priority. The Tsanars/Kakhetians would, of course, also have had access to food grown in the lush lowlands. There is no way of telling, on the basis of the material evidence, if the supplies were sent from, or through the agency of, Tbilisi or Kakheti. It seems improbable, however, that Mas'udi's specific claim was fictional, in terms of Tbilisi's involvement, if demonstrably truthful, in terms of outside supplies reaching the fort.

Mas'udi's testimony implies that the garrison from the eighth into the tenth century at least was Muslim, but surrounded by non-believers. Furthermore, there is evidence that groups of northerners not just repeatedly invaded, but were occasionally also admitted and settled south of the main range of the Caucasus in the later first millennium. They appear to have included converts to Islam as well as probably immigrants sticking to a greater or lesser extent to their native religion.[52]

The state dominating the steppe zone north of the Caucasus and the Black Sea from the seventh to the tenth century, the Khazar Khaganate, adopted Judaism around AD 800,[53] arguably the largest and most powerful state ever to have adopted this non-proselytising Abrahamic religion, but how widely Jewish beliefs permeated the steppes of northern Europe at the time is hard to gauge. According to Ibn Fadlan, there were also Christians, Muslims and idol worshippers, amongst the Khazars in the AD 920s, the former two religions enjoying the greatest following; idol worshippers were fewer in numbers and Jews, even if espoused by the king and his entourage, fewer still.[54] According to some Islamic sources, furthermore, Christianity had made inroads into Alan territory immediately north of the Dariali Gorge from the eighth century onwards, whilst pagan beliefs remained vibrant.[55] Christians are also reported to have lived in the Caucasus near the Dariali Gorge in the tenth century.[56] Allegedly Christian missionary activity had reached as far as the Alan Gates already in the fourth century.[57] The practice of equipping the dead with a rich array of items for the afterlife suggests, however, that

none of the religions of the book completely transformed burial customs in the Steppes of Eurasia before the second millennium AD.

6.8.2. Collective burials

What does the material evidence reveal about the garrison's faith? All graves were in stone cists, a form of burial that had become dominant in the region[58] already before the start of the cemetery's occupation. Those in Trench E were all collective burials, aligned west–east. This is common already in Late Antiquity in Iberia, and we see a general trend towards collective burials with few grave goods and none other than personal items.[59] Stone cists were ideally suited for such collective graves as, unlike timber-lined tombs, the heavy slabs covering them prevented them from collapsing and filling up with sediments (if the human remains were, of course, covered with some soil). They became the dominant tomb form in Iberia at the same time as Christianity spread, and they are characteristic of early Christian graveyards in eastern Georgia.[60]

The late antique to early medieval Iagsari cemetery, attributed to the fifth and sixth centuries AD, near Matani in the southern Caucasus, provides an interesting comparison. It contains a mixture of individual and collective burials, bones in the latter not as disturbed as in the Dariali Cemetery, and normally in anatomical connection. At Iagsari (as in Trench E in the Dariali Cemetery), there were also no grave goods other than some personal items, notably pins, and in some three quarters of burials there were no grave goods at all.[61]

At Chorati, near Vale and west of Akhaltsikhe, a late antique cemetery of the fifth to eighth centuries AD has been excavated which provides interesting parallels to the burial practices encountered in Trench E (Table 6:25):

- Six of the 16 excavated graves were collective burials, the number of individuals in these ranged from two to 16 per grave (16 children, 14 men and 11 women in total, thus representing a cross-section through society with no clear bias for either sex).
- In the collective burials, the bones of earlier burials had sometimes been pushed aside to make way for later inhumations.
- Skulls were, in the vast majority of cases, to the west.
- In some cases, the faces had clearly been turned south.
- Grave goods, if any, were confined to a small number of personal items of jewellery, with the exception of two earrings, none of precious metal: five bronze finger rings, two silver earrings, one iron bracelets, a cowry shell and glass beads. Interestingly, only one of the ten individual graves contained grave goods (beads in a child's grave), whilst two thirds of the collective burials did (perhaps in part a result of the greater number of persons per grave).
- Four of the 17 graves (one of them not fully excavated) were stone cists (and these all contained more than one individual), the rest were timber-lined.

Table 6:25: Late antique graves from Chorati Cemetery.[1]

Grave	*No of individuals*	*Children*	*Men*	*Women*	*Grave goods*	*Finger-rings*	*Ear-rings*	*Bracelets*	*Beads*	*Cowry shells*	*Lining*
1	4	1	2	1	yes	1	0	0	0	0	stone
2	16	7	5	4	yes	2	2	0	0	1	stone
3	1	1	0	0	no	0	0	0	0	0	timber
4	4	2	2	0	yes	0	0	1	0	0	stone
5	?	?	?	?	?	?	?	?	?	?	timber
6	1	0	0	1	no	0	0	0	0	0	timber
7	1	1	0	0	yes	0	0	0	yes	0	timber
8	1	0	0	1	no	0	0	0	0	0	timber
9	3	2	1	0	no	0	0	0	0	0	stone
10	1	0	0	1	no	0	0	0	0	0	timber
11	1	0	1	0	no	0	0	0	0	0	timber
12	2	0	1	1	no	0	0	0	0	0	timber
13	1	0	1	0	no	0	0	0	0	0	timber
14	1	0	1	0	no	0	0	0	0	0	timber
15	1	0	0	1	no	0	0	0	0	0	timber
16	2	2	0	0	yes	2	0	0	0	0	timber
17	1	0	0	1	no	0	0	0	0	0	timber
Total	**41**	**16**	**14**	**11**	**n/a**	**5**	**2**	**1**	**n/a**	**1**	**n/a**

[1] *Source:* Chikhladze 2010.

The absence of timber-lined graves in the Dariali Gorge, where stone is in such plentiful supply and timber needed as firewood, will reflect the environment, rather than cultural or religious traditions. Otherwise the parallels are strikingly close. Yet, there is also one difference worth noting: in some graves at Chorati, as well as at several other late antique cemeteries in Iberia, plausibly interpreted as being Christian, the deceased were lying supine, sometimes with their hands folded. A mounted figure on a ring worn by a male in Grave 1 has been convincingly interpreted as St George, revealing that the deceased were, or at least included, Christians – even if there is no certain way of telling if other faiths might have been represented too. Whether or not the tentative interpretation of a schematic figure on another ring, from Grave 16, as a deity is correct is hard to decide.[62]

The spatial distribution of human skeletal remains within the burials from our excavations provides further potential clues for the faith of the deceased. In Trench E, body position for the inhumations could not be determined, since all of the graves produced disarticulated, commingled remains, pointing towards consistent use of the same grave for multiple burials and mortuary practices that may have involved secondary burial and/or redeposition. Orientation was determined based on the position of the cranium (or parts thereof). Accordingly, the skeletons in Graves E1 and E4 were aligned west–east with the head to the west, while skeletal material in Grave E2 was aligned north-east to south-west with the head facing south-east. Two burials contained fairly complete crania *in situ* that were facing to the south (Graves E1 and E2). In Graves E2 and E3, the remains clearly cluster in the east of the stone cist.[63] It is tempting to follow Besarion Jorbenadze who interprets the collective graves as (Christian) family burials. Jorbenadze interestingly observes that the bones of those buried earlier were moved to the east of the grave to make way for other deceased individuals. The same phenomenon is also evident at Dariali, where in Graves E2 and E3, the commingled skeletal remains also all cluster in the east of the stone cists. The last skeleton, according to Jorbenadze, is found in an extended position, if the burial was undisturbed[64] – an observation unparalleled within the small number of graves at Dariali, where all skeletal remains in Trench E appear to be commingled.

Islamic-era (ninth and tenth-century) collective burials with the skeletal remains of up to 52 individuals of all ages and both sexes, earlier skeletal remains pushed aside to make way for new burials, were also found at Siraf on the Persian Gulf (but without recorded bone clusters in the east of graves). Bodies were in west–east and north–south alignment and grave goods included personal items, such as finger rings, beads and bracelets as well as pottery and, rarely, glass vessels. The excavator, the late David Whitehouse, struggled to explain this phenomenon, arguing that it would have been unacceptable to Muslims, Christians and Jews and tentatively attributed the collective burials to a nominally Muslim community.[65] The parallels from elsewhere in Georgia are closer to the Dariali burials than those from Siraf, in terms of both spatial distribution of remains and choice of grave goods, but whether this reflects geographic proximity or provides clues to the religion of the deceased is hard to decide. It seems that there were both Christian and Muslim communities who found collective burials with a modicum of grave goods perfectly acceptable. The burials in Trench E evidently follow mainstream burial traditions in Early Medieval Transcaucasia, indicating perhaps that those buried were indeed of mainstream (Christian) faith, but Muslims may have seen no problem in adopting local forms of collective burials and grave goods, if similar traditions were not unheard of in the heartlands of Islam.

Osteological evidence that suggest possible Asian-derived biological ancestry for the young woman in collective Grave E2, dating to c. AD 671–770, make one wonder if she could be a first or second-generation Arab immigrant – in which case, she probably adhered to the Muslim faith. Yet, even if Asian-derived ancestry is accepted, population movements in the steppes from Eastern and Central Asia provide an alternative scenario. We should not exclude the possibility that those buried in the collective graves in Trench E were Muslims in contact with, or heavily influenced by, local Christians. Yet, in light of the close parallels to contemporary Christian burials in Transcaucasia, this seems unlikely.

The case for the collectively buried individuals in Trench E perhaps being Christians seems stronger.[66] They range from the late seventh or eighth century to at least the AD 770s, but more probably to the last third of the ninth century or beyond. As there is no evidence for much, if any, extramural settlement, it seems unlikely that the graves belong to a segregated settlement outside the fort walls. It now seems that there may well have been people of Christian faith housed within the fort at a time when Mas‘udi attests an Arab garrison. Probable wine and, in small quantities, pork consumption within the early medieval fort also points to a not exclusively Muslim garrison.[67] There are, however, as will be explored in the next section, individual graves that may be Muslim. As far as excavated examples are concerned, these are mostly later and cannot be explained as an eighth-century Muslim garrison ousted by Christians – not to mention that the above-cited cemetery at Gigias Satibi north of Dariali Fort contained not just two early ninth-century Arabic coins, but a ring mentioning Allah, circumstantial evidence for continued Muslim presence (or at least strong influence).[68] At least two faith communities were probably present on the rock simultaneously, perhaps helping to explain the Emirate’s continued efforts to sustain their fellow believers and Christian (Tsanar/Kakhetian) collaboration in this endeavour.

6.8.3. Individual inhumations

The burials in Trenches G and AB are, in contrast to Trench E, almost exclusively, individual burials (partially exhumed Grave G10, with the remains of three persons, being an exception). Despite the small sample and rather poor preservation of the skeletal elements, meaningful observations can be offered about the positioning of the bodies, that was overall remarkably consistent. The articulated burials in these two trenches are mostly oriented south-west to north-east, in some graves in Trench G also west–east. In all fully excavated undisturbed graves, the head is always in the south-west or west (*i.e.* in Graves G1–2, G4, G6, G8–9 and AB1–5). In Trench G, body position could be accurately determined for four of the inhumations. The skeletons in Graves G1, G2, G6 and G8 were lying semi-flexed on their right side facing south or south-east. Body position for skeletons in Grave G4 and Grave G9 could not be determined with certainty, due to the fact that nearly all skeletal elements were affected by diagenetic processes. The cranium was poorly preserved in Grave G4, but the position of the necklace and jewellery suggests that the individual was probably lying on the right side in a semi-flexed position and the cranium possibly facing south-east.[69] The individual from Grave G9 was lying supine with both legs slightly flexed to the right, the arms probably lying on the abdomen (left arm) and slightly flexed on the right side (right arm); the head may originally have faced south-east, but we cannot be sure.[70] The skeletal material retrieved from Grave Context G3 could not be evaluated for burial practices, since the context was heavily disturbed. Grave Context G3 was given orientation, according to the location of the retrieved cranial fragments, of west to east. It was not a normal slate-lined grave. There were no variations in body position amongst the burials in Trench AB. All five individuals were aligned roughly south-west to north-east and were placed on their right-hand side, facing south-east. We could not determine the position of the postcranial skeleton as it was either not present or consisted of partially dissolved bone. They were all children, suggesting that they were separated from the rest of the cemetery population.

West–east orientation of bodies, with the head being to the west, is not a practice confined to any one religion. Not only do we find it in Christianity and Islam, but also in the case of burials at the margins of the sphere of influence of Abrahamic religions. Interesting, for example, is the cemetery of Bol'she-Tiganskiĭ on the lower Kama River, more than 1,400 km NNE of the Dariali Gorge. Dating to the eighth/ninth century, this burial ground was probably outside the territories converted to Christianity or Islam at the time,[71] even if Islam made its inroads, and the Volga Bulgars converted officially in AD 921/922 (and many probably already before).[72] Not only the remote location, but also horse skulls and bones and the abundant rich grave goods, including many silver objects and items depicting pagan mythical creatures, suggest that the deceased were not Christians, Jews or Muslims.[73] Nonetheless, the orientation of graves is broadly similar: mostly west–east to NW–SE, with SW–NE occurring too, with the head normally to the west, north-west or south-west. There are differences too: the burials at Bol'she-Tiganskiĭ were lying stretched out on their back, like Grave G9 (significantly with clear northern parallels also in grave goods), but unlike the majority of burials in Trenches G and AB that were lying on their right side.[74] Much closer to Dariali, one finds that the early medieval graves at Gveleti, rich in grave goods in northern tradition, are also west–east aligned, with the head of the deceased (lying on their back it seems) to the west too.[75]

Any conclusions about the possible faith of the deceased, on the basis of the body's orientation, become even more tenuous in the case of graves where the position of the body/head is unknown, as comparative evidence from pre-Islamic and pre-Christian times demonstrates. In the cemetery of Pichvnari in Colchis, Hellenistic graves are orientated west–east, but in contrast to the Christian and Islamic tradition, with the head in the east.[76] In similarly aligned burials of the fourth and fifth centuries, the head was to the west. The written sources attest, of course, that at this time Christianity became the dominant religion in Armenia and Iberia and, undoubtedly, gained many converts in neighbouring territories as well. In this particular case, it is thus indeed likely that the orientation of the body is related to the spread of Christianity. Similarly, in the Iagsari cemetery in the Southern Caucasus, the head was always to the west, persuasively interpreted as a sign of the deceased having been of Christian faith.[77] The orientation of late antique graves at Pichvnari was by no means identical, but varied from WSW–ENE to WNW–ESE.[78] Similarly, in the cemetery at Dariali Fort there was a degree of variation, from SW–NE to west–east. Unlike the late antique graves at Pichvnari, these graves postdate, of course, the emergence of Islam. In most burials (and particularly clearly in Grave G2) the deceased's face is pointing to the south-east (and occasionally more to the south), not perfect for Mecca (south to SSW rather than south-east of the Dariali Gorge), but not far off the correct direction. Muslim burials frequently lie on the right side, sometimes on their backs, and normally, but by no means always face Mecca.[79] It is interesting to note that in the Mamisondon Cemetery (c. late seventh to early ninth century), perhaps for the guardians over another Caucasian mountain pass, a substantial proportion of the west–east-oriented inhumations have their heads turned to face south too (even if there are many exceptions to the rule and orientation is far from uniform). At Mamisondon too, Muslims may well have been present at the time, but finger rings featuring Christian crosses and figurative art suggests that Christians and perhaps other faiths were represented too.[80] Yet, the majority of deceased at Iagsari lie on their right side too and face south (and some north or upwards).

At Iagsari, providing close parallels to the individual inhumations at Dariali, it seems more probable that this was a Christian, rather than Muslim, burial ground (in the light of its postulated pre-Islamic origins and the sources implying that Christianity remained the dominant religion in Iberia throughout the Early Middle Ages). Grave goods, notably but not exclusively of personal items, are not at all unknown in Islamic burials.[81] Neither, in terms of orientation of burials, position of the heads, the direction they face or grave goods is it possible to distinguish between Christian and Muslim burials. One possible indication to suggest that the Dariali cemetery may have included Muslim burials is that the individuals in Trench G appear to have been buried, mainly or exclusively, in a semi-flexed position, lying on their right side. Whilst this occurs in the case of Christian burials too (as in the cited Iagsari cemetery), it is thought to be a pagan survival and mainly found amongst early Christian inhumations. Later, the deceased tend to be found lying stretched-out on their back.[82]

Interesting too is the narrowness of the graves in Trench G. Muslim graves can be deliberately narrow to avoid post-mortal alteration of the position of the body.[83] This observation on its own does not, of course, prove Muslim faith; digging a pit no larger than needed to accommodate the body saved time and energy and made sense for any religious community practising inhumation (without bulky grave goods).

In the burials in Trench G, two graves (G4 and G9), both probably dating to around AD 1000, give or take a few years or decades, were provided with much richer grave goods than any other graves. The goods have clear parallels in the north and so has the practice to equip the dead with personal possessions for the afterlife. If grave goods were not quite matching the quantity and variety found in the richest graves in the north, the assemblages are remarkable for a sample of just two. The child in Grave G4 (unsexed, but probably a girl, based on the grave inventory) retained (her?) personal jewellery, including items made of silver and beads made of exotic imported materials, such as carnelian and coral. The mid to late teenage individual (unsexed, but probably male to judge by the grave goods) in Grave G9 was provided with a sword, three arrows and a probable fire striker, items enabling the individual to defend himself in the netherworld or the journey thereto or perhaps thought to convey status. Had the gates changed possession and were they under the control of northerners around the turn of the millennium? This is possible, notably as the power of the Emirate of Tbilisi seems to have waned considerably in the tenth and eleventh centuries.[84] Alternatively, the armed individual may have been either a mercenary from the north, as frequently employed by Muslim states,[85] or still a descendant of the Arab garrison, influenced by local traditions. The absence of horse gear is worth noting, but little would be gained by speculating as to whether or not this permits any conclusions to be drawn about his personal status, let alone that of the garrison as a whole, reportedly including mounted soldiers a quarter of a millennium before his burial.[86] Other contemporary burials in Trench G lack grave goods. The position of various individuals lying on their right side and looking south-east or south, such as the young female in Grave G2, suggests perhaps that they were buried in accordance with their, presumably Muslim, faith. If so, Islam at Dariali was practised at least into the AD 970s or potentially even as late as the 1030s. The cited Iagsari parallels would, however, also permit interpretation as Christian burials, if the case is perhaps less compelling. It is hard to believe that those furnished with rich grave goods in G9 and G4 were Muslims, even if adopting a liberal attitude to religious matters and heavily influenced by northern traditions. If of Muslim heritage, they had abandoned their ancestral religion. An outpost garrison, isolated from their fellow-believers, even if still nominally adhering to Islam, may well have been influenced by their local environment and those of different faith after three centuries. More probably, they were part of a group that had come from the north, rather than locals or people of southern extraction faithfully copying northern traditions. It seems that Dariali retained a Muslim or multi-faith community up to shortly before or after the turn of the millennium, when it was supplemented (or replaced) by a group adhering to northern burial practices.

Is there any evidence for burial traditions beyond the time when northern blood and/or traditions made an appearance around AD 1000? Grave G4 of AD 988/1150 is broadly parallel to G9 of AD 975/1029. These two graves, and the unexcavated grave G5 in between, seem to form a group (judged by proximity and parallel orientation), suggesting that neither G4 nor G5 is significantly later than G9. It is tempting to think, based on the location of Graves G4, G5 and G9, and the grave goods of a similar tradition in G4 and G9, that these three graves belong to a family – maybe a brother and sister in G9 and G4 and perhaps a further relative in G5 – and in any case to people sharing common traditions. If this argument is accepted, the approximate *terminus ante quem* for the latest grave is provided by G9 (no later than the AD 1020s) – and the latest grave from the cemetery (G2 of AD 1035 or before) points to a similar end date. It is, of course, possible that there are later graves further away from the fort, notably in the unexcavated area south of Trench G. The lack of archaeological evidence, already referred to, for occupation in the fort for much of the eleventh and the twelfth century points, however, to a substantial reduction in population. The cemetery is not likely to buck this trend, and we may hypothesise that there will be few, if any, graves dating to these two centuries. There is thus no positive indication so far that the cemetery was still in use when Davit IV conquered Dariali Fort in AD 1118,[87] after which date it will have had a Christian garrison. We do not know where

its members were buried in the High and Late Middle Ages, perhaps south of Trench G, perhaps elsewhere.

6.9. The early medieval cemetery, the ethnicity of the garrison and its connections to the outside world (Phase 5)

Catriona Pickard's isotope analysis[88] appears to attest that some food supplies came from the south. One is tempted to think that these were the provisions attested by Mas'udi.[89] The individuals apparently benefitting from food from the south (E1 of AD 771/952, AB4 of AD 974/1021, G2 of AD 974/1035 and G3 of AD 989/1029) do, however, not form a tightly dated group. They could represent the garrison over a period of over 260 or less than 40 years (and in the latter case potentially all post-dating Mas'udi). Interestingly, the young woman of Grave E2 who probably died between AD 671 and 770 and shows possible Asian traits (craniofacial indications of Asian-derived ancestry), enjoyed more access to southern foods earlier in her life than in her last years. This would be easy to explain if she happened to be a first-generation immigrant from Arabia – but of course the dates would also allow for her to be a second-generation immigrant or an occupant buried before the reported arrival of the Muslim garrison in AD 727 or, irrespective of her precise date of death, a person of Asian ancestry from the steppes or of more local origins. In the latter case, the phenomenon could simply reflect fluctuations in access to imported foods over time. For the young adult from Grave E1, with higher $d^{13}C$ values than the woman from Grave E2, Pickard observed the same phenomenon of reduced access to southern foods later in life.[90] With a likely *terminus post quem* of AD 771, this individual cannot have been a first-generation immigrant of the garrison reportedly arriving in AD 727. We may conclude that food imports probably ebbed and flowed, and no doubt there will have been at least some people arriving from the south also at later dates. Even if our selective textual sources do not refer to any specific reinforcements sent to the north in the later eighth, ninth or tenth centuries, the supply convoys bringing food, not to mention glass from southern workshops reaching the fort,[91] leave no doubt that there was frequent traffic between the southern lowlands and the gorge.

To the individuals, enjoying a diet enriched with food grown in warmer and lusher environments, we can probably add the two graves with clear northern grave goods (G9 and G4). They are amongst the very latest from the cemetery, dating to AD 975/1029 and 988/1150 (not likely to be later than 1030s) respectively and still display a very high $d^{13}C$ value. This suggests that also the sword-bearer (G9) and the young individual with numerous beads (G4) still benefitted from uninterrupted southern supply networks. Mas'udi, of course, attests that food supplies from the south came from the Emirate of Tbilisi, at least up to the first half of the tenth century. Does this prove that those benefitting from southern food supplies, including those buried in Graves G4 and G9 with their distinct northern grave goods, were still part of an outpost garrison under the command of the Emirate? Does it prove that the Emirate maintained control until at least AD 989, or even into the first decades of the second millennium? Not necessarily: even if still under (nominal?) control of Tbilisi, those with northern grave inventories need not have been Muslims. Indeed, the (by local standards) rich grave goods are hard to reconcile with any observance of Islamic customs (let alone strict adherence to Islam). Perhaps they were descendants of the original garrison, or people of mixed ancestry, who adapted to the customs of the north. More probably, the typically northern grave good assemblages identify them as people from the north. They may have been members of families of northern origins in the services of the masters of the fort, whether or not the latter were still Muslims at the turn of the millennium. We also cannot exclude that they belonged to a new northern garrison that had taken over the fort at the end of the first or beginning of the second millennium, perhaps the Alans, but, if so, they must have found a way of maintaining or reviving the southern supply networks established before.

The sulphur samples suggest that most, or all, of the garrison had grown up in the Caucasus or areas of similar geology – circumstantial evidence for a largely stable homegrown garrison, rather than a population constantly absorbing an influx of incomers from afar,[92] possibly corroborating Mas'udi's report of descendants of the same community garrisoning the Gates for centuries. This will undoubtedly have been supplemented by new arrivals, perhaps in part from nearby communities (isotopically indistinguishable from those born and bred on the fort), whilst any from further afield would be identifiable in the first generation only.

Whether the violent death of one of the individuals enjoying food growing in a warmer climate (Grave Context 3) is an unfortunate isolated incident of no wider significance, or might be related to a potential attack of a garrison under southern command by northerners, cannot be established. It seems likely, however, that the food supplies from the south (if not necessarily political control of the gates by the Emirate) lasted at least until the final decades of the first millennium and quite possibly beyond. We do not know who owned Dariali Fort until its takeover by the Kingdom of Georgia in AD 1118. The complete absence of radiocarbon samples likely to date to the last two thirds of the eleventh or to the twelfth century (not just from the cemetery but also all other trenches on Dariali and its vicinity) suggests that the garrison was reduced to a small core at most (perhaps occupying unexcavated parts of the plateau), and not necessarily the descendants of the much larger garrison in place until the late tenth century or early eleventh century. Alternatively, there may have been a period of complete abandonment.

Might the sharp force trauma (sabre-attack?) victim (Grave Context 3) have been amongst the last members of the Muslim garrison or a mercenary in Muslim services, losing his life when it was ousted? Grave Context G3 unfortunately had been disturbed through earth-moving operations before our excavations began, but the lack of any remnant of grave lining suggest that it had been no more than a basic burial. Should he have been the member of a defeated garrison, it seems unlikely that he would have been afforded even a basic burial by the new masters of the fort. The probably basic burial does not prove death in military combat, let alone, of course, a change of garrison by military force. His violent death might just as well have been the result of him having been a victim of violence within the frontier community. His unceremonious burial might have been a consequence of him having seriously infringed some social or legal norm of the local community or of him dying without heirs willing to arrange a proper funeral.

The Alans crossed the Gates in AD 1062 and 1065, some decades after the last known grave had been dug in the cemetery. They encountered no reported resistance, but whether this indicates that the Muslim garrison had been defeated and replaced by an Alan garrison in or before AD 1062, or whether it lacked the strength or will at the time to block the route or had been open to bribery or negotiation, or if the fort was an unoccupied ruin at the time, is impossible to tell. What is clear, in the light of the lack of finds, is that Dariali Fort was no more than a shadow of its former strategic grandeur, with a much-reduced garrison, of unknown ethnicity encamped outside the excavated areas, or none at all.

Notes

1 Ts'itlanadze 1971 and 1977, 99; Mindorashvili 2005, 118–20; 221 fig. XVI; Gagoshidze 2008, 19–20.

2 See chapter 9.1, with references.

3 We are grateful to Iago Kazalikashvili and to Dr Davit Mindorashvili for providing information on the location of the site and to Lana Chologauri and Davit Naskidashvili for investigating the issue.

4 Ts'itlanadze *et al.* 1998. Tsotselia (2010, 164 no. 826) must refer to the same coins. There are some differences between the two reports: Ts'itlanadze *et al.* report the excavations took place in 1962, Tsotselia, in 1966; Ts'itlanadze *et al.* state they were found at Gigias Satibi, Tsotselia, at a place called 'Arka'. Ts'itlanadze *et al.* 1998 dates one coin to AD 802, the other to AD 821/822, Tsotselia to 786–809 and 810 (AH 194 = AD 809/810). Yet, there is also much common ground: both concur that the coins were found on the banks of the Tergi (the right bank, according to Tsotselia), both agree that the two coins were half dirhams and attribute them to the same rulers, al-Rashid and al-Ma'mun. As these are, to our knowledge, the only Arabic coins that were ever found in Dariali Gorge, it would be an extraordinary coincidence if the same number of coins of the same rulers had been found at two different spots on the banks of the same river. Fourteen km are likely to refer to walking/driving distance at the time.

5 Annamaria Diana, Anthi Tiliakou, Elena Kranioti, Lana Chologauri, Anna Gabunia, David Gagoshidze, Gabriela Ingle, Koba Koberidze and Konstantin Pitskhelauri carried out an excavation of the burials in Trenches E and G. Inventory and analysis of the skeletal material was accomplished by Elena Kranioti, Anthi Tiliakou, Catherine Shupe and Annamaria Diana in the laboratory set up on the field. The report on the human remains was complemented employing data provided by the joint Georgian and UK-based team, notably Konstantin Pitskhelauri and Koba Koberidze (Trenches E and G), Gabriela Ingle (Trench E), Anthi Tiliakou (Trenches E and G), Annamaria Diana (Trench G), Kristen Hopper, Fiona Mowat and Graeme Erskine (survey of Trenches E-G). All osteological observations in this chapter are the work of Anthi Tiliakou, Catherine Shupe, Elena Kranioti and Annamaria Diana. Catherine Shupe has accomplished most of the work on Trench AB, whilst parts of excavation report have been written by them and parts by Eberhard Sauer. The latter has also compiled most of the sub-chapters on chronology and the religion of the garrison, which however also include important sections of a report written by Catherine Shupe and Anthi Tiliakou on burial customs.

6 See chapter 10.4.1.

7 Buikstra and Ubelaker 1994; Schultz 1997.

8 Each structure, grave filling and human skeletal remains deposit was allocated a separate context number. All excavation, recording and lifting of the human remains was undertaken in accordance with methods detailed in Bass (1987) the *OAU Fieldwork Manual* (Wilkinson 1992) and standard guidelines (Brickley and McKinley 2004; Mays *et al.* 2004). All graves in Trench E were planned by Gabriela Ingle and recorded in collaboration with Anthi Tiliakou and Koba Koberidze, while those in Trench G were recorded by Annamaria Diana, Lana Chologauri, Anna Gabunia and Graeme Erskine. Trench AB was planned by Przemysław Polakiewicz and Catherine Shupe, with excavation assistance from Gabriela Ingle and Koba Koberidze. Recording followed procedures outlined in Buikstra and Ubelaker 1994, Brinckley and McKinley 2004, and the Edinburgh Unit for Forensic Anthropology's system. Skeletal remains and artefacts were recovered by hand in the course of the excavations and bagged by context, before being brought to the base for proper recording and analysis. All skeletal elements where pin-pointed in drawings, measured and photographed prior to removal. In the case of commingled remains each skeletal element attained a serial number and was bagged individually. In the case of articulated, individual inhumations, skeletal elements were removed and packed per anatomical area. Soil samples were taken, especially from the pelvic region of the articulated skeletons. In order to avoid contamination, stainless steel dental tools and sterile gloves were used during the excavation of the graves. Burial recording forms were employed on the field, as a means of aid to the final observations and inventory.

9 See chapters 11.5.2.1–11.5.2.2 and 11.5.2.6.

10 See chapter 19 for a detailed osteological report.

11 See chapters 15.3.3.1–15.3.3.2.

12 See chapter 6.7.
13 Dimensions for this and the other graves refer to the internal dimensions of the stone/slate cist, excluding the cover plaques.
14 Stone-lined in this and subsequent entries means stone other than slate.
15 See chapter 15.3.3.1.
16 See chapters 15.3.3–15.3.3.2.
17 Child skeletal elements cannot provide information on the sex of the individual, due to their immature anatomic characteristics; however, the excavators tend to agree to a possible female individual due to the artefacts that accompanied the individual in the grave.
18 See separate entry for the grave on the sex of this individual.
19 See chapter 19 for a detailed osteological report.
20 See chapters 15.3.1.1–15.3.3 and 15.3.3.2–15.3.3.5.
21 See chapter 6.7.
22 Observation by Annamaria Diana.
23 See chapters 15.3.2–15.3.3 and 15.3.3.2–15.3.3.5.
24 See chapters 15.3.1.1–15.3.1.2 and 15.3.3.
25 The burials in Trench AB were excavated principally by Catherine Shupe, Gabriela Ingle, Koba Koberidze and Przemysław Polakiewicz. Catherine Shupe analysed the human remains from Trench AB and compiled the report.
26 See chapter 19 for a detailed osteological report.
27 See chapter 15.3.2.
28 See chapter 6.7.
29 See chapters 11.5.2.6 and 11.11.
30 See chapter 15.3.2.
31 These were centred on UTM 38T 0469557, 4731462 and 38T 0469558, 4731460.
32 At UTM 38T 0469570, 4731469.
33 Nearing the end of the season, we lacked the time and resources for excavation. More importantly, we had concerns if excavations in the circumstances was compatible with the remit of our project and advised, should construction works proceed, that professional archaeologists should be commissioned to excavate. Unfortunately, against the advice of our joint team, construction progressed without the involvement of professional archaeologists after we had left the site, between the 2014 and 2015 seasons. The burials in question, and in all probability more, will have been partially or completed exhumed without record.
34 The grave was at UTM 38T 0469611, 4731439, c. 1358 m OD. Exposed human remains on the surface were briefly examined *in situ* by Annamaria Diana and Anthi Tiliakou. They were collected and moved to the Archaeological department of Tbilisi State University, where they were re-examined in June 2014.
35 Tibia identified by Cate Shupe. This burial was centred on UTM 38T 0469556, 4731463.
36 Stepanova 2017, 73–74.
37 Khalikova 1976, 164–65.
38 As further discussed in chapter 6.8.3.
39 See chapters 2.5 and 25.6.
40 Baladhuri 207 = trans. Hitti 1916, 325; Bosworth 1978, 344; Dunlop 1954, 81–84; Forsyth 2013, 61–62; Golden 1980, 63–64; Shapira 2007, 349.
41 Baladhuri 210 = trans. Hitti 1916, 328–29; cf. Dunlop 1954, 179. Czeglédy 1960, 78 postulates that the Dariali Pass has come under local, Tsanar/Kakhetian control in the AD 740s, *i.e.* in the period between the two recorded settlements of Arab military garrisons in the Dariali Gorge.
42 See chapter 6.1.
43 Minorsky and Bosworth 2000; Allen 1932, 81–83, 89–90, 99.
44 Minorsky and Bosworth 1986, 489.
45 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 167 and Minorsky 1958, 157, with no. 2; cf. *Ḥudūd al-'Ālam 36.33* = trans. Minorsky 1970, 144, cf. 401. Mas'udi wrote this passage in c. AD 943 (Bosworth 1978, 345).
46 See chapters 6.3–6.4 and 19.9.
47 We cannot be sure, of course, whether the individuals affected already lived at Dariali Fort when episodes of malnutrition occurred during childhood. Although the high proportion of children in the cemetery suggests that many grew up locally, rather than most of the garrison consisting of adults recruited elsewhere. See also chapters 6.3–6.4 and 19.9.
48 Minorsky 1958, 157 no. 2.
49 Zuckermann 2000, 544; Martin-Hisard 2000, 513 with no. 1066, cf. 476–78, 488–91, 510–12; cf. chapter 25.5.3.
50 Miquel 1975, 538, cf. 267, 269.
51 See chapters 6.9, 20 and 22.2.
52 Róna-Tas 1999, 201 with references; cf. Baladhuri 203 = trans. Hitti 1916, 319.
53 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 8 and Minorsky 1958, 146; Baumer 2014, 213–17; Golden 1980, 67, 79; *id.* 2007; Marquart 1903, 5–27; Seibt 1996, 581–82.
54 Ibn Fadlan = trans. Frye 2005, 73, cf. 74.
55 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 42–43, Marquart 1903, 166 and Minorsky 1958, 156; Ibn Rusta = trans. Wiet 1955, 167, Marquart 1903, 165 and Minorsky 1958, 169; *Ḥudūd al-'Ālam 5.18, 48* = trans. Minorsky 1970, 160–61; Samuel, *Martyrdom of St Abo of Tbilisi* 17 = trans. Schultze 1905, 23; cf. Abaev 1985, 802; Arzhantseva 2002b; Barthold and Minorsky 1960; Bosworth 1978, 344, 349; Golden 1980, 94; Kouznetsov and Lebedynsky 1999, 25–37; Minorsky 1958, 107; Rayfield 2012, 63–64; Róna-Tas 1999, 201–02.
56 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 67 and Minorsky 1958, 161–62; cf. *id.* 1953a, 506 with no. 3, 1953b, 78 and 1958, 174 for maps showing the territory of the Christian Sanar east of the Dariali Gorge; *id.* 1970, 401 with no. 4.
57 Toumanoff 1963, 458–60 no. 98; Agathangelos 842 = trans. Thomson 1976, 377, cf. 495; cf. Agathangelos 19 = trans. Thomson 1976, 37. See chapter 25.3.2 for further discussion.
58 Chikhladze 2008, 449; Ramishvili 1969, especially 119.
59 *E.g.* Lordkipanidse and Brakmann 1996, 60; Mindorashvili 2013a, 2013b and 2013c.
60 Ramishvili 1969, 120–21 with no. 38; Mindorashvili 2013a, 2013b and 2013c.
61 Ramishvili 1969.
62 Chikhladze 2010; Mindorashvili 2013a, 2013b and 2013c.
63 The position of the skeleton and individual skeletal elements in a tomb or grave does, of course, not necessarily represent the exact original arrangement, since factors such

as burial practices, soft tissue decomposition, underground water, soil pressure, gravity, faunal activity and other factors tend to relocate the skeletal elements (Roksandic 2001). None of these phenomena can explain the clustering of human remains in the east of Graves E2 and E3, which most probably reflects intentional redeposition.

64 Jorbenadze 1999, especially 80.

65 Whitehouse 1974, 28–29, pls XIc-d, XIIb, 29–30; *id.* 2009, 46–51. See also Judd 2010 on an early Islamic commingled burial from Jordan.

66 We acknowledge that this hypothesis differs from that advanced in Sauer *et al.* 2015. More extensive research on parallels has led to a reinterpretation of our findings.

67 See chapters 3.4.2, 11.3.2, 21.1.3.4 and 25.5.2.

68 See chapter 6.1 and Ts'itlanadze *et al.* 1998.

69 Observation by Annamaria Diana.

70 Observation by Annamaria Diana.

71 Even if Khazar territories may have extended to the area temporarily: Golden 1990, 264. See Khalikova 1976 on the cemetery.

72 Ibn Fadlan = trans. Frye 2005, 25, 44; cf. Canard 1971; Shingiray 2012, 212–14; Yazici 2014; see also Baumer 2014, 210–12; Izmaĭlov 2016; Shpakovsky and Nicolle 2013.

73 Khalikova 1976, 158, 160–62 with figs 2–3.

74 Khalikova 1976, 159 with fig. 1, 160 figs 2a-b, 162 fig. 3.

75 Mindorashvili 2005, 211–12, pls VI-VII.

76 Vickers and Kakhidze 2004, *passim*, especially 153, 192, 375 fig. 180.

77 Ramishvili 1969, *passim*, especially 118–19.

78 Vickers and Kakhidze 2004, 209–10, 431–39 figs 284–99; cf. Kakhidze and Vickers 2014, 239. At Nokalakevi, also in Lazica, graves dating to the fifth/sixth–ninth centuries, as well as the post-medieval era, are also mainly in west–east orientation, with the head to the west, but lying on their back (Everill *et al.* 2014, 51, 52 fig. 5.7, 54).

79 Bianquis 1994, 211; Clemens *et al.* 2015, 57; Eger 2016, especially 261, 264–66; Halevi 2007, 1–2, 187–91, 320–21 no. 93; Insoll 1999, 168–69, 172; Kulicka 2016, 55–57; McNicoll 1996, 214, 219 fig. 164; Simpson 1995, 244–45; Sörris 2015, 87; Taboada 2015, 56, 66; Urteaga and Izquierdo 2016, especially 151; cf. Sauer *et al.* 2013, 324–27, with references; Fehérvári 1993, 8.

80 Albegova and Vereshinskiĭ-Babaĭlov 2010; Albegova 2010.

81 See also Simpson 1995, 245–47, 250–51 (with a focus on late Islamic burials).

82 Ramishvili 1969, *passim*, especially 119, 121, pls II–VIII.

83 Taboada 2015, 57.

84 Rayfield 2012, 63–64, 71–72, 77–83.

85 Dedeyan 1996, 172.

86 Baladhuri 210 = trans. Hitti 1916, 328–29.

87 *Kartlis Tskhovreba/Life of Kartli* 336 = trans. Thomson 1996, 328, cf. 326; cf. Rayfield 2012, 90–92.

88 See chapter 20. See also Shishlina *et al.* 2016 on third to fourth century burials from southern Siberia, some with similar $\delta^{13}C$ values, also indicating some access to the C4 foodweb.

89 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 167 and Minorsky 1958, 157, with no. 2: Minorsky argues that the term used refers not just to wheat, and that these were voluntary pious donations by Muslims for their fellow believers.

90 See chapter 20.

91 See chapters 13–14.

92 See chapter 20.

7

The Caspian Gates? Bakht'ari fortified ridge: first line of defence and northernmost barrier (Trench Y/Phase 3)

Traffic in Dariali Gorge was controlled via a multi-layered defensive system, not all elements of which were in use at all times. Central was Dariali Fort and the associated road-blocking wall.[1] Gveleti Fort, a basic dry-stone wall west and any (non-preserved) barrier east were in operation not before the later first millennium, but perhaps for much of the first two thirds of the second millennium.[2] We do not know if there was a further control point at a narrow section of the gorge between Gveleti Cemetery and the confluence of the Amali and Tergi/Terek Rivers, if the unstable loose sediment cliffs here would have prevented the construction of strong and permanent fortifications.[3] Except for a purely hypothetical guard-post at a further bottleneck near early medieval Gigias Satibi Cemetery,[4] the monument described in this chapter forms the northernmost barrier in the system. It is also arguably the one with the strongest natural defences.

The barrier is located almost one kilometre[5] NNW of Dariali Fort, where travellers faced one of the narrowest passages within the gorge (Figs 7:1–7:3). The right bank of the Tergi would have been impassable, prior to the construction of a rock-cut road and, subsequently, a tunnel in modern times,[6] whilst on the left bank a high ridge towers over the narrow passage travellers had to negotiate in Antiquity and the Middle Ages (Figs 7:4–7:7). The prominent ridge commands stunning views in all directions, to the north as well as back to Dariali Fort. The ridge would have extended even closer to the river in pre-modern times. The rock face at the ridge's eastern terminal is fresh and unworn, undoubtedly the result of its front part having been blasted away in the nineteenth or twentieth century to facilitate traffic. A tunnel, cut through the ridge towards the end of the Soviet era for the Transcaucasian gas pipeline, caused further damage. A major crack in the rock radiates from the tunnel, potentially jeopardising the long-term survival of the foremost preserved part of the fortified ridge.

We owe the perhaps earliest detailed description of this stretch of the gorge to Julius von Klaproth who passed it on 25 December 1807. Already then, it had been altered through the use of explosives:

> From Laars onwards we stayed on the left [western] bank of the Terek and it was six versts [c. 6.4 km] to Dariela. After we had progressed four versts [c. 4.3 km], we reached a very narrow part of the valley, where the Terek flows along the base of a tall vertical rock, which has now been hollowed out by explosives and forms half of an overhanging arch, but over which travellers otherwise had to climb. The valley gets very narrow here the Georgians call it ბახტარი Bachtari, but by the Ossetians it is called Arwe-Kum, *i.e.* Sky-rock-valley, because its steep rock walls on both sides seem to rise up to the sky, and sunlight reaches the ground only at midday.[7]

Reportedly, it was another two versts (2.1 km) to Dariali Fort and two small streams, called Churmuk and Tschatdon, had to be crossed (whereas there is only one between Bakht'ari and Dariali Fort), making one wonder if Klaproth refers to Bakht'ari or the next narrow passage north or if he conflates the two. Perhaps the latter is most likely, as Klaproth, already delayed through the sudden death of a packhorse and the need to hire human carriers, redistribute luggage and wishing to reach Stepantsminda before nightfall, will have had little time for detailed observation.[8] The hard-to-reach cliff-top bastion on top of Bakht'ari is scarcely mentioned in recent travel accounts, but Klaproth intriguingly notes that there once had been a royal castle a short distance north of Dariali Fort. Perhaps this refers to ruins on Bakht'ari Ridge.[9]

Alexander Pushkin, crossing the gorge in 1829, also describes the narrowness of the gorge at this point vividly.[10] It is, however, James Bryce who captures most clearly how easy it would have been to control traffic at this point. Approaching Dariali from the north in autumn



Fig. 7:1: Location of Trench Y on a steep ridge c. 950m NNW of Dariali Fort. Drone photo by Davit Naskidashvili.

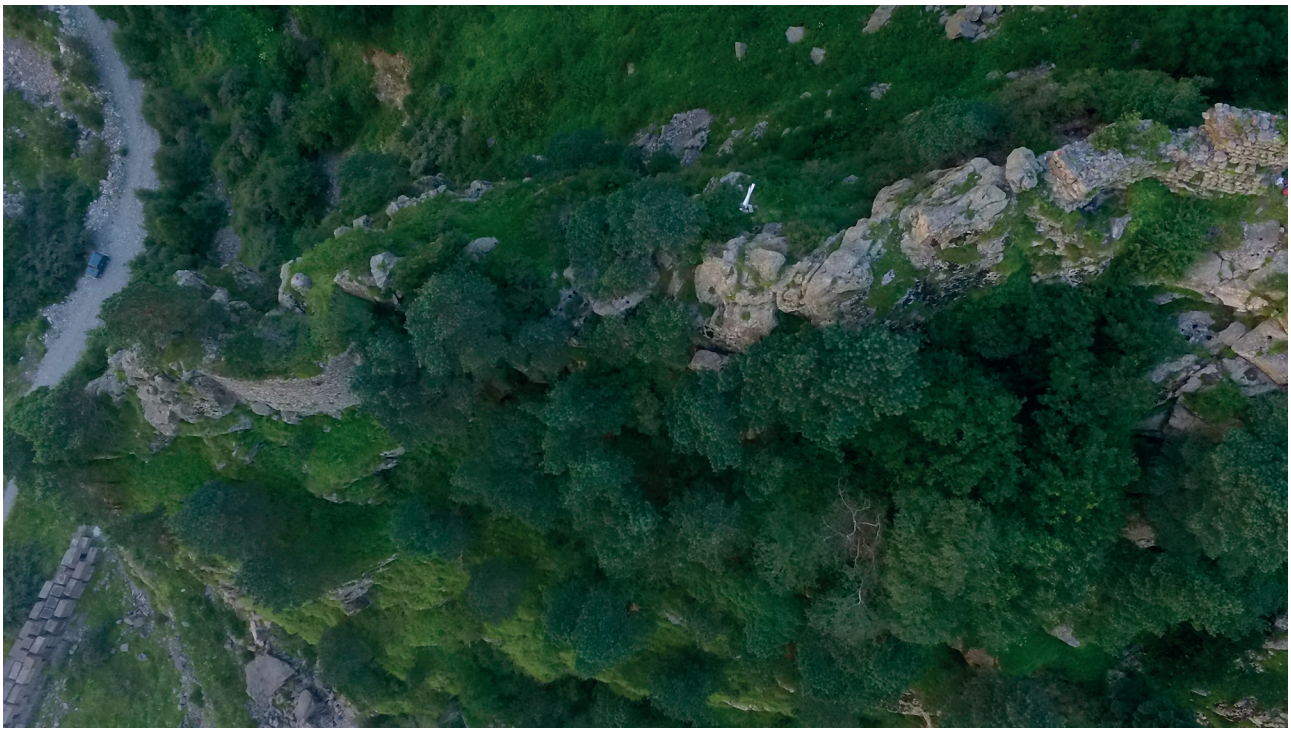


Fig. 7:2: View of the opposite (north) side of the fortified ridge towering high above the valley: note the blue car on the modern track below. Drone photo by Davit Naskidashvili.



Fig. 7:3: Location of the ridge-top wall in relation to Dariali Fort. Laser scanning map by Malkhaz Datukishvili and Giorgi Kvaratskhelia plotted onto satellite imagery (Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community).





Figs 7:4–7:5: Views from the top of the narrow ridge towards the Tergi/Terek Valley and the north (left). Prior to the construction of the rock-cut road in the nineteenth century (background), steep rocks reaching down right to the deadly torrents of the river would have made any traffic on the right bank of the river (background) impossible, whilst the ridge (in the foreground) towered over the narrow passage on the left bank.



Fig. 7:6: The rock-cut road on the right bank (left on the picture) of the River Tergi/Terek dates to the nineteenth century. Before, the steep rock reaching down to the fast-flowing river would have blocked the route, forcing all traffic onto the opposite bank. The front part of the rocky ridge crowned by Bakht'ari Fort was blasted away only in modern times. Until the early nineteenth century, all travellers had to squeeze through a narrow gap between the fort and the river and were at the mercy of those occupying the fort.



Fig. 7:7: Any attempts to cross the Tergi/Terek River, here at the northern approaches to Bakht'ari, in spring or summer, with its waters swollen by melting snow and rainwater, would have been suicidal. (Water levels can be very low in winter when, however, snow, ice and avalanches would have impeded invaders.)

1876, when a tunnel had already been built, the military significance of the narrow valley was still strikingly obvious, and it is clear that he refers to the stretch of gorge north of Dariali Fort:

> It is not merely the prodigious height and steepness of the mountains; it is their utter bareness and the fantastic wildness of their riven summits, towering 7000 or 8000 feet above the glen, that fill one with such a sense of terror and desolation. A stronger military post can hardly be imagined. Approaching it either way, the precipices seem to bar all further progress, and the eye seeks in vain to follow the road, which in one place passes by a tunnel behind a projecting mass of rock. For about a quarter of a mile the bottom of the gorge is filled by the foaming stream, so that it is only along the road that an army could advance. Half-a-dozen cannon could command the road, and a single explosion destroy it. At the upper end, where the ravine widens a little, and gives space for buildings, the Russians have erected a fort, and keep a small garrison. Behind, on a great rock mass, that rises some 300 feet in the middle of the glen, are the ruins of a far more ancient fortress, where, according to the Georgian legend, Queen Tamara dwelt …[11]

Bryce refers clearly to the narrow stretch of gorge just north of Dariali Fort, dominated by Bakht'ari Ridge. The well-known statesman did not spot or describe the massive mortared stone fortifications on top, towering like an eagle's nest over the narrow passage, its walls built precariously at the edge of the steep northern and southern precipices. Yet its builders will have pre-empted Bryce's judgement of how easy it was to control traffic at this point even without the aid of modern weaponry.

Both the NNE-facing and the SSW-facing sides are lined by substantial walls (Figs 7:8–7:9). On the NNE-facing side near the eastern terminal of the ridge (as far as preserved), the wall seems to survive to some five metres in height, at a rough estimate. The dangerously steep terrain prevented proper recording. In the west, the only point from which the ridge could be accessed by non-climbers, the NNE-facing wall provides a prominent obstacle. Surviving to a height of c. three metres, it will have been taller in the past. Towering over steep rocky cliffs (except for the narrow access in the west), these formidable natural defences would have added much to the strength of the barrier. The overall distance between the westernmost and easternmost recorded part of the NNE-facing wall adds up to c. 105 m.[12] The monument would once have been longer, since the easternmost part of the ridge has been destroyed in the age of explosives. The SSW-facing walls, except for a single point accessible



Fig. 7:8: The narrow Bakht'ari Ridge (seen from the south), with its formidable natural defences enhanced by solid mortar walls on both sides.



Fig. 7:9: Bakht'ari Ridge (seen from the north), with a mortar wall visible on the top and a cliff behind. The unworn rock face at its eastern terminal (left) provides clear evidence for recent destruction of parts of the ridge, that must have come closer to the river bank in Antiquity and the Middle Ages.

from the ridge, could only be examined from the distance and via drone photography from above, being built on top of sheer cliffs.

To the west of the wall-enclosed ridge, there is an extensive scree overlooked by cliffs rising to dizzy heights. We may be certain that there would have been a scree already at the time of the walls' construction. The architects would undoubtedly have known that the efforts involved in clearing all the stones from the scree would have been immense and that any wall built in its place would inevitably be crushed by falling rocks. It seems unlikely that they ever extended the wall much further towards the cliffs than the section surviving today. Should they, however, have done so, any western extension of the barrier would soon have been smashed and buried by rockfall. Such a hypothetical western extension of the fortification was furthermore not needed for effective control of traffic. The steep ridge would have been virtually unassailable from the north, certainly if guarded and if the garrison was ready to discharge a stone avalanche against any suicidal adversaries attempting to scale the cliffs. Was the ridge vulnerable to attack via different routes? The approach from the south-east is steep, but access from this flank requires no mountaineering skills. Yet, any northern enemies coming from this direction first had to succeed in making it past the east terminal of the ridge. Here, and when ascending the narrow side valley south the ridge, rocks discharged by the ridge-top guardians would have posed a mortal threat.

There is no evidence for a tower or any shelter. The most logical points for any towers with observation platforms would have been at the western approaches to the cliff and at the (no longer existing) easternmost terminal, the former controlling the only viable access route to the ridge, the latter towering over the Transcaucasian traffic artery. We do not know whether any towers or roofed shelters have collapsed, may have been blown away in modern times or never existed. As Dariali Fort itself commands views of the valley beyond the ridge, it is possible that the ridge-top fortifications were occupied only if there were signs of approaching danger. One is inclined to think, however, that there would have been a tower or two for guard posts, one perhaps indeed at the ridge terminal where would-be trespassers could most easily have been targeted with missiles.

It is interesting to note that the northernmost Georgian police post in the area is just next to the ridge, even if there are no longer forces stationed on the top of the ridge. Police dogs are often the first to notice pedestrians. One wonders if in ancient times similar detection strategies might have been used to alarm the garrison of anybody approaching, notably at night. Nobody could have approached the ridge unnoticed from the north in daylight hours unless in rare instances of dense fog. We can only guess whether or not the narrow passage between the ridge terminal and the river was blocked in ancient times. Any such stone or timber barrier in the valley will have required replacing once every few years or months, as the powerful flood waters of the Tergi frequently burst its bank in the area and destroy everything in their path.[13] The ridge could have been used for surveillance and for attacking trespassers with stone missiles even before the construction of the walls, if less effectively. The ridge, which is at the northern border of Georgia today, is likely to have formed the border of Georgia, Iberia, the Sasanian Empire and the Caliphate centuries and millennia ago – a continuity of political state boundaries determined by natural geography. Temporarily, however, direct control may have extended further north, as suggested by the early medieval Gigias Satibi Cemetery, just beyond the next narrow section of the gorge downstream.[14] The prominent natural feature carries an open-air shrine of St George (Bakht'ris Ts'minda Givarg, ბახტრის წმინდა გივარგ), marked by a large white cross, an icon and candles, still attracting occasional pilgrims, despite its inaccessible location in restricted borderland and difficult terrain. The fortification is known as Bakht'ari Fort (ბახტრის ციხე), after Bakht'ari, the name of this part of Dariali Gorge. The ancient monument itself is now itself considered a holy site. We do not know if the site's sanctity goes back to ancient or more recent origins.[15]

Prior to our project, there was no firm evidence for the construction date of this important strategic asset. The solid mortar employed makes it tempting to assign the wall to the late antique era, as all other dated mortar walls at Dariali. The masonry style (Fig. 7:10), employing medium stones of similar size in neat rows, is similar to the Trench L tower[16] as well as the tallest surviving wall of Dariali Fort, on the east-facing side.[17] Were there ways to verify or correct our tentative late antique dating proposal for this barrier, based solely on its architecture? Repeated survey of the few small areas covered with soil between outcrops of barren rock revealed no finds nor any traces of possible occupation layers. Stratigraphy was visibly shallow at most spots, judging by plant cover and drilling, whilst others were too steep for safe exploration (and unpromising – unsuitable for occupation, with any fallen debris on the slopes almost certainly lost to erosion). The mortar of the walls was visually inspected for remnants of datable organic inclusions on site by David Greenwood and a sample analysed in the laboratory by Martina Astolfi and Riley Snyder. The search for inclusions suitable for radiocarbon dating was unsuccessful, whilst abundant magnetic pebbles would have prevented particles in the mortar to align themselves with the earth's magnetic field at the time, so that there was no prospect of obtaining an archaeomagnetic date. David Greenwood was, however, able to establish that there were fragments of quartz embedded in the mortar, and OSL dating might be possible, but has not been attempted. Compositional analysis, however, failed to reveal any major differences between the mortars employed in Bakht'ari and Dariali



Fig. 7:10: The construction technique of the wall on the NNE-facing side of the crest of the ridge resembles late antique walls on Dariali Fort (in the background) as well as a tower south of the fort.

Fort. Whilst this does not prove construction by the same workforce, it is worth noting that there is no evidence for demonstrable differences in masonry or mortar.[18]

In order to put the chronology of the barrier 950 m NNW of Dariali Fort on a firmer footing, we excavated a small sondage of one by one metre (Trench Y: Figs 7:11–7:13). We chose a spot south of the NNE-facing wall on the narrow ledge of land between the stone barrier and the SSW-facing wall. This was close to the precipice, if not immediately at the edge, and for safety reasons the excavation was carried out by experienced mountaineers, secured with a rope and wearing safety helmets.[19] This sondage was excavated to c. one metre depth. Under c. 15 cm of topsoil (Y.001), we encountered c. 30 cm of soft mid yellowish brown sandy silt with many large stones (Y.002) as well as a pocket of smaller stones in the north-west (Y.003). The former deposit may include some wall tumble. On this precipitous slope, most stones of collapsing walls would undoubtedly have rolled downhill at rapid speed, and it is impossible to tell how much higher the various sections of walls might once have been. Despite their solid construction, frost cracking must have taken its toll, and some walls built at the edge of the precipice will have slid off the edge at some stage. Deliberate destruction is possible too. It is worth noting that the western section of the NNE-facing wall is undermined in the centre, perhaps by watchmen, modern marksmen or, less probably, pilgrims seeking shelter on the ridge at a later stage.

Under Y.002 and Y.003 we encountered loose mid yellowish brown silty sand (Y.004) with some 70% of large stones of up to 40 cm diameter, mostly edgy and unworn with traces of possible decayed mortar. This was excavated to c. 55 cm depth. We found no artefacts in Trench Y, except for a full unlabelled vodka bottle from near the surface in Y.001 perhaps left by visitors to the nearby shrine, nor did we unearth any animal bones. The material from the lowest context appears to belong to a construction-related levelling horizon, filling the space between the SSW-facing wall and the bedrock, whilst we encountered no occupation layer. Those fortifying the ridge appear to have built up a terrace inside the SSW-facing wall. This created a level surface between the two walls, necessary to enable effective patrolling and useful as a missile launch platform in case of an attack. Floatation of samples of the silty sand of Y.004 yielded small fragments of birch or willow charcoal, identified by Lyudmila Shumilovskikh.[20] Fire is a likely sign of human presence. Embedded in a terracing deposit between the walls, the charcoal was likely to date to the time the fortification had been built. Perhaps these are the remnants of vegetation burnt down during the construction process,



Fig. 7:11: Trench Y: a sondage revealing a terracing deposit related to the fortification of the ridge.



Fig. 7:12: Trench Y with Dariali Fort in the background.

perhaps of campfires used by the workforce for cooking or keeping warm.

The fragments were too small and too few for identifying young material. We thus cannot be sure if the date of c. AD 257–530 (Fig. 7:14; Table 7:1) is the date of the fire or the date of the old core of a tree. Even in the latter case, the date is unlikely to be centuries earlier than construction. It is worth noting that the most likely date is in the fourth or first third of the fifth century, coinciding



Fig. 7:13: Trench Y was immediately south of the north-facing ridge-top wall (top left).

with the time when Dariali Fort was built.[21] That the radiocarbon date of our sample and the masonry style of the walls match the fort is hardly coincidence. Most probably, it was young wood (also easier to set alight and more suitable for a campfire), and the wall was indeed built prior to the AD 530s, probably even no later than the 430s and perhaps as early as the fourth century. It would have made sense to block the narrowest point on the northern approaches to Dariali Fort at the same time as building the fort itself – or shortly before or after. An early medieval date seems unlikely, even if the sample should be from old wood, dating to a few decades or a century before the fire, notably as there is no evidence for the use of mortar at Dariali in the Middle Ages. It is also clear that the wall, built after c. AD 257 and probably after AD 321, cannot be centuries older than Dariali Fort. In short: whilst we cannot rule out that the ridge-top defences were a few generations younger or older than Dariali Fort, it is a near certainty that they are late antique too. Most probably, the first line of defence (at the ridge) and the second line (at Dariali Fort) do not differ much, if at all, in age. Small remnants of charcoal have enabled us to date this strategically highly significant wall. Davit Mindorashvili had already before our fieldwork attributed this border wall to the fifth or sixth century,[22]

Table 7:1: Radiocarbon date from Trench Y on the ridge north of Dariali Fort (BBM = below benchmark) (see Fig. 7:14 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
Y.004/ samples 1 and 2	Poz-89916	Bulk samples floated	Charcoal: Betula/Salix	1663±34	AD 257–530+; 84.4%: AD 321-431+ [not certain to be young]	d13C= -30.9

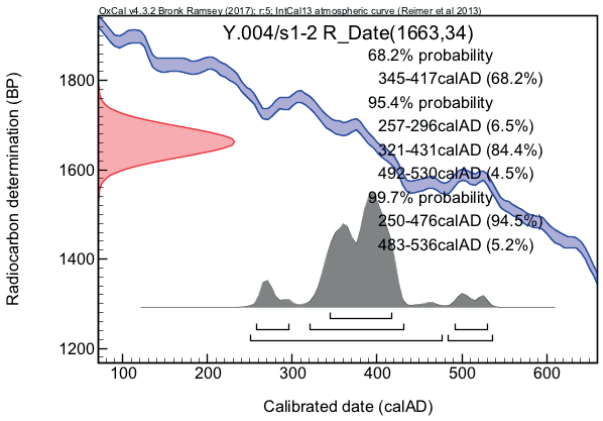


Fig. 7:14: The sample from the construction layers of the ridge-top fortification yielded a probably fourth or early fifth-century date (see Table 7:1 for further details).

and it has also been explored, if not dated, by Kruglov in 1934–1935.[23] Scientific dating has now shown that Mindorashvili's proposed chronology was either correct or at least close to the radiocarbon date of the fourth to fifth or fourth to sixth century.

Built in Late Antiquity, was the barrier still in operation in the Middle Ages and modern times? With no surface finds detected, we can do little more than speculate. Perhaps there were permanent guardians for centuries, perhaps it was only at times of crisis that troops were dispatched to the ridge. The ridge is less than half an hour's march from the fort and parts of the walls survive to the present day. One would imagine that it may well have been occupied at least temporarily in the Middle Ages, if there were signs of approaching danger from the north. Having no permanent guardians entailed the risk that enemies could have captured the ridge and, whilst supplies lasted, would not have been easy to oust – if easier from the south than the north. But perhaps there would have been little point for northern adversaries to capture the ridge other than in advance of an attack on Dariali Fort itself. Holding the ridge may have allowed them to cut off supplies from the north but, if coming from the north, no control of the ridge was required to achieve this. Such theoretical considerations suggest that Dariali Fort's medieval garrison would probably have taken advantage of the existing ridge-top fortification, whether permanently or just in the hour of need. Unlike Dariali Fort, there are no modern military trenches (impossible to excavate on the rocky north-facing side) or bunkers on top of the ridge. It would have been an obvious place to post snipers, and perhaps it was marksmen sent up the ridge during the conflicts in the first half of the twentieth century who undermined the foundations of the NNE-facing wall to create a trench-replacement.

If the ridge's medieval and post-medieval history remains a mystery, so is its earliest era of use. This is the northernmost barrier that we know in Dariali Gorge. (It is worth noting that there is a further bottleneck, just one kilometre north-east of Bakht'ari Fort, with a nearby early medieval cemetery perhaps suggesting that this was at some stage guarded too.[24] Its location at the approaches to the Russian border post makes survey impossible. We are, however, not aware of any known associated fortification, suggesting that this cannot have been the main gates and was probably no more than a secondary control point.) Was it Bakht'ari Fort that was famous across the ancient and medieval world as the Caspian or Alan Gates? This question is discussed in detail elsewhere,[25] and a few site-specific observations will suffice here. There is no evidence so far for occupation prior to Late Antiquity, but neither is there any from the top of Dariali Fort, despite more extensive excavations. The reasons may be similar too: rather than both being late antique virgin sites, the top of both rocks may have been cleared of any sediments and potential earlier fortifications, perhaps by the same workforce, to give the similarly built mortar walls a firm grip. With no more than a 1 × 1 m sondage on the ridge excavated to one metre in depth, it goes without saying that absence of evidence is no evidence of absence.

It is hard to imagine that the prominence of the ridge, giving its occupants' command of Transcaucasian traffic, remained unnoticed until the fourth or fifth century. One is tempted to think that the strategic ridge played a role in gorge-blocking recorded in the sources as far back as the first century AD. Whether it carried any fortifications then (later erased to make way for the late antique walls) or was simply a natural barrier occupied temporarily by scouts, is impossible to tell. There is a possibility that pockets of material lost by sentries during any more permanent occupation might survive at the foot of the ridge, but searching for them under substantial rocky deposits would be a challenge. The spectacular cliffs next to the ridge remind one of the dramatic scenery with sheer rocks rising to dizzy heights, in which Lucian of Samosata[26] envisages Prometheus being chained to the rocks, much

more so than the gorge at Dariali Fort or further south. Lucian will not have seen the gorge himself but, writing in the second century, after several Roman military missions had reached the site, might have been influenced, directly or indirectly, by eyewitness reports. There are other pieces of circumstantial evidence for locating the famous Gates further south,[27] but it is probably not a question if this or that narrow section of the gorge were the *real* Gates. Depending on where the pass guardians were stationed at the time – which will often have been more than one location – visitors will have considered at one stage this and at another stage another narrow passage the 'Caspian' or 'Alan Gates'. There is little doubt, in our view, that the prominent ridge was one of them. Perhaps the principal gates, created by nature and reinforced by humans, were here for most of the past two millennia – until modern explosives blew them apart.

Notes

1 See chapter 4.4; see also chapters 2–4.1.
2 See chapters 8, 10.4.3.1, 10.4.3.5 and 10.7: DPS-2.
3 See appendix II.
4 See chapters 1.2 and 6.1.
5 The distance between Trench Y and a point 0m north-east and 7 m north-west of the zero point in the Trench Q grid (*i.e.* a south-western trench corner) is 948 m, based on total station measurements of trench coordinates.
6 It was only in the late 1820s that plans were made to move the road on the right bank of the Tergi, using considerable amounts of gun powder to blast the road through the rocks: Nachtigal 2016, 101–02.
7 Klaproth 1812, 670–71 (translation by EWS), cf. 661. It is clear that left refers to left of the direction of flow of the Terek (*i.e.* its western bank), not the left of the direction of travel, as Dariali Fort is subsequently also described as being on the left of the Terek.
8 Klaproth 1812, 666–67.
9 Klaproth 1812, 672.
10 Pushkin 1835, 534 = trans. Ingemanson 1974, 28–29. See appendix II for further discussion.
11 Bryce 1878, 74.
12 Laser scanning suggests it was c. 105 m, whilst the distance between the west end of the wall and the easternmost point we could safely reach (thought to be c. 8 m west the east terminal of the preserved NNE-facing wall) was c. 87 m (*i.e.* c. 95 m to the terminal). The latter measurements were taken with a handheld GPS on 14 July 2013. Laser scanning is likely to be much more accurate.
13 In addition to the floods in the wake of rock avalanches and mudslides (see appendix I), which washed away two pedestrian bridges in 2014, minor and more localised floods can cause extensive damage too. On 13 July 2015, the Tergi burst its bank in the wake of heavy and persistent rain and destroyed the low-lying sections of the access road to our site, on the northern approaches to the ridge, so thoroughly that there was no vehicular access until it was eventually repaired.
14 See chapters 1.2 and 6.1.
15 Itonishvili 1984, 6; see also chapter 10.7: DPS-34.
16 See chapter 4.1.
17 See chapter 2.2.1.
18 See chapter 18.
19 The trench was excavated, and records compiled, principally by Steve Usher-Wilson and Davit Naskidashvili.
20 See chapter 22.2.
21 See chapters 2.2.3 and 25.3.1.
22 Mindorashvili 2005, 168, cf. 230 pl. XXV.
23 Kruglov 1937, 247.
24 See chapter 6.1.
25 See appendix II.
26 Lucianus, *Prometheus* 4, cf. 1 and chapter 25.2.
27 See appendix II.

8

Medieval Gveleti Fort: valley-blocking cliff-top bastion and royal refuge from the Mongols (Trenches C, D, N, U, V and W)

8.1. Introduction

It appears that there was no shortage of efforts in Late Antiquity and the Middle Ages to make it as difficult and perilous as possible for any unauthorised individuals or groups to cross the Caucasus via the gorge. Hostile forces had to make their way past the ridge-top Bakh'tari barrier in the north,[1] and, if successful, break through the road-blocking wall one kilometre further south at Dariali Fort. There is evidence for a third narrow passage south of the fort that may have been defended, even if the case is far from proven,[2] and an early medieval cemetery near a fourth narrow passage, to the north-east of Bakh'tari fortified ridge, raises the possibility that there was a further guard post here.[3] Yet, even this double, triple or quadruple



Fig. 8:1: Gveleti Lower Fort on a cliff (right) overlooking the main road (foreground) across the Central Caucasus. Gveleti Upper Fort is on the conical hill (left).



Fig. 8:2: Gveleti Lower Fort controls one of the bottlenecks of the gorge: view from the cliff-top (between Trenches C and N) over the road and the south-eastern approaches.



Fig. 8:3: Gveleti Lower Fort on top of the rock west (left) of the road controls one of the narrowest passages of the gorge.



Fig. 8:4: Opposite the fort, the rocks reach the eastern banks of the Tergi/Terek River, forcing all traffic on the western bank. The defunct modern bridge, photographed in 2016, was still operational two years before.

barrier was not always deemed sufficiently strong, and there were periods of history when additional safeguards seemed necessary, to judge by the creation of a further almost impregnable stronghold: Gveleti Fort, some 3.6 km (as the crow flies) south of Dariali Fort.

Towering over a sheer cliff high above the Tergi/Terek at one of the narrowest points of the gorge (Figs 8:1–8:3), the occupants of the fort could quite effectively have sealed off the valley, at least traffic on the left/western bank of the Tergi. This is, of course, also the side where the ancient and medieval road ran past Dariali Fort. The old road will also have followed the same side of the river at Gveleti Fort. Today, the modern road is still on the left bank at Gveleti Fort. In the recent past, it used to cross the river north-east of Gveleti Lower Fort on a modern bridge, still intact in summer 2014, but partially collapsed or demolished soon after (Fig. 8:4); now it crosses the river via a new bridge a few hundred metres further north and then stays on the right bank of the river from this point to the border. There is a high rocky cliff on the right bank of the Tergi opposite Gveleti Fort, making it a near certainty that the ancient and medieval road would have followed the left bank.



Fig. 8:5: Gveleti Lower Fort (left), towering over the road, and Upper Fort on the conical hill (centre). Drone image by Davit Naskidashvili (28 January 2017).



Fig. 8:6: Gveleti Lower Fort (left) is protected by unscalable cliffs on three sides. Drone image by Davit Naskidashvili.

Even now, the viable strip of land on the left bank of the Tergi beneath the cliff-top fort of Gveleti is narrow (Figs 8:5–8:6). We cannot be sure how wide it may have been before the construction of the modern military highway, but it should have been at least as narrow as today and (as modern road construction frequently involved blasting away rocky spurs) perhaps even more so. The survival of a dry-stone wall at the cliff-top edge in Trench C provides unsurprising evidence that any use of explosives to widen the road can only have affected the lower slopes of the high cliff. In premodern times, the lower section of the cliff may have been marginally less steep and may have

come a little closer to the river. We do not know whether there were any gates, barriers, other obstacles or control points in place to monitor and control traffic in the valley beneath the fort, as during periods of flooding the swollen river could easily have washed away any physical traces of such installations. Modern road-construction, furthermore, may have erased any surviving earlier features. Whether or not the natural bottle-neck had been further reinforced with artificial barriers, controlling traffic at this point should not have been difficult and would not even have required road-blocking walls or sophisticated weaponry. Rocks hurled down the steep cliff would have caused an incalculable, terrifying and mortal danger – probably an effective deterrent against any breakthrough attempts.

Furthermore, as the approach from the south is particularly steep, Gveleti Fort would have been a particular strategic asset if occupied simultaneously with Dariali Fort and the ridge-top fortifications one kilometre north of it. The latter two would have been particularly difficult to capture, if coming from the north, Gveleti Fort was particularly hard to storm for any enemy force coming from the south; jointly, they could have sealed off a section of the valley from the outside world. The Amali Valley in between has some potential as pasture land,[4] and the terrace south of Dariali Fort for agriculture or horticulture,[5] even if probably not enough to supply the garrison of both forts for a longer period. In addition to the obvious advantages of being able to block or control traffic at this point, Gveleti Fort would have offered an easily defensible stronghold. The combined garrison of Dariali Fort and Gveleti Fort (plus perhaps a small number of guardians on the northernmost ridge) would have been greater than either could have housed on its own. What other strategic advantages may the multiple fortifications have offered? For any force to succeed in making its way through the gorge, it either had to capture and occupy two or three almost impregnable fortifications or make its way past unconquered strongholds, be it via bribery or a heavy blood toll involved in any breakthrough attempts against the will of the 'gatekeepers'. The latter option, of finding a means of bypassing Dariali and Gveleti Forts without ousting their garrisons and replacing them with loyal forces, involved a further fatal risk. Any invading force, perhaps already weakened through casualties suffered in breaking through the defences from north to south, risked finding their escape route blocked on return, stuck in enemy lands and in an inhospitable alpine environment.

Gveleti Fort consists of a lower fort, on a high cliff overlooking the road, and an upper fort on a conical hill west. The approach to the lower fort at Gveleti is almost impossible from the cliff-sides in the south, east and north-east, easier but still very steep and difficult, if opposed, from the north-west, where it is protected by dry-stone walls (Figs 8:7–8:8). A ridge connects the lower fort with a second and higher hill in the north-west. It is little surprise that there is an upper fort on this naturally well-protected high point overlooking the lower fort. The upper fort is protected by steep cliffs on all sides (Figs 8:9–8:11). The only access is from the lower fort via a narrow and treacherous ridge with steep drops on both sides, hazardous today in wet weather and, no doubt, a suicide mission if facing armed resistance from those occupying higher ground in the past. This upper fort would have been of no use on its own in any attempts to control traffic along the valley, but it would have provided a perfect refuge. Overlooking the access route to the lower fort, it would also have made it much more difficult to capture the strategically significant lower fort; simultaneous occupation of the upper and lower fort considerably strengthened the traffic barrier. Whilst on such steep terrain that it seems unlikely the upper fort could have accommodated a large garrison, it would have provided some additional capacity. Furthermore, the upper fort, with its look-out tower on the summit over a sheer cliff,[6] overlooked a saddle further west. This saddle is blocked by an undated dry-stone wall,[7] thus making any attempts to bypass the fortified complex in the west more difficult and dangerous.

Gveleti features prominently in the sources on one occasion only, when in c. AD 1302 King Davit VIII retreated to the impregnable mountain castle having fallen into disgrace with the Ilkhanid ruler Ghazan. At Gveleti Fort, the Georgian king's forces withstood the Ilkhanid army until the onset of winter brought the siege to an end and highlanders in the king's service inflicted heavy casualties on the retreating Mongols. No doubt defences will have been enhanced and shelters built or expanded during the siege. Perhaps the Mongol threat stimulated further construction work on the fort even after immediate danger had passed.[8]

However much events in the early fourteenth century may have boosted construction works on the fort (even if confined to basic dry-stone construction), the king's retreat to Gveleti suggests that it was already fortified at the time and an earlier foundation. Establishing the dates of foundation and occupation of the fort seemed important, as it evidently was an important component of the defensive system along the gorge at some stage. We opted to focus our efforts on the lower fort, for two reasons:

1. The approach to the lower fort was much easier; that to the upper fort more difficult and in places potentially risky in wet and slippery conditions.
2. Only the lower fort controlled the valley and it probably could also have housed a larger garrison than the upper fort. It thus seemed likely that the lower fort was more densely and regularly occupied – and that it had either been built earlier than the upper fort, or simultaneously with it, but probably not later.

It was important to establish the facts. We excavated in total six trenches on Gveleti Fort (Fig. 8:12): two (C and D) in 2013, one (N) in 2015 and three more (U, V and W) in 2016. One trench (C) was immediately above the





Figs 8:7–8:8: The north-western approaches to Gveleti Lower Fort are protected by almost cyclopean dry-stone walls.

cliff edge, as we assumed that this was a point bound to be frequented by any garrison wishing to control traffic. A second trench (D) was excavated further away from the cliff edge, at a point where lush grass suggested that occupation layers might have built up to a greater depth. It was positioned away from any upstanding old walls, which we did not wish to demolish. It was furthermore downhill, below the solid stone tower crowning the lower fort (Fig. 8:13), and it seemed possible that artefacts lost by those keeping a watch on the tower and those occupying adjacent walled structures on the summit of the hill might have slid down the slope to Trench D. Trench N was between a rock crevasse and the summit of the lower fort and not far from the solid stone tower and associated dry-stone structures – a further area that we felt must have been a prime area for occupation. Three small sondages (Trenches U, V and W), all on a strip of land between the summit of the lower fort and the access route to the upper fort, targeted areas of seemingly deep stratigraphy which we hoped would provide a random sample of the occupation history of the fort. The chronology of Gveleti Fort's occupation was, in the light of its dominant control over one of the bottlenecks of Transcaucasian traffic, of key interest to understanding the system.[9]

8.2. Living on top of the cliff-edge in early modern times: Trench C (Phase 7a)

Trench C[10] measured c. 3.70–5.10 m (west–east) by c. 3.60 m on average (north-south). It was centred on a cell or chamber of 1.90–2.30 m internal width west-east and 2.10–2.50 m north-south. This small chamber was enclosed by a double-faced dry-stone wall, of 0.80–1.10 m width (C.005), in the west and north (Figs 8:14–8:15). This wall abuts, and is clearly later (if not necessarily much later) than, the fort's outer wall along the cliff edge (Fig. 8:16). The latter was not drawn or recorded, due to safety concerns. It was of similar width and construction, but built more carefully with much clearer facing. A substantial rock outcrop in the south formed a natural wall. The chamber may have been a casemate or similar structure, taking advantage of the existing outer wall and the rock to provide a basic room for storage or shelter. Only the bases of the walls survive – a result of partial collapse and stone robbing. Some of the stones may have been reemployed in large circular enclosures of loosely piled-up stones in the interior of the lower fort, perhaps windbreaks around tents of temporary modern occupants, such as modern



Fig. 8:9: Gveleti Upper Fort is accessible only via a narrow ridge (bottom left). Drone image by Davit Naskidashvili.



Fig. 8:10: Gveleti Upper Fort, with a stone tower centrally on top, seen from the west.



Fig. 8:11: Dry-stone wall on top of the Upper Fort.

soldiers posted on this vantage point. There are no clear traces of any door or window openings in the chamber's preserved walls, and access must have been gained from a higher level. Perhaps the occupants of the room, whilst the fort was still upstanding, may have been charged with guard duties, perhaps ready to discharge stones or missiles when required. It seems doubtful that the basic dry-stone walls ever rose to a great height. There is no positive evidence for a second storey or wall-walk above the chamber. Oddly, despite the inclement climate, there were no clear traces of a fireplace in the room. We first thought that a niche in the northern wall, at the north-east corner of the room, may have served this purpose. Stones on the inside seemed to bear traces of fire-reddening, but there was no surviving charcoal from its fill (C.006). Iron-panning in C.006, sometimes the result of water-logging, was also observed, but neither the base (formed by small stones) nor the walls (on three sides only) of the niche were provided with any sealing. Evidently not waterproof, it probably was not a small cistern or water basin. Perhaps the niche served storage purposes or might have provided space for a torch or other lighting device. Whilst we were unable to locate a fireplace, analysis of charcoal from Trench C shows the characteristics of fuel used in a domestic fire,[11] suggesting that there was a source of heat available nearby – which certainly would have been necessary if the room served as a dwelling.

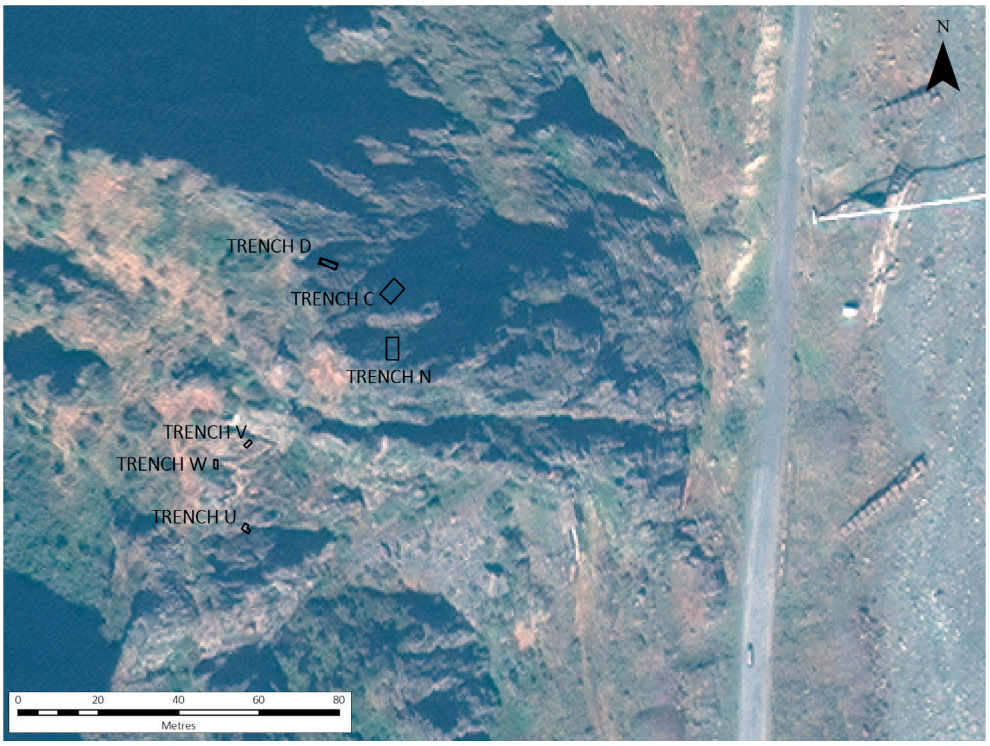


Fig. 8:12: Excavations on Gveleti Fort in 2013, 2015 and 2016. Map of Trenches C, D, N, U, V and W by Nadia Khalaf and the Dariali project. (The steep topography affects the way in which the width of slopes appears in the satellite image; the fort's eastern slope is significantly narrower, and the cliff edge closer to the road, than the plan implies). Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).

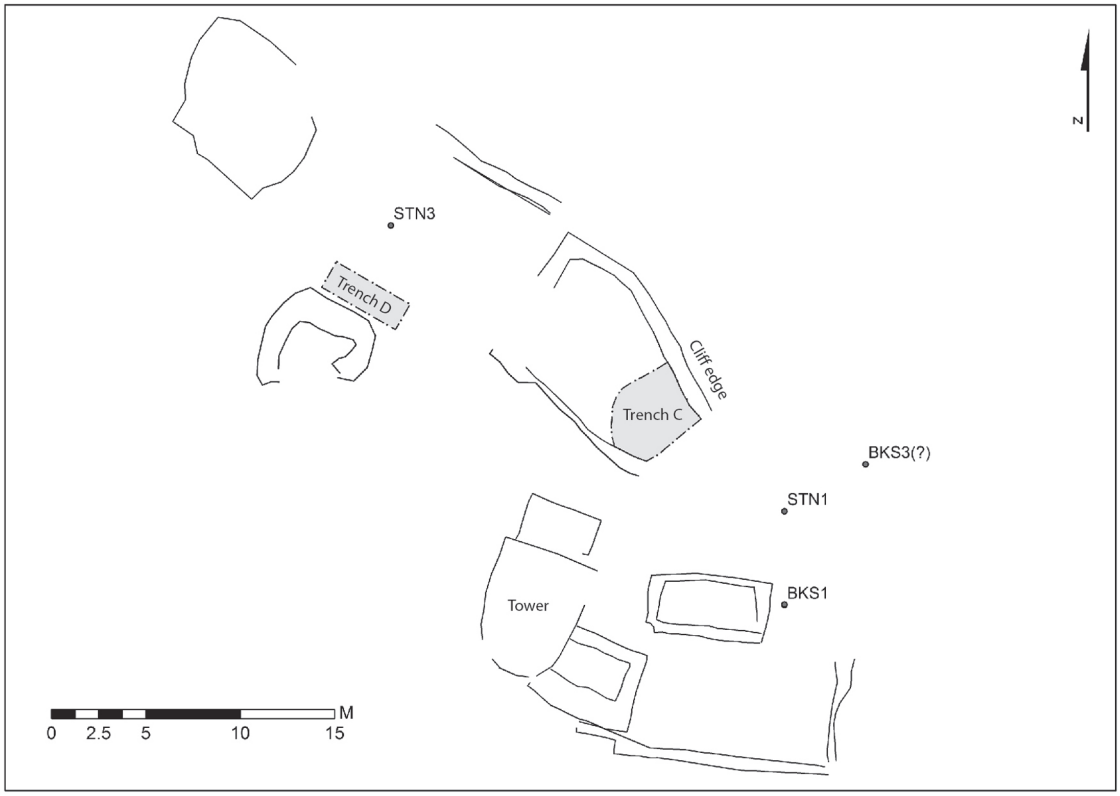


Fig. 8:13: Total station plan of Trenches C and D and dry-stone structures on the summit of Gveleti Lower Fort by Graeme Erskine, including station locations (STN) and points used as back-sight (BKS).



Fig. 8:14: Trench C: an early post-medieval dry-stone wall and room unit overlooking the cliff edge (right).

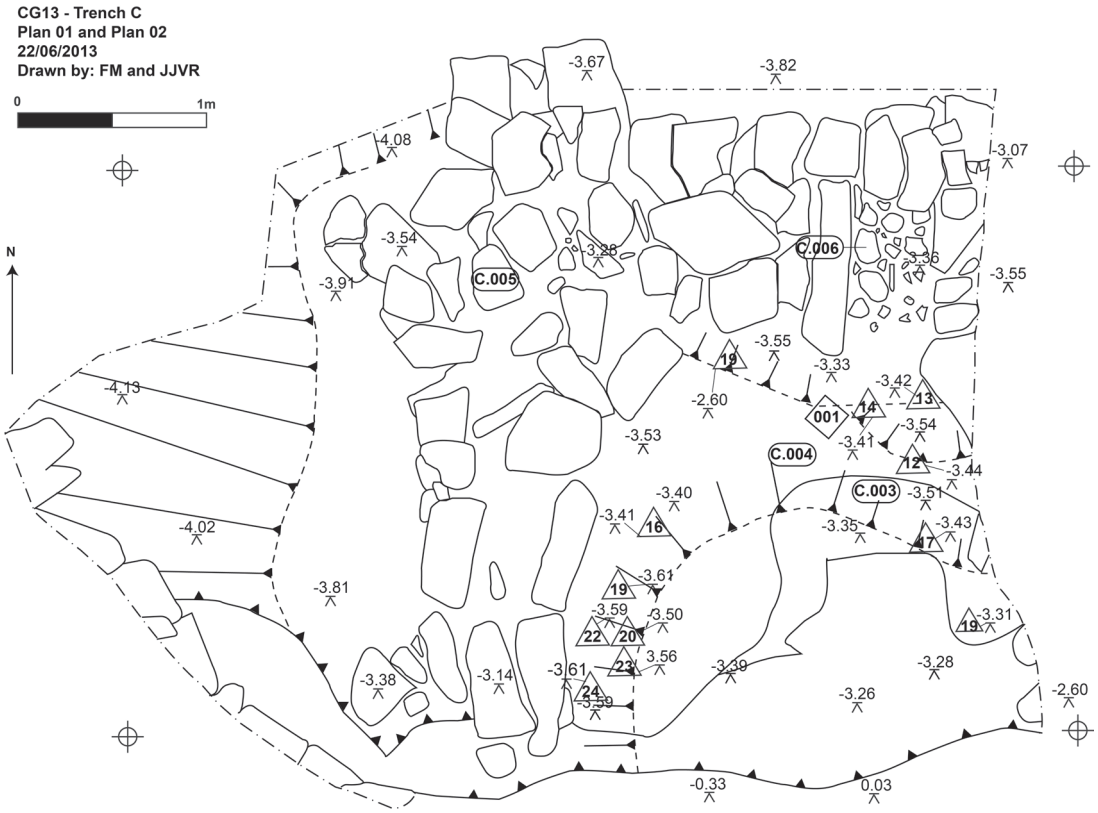


Fig. 8:15: Plan of Trench C. (Numbers in triangles refer to finds whose precise position has been recorded.)



Fig. 8:16: The dry-stone structures in Trench C were next to the cliff edge, between the cliff's summit and the dry-stone wall in front of it (centre). On the right there is a solid lookout tower (near Trench N) on the highest point of the lower fort.

Whilst, as noted above, there may have been much modern stone robbing, the walls, notably the lightly-built inner walls, may also have been affected by partial or complete collapse. The soft dark brown silt, forming the topsoil (C.001) within the room in Trench C contained an estimated 40% of large stone blocks, some 70% in the west (inside the inner wall), some 60% in the east (inside the outer wall), but only c. 20% in the centre of the room. This was found mixed with Soviet-era glass sherds and pottery thought to be medieval. C.002, the topsoil outside the western wall also contained some 40% of stones, likely to have once formed part of the outer wall too.[12] Beneath the topsoil (C.001) within the room, there was a small depression near the rock outcrop filled with less organic material, soft mid-brownish yellow silty clay (C.003). The deposit underneath, soft yellowish-brown sandy silt (C.004), was directly on top of the natural bedrock. Like C.003 above, stones tended to be of lesser size, suggesting that these two deposits had accumulated whilst the room was in use and before the walls had collapsed or were robbed-out. The finds recovered may offer support for interpreting these two deposits as occupation layers. Both contained bone, C.004 also pottery and charcoal of a wide variety of species.[13] Notwithstanding such evidence for human activity, the yellowish colour of the soil suggests that not much organic material accumulated at the time. The stratigraphy was shallow. Typically for Gveleti Fort, the trench produced a moderate quantity

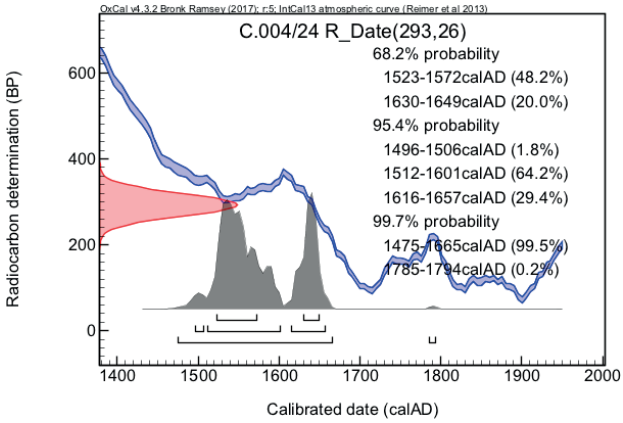


Fig. 8:17: Radiocarbon date from Trench C (see Table 8:1 for further details).

of finds, some 647 g of pottery and 202 g of bone, and nothing particularly unusual. In all, the evidence seems to point to occasional rather than permanent and intensive occupation, maybe in part even by people seeking temporary shelter. A radiocarbon sample of AD 1496–1657 from C.004/024 provides evidence for post-medieval occupation (Fig. 8:17; Table 8:1). Whether constructed then or at an earlier date, the walls still appear to have been standing. In the light of evidence for much earlier occupation from Trench D, reaching back some five to nine centuries before,[14] it seems inconceivable

Table 8:1: Radiocarbon date from Trench C on Gveleti Fort (BBM = below benchmark) (see Fig. 8:17 for a plot of the date).

Context/Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
C.004/24	OxA-29236	2.16 m E, 2.74 m N, -3.61 m BBM	Bone: Cervus	293±26	AD 1496–1657 (93.6%: 1512–1657)	d13C= -19.5

that the fort's occupants never ventured to the cliff edge until post-medieval times. Did the natural bedrock form the surface in the area of Trench C for much or all of the Middle Ages? Any items lost on bare rock would have been washed down the slope during heavy downpours. The room may have been built only a few hundred years ago, but the outer wall might be more ancient. More probably, earlier dry-stone walls at the cliff edge had fallen into a state of disrepair and were dismantled and re-erected in post-medieval times. On such an occasion, it would not have required much effort to scrape any loose soil off the bedrock and push it over the cliff. The same procedure may have been followed at a similar date in Trench N. More than a millennium earlier, sediments appear to have been cleared off the bedrock at Dariali Fort, in preparation for the construction of the late antique fort. One should note three important differences in the clearance operations at Dariali Fort and Gveleti Fort:

1. Those at Gveleti Fort appear to have been confined to the vicinity of the cliff edge where soil could easily be disposed of; those at Dariali Fort were more systematic and affected much or all of the plateau.
2. Those at Gveleti Fort were accomplished in preparation for the construction of basic dry-stone walls; those at Dariali Fort prepared the ground for the erection of solid mortar walls.
3. Those at Gveleti Fort occurred between the mid-fifteenth and the mid-seventeenth century or not long before; those at Dariali Fort probably date back to the late fourth century.

Despite such major differences in scale, purpose and date, one notices a pattern in the clearance of earlier occupation levels: hilltops suitable for occupation were in short supply in Dariali Gorge. In sharp contrast to the formation and growth of tells in fertile Near Eastern plains, we often witness no gradual build-up of new occupation debris over older layers, but a complete erasure of all traces of earlier life. Dariali Gorge forms a further example of what our landscape team has aptly labelled as a 'landscape of destruction'.[15] A cliff-edge dry-stone wall built on sediments was at risk of collapsing – an accident waiting to happen that could have killed local people or legitimate travellers at the base of the cliff as well as fort occupants seeking shelter between unstable walls. Accident prevention was easy. After shovelling the soil over the cliff edge, a rock-solid building platform ensured that even basic dry-stone walls will have been reasonably stable.

Whilst the surviving remains in Trench C may be mainly or exclusively post-medieval, Trench D proved (as we will see) that the radiocarbon sample from Trench C does not belong to the earliest – and may well be of the latest phase of occupation of the fort (not counting possible recent temporary occupation within the fort's demolished remains). We may be sure that the area of Trench C was occupied as early as that of Trench D. The much greater efforts required to clear areas in the interior of the fort down to the bedrock – and the lesser need for a stable building platform – saved early deposits in Trench D.

8.3. Trench D: early medieval to early modern occupation of Gveleti Fort (Phases 5–7a)

Trench D[16] was some 17 m north-west of Trench C, further down the slope and much further from the cliff edge (Fig. 8:18). It measured some 1.50 × 4.50 m at the top. Due to the omnipresence of large stones and rocks, it was impossible to cut straight sections, and the trench thus became increasingly narrower as we dug deeper. The topsoil, soft dark brown silt with some 40% large stones (D.001), as one might expect, contained modern finds, such as concrete. The high concentration of stone in the topsoil and even more so in the less organic subsoil (D.003: soft greyish-brown silty sand with some 70% large stones) must be the result of the collapse or unsystematic dismantling of stone structures further uphill. Buildings affected are likely to include the above-mentioned solid stone tower, which still dominates the lower fort today, and will have been taller in the past, as well as associated walled chambers. They may include other internal structures of which no trace remains above ground, such as the undated dry-stone wall (D.002) along the upper, south-eastern edge of the trench (Fig. 8:19).

One would imagine that the fort's interior, whether permanently occupied, or even if only a retreat in times of crisis, would have been filled with dwellings. These evidently often had dry-stone walls or foundations, a building material in abundant supply. It is hard to be sure how high these walls would have once been, as stone robbing appears to have occurred. Log cabins on dry-stone foundations, to prevent rapid rotting, are possible too and perhaps more stable than high dry-stone walls. Although there is no positive evidence, one wonders if such potential timber structures or solid stone houses may have employed turf or soil for insulating walls and



Fig. 8:18: Trench D, overlooked by the stone tower, was excavated to the bedrock in places. Unlike the cliff-edge trenches, earlier deposits, reaching back to the Early Middle Ages, were preserved.

roofs. There is one possible posthole or small pit (D.011), but not much evidence for timber post constructions, probably unsuitable for shallow soil on rocky ground (Figs 8:20–8:28).

The dry-stone wall (D.002) is overlain by the modern topsoil (D.001), and is abutted by D.003, D.004, D.006 and D.007, D.009 and D.021 (deposits discussed below). That it overlies the natural soil (D.022) need not necessarily prove an early date, as the same is true for the walls in Trench C, without any firm evidence of occupation layers in the area reaching back to the medieval era or beyond. Stratigraphy and greater depth of deposits in Trench D suggest, however, that a wall built on natural soil here is likely of medieval date. The masonry of the wall is far from regular. Two large stone blocks in the north-eastern section of the wall abut natural bedrock, and are in turn abutted by four courses of stones of all shapes and sizes, the gaps filled with smaller stones, in the south-east. The exposed, north-west-facing, side was remarkably straight. It is possible that it formed an outer or inner wall of a dwelling or the dry-stone foundation of a timber superstructure. If of an age similar to, or greater than, the features we revealed in the trench (or some of them), it may have formed the outer wall of the room or dwelling in question. The natural depression next to the rock may have provided some welcome shelter from wind and weather, as long as there was a roof and the walls were sufficiently insulated, *e.g.* via soil or turf, to prevent infiltration of surface water.

The deposits sealed under the subsoil (D.003) contained far fewer stones. They had evidently built up before the large-scale demolition or collapse of the stone structures in the interior of the fort. D.004, soft light grey silty clay, with no more than c. 15% of stones of small size under the subsoil, may be a floor surface. This in turn overlay a sequence of silty clay deposits of light brown (D.006), mid yellowish-brown (D.007 and D.009) and dark greyish-brown colour (D.021). The latter may be occupation layers, including some organic debris, rather than levelling deposits. D.009, D.021 and the natural (D.022) are cut by a small posthole or pit (D.011), filled

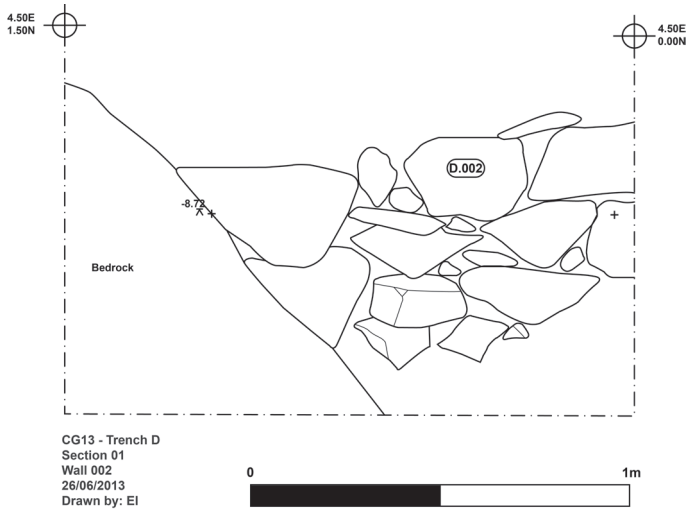
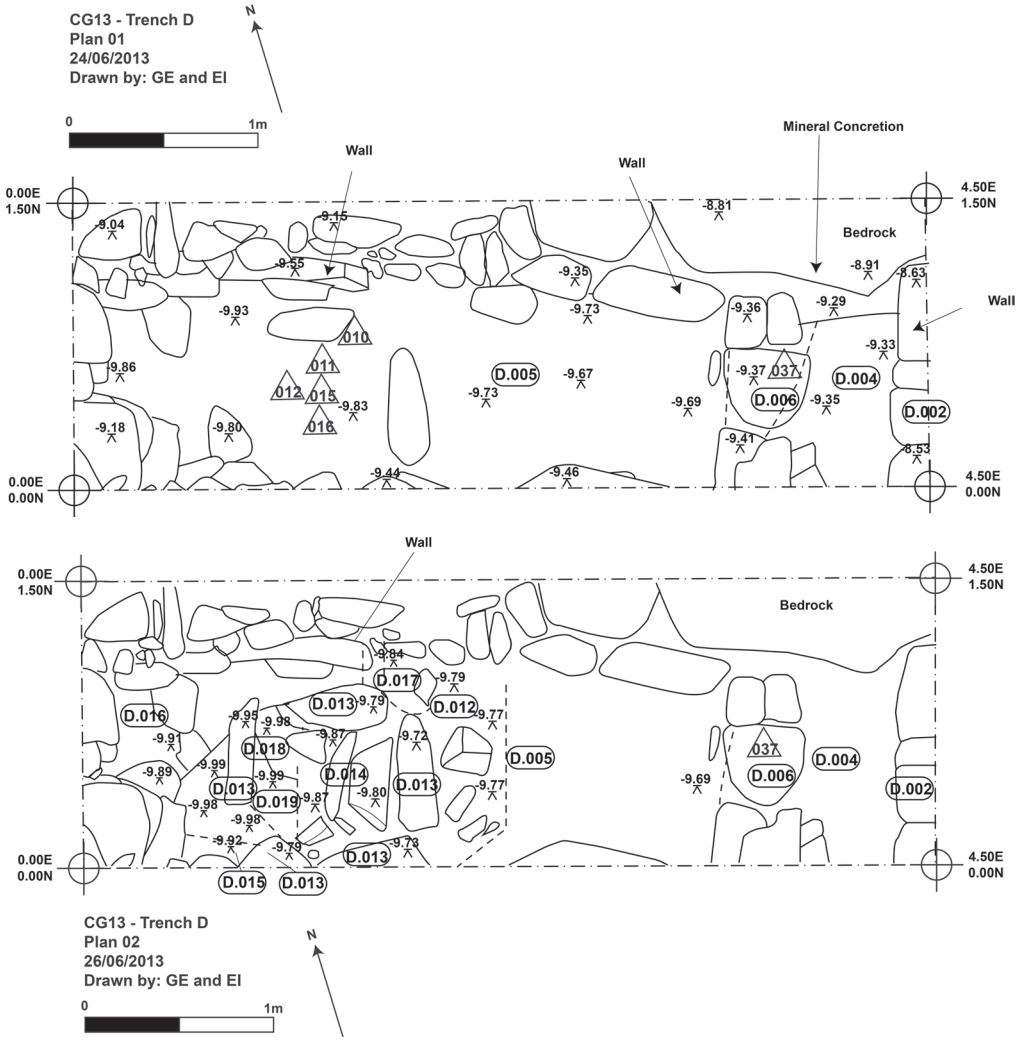


Fig. 8:19: Wall D.002 in profile, abutting the bedrock.

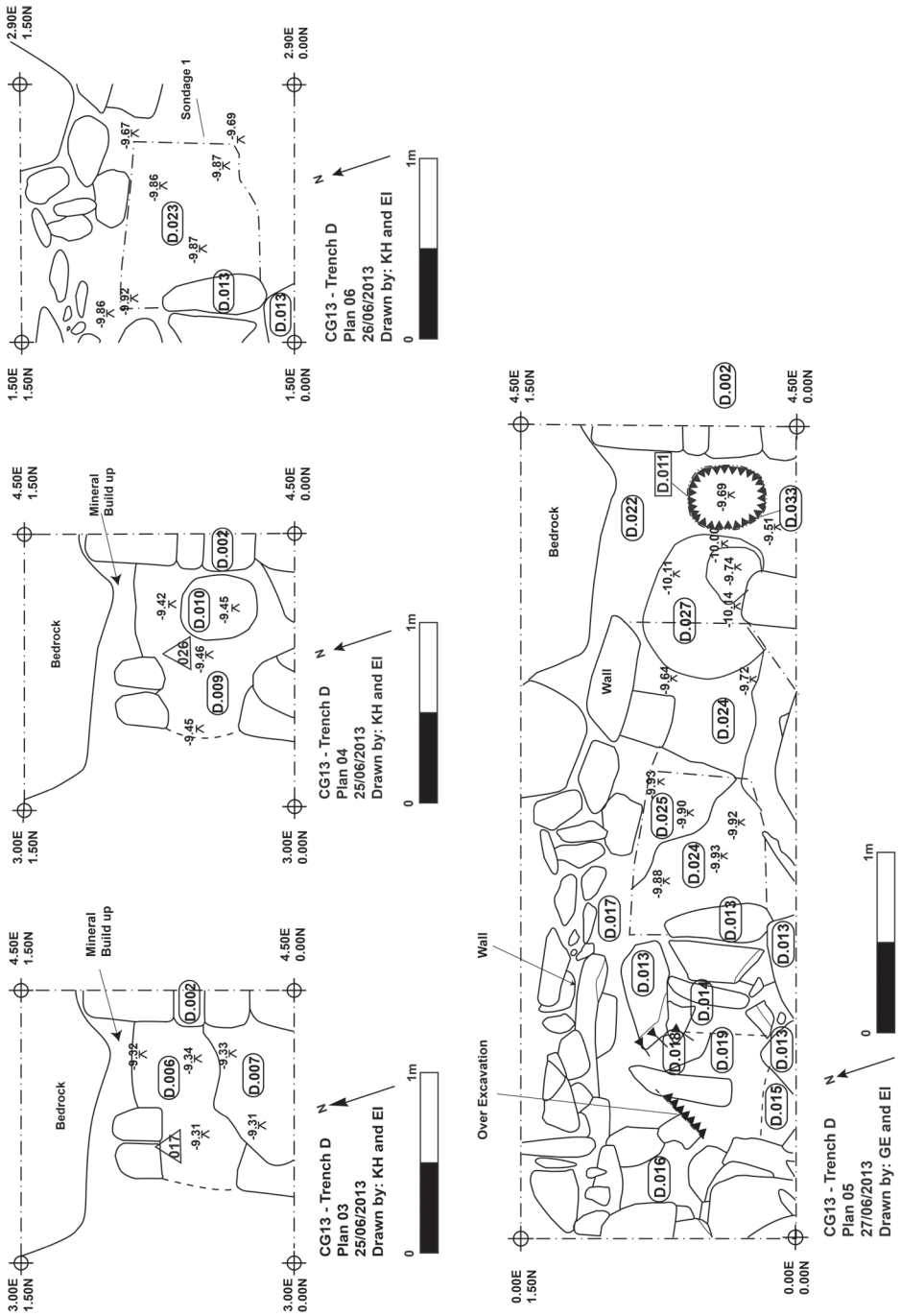
with soft greyish-brown silty clay (D.010), including pockets of greenish grey clay, a small quantity of charcoal, four sherds of pottery and no bone. Should D.002 indeed have been the outer wall of the room or dwelling, D.011 would have been dug at the edge of its interior. Perhaps the feature of c. 35–40 cm diameter and 40–51 cm depth with straight sides was a posthole (rather than a storage pit). It would have been large enough for a roof-support. The few finds from its fill are likely to be part of the once wet and clayey material it eventually filled up with.

Further west, we encountered a deposit of soft dark grey-brown clayey silt (D.005) in much of the area of the trench, rich in charcoal of a wide range of species,[17] perhaps the cinders of firewood burnt nearby. This may be an occupation layer or, less probably, a levelling deposit. A piece of birch charcoal from this deposit, provided a comparatively recent *terminus post quem* of AD 1441–1624 (Fig. 8:29; Table 8:2), further evidence that the fort remained occupied into post-medieval times – a conclusion corroborated by our findings from Trenches C and N. Sealed underneath D.005, there was a deposit of friable, dark brown clayey silt with c. 60% stones (D.014), soft reddish-brown sandy silt (D.018) and very soft light grey silt (D.019), filling the interior of a possible structure consisting of five large stones forming probably a square (D.013). Its external dimensions were c. 1.20 m across west–east, possibly the same, and at least a metre, north-south, where part of the rim extends beyond the edge of the trench. Perhaps this was a fireplace, as suggested by the fire-reddening of parts of its fill (D.018) and the high charcoal contents of its fill. An attempt at obtaining an archaeomagnetic date for the fill unfortunately proved unsuccessful.[18]

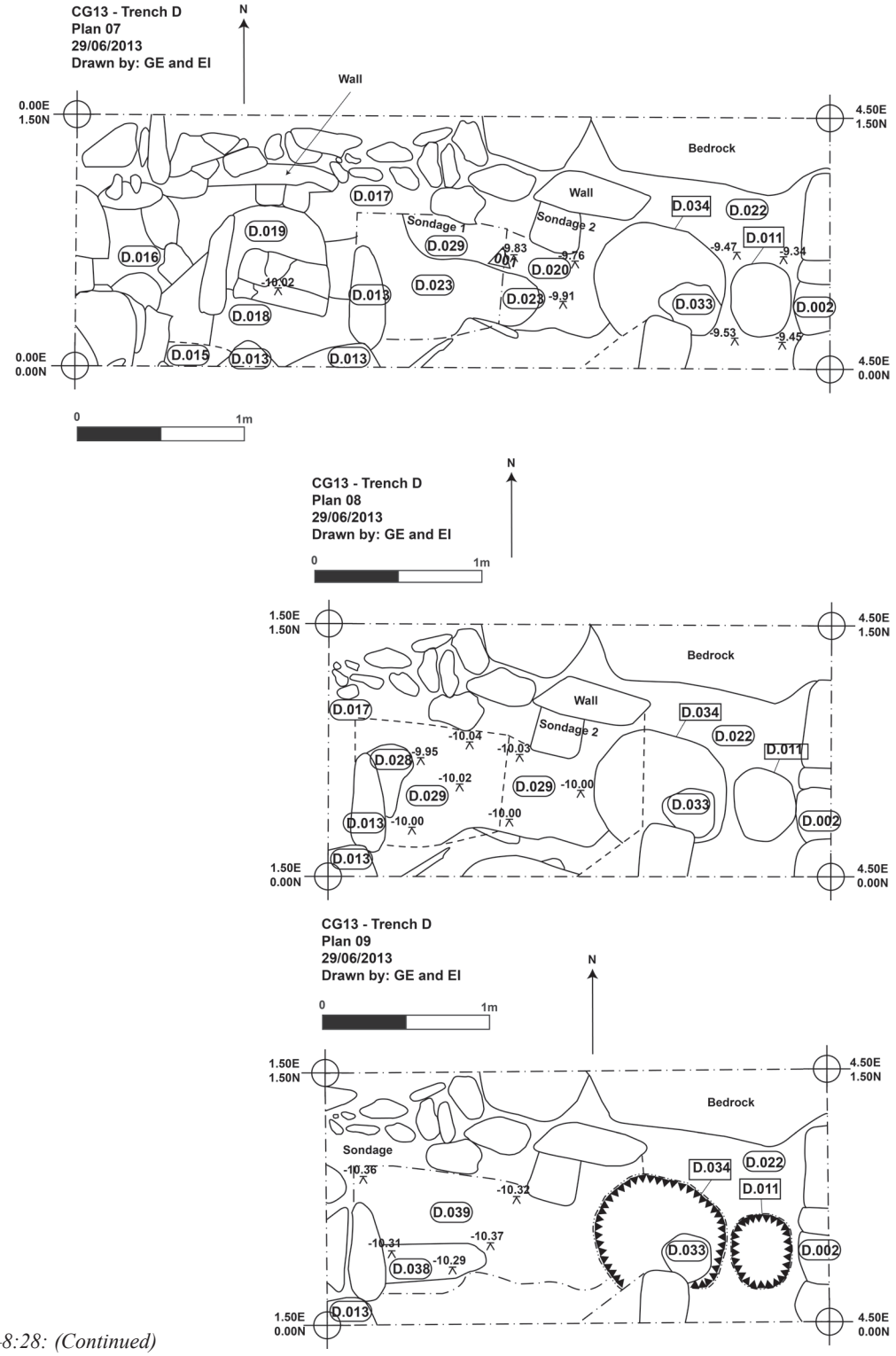
Under D.005, we encountered a lens of soft yellowish-brown clay without inclusions or finds (D.032), overlying D.012 east of the possible hearth (D.013). To the north-east of D.013, there was sterile soft grey-brown silty clay (D.017), perhaps also material washed in from the north



Figs 8:20–8:28: Plans of Trench D at various levels, from shallow (top) to deep (bottom): an area of domestic occupation within the fort.



Figs 8:20–8:28: (Continued)



Figs 8:20–8:28: (Continued)

during a period of abandonment, over soft dark brown sandy silt, with pottery, bone and charcoal (D.036), the latter probably an occupation horizon. These two deposits may be earlier than D.013, but the sequence is not entirely clear. D.036 overlay D.012. D.012, as well as D.008 underneath D.005 west of the possible hearth (D.013), were similar to D.005, but friable and of a paler colour, suggestive of a less organic composition. They were nonetheless clearly associated with occupation, both containing pottery and bones, whether lost *in situ* or redeposited to level the area west of the hearth. Under D.008 there was a lens of sterile loose yellow sand (D.015), south-west of D.013, above soft yellow-brown silty clay with charcoal flecks, but no finds (D.016).

Table 8:2: Radiocarbon dates from Trench D on Gveleti Fort (s = sample from floatation) (BBM = below benchmark) (see Fig. 8:29 for a plot of the dates).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence [no modelled dates indicated, due to small number of samples and wide chronological range]*	*Comments*
D.005/s2	OxA-29259	3D unrecorded	Charcoal: Betula, twig	391±26	AD 1441–1624 (74.4%: 1441–1522)	d13C= -27.89
D.038/59	OxA-29432	3D unrecorded	Bone: Capra hircus	971±25	AD 1016–1155	d13C= -19.61
D.037/58	OxA-29237	3D unrecorded	Bone: Capra hircus	1154±27	AD 776–969	d13C= -19.81

West of D.011, there was a larger pit (D.034), evidently earlier then D.011, as cut from a deeper level. This pit was filled, from top to bottom, with firm dark greyish-brown clayey silt (D.026), friable dark greyish-brown silt (D.027) and a large stone possibly deliberately placed near the base of the pit (D.033). The existence of a pit implies that people occupied the fort permanently. It is worth noting that our small trench was only approximately a metre wide at the base, not to mention the heavy disturbance by intensive later occupation. That we found merely a single pit is likely to be the result of the small scale of our excavations and the extent of later disturbance.

Pit D.034 was cut into a sequence of deposits of soft light grey-brown clay (D.020), overlying friable brown sandy silt (D.023), very soft light yellow-brown silt (D.024) and hard yellow-grey sand (D.025). Whilst the upper deposits all contained charcoal, as well as some other finds, *i.e.* bone (D.020 and D.023), pottery (D.023 and D.024), a 456 g heavy iron adze (D.020),[19] D.025 was a sterile concretion. D.025 overlay another deposit devoid of finds (D.030), initially thought to be the natural ground. Underneath, however, there was a series of deposits which were clearly not natural: localised deposits of friable grey-brown sandy silt (D.028) and very soft dark grey silt (D.031), both including charcoal, the latter in high concentration and of a wide variety of species. Perhaps attesting intermittent occupation, these deposits overlay another sterile layer of soft yellowish-white clayey silt (D.029). A sequence of further occupation layers underneath belongs to early phases of occupation: friable dark greyish-brown sandy silt (D.035), over a localised patch of soft dark brown sandy silt (D.038) and an extensive deposit of soft dark brown clayey silt (D.039), at the bottom of the sequence above strongly cemented light yellowish clay with an estimated 50% of stones (D.022). The latter was probably the natural ground, but deeper excavation is necessary to make sure that it is not sterile material washed down the slope and that there are no further occupation layers underneath. D.035, D.038 and D.039 clearly were occupation layers, as evidenced by the dark colour and the charcoal from D.035 and D.039, bone from D.035 and D.038 and pottery from D.035 and D.039. A domestic goat bone from D.038 yielded a radiocarbon date of AD 1016–1155, attesting

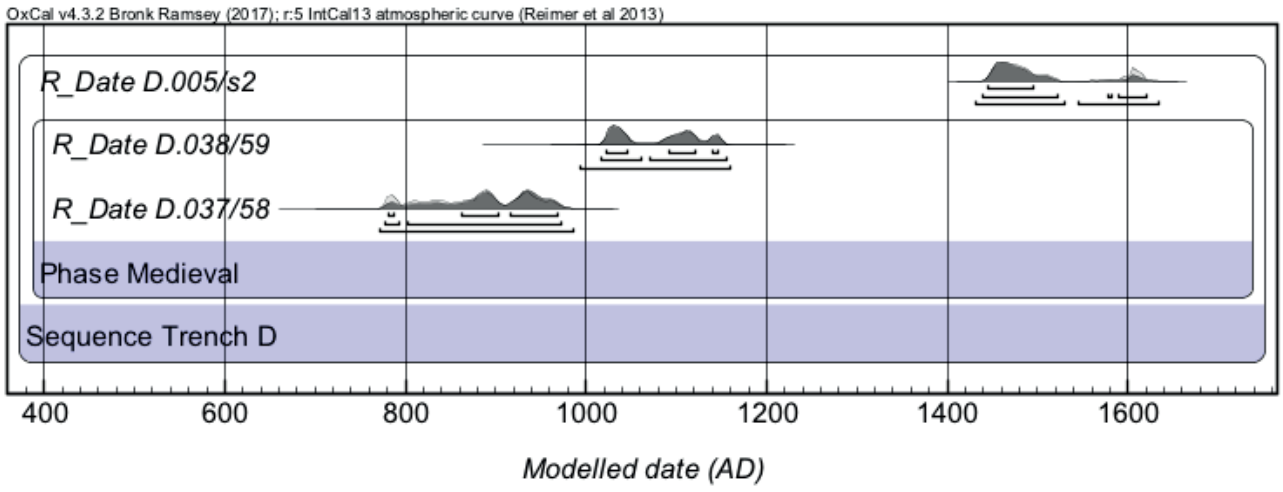


Fig. 8:29: Radiocarbon samples from Trench D (see Table 8:2 for further details).

occupation on Gveleti Fort shortly after, or up to a century before, the reported Georgian conquest of Dariali Fort in AD 1118 (a time, however, that is an archaeological dark age with no evidence for occupation on Dariali Fort).[20] Whilst from near the bottom of the sequence, it was not the earliest radiocarbon sample from Gveleti.

A film of soft dark brown clayey silt (D.037), under the stone (D.033) in pit D.034, may form the bottom fill of the pit (D.034) – or, more probably, it might be a deposit cut by the pit above the natural (D.022) and perhaps of similar date to D.039, the deposit overlying the natural ground further north-west. There was bone from all three deposits, pottery from the upper two and traces of charcoal in D.026 and D.037. A domestic goat bone from D.037, radiocarbon-dated to c. AD 776–969, provides a *terminus post quem* for this context. Whether redeposited at the bottom of a later pit or from an early occupation horizon, the bone suggests that Gveleti Fort had already been occupied in the later first millennium, probably at the time when an early medieval garrison is attested in the Alan's Castle (Dariali Fort) by Mas'udi,[21] other writers and copious archaeological evidence.[22] We cannot be sure how intensively Gveleti Fort was occupied at the time. Perhaps this site of great strategic significance already had a permanent garrison in the Early Middle Ages, but a single bone proves no more than sporadic occupation.

With 1,562 g of pottery and 2,261 g of bone (not counting an additional 1,468 g of bone from the topsoil), Trench D was the most prolific of our trenches on Gveleti Fort, despite covering less than half the area of Trench C or Trench N (but about as much as Trenches U, V and W combined). The higher quantity is perhaps a result of deeper stratigraphy and downhill accumulation of debris from further up the hill. Only approximately a third of the pottery and half of the bone from Trench D (or roughly a third of the bone too, if topsoil finds are factored into the equation) are from medieval layers.

8.4. Trench N: early modern housing next to the lower fort's stone tower (Phase 7a)

In 2015, we excavated a third trench (N) on Gveleti Fort, measuring 3.00 × 5.50 m (*i.e.* 16.50 m^2). Like all other trenches, it was located within the lower fort. The area chosen was demarcated by a small patch of level ground, between the highest rock outcrops within the lower fort and the substantial stone tower, an area that we felt sure must have been occupied whenever the fort was in use. The western edge of the trench was some seven metres east of the eastern edge of the stone tower, and some two-and-a-half metres east of the eastern wall of a dry-stone



Fig. 8:30: Trench N with wall N.002 and N.003 (left), wall N.005 (right) and stone tumble (foreground).

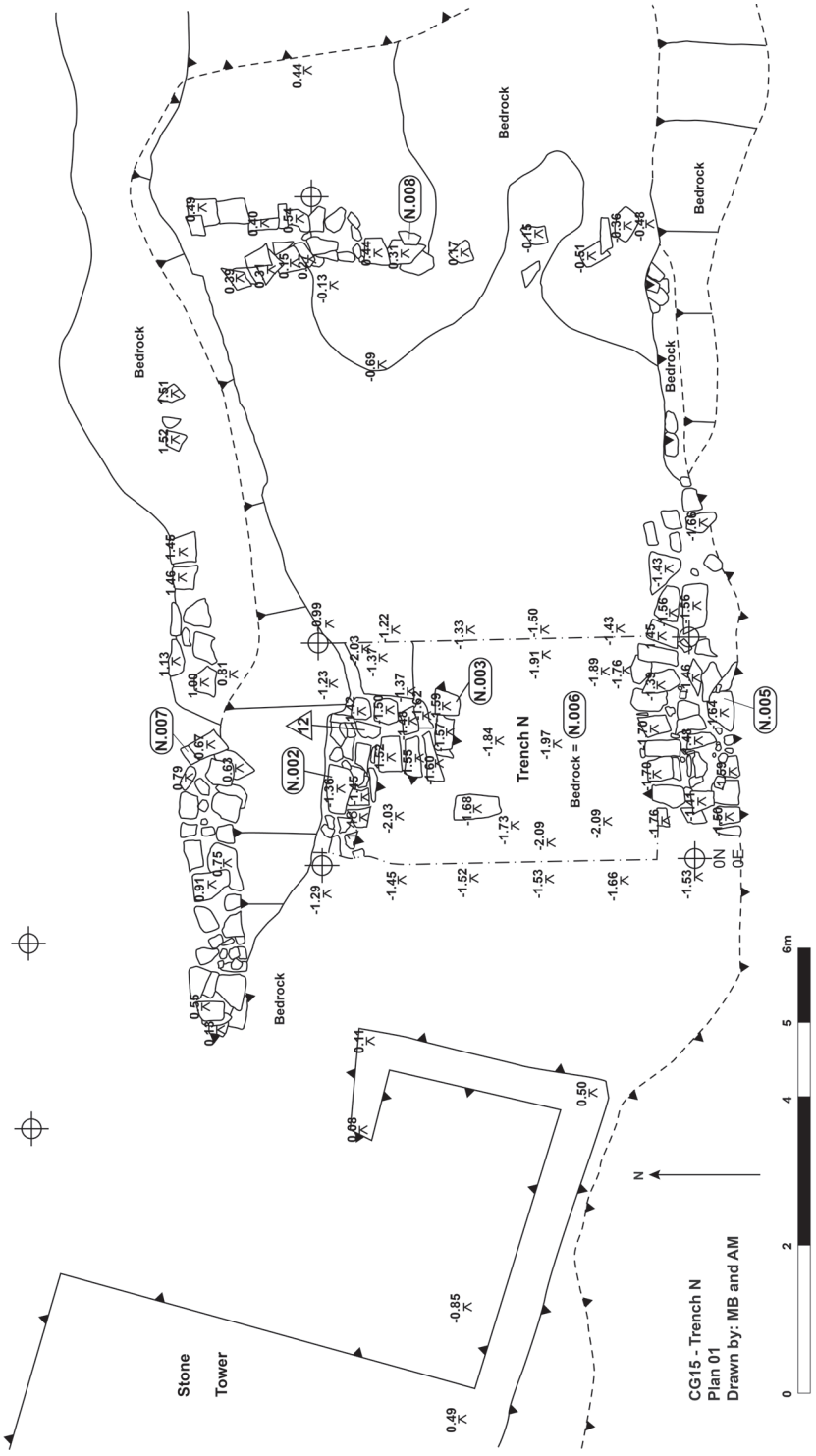


Fig. 8.31: Trench N and nearby stone structures.



Fig. 8:32: Trench N, with wall N.005 on the left, overgrown wall N.007 on top of the rock (foreground right), the stone tower and dry-stone enclosure (centre, right) and Gveleti Upper Fort (background, left).





Figs 8:33–8:34: The stone artefact from Trench N.

enclosure abutting the tower in the east (Figs 8:30–8:32). The latter is of basic construction, not particularly solid and unlikely to be pre-modern.

Our excavations revealed that the surviving stratigraphy amounted to as little as c. 40–50 cm on average. We found three basic dry-stone walls, all built on top of a thin film of soil on top of the bedrock. One of these (N.002) was c. 70 cm wide and ran parallel to the bedrock at the northern edge of the trench and survived to a height of two courses, not counting a third course of slate and small stones underneath, serving as a foundation. N.002 was abutted by N.003 in the south, c. one metre wide, just a single course high on top of a foundation of slate. An outer wall (N.005), along the upper edge of the rock crevasse at the southern limits of the trench, is c. 1.20 m wide. Parallel to N.005 and N.002 and some two metres north of N.002 (centre to centre), there is a further dry-stone wall (N.007), like N.002, c. 70 cm wide. It is on top of the rock overlooking Trench N and can be traced on the surface for almost nine metres west to east. A fifth

dry-stone wall (N.008), some 5.50 m east of the east edge of Trench N, runs at a right angle to wall N.005 and N.007 and may once have connected them.[23] The significance of these walls, also only surviving to a single or a few courses height, is unclear. N.007 and N.008 form, with N.005, a rectangle of some 5.50 m width (north to south) and at least ten metre length (west to east) or some 14 m if extending as far as the stone tower. Except for the dry-stone enclosure east of the tower, we saw no trace of a wall in the west. Perhaps the three rectilinear walls (N.005, N.007 and N.008) form part of a large annexe to the tower. The base of wall N.007 is some two to three metres above that of the surface in Trench N. It is possible that there could have been a sliding roof between wall N.007 and N.005 or between the rock south of wall N.007 and wall N.005. If so, N.005 may have been the wall of a house. Whilst N.005, like the wall at the cliff-edge in Trench C, is double-faced, it seems unlikely that they are both part of an early post-medieval outer wall of the lower fort. Unlike the cliff-edge wall in Trench C, N.005 overlooked a crevasse, not the road or a likely access route. N.002 and N.003, located in the interior of our possible rectangular house, form an L-shaped structure together. Plan and unworn surface suggests that they are walls rather than paving or a basic stairway. Perhaps they are part of a room division, with only the lowest courses surviving, within this possible long house on the east side of the stone tower.

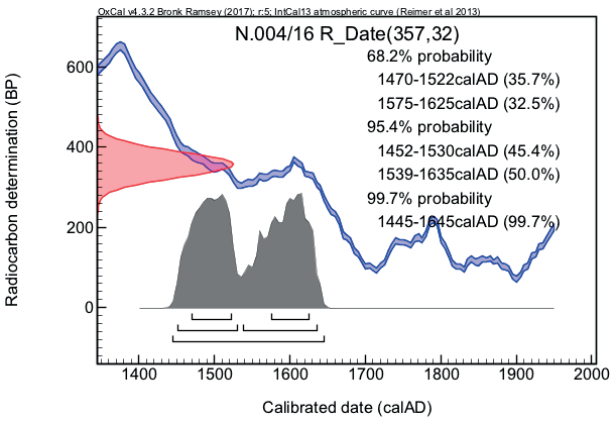


Fig. 8:35: Radiocarbon date from Trench N (see Table 8:3 for further details).

The trench yielded some 114 g of bone[24] and 240 g of pottery, the latter different from Dariali Fort and probably later.[25] The most unusual find was a stone artefact discovered reused and upside down in wall N.002. One observes a regular round cavity of semi-oval section, of 15 cm diameter and 9 cm deep. There is a second hole, c. 18–30 mm above the base of the cavity, of c. 25 mm width on the outside and 12 mm on the inside, and 50 mm long (Figs 8:33–8:34). We first thought it was the swivel



Fig. 8:36: Trench N on Gveleti Lower Fort overlooking the gorge with walls N.005 on the right and N.007 on top of the rock on the left.

Table 8:3: Radiocarbon date from Trench N on Gveleti Fort (BBM = below benchmark) (see Fig. 8:35 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
N.004/16	SUERC-63205	0.85 m E, 4.56 m N, -1.85 m BBM	Bone: Small ruminant, long bone, medial part	357±32	AD 1452–1635	d13C= -20.2

hole for a door post with a nail hole. More probably, it may have been designed to crush some herbs or fruits, the hole designed to capture the liquid. Reused in wall N.002, it must be earlier, if not necessarily much earlier.

A bone sample (N.004/16) from just a few millimetres above the bedrock, and sealed under the N.002 dry-stone wall foundations, proved to be as recent as c. AD 1452–1635 (Fig. 8:35; Table 8:3) – a similar date range as the sample from Trench C and the most recent sample from Trench D. Not only do the bone samples suggest that the preserved deposits in Trenches C and N are of a similar date, but also the architecture of the dry-stone structures in and around Trench N are similar to those we found in Trench C. The ground had probably been cleared down to natural rock before the start of wall erection. The ruminant long bone may well have been discarded following a meal by the workforce. It provides a *terminus post quem* for wall N.002 and probably for all features in the Trench. Such clearance operations are likely to have taken place just before the start of construction works, suggesting that the dry-stone structures will have been erected soon after bone deposition, at some stage between the mid-fifteenth and the mid-seventeenth century.

Trench N, like Trench C, was located near the cliff face of the fort (Fig. 8:36), but commands spectacular views over the southern approaches to it (as does, of course, the nearby stone tower, offering wide views in all directions). It is inconceivable that the strategically crucial cliff edge saw no human activity prior to the Late Middle Ages or early post-medieval era, if occupation of the fort reaches back centuries before (as shown by earlier samples from Trenches D, U, V and W). Instead we have to conclude that the fortifications were probably rebuilt in the mid- to late fifteenth, sixteenth or seventeenth century. To give them greater stability all deposits near the cliff edge would have been cleared systematically, before rebuilding the outer walls and some load-bearing structures. Only in the interior of the fort does evidence of earlier occupation survive.

8.5. Trench U: activity at the approaches to the upper fort in the era of royal residency (Phase 6b)

In the 2016 season, we excavated three more sondages on Gveleti Fort (Fig. 8:37). These were intended to yield further dating evidence for its occupation, notably at the approaches to the upper fort (Trench U) and at other areas of suspected deeper stratigraphy further north (Trenches V and W). Trench U[26] (2.7 m^2) was positioned at the foot of the narrow ridge leading up to the upper fort (Fig. 8:38). It seemed likely that items would have been dropped by those climbing up to the summit of this conical rock, towering like an eagle's nest over the landscape. The less elevated and more accessible spot of Trench U still commands views over the southern approaches to the fort. Vegetation suggested deep stratigraphy, and it seemed a good bet for finding traces of possible early occupation.

The endeavour proved more difficult than anticipated. Large stones had to be lifted (making up an estimated 70% of deposit U.004), perhaps fallen into the trench from collapsed dry-stone walls on the ridge leading up to the upper fort (Fig. 8:39).[27] We found no structures or occupation horizons and little would be gained by detailed discussion of the successive tumble deposits. We found a moderate quantity of animal bones (804 g in total) and pottery (234 g) throughout the sequence, as well as some charcoal, perhaps partly material lost by those venturing up the ridge to the upper fort and partly by those visiting the vantage point at its base. The volume of finds is greater than in Trenches V and W, but a little lower (per square metre) than in Trench D. Both, Trenches U and D, are overlooked by higher ground and finds may have slid downhill. There were no unusual finds. Eventually, we encountered rocks too heavy to be lifted, both at the base and in the profile of the trench. Without enlarging the trench and without machinery capable of safely shifting these massive blocks, continuation was impossible. We were unable to reach natural bedrock and stopped excavating at 1.17 m below the current surface. Indeed, it seems possible that there may be a deep natural cleft in the rock in the area and the natural ground thus at a considerable depth. The deepest stratified bone sample (U.005/21) recovered provided nonetheless interesting, if unsurprising, evidence for activity in the area in the late thirteenth or fourteenth century (Fig. 8:40; Table 8:4). This is also the likely *terminus post quem* for all material from the trench, and as there is little overlap with pottery from Dariali, except for one diagnostic piece with a tenth century *terminus post quem*, perhaps much of it may be post-medieval.[28] The most likely date range (AD 1275–1304) for the sample interestingly is compatible



Fig. 8:37: Trenches U, V and W, the medieval ruined small church (with a crypt underneath) and the stone tower on Gveleti Lower Fort.



Fig. 8:38: Trench U (foreground left), seen from the ridge leading to the upper fort: a spot on route between the lower and upper forts.

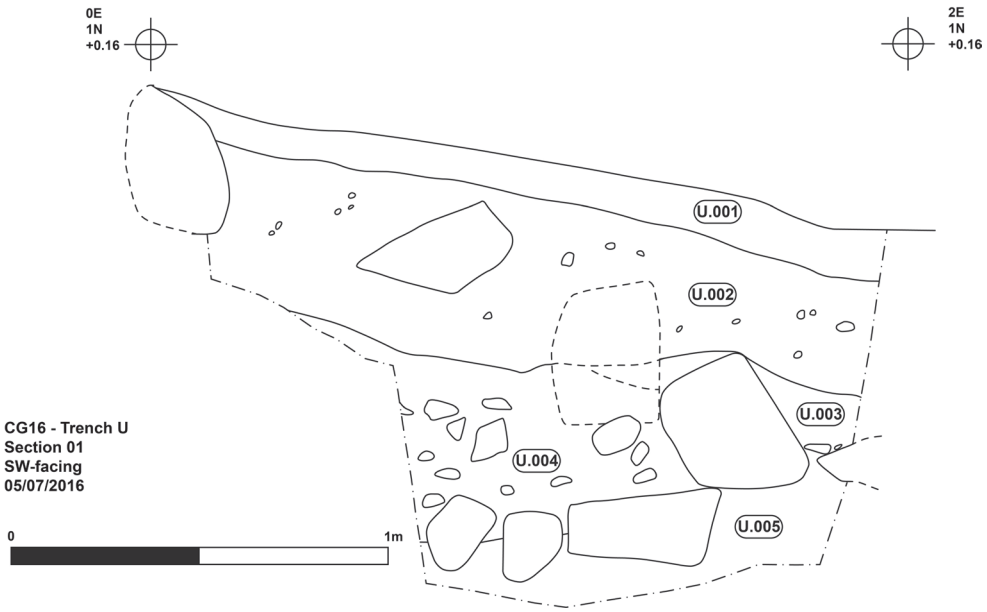


Fig. 8:39: South-west-facing section of Trench U.

Table 8:4: Radiocarbon date from Trench U on Gveleti Fort (BBM = below benchmark) (see Fig. 8:40 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
U.005/21	SUERC-71956	1.77 m E, 0.53 m N, -1.36 m BBM	Bone: Caprinae, maxilla	685±18	AD 1275–1384; 76.9%: 1275–1304	d13C= -20.1

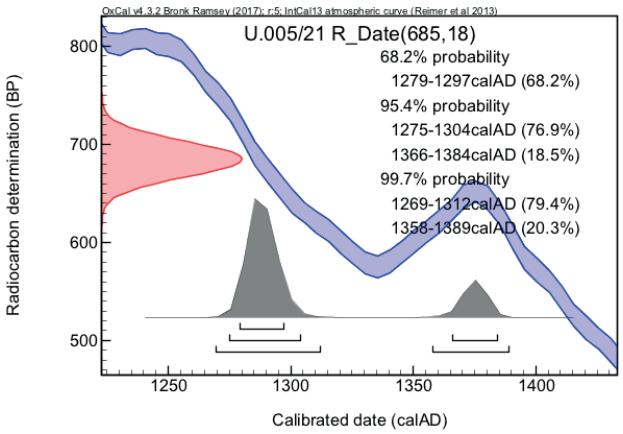


Fig. 8:40: Radiocarbon date from Trench U (see Table 8:4 for further details).



Fig. 8:41: Dry-stone wall V.007 (left) in Trench V, looking north-west.

with Davit VIII seeking refuge on Gveleti Fort from the armies of the Ilkhanid Empire. During the siege of c. AD 1302, Gveleti Fort must have had a larger garrison than at most or all times before or after, no doubt trying to maintain adequate food supplies on the mountain stronghold. It is possible that the bone sample was of one of the sheep or goats slaughtered and consumed by the king's troops or entourage. The access to the upper fort, next to Trench U, the most impregnable and safest part of the fort, and perhaps housing the king himself at times of greatest danger, will have been of vital interest at the time.[29]

8.6. Trench V: medieval occupation south-west of the church (Phase 6a)

Unlike Trench U, in Trenches V and W we succeeded in reaching natural ground and occupation horizons on top. Trench V[30] (Figs 8:41–8:43) measuring 1 × 2 m (2 m^2) was c. 21–22 m north of Trench U, near the crest of the ridge between the summit of the lower fort and the approaches to the upper fort. This ridge prominently overlooks the area of Trench W and, further north-east, there are the ruins of a small medieval church.[31] Under the topsoil and subsoil (V.001 and V.002), we found a stone-lined pit (V.005) extending beyond the north-western and south-eastern limits of the trench. Its fill, soft dark brownish grey sandy silt (V.003) yielded as little as 4 g of bone and 9 g of pottery. Whether it was a storage pit, whose



Fig. 8:42: The trench after complete excavation, looking south-west.

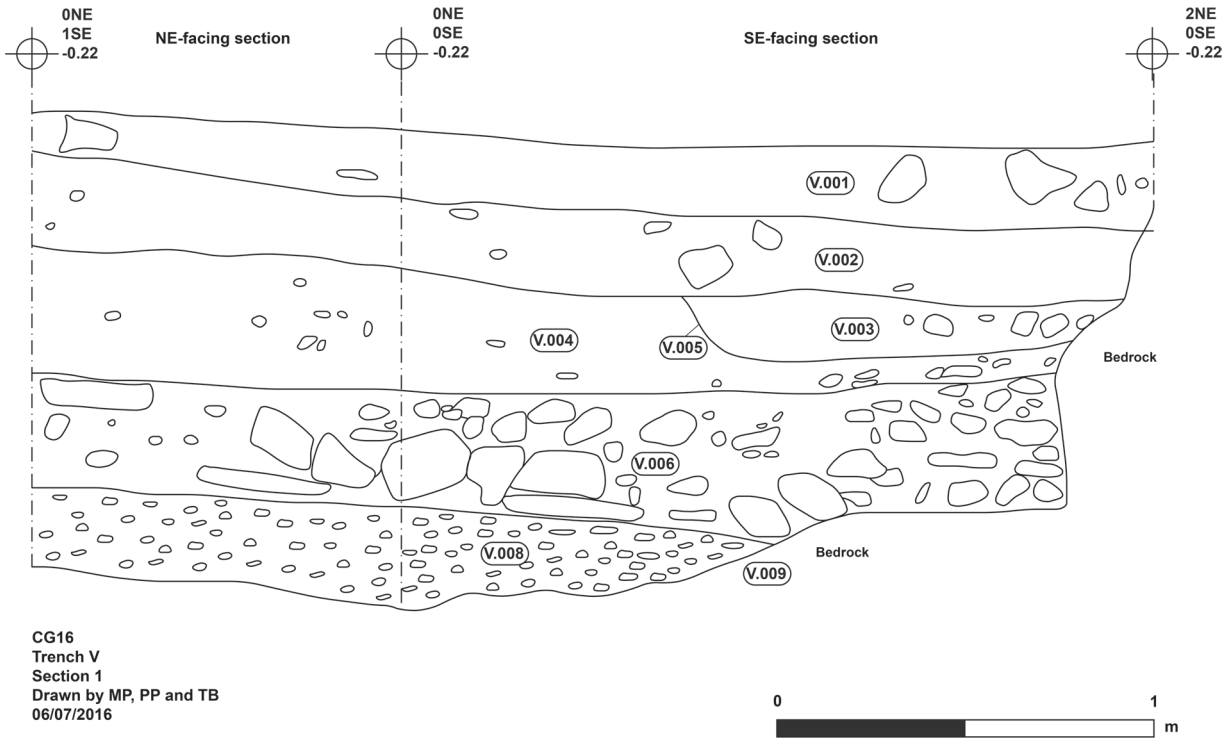


Fig. 8:43: Trench V section. V.007 (overlain and abutted by V.004) was not visible in section.

Table 8:5: Radiocarbon date from Trench V on Gveleti Fort (BBM = below benchmark) (see Fig. 8:44 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
V.008/21	Poz-89863	0.33 m SE, 0.1 m NE, -1.66 m BBM	Charcoal: Betula	900±28	AD 1039–1210+ (sample not certain to be young)	d13C= -24.4

contents has vanished, or served some other purpose, it is clearly a structure attesting human occupation. It was cut into an occupation layer (V.004) with 75 g of pottery and 35 g of bone. This overlay and abutted sterile stone rubble (V.007) in the south of the trench, with a well-defined linear edge in the north, perhaps a poorly built foundation of a dry-stone wall. Based on the excavators' observations, pit V.005 cuts V.007 (rather than being lined by it), but the relationship is not entirely clear. Under V.007 and under V.005, we encountered stony soft mid greyish brown sandy silt (V.006) with few finds (12 g of pottery, less than a gram of bone and a perforated piece of slate V.006/14, whether a loom weight, part of a roof slate or serving some other function).

The deepest deposit (V.008) above the bedrock, sandy silt with an estimated 60% of stones, yielded no bone or pottery. Deposits (from V.001 to V.008) reached a depth of up to 1.27 m below the modern surface. A birch charcoal sample (V.008/21, not certain to be young) attests fire being lit between the eleventh and early thirteenth century (or potentially a little later, as the sample is

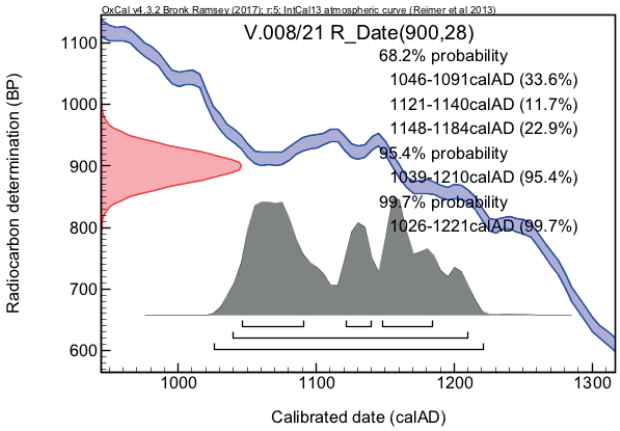


Fig. 8:44: Radiocarbon date from Trench V (see Table 8:5 for further details).

not certifiably young: Fig. 8:44; Table 8:5). Found, like another high medieval sample (D.038/59), not far above natural ground, it attests likely human presence. There is no evidence for any permanent structures existing at the

time, but the trench was of course too small to ultimately prove or disprove the existence of any housing in the area at the time. A temporary retreat of local people to the safety of the clifftop seems a more likely scenario than the fort forming part of a grand strategic scheme in the High Middle Ages. Indeed, we do not know whether or not the hilltop boasted artificial defences at the time. With 115 g of pot, dissimilar to the Dariali assemblage and likely to be later,[32] and 39 g of bone, Trench V was the least prolific of all trenches on Gveleti Fort, overall as well as per square metre. In part, this may be the result of its uphill position. Debris, if not thrown over the edge of the nearby cliff, could easily slide downhill. One gains the impression nonetheless, that the area, whilst occupied in the first millennium, was no hub of activity.

8.7. Trench W: a late medieval stone house (Phase 6b)?

Whilst Trench V yielded little in terms of architecture, and Trench U, no structure at all, Trench W,[33] covering 2 × 1 m (2 m^2), proved more rewarding (Figs 8:45–8:49). Both the topsoil (W.001) and the subsoil (W.002) contained a far higher concentration of large stones than the other sondages (if no rocks quite as large as in Trench U), almost certainly a result of the partial collapse of dry-stone walls near the trench. The stone concentration was highest in the east, where a tall terracing wall towers over the trench. It must have been even higher originally before a heap of tumble, extending as far as Trench W and beyond, formed at its base. Under the subsoil (W.002), soft mid yellowish brown clayey silt, we found a neat stone paving (W.003), with a degree of wear. Some of the boulders are right on top of the paving, but we observed a lower concentration of stones in the bottom 20 cm of W.002, suggesting that wall collapse occurred over a period of time, rather than period of time, rather than at once. W.002 was. W.002 was by far the most prolific deposit in the trench, yielding all 93 g of the bone recovered from the trench and 252 g of pottery (out of the 381 g from the trench overall). The pottery bears little resemblance with the Dariali assemblage[34] and may be largely post-abandonment debris covering the old floor, some perhaps originating from the top of the ridge. The paved floor had evidently been abandoned and covered with soil before the bulk of stones came crashing down into the area of the trench.

As there are dry-stone walls nearby, it seems reasonable to assume that this may have been the floor of a roofed structure, perhaps a dwelling. A paved outdoor lane seems less likely, notably as there is a substantial dry-stone wall south of the trench that would have blocked movement parallel to the slope. By far the highest wall is to the east of the trench. Lining the western edge of the ridge crowned by the medieval church and the site of Trench V, it was probably a terracing rather than a house wall. It might also have proven advantageous as a defensive feature, should

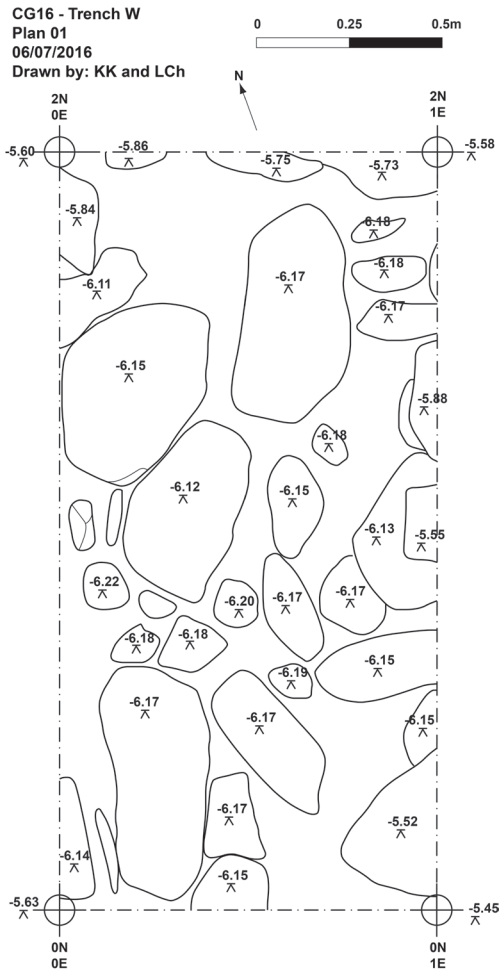


Fig. 8:45: The late medieval stone paving (W.003).

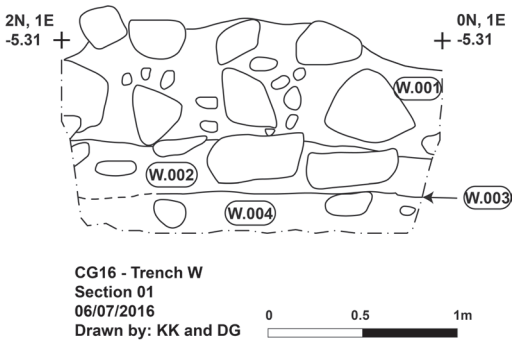


Fig. 8:46: West-facing section of Trench W.

any hostile forces have succeeded in making their way past walls further downhill.

Under stone floor W.003, we encountered soft dark greyish brown clayey silt (W.004), devoid of finds other than charcoal. The bedrock was reached c. 20 cm below the top of the stone paving. The average depth of the bedrock was c. 0.75 m below the modern surface (more in places in the east). The layer of soil (W.004) between the bedrock and the paving (W.0003) is best interpreted as



Figs 8:47–8:49: The stone paving in Trench W, with a tall dry-stone wall overlooking it in the north-east (left), a further dry-stone wall south of it, perhaps of the house it formed part of, in the middle ground and Gveleti Upper Fort in the background, looking south (centre) and a close-up view, looking north (right).

Table 8:6: Radiocarbon date from Trench W on Gveleti Fort (BBM = below benchmark) (see Fig. 8:50 for a plot of the date).

Context/ Find no.	*Sample no.*	*Location*	*Sample type and species*	*Date*	*Calibrated date at 95.4% confidence*	*Comments*
W.004/8	Poz-89864	0.20 m E, 1.43 m N, -6.22 m BBM	Charcoal: Salix/ Populus	594±29	AD 1299–1410+; 69.7%: 1299–1370+ (sample not certain to be young)	d13C= -28.3

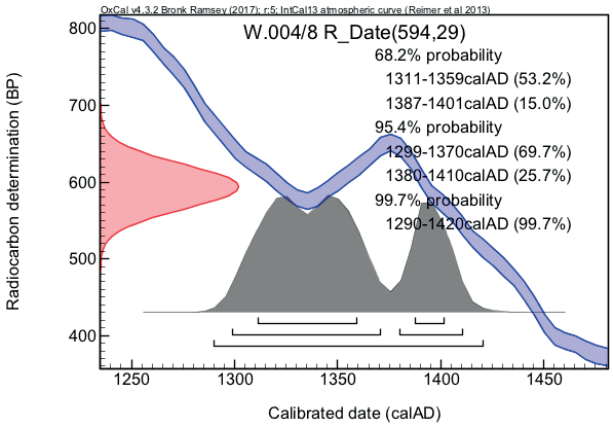


Fig. 8:50: Radiocarbon date from Trench W (see Table 8:6 for further details).

a levelling deposit needed to create a level floor surface. Poplar or willow charcoal (W.004/8), from this soil sealed under the stone slabs, dates to c. AD 1299–1410 – or potentially a little later, as the sample was not certain to be young (Fig. 8:50; Table 8:6). It is tempting, however, to assume that it is of similar date to the F.024 stone floor on Dariali Fort, that is similar in design and was almost certainly laid between the late thirteenth and early fifteenth century.[35] If we are right in thinking that the dry-stone walls south and east of the trench are related, they may be late medieval as well. It seems likely that there was permanent housing on Gveleti Fort in the area of Trench W around the fourteenth century. Whilst potentially dating to the time of Davit VIII's presence, the building with the stone-flagged floor could also be years, decades or even up to a century later. The king, owing his survival to Gveleti Fort's formidable natural and artificial defences, would have had an incentive to order further works on this vital lifeline even once out of immediate danger. And his successors will also have been aware of what unique asset the fort was.

8.8. The history of Gveleti Fort (Phases 5–7)

Despite the small area excavated, not to mention the erasure of all pre-medieval material near the cliff edge (in Trenches C and N) and our failure to reach natural ground in Trench U, the sample seems large enough for some cautious conclusions to be drawn about the occupation chronology of Gveleti Lower Fort. The earliest radiocarbon date suggests that occupation may have started in the last

quarter of the first millennium AD, probably not after the AD 960s at the latest, but perhaps up to two centuries before. Might there have been late antique occupation still to be found in future fieldwork? Whilst not impossible, this seems improbable. In each of our six trenches, we took one sample from near the deepest point reached (in five of them near the natural ground). It seems likely that in Trench W, with a stone floor on a levelling deposit on top of the bedrock and dry-stone walls nearby, earlier material was scraped down the slope around the fourteenth century, to give the walls greater stability – just as in Trenches C and N everything pre-medieval was shovelled off the cliff edge, prior to the fifteenth to seventeenth century building works. This leaves two trenches (D and V) where the earliest surviving occupation reaches back to the eighth to tenth and eleventh to early thirteenth centuries respectively. Had there been intensive late antique occupation, it seems unlikely that in none of the trenches any of it survived. Unlike Dariali Fort, complete clearance of the hilltop seems unlikely. There are no mortar walls at all that would have required such stable foundations to justify the major efforts of scraping off all soil from the hilltop. The absence of mortar walls in itself is significant. Whilst it provides no proof that the hilltop was unoccupied in Late Antiquity, it certainly suggests that the sophisticated architects who built a massive mortared fort at Dariali left no similar legacy on Gveleti Fort. We may conclude that there was certainly no major state-sponsored late antique fort at Gveleti, almost certainly no permanent occupation and probably not even a temporary refuge in pre-medieval times.

Can we be sure Gveleti Fort was a foundation of the later first millennium? It is worth noting, of course, that there is only one pre-second millennium sample out of the eight samples processed. Is it possible that it was a bone of a grazing goat that perished before fort construction? Bones left on the surface had virtually no chance of survival, and a shepherd would have had no obvious motive for burying bones on unoccupied pasture or a forested hill. It seems a near certainty that the earliest sample indeed signals the start of human occupation on the fort. It seems likely that Gveleti Fort formed part of the defensive cordon in the Dariali Gorge in the later first millennium and perhaps throughout the period when nearby Dariali Fort was heavily occupied in the Early Middle Ages. The early medieval radiocarbon date from Trench D suggests that it was in the later first millennium that the strategic significance of the cliff-top plateau, overlooked by an impregnable conical mountain, was recognised. Gveleti Fort made any breakthrough attempts from the south more difficult, as well as providing a third, fourth or fifth line of defence against those coming from the north. The sources repeatedly refer not just to invasions from north to south, but also to armies retreating with booty using the same route in the opposite direction, notably in the later eighth century – a period when the fort might have been first occupied.[36] Of course, a single sample that is not associated with specific architecture, should not be over-interpreted. Instead of being part of a strategic masterplan as early as the late first millennium, we also have to allow for the possibility that the cliff-top may simply have provided a refuge for local peasants at times of danger, long enough for the earliest stratified deposits to form. The absence of glass finds from Gveleti Fort (other than modern glass from topsoil levels), in contrast to numerous glass sherds from early medieval horizons on Dariali Fort, suggests that Gveleti Fort will not only have been less intensively occupied in the late first millennium, but was also probably of lower status.[37]

Two samples (from Trench D and Trench V) interestingly fall into the eleventh to twelfth or early thirteenth century, the era when there appears to have been a hiatus in occupation within the area of our trenches on top of Dariali Fort.[38] One wonders if Gveleti Fort at the time served as a local refuge, whether it had served a similar purpose already before the turn of the millennium or had then potentially been a state-sponsored road-blocking fort. There is cultivable land nearby, and it is worth noting that, now largely abandoned, Gveleti Village (but still occupied at the time of modern photography) is just north of the fort, signalling that in the recent past people were able to live off the land here.[39] Tsdo with its terraced fields is not far either, even if we cannot be sure if people living there might not have sought refuge on hills in closer vicinity.[40]

Davit VIII's flight to the fort in c. AD 1302 is much easier to explain if there were already defences and habitable shelters in place at the time, even if further dry-stone shelters could have been erected rapidly in anticipation of, and during, the siege. One may imagine that the king's advisors would also have taken into account any local intelligence as to how safe various possible retreats had proven to be on previous occasions. That Gveleti Fort was chosen, and not Dariali Fort, suggests that Gveleti Fort was considered harder to storm, perhaps because it was in active use at the time, with tried and tested defences and some basic housing. Furthermore, the Ilkhanid army was certain to approach from the south. Both, the lower and upper forts were protected here by formidable cliffs – much more so than the southern approaches to Dariali Fort. To encircle the stronghold, or attempt an assault from the north-east, the Mongol army had no choice but to venture past the lower fort's eastern cliffs or the upper fort's western cliffs. In these narrow passages there would have been no escape from an avalanche of missiles. We do not know if the Mongols succeeded in encircling the defences, but we do know that they failed to take Gveleti Fort. Profound knowledge of the terrain inspired the royal entourage to choose Gveleti to take a stance against Mongol might, and the strategy succeeded. With space for no more than a small garrison, Gveleti's natural defences saved the king's life and withstood an empire – the Mongols suffering a heavy

blood toll for engaging in winter warfare in unfamiliar alpine environments.[41]

The stone floor in Trench W is not likely to be much later than the charcoal sample of c. AD 1299–1410 underneath. Whilst admittedly not certain to be young, it is tempting to think that the stone floor is of a comparable date to similar floors on Dariali Fort, notably floor F.024, laid probably between AD 1288 and AD 1413. The proper floor, with tall dry-stone walls nearby, suggests that there was permanent occupation on the fort in the Late Middle Ages. We cannot tell if some of these stone floors were already laid during Davit VIII's presence or later, to be better prepared should a similar threat recur. Resurgence of activity on Dariali Fort may also be related to the Golden Horde which, even if there were friendly relations at times, posed a potential threat. The architecture encountered in and around Trench W would not have been erected by folk fleeing to the safety of the hills for a short time, in response to passing danger. It indicates that Gveleti Fort will have been more than a local refuge in the Late Middle Ages. The 21.6 cm long adze (wood-working tool) from a high or, more probably, late medieval deposit in Trench D would have been useful, notably in providing stone buildings with a roof truss.[42] Neither architecture nor finds reveal that the fort served briefly as a royal residence. Yet this is hardly surprising. The king and his entourage had fled for their lives. Survival rather than palatial living will have been foremost in their minds. Any portable treasures would not have been left behind and would most sensibly have been stored in the upper fort whilst there – and the king may have preferred the safety of the upper fort as well. Little would be gained by guessing how to explain the absence also of more fragile accoutrements of refined living, such as broken glass vessels. Perhaps none were taken in the circumstances or the king and his immediate entourage did not dine in the vicinity of our trenches.

North-east of Trenches W and V, there is small ruined stone church that is probably of medieval origins too. It is similar in dimensions (c. 4.25 m × 10 m) to a second church (c. 4.20 m × 6.20 m) on top of a hill north of Gveleti Village, the latter dated by Zakaraia to the thirteenth to fourteenth centuries. Now also ruined, the church north of Gveleti contained frescoes, one of them intriguingly of an armed horseman with helmet, shield and quiver, dated to around the fourteenth century or the thirteenth to fourteenth century – Gveleti's era of greatest fame.[43] The erection of two medieval churches, even if both were small, provides further powerful evidence for Gveleti being more than temporary refuge at the time. Prominently overlooking the cliff face, the church of Gveleti Lower Fort is still a holy place where one sees candles and modern icons. We surveyed it briefly and, as the most prominent medieval building, it is worth



Fig. 8:51: The crypt under the medieval church.

summarising some of its architectural features. At its northern end, a vault is preserved to roof-level (Fig. 8:51). It measures internally 2.05 m west–east and 3.38 m north-south and at least 2.45 m in height. Under a stone plaque in the north-west bones are preserved which appear to be human, but have not been disturbed or examined. The vault's southern wall appears to be in alignment with the southern wall of the ruined church and it will have served as a crypt with burials under its floor.[44] The architects took advantage of the natural terrain and built the crypt at the eastern edge of a natural cleft leading up to Trench N. Bedrock would have made it difficult or impossible to excavate a crypt further south along the ridge. This church may have formed the religious nucleus of late medieval Gveleti Fort.

Not just the church and the stone floor in Trench W indicate that Gveleti Fort was designed for longer occupation. To these we may add the two watchtowers, in dry-stone architecture, as all other structures on the fort, but of superior workmanship to most of the myriad of walls. There is a solidly built stone tower on the summit of the lower fort and another on the summit of the upper fort. These would have formed useful observation platforms. Both offer, even in their current ruined state, magnificent views in all directions (Figs 8:52–8:54). Did they also serve signalling purposes? There is no direct sightline between the towers and Dariali Fort, but Tsdo, if occupied simultaneously, is in sight from the tower on the upper fort, and from the tower at Tsdo one can see much of modern Stepantsminda. There is nothing to suggest that the towers form part of an elaborate long-distance signalling chain, but they may have formed part of a local warning system. We have no concrete dating evidence, but one is inclined to attribute them to the same era as other solid architecture on the fort, *i.e.* the Late Middle Ages or the early post-medieval era (late thirteenth to seventeenth centuries/phase 6b or 7a).[45] The sample from Trench U, at the foot of the ridge leading up to the upper fort, is of a similar age to that under the stone floor in Trench W – further circumstantial evidence for heightened activity contemporary with the latest traceable phase of occupation in Trench F on Dariali Fort.

Quantities of finds, briefly discussed in the context of the various trenches, give the impression that occupation of Gveleti Fort in the Middle Ages was overall less intensive than that of Dariali Fort. There is undoubtedly a massive difference in the Early Middle Ages, even allowing for significant disturbance of early medieval layers at Gveleti Fort and their erasure near the cliff edge. It is hard to quantify finds of the first half of the second millennium at Dariali Fort, when occupation at Gveleti Fort appears to have intensified, whilst being reduced and temporarily interrupted altogether in our Dariali trenches. For a brief period in the early fourteenth century, of course, Gveleti Fort was a royal refuge – but archaeological evidence points to renewed investment benefitting both forts. Perhaps, after Dariali Fort's clear lead in the later first millennium and Gveleti Fort's possible lead in the early second millennium (if perhaps no more than an unglamorous peasant refuge at the time), the two forts approach parity in archaeologically traceable activity around the fourteenth century.

Three trenches (C, D and N) provide evidence for continued or renewed occupation at one, or more than one, point(s) in time between the mid-fifteenth and the mid-seventeenth century (phase 7a). This involved the construction of new dry-stone walls, including one at the cliff edge in Trench C – evidence for proper occupation not just ephemeral visits or short-term stays. Gveleti Fort is mentioned by the eighteenth-century geographer Vakhusht'i, but he provides no information whether it was still occupied at the time.[46] There are no samples from the post-medieval era from Dariali Fort. Dariali Fort may have been an uninhabited ruin as early as the later fourteenth or fifteenth century and in any case by the eighteenth century.[47] Whilst a small garrison housed in a keep outside the area excavated on Dariali Fort is possible, there is no positive evidence for any occupation between the fifteenth and seventeenth centuries. Gveleti Fort, by contrast, may have continued to draw on local rural villagers in the same era. We do not know if the fort was a state-controlled base at the time or a refuge, but in either case people were prepared for longer periods of occupation, as suggested by the erection of what appear to be dwellings in Trenches C and N, abutting the new (probably rebuilt) outer cliff-top walls of the fort.

There are numerous dry-stone walls on the approaches to the lower fort. We did not find the time to produce a proper map, nor can we be sure of their age. Based on the results of our excavations of parallels, they could be as late as the mid-fifteenth to mid-seventeenth century. Those near Trench W may be associated with the late medieval stone floor and are perhaps best attributed to the fourteenth or early fifteenth century. At Dariali Fort we see similar walls built from the eighth century onwards and it is not beyond possibility that some of the walls on Gveleti Fort could go back to the later first millennium – the time of the earliest radiocarbon sample. One is inclined to think that from the start the fort's occupants would have tried their best to enhance the formidable natural defences of the prominent hilltop by artificial means, and there may well have been similar walls on the fort in the later first millennium. It appears, however, that dry-stone defences were not durable, and required repeated replacement, the heavy collapse layer in Trench W and indeed downhill of many dry-stone walls proving the point. Those standing to the present day are probably mainly or exclusively of second-millennium origins.

It is worthwhile to compare briefly the chronology and history of occupation of Gveleti and Dariali Fort. Of the (admittedly small sample) of eight radiocarbon dates from Gveleti Fort, five represent periods in which there



Fig. 8:52: View from near the stone tower on Gveleti Lower Fort (foreground, right) to the Upper Fort (background left), boasting another tower on its very summit.

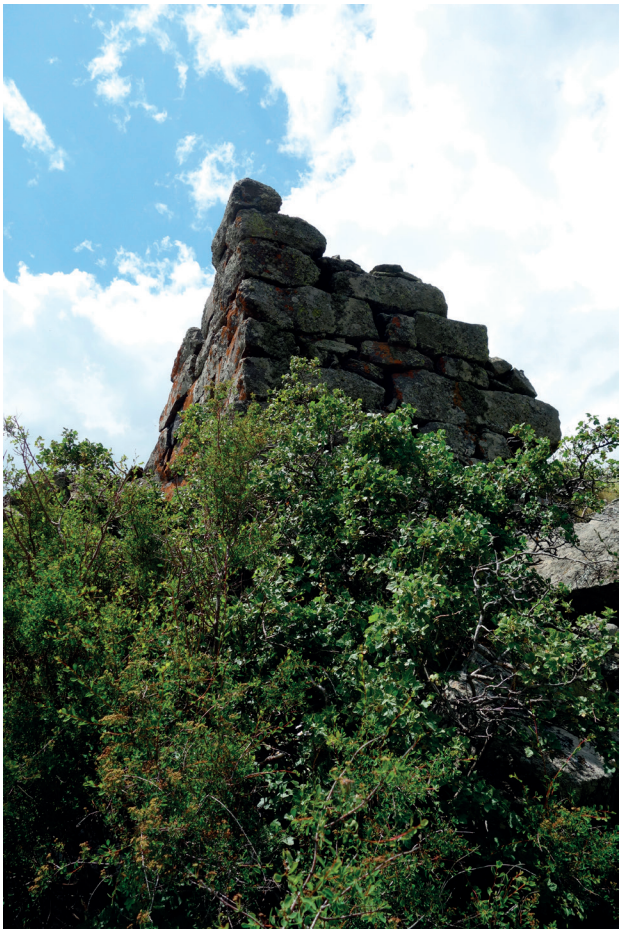


Fig. 8:53: The stone tower on Gveleti Upper Fort.



Fig. 8:54: View from the dizzy heights of the upper fort over the valley south.

is no evidence for occupation within the trenches on top of, and near, Dariali Fort. The sample from some areas is admittedly small, and one should be cautious in reading too much, if anything, into smaller differences, not to mention that sampling was not random but tended to focus more on earlier and undisturbed deposits. Later periods are, however, represented much stronger at Gveleti Fort, so much so that this cannot be coincidence. That the two sites differ substantially in chronology is corroborated by the pottery assemblage bearing overall little resemblance with that from nearby Dariali Fort,[48] despite the two sites being just an hour's walk apart (at times when there was a bridge over the Amali River or in the cold season when it was fordable).[49] The results may be tabulated as follows (Tables 8:7–8:8).

We may propose the following reasons for the chronological differences:

- Gveleti Fort was a local refuge for parts of its history (as well as a royal emergency refuge in the early fourteenth century), whilst Dariali Fort often was a state-sponsored asset and at a greater distance from large pockets of cultivable land.
- There was no keep at Gveleti Fort, whilst there may have been a keep on the east side of Dariali Fort. At times of reduced occupation, a smaller garrison may be invisible, if concentrated on a keep, and more visible if lacking such a focal point.
- At the cliff edges, material at Gveleti Fort (unlike Dariali Fort) was cleared down to the bedrock around the fifteenth to seventeenth centuries. The lack of solid mortar walls meant that there was a need to reconstruct unstable dry-stone defences and housing whilst such clearance (unobstructed by solid cliff-edge walls) was much easier too. For this reason, no pre-modern material or structures survived within the cliff-edge trenches at Gveleti Fort (C and N), even if we may be sure that the top of the cliffs had been visited and occupied not only within the past 600 years. In short: material of the last phase of occupation may be slightly overrepresented at Gveleti Fort.

Gveleti Fort's history is different from Dariali Fort, being established much later and for part of its occupation (phases 5b or 5c to 6a), it seems, a local

Table 8:7: Radiocarbon samples from Gveleti Fort in comparison with other areas (s. = dated radiocarbon sample): the strong representation of the second millennium is in distinct contrast to Dariali Fort and its surroundings[1]

Phase	*Gveleti Fort (Tr. C, D, N, U, V and W)*		*Dariali Fort (Tr. F, L, Q and X)*		*Dariali Cemetery (Tr. E, G and AB)*		*Extramural Land (Tr. M, P and Y)*	
2 (6th/4th c. BC – 1st c. BC/1st c. AD)	0 s.	0.0%	0 s.	0.0%	0 s.	0.0%	3 s.	30.0%
3-4 (c. 4th–7th/early 8th c. AD)	0 s.	0.0%	24 s.	32.4%	0 s.	0.0%	3 s.	30.0%
5 and prob. 5 (c. 8th–10th/ early 11th c. AD)	1 s.	12.5%	47 s.	63.5%	12 s.	100.0%	4 s.	40.0%
6a (c. 11th–13th c. AD)	2 s.	25.0%	0 s.	0.0%	0 s.	0.0%	0 s.	0.0%
6b (c. late 13th– early 15th c. AD)	2 s.	25.0%	3 s.	4.1%	0 s.	0.0%	0 s.	0.0%
7a (mid 15th– mid 17th c. AD)	3 s.	37.5%	0 s.	0.0%	0 s.	0.0%	0 s.	0.0%

[1] The table excludes a phase 7b sample from Trench J and one probably mixed-up phase 6b sample from Trench P. Redeposited samples are attributed to the date of the organism, not the context they were found in. Where multiple sample were processed from a single organism, only the combined date is used.

Table 8:8: Radiocarbon samples from Gveleti Fort by phase in comparison with Dariali Fort (descriptive comparison)

Date (and phase)	*No of samples: Gveleti Fort*	*No of samples: Dariali Fort*
4th–7th/early 8th century (3-4)	0: not represented	24: strongly represented
8th–10th/early 11th century (5)	1: represented	47: strongly represented
11th–12th/early 13th century (6a)	2: represented	0: not represented (except for possible overlap in the early 11th c.)
Late 13th–early 15th c. (6b)	2: represented	3: represented
Mid 15th–mid 17th c. (7a)	3: strongly represented	0: not represented

refuge rather than a state-sponsored strategic asset, which ensured renewed or continued occupation in the second millennium at times when there was little or no evidence for occupation at Dariali Fort. Our eight samples cover the period from the later first to beyond the mid-second millennium without any longer gaps, notably if one takes into account that a few samples are not certain to be young and could be a little later than the calibrated dates. In theory, the lower fort could have been occupied continuously from the later eighth, ninth or tenth century to the sixteenth or even mid-seventeenth century. More probably, there will have been many shorter episodes of occupation at times of danger, alternating with periods of abandonment, notably in the era before the erection of durable permanent housing. So far there is no evidence for walls or floors predating the fourteenth century. Yet, it seems unlikely that even peasants seeking the safety of the fort for more than a few days in earlier times would have dwelled in the open, exposed to wind and weather. Dry-stone masonry, prone to collapse and easy to rebuild, may have been erected and demolished repeatedly. Withstanding the Mongols in the early fourteenth century, occupation continued for two to three-and-a-half centuries beyond. Davit VIII's momentous victory over the mighty Ilkhanids will have boosted confidence in the fort's impregnability, explaining continued royal or local investment to maintain this refuge of last resort.[50] The survival of, probably exclusively, late medieval and early post-medieval architecture (phases 6b-7a) is likely to be a result of the selected use of slightly improved and more durable construction techniques (as can be seen in the church crypt and the stone floor in Trench W), not to mention the sanctity of ecclesiastical architecture safeguarding even the church ruin. The fairly neat, coursed dry-stone masonry style of the watchtowers on Gveleti Lower and Upper Forts makes an attribution to the Late Middle Ages (perhaps the fourteenth-century peak in strategic significance) likely, if a date up to the mid-1600s is possible too (and a pre-fourteenth-century date not inconceivable). The fort's abandonment in the sixteenth or early to mid-seventeenth century, furthermore, saved the bottom courses of the latest walls (in Trenches C and N), however poorly built, from demolition and reconstruction.

Notes

1 See chapter 7.
2 See appendix II.
3 See chapter 6.1.
4 See chapter 10.4.2.
5 See chapters 5.1–5.2.
6 At 38T 0469218, 4728104.
7 GPS values taken at either end as far as preserved with a handheld GPS on 24/6/2016 were as follows: 38T 0469165, 4728077, 1575mt and 38T 0469158, 4728082, 1583mt. The height cannot be reliable, as the top at either end will not be more than a metre apart. See also chapters 10.4.3.1 and 10.7: DPS-2.
8 *The Hundred Years' Chronicle* 44–45 = trans. Jones 2014, 385–87, cf. 399; *Records of Eristavi* = ed. Meskhia, paragraph 19–21; Gamq'relidze *et al.* 2013, 143–44; cf. Rayfield 2012, 137–39; see also chapters 8.8 and 25.6.
9 Our research strategy was also in part influenced by practical considerations. A delay with the permit to work at Dariali Fort in 2013 and 2015 and the destruction of the road to Dariali (from the Amali Valley to the vicinity of the Monastery of the Archangels Michael and Gabriel) by the Tergi in 2016 meant that we are unable to work there at the start of these three seasons, enabling us to focus our resources initially on Gveleti instead.
10 The excavation of Trench C was carried out by Julian Jansen Van Rensburg, Koba Koberidze, Fiona Mowat and our workmen.
11 See chapter 22.1.4.3, with similar observations for charcoal from Trench D.
12 Initially it seemed as if there was a further wall, but closer examination revealed that the high stone content was no more than unsorted rubble.
13 See chapter 22.1.
14 See chapter 8.3.
15 See appendix III, with specific reference to the Alazani Plain, but also applicable to the landscapes of Dariali Gorge.
16 Trench D was excavated and recorded principally by Graeme Erskine and Emanuele Intagliata, who worked on it from 21 to 29 June 2013, continuing largely on their own for a week, whilst most of the rest of the team had moved on to the Dariali Fort and the associated cemetery. It is to their credit that the complex stratigraphy has been so diligently recorded.
17 See chapter 22.1.
18 See chapter 23.4.3.
19 See chapter 15.2.2.1.
20 See chapter 25.6.
21 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 156–57.
22 See chapter 25.5.
23 It should be noted that walls N.007 and N.008 are outside Trench N. They have been labelled as such to facilitate description and as they are likely to form part of the same larger complex as the walls within the trench.
24 This excludes, as usual, any bone from the topsoil that was not collected.
25 See chapter 11.5.3.3.
26 Excavated principally by Mark Andrews, Ana Gabunia and Steve Usher-Wilson.
27 Little survived of these dry-stone walls on the ridge. It is hard to imagine they could have formed major defensive barriers or even a sort of safety railing. One wonders if the not very solid dry-stone walls on the ridge to the upper fort would have made it even more difficult to climb, potentially collapsing onto any trespassers.
28 See chapter 11.5.3.4.
29 See chapter 25.6.
30 Excavated by Maria Buczak and Przemysław Polakiewicz.
31 See chapter 8.8.
32 See chapter 11.5.3.5.

33 Excavated by Lana Chologauri, David Gagoshidze and Koba Koberidze.
34 See chapter 11.5.3.6.
35 See chapter 2.5.
36 See chapters 8.3 and 25.5.3.
37 See chapter 13. It may also offer support for much of the glass from late medieval and later deposits in Dariali Fort being redeposited early medieval finds, as Gveleti Fort in the fourteenth century does not appear to have been of lower status.
38 See chapter 25.6.
39 See also chapters 10.4.2–10.4.3.1 and 10.7: DPS-1–3.
40 See also chapters 10.4.3.2 and 10.7: DPS-6.
41 *The Hundred Years' Chronicle* 44–45 = trans. Jones 2014, 385–87, cf. 399; *Records of Eristavi* = ed. Meskhia, paragraph 19–21; Gamq'relidze *et al.* 2013, 143–44; cf. Rayfield 2012, 137–39. See also chapter 25.6. It is also worth noting that there is limited visibility from Dariali Fort to the south (see chapter 10.4.3.5), although this is not likely to have been a decisive factor in choosing Gveleti Fort.
42 See chapter 8.3 and 15.2.2.1.
43 See Kruglov 1937, 248, 250 fig. 4 and Zakaraia 2008. We are very grateful to Dr Denis Beletskiĭ (personal information, 8, 12 and 17/6/2018) for information on this fresco. He argues that it may well depict St George, as commonly found in small Georgian churches, that it is possible that the sketch in Kruglov may contain mistakes by a copyist (as the iconography seems to contain unusual elements) and that we need to be cautious about the dating proposed by Kruglov (*i.e.* fourteenth century) or Zakaraia (*i.e.* thirteenth to fourteenth century); the fresco could also belong to a later time.
44 See Mindorashvili 2005, 19, 210, fig. V.4 on this crypt; see also chapter 10.4.3.1.
45 See also chapters 10.4.3.5 and 25.7 on the towers and indications as to their age.
46 Vakhusht'i = ed. and trans. Brosset 1842, 228–29.
47 See chapter 25.7.
48 See chapter 11.5.3.
49 The Amali River is narrow enough that no more than a simple wooden bridge would have been required to span the stream, even when swollen with melted snow in spring and summer. Such a bridge would have been washed away during every landslide (see appendix I), but could have been easily rebuilt – and doubtlessly would have been replaced as soon as possible whilst the main traffic route was on the left bank of the Tergi.
50 See chapter 25.6.

9

Elusive migration-era burials and enigmatic stone cairns: fieldwork near Gveleti Cemetery and in the Amali Valley (Trenches A, B, H, I, J, K, R, S, T, Z and AA)

9.1. In search of Gveleti Cemetery (Phases 3–7)

In 1991 Dr Davit Mindorashvili excavated 16 burials at Gveleti, thought to date to the late sixth to early eighth centuries, as part of rescue excavations ahead of construction of a major Transcaucasian gas pipeline. The chronology is based on parallels for grave goods, as well as relative depth, with later graves being at a higher level and in two cases on top of earlier graves. These were all graves in stone cists of similar construction to those found in the later (late seventh or eighth to late tenth or early eleventh century) cemetery at Dariali. Graves at Gveleti contained individual inhumations, as opposed to the remains of multiple individuals in each of the earlier graves at Dariali. Those buried at Gveleti were provided with a much richer assemblage of grave goods than those in the collective Dariali tombs. The Gveleti grave goods have parallels in the Northern Caucasus and in the mountainous zone of northern Iberia. They include spears, beads and other jewellery items, including two small bronze plaques depicting a rider, one with a hook, featuring a horseman and a horse.[1] The sixth century is represented by a Sasanian silver coin of Kavad of AD 529, and it seems likely that an imported ring with a gem carrying a Pahlavi inscription belongs to a similar chronological phase. This is the only cemetery of this period found in the gorge so far. Despite the small number of graves, it represents a very important discovery. As the results have already been published in detail by Mindorashvili, the reader is referred to his report. How the cemetery may relate to the history of the gorge is explored in the historical summary and shall not be repeated here. Suffice it to say that weapons amongst grave goods, northern burial customs and physical distance to Dariali Fort may point to northern allies rather than (Zoroastrian?) fort occupants. Already in 1882 there had been excavations near Gveleti, unearthing bracelets and beads, thought to be of late antique and medieval date. We do not know if it these were found in the same cemetery or somewhere else.[2]

Human remains of the late antique phase of occupations would have had great potential to shed light on living conditions, diet and demography at the time. Furthermore, they may have provided evidence for the likely origins of those buried and whether or not they participated in distinct cultural traditions, such as head deformation. The remains recovered in the original cemetery were unfortunately no longer available for examination when we embarked upon our project. Assuming that the graveyard extended beyond the few graves found and excavated in advance of pipeline construction, a generation before our project, we decided to excavate further trenches in the immediate vicinity of the earlier excavations.[3]

In 2013, we excavated two trenches (A and B: Figs 9:1–9:2). Trench B (10 × 1 m, excavated to a depth of c. 0.70 m below the modern surface in the south and 1.20 m in the north) proved completely sterile, whilst Trench A (12.50 × 4 to 4.25 m) yielded four sherds of pottery from the topsoil (A.001) and subsoil (A.003), all from the uppermost 50 cm, with nothing other than sterile rockfall underneath. The trench was excavated to a depth of 1.20–1.80 m below the modern surface. Three of the sherds could be attributed by Seth Priestman to the CEMRIB class that is well represented at Dariali, notably, if not exclusively, in the Early Middle Ages up to the ninth century (phase 5a-b).[4] There was also modern glass from A.003, suggesting that the pottery may have been redeposited in modern times. Despite our failure to find undisturbed ancient or medieval layers or structures, the pottery inspired hope that we were not far from areas of interest.

In 2014, we excavated a one metre wide L-shaped trench (Trench K), the two legs being 30 m and 12 m long, covering a total area of 41 square metres. The shape aimed at increasing area coverage, with a view of

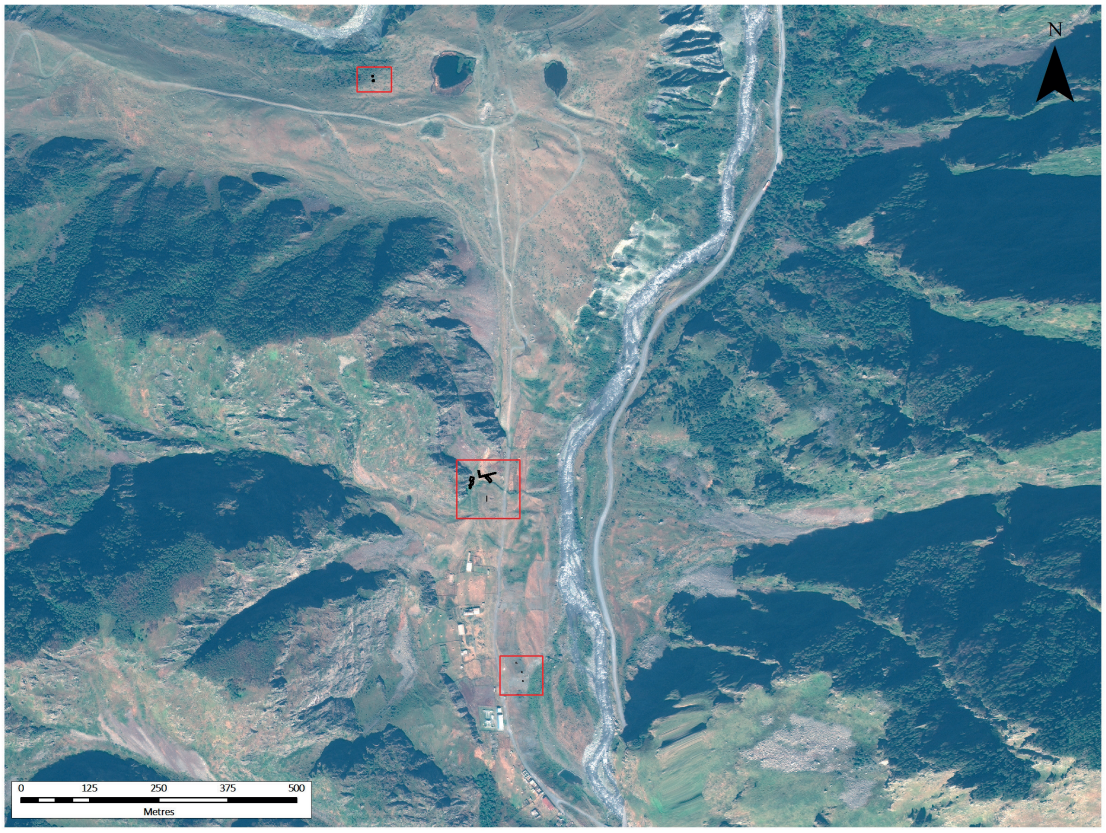


Fig. 9:1: Excavations in the Amali Valley (inset, top), near Gveleti Cemetery (middle) and stone cists (bottom). Map by Nadia Khalaf and the Dariali project. Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).

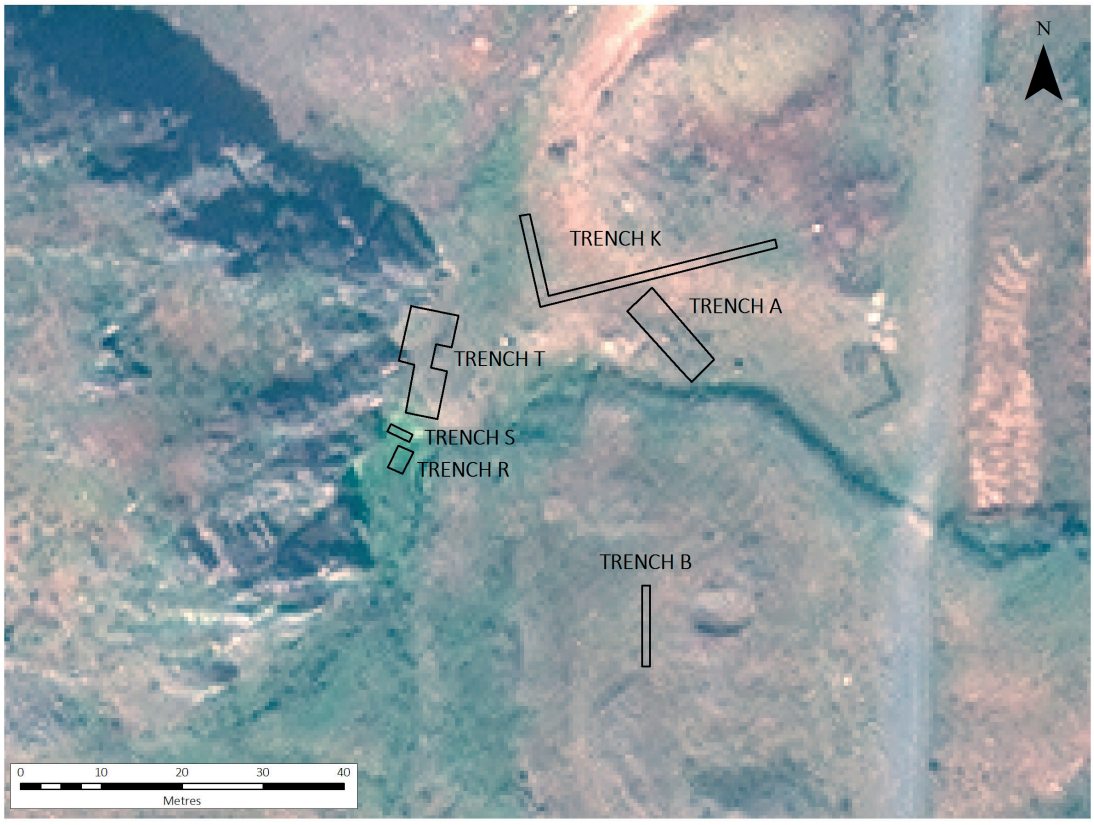


Fig. 9:2: Excavations near Gveleti Cemetery. Map of trenches excavated in 2013, 2014 and 2015 by Nadia Khalaf and the Dariali project. Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).

extending the narrow slot in case any graves should come to light. We reached a depth of a little over one-and-a half metres at its north-west end. The top 40 cm, with clay lenses, (K.001) appear to be material redeposited by machine probably when the pipeline was laid in the 1990s. Beneath, there was almost one metre of material (K.002 and K.003) containing much stone – perhaps, rather than rockfall from the nearby slope, also recent construction-related deposits, as there was mortar underneath. K.002, a distinct layer of rocks (overlying a deposit with a lesser proportion of stones, K.003), reached its greatest depth in the northern leg of our L-shaped trench. In the eastern leg, this rocky deposit was dominant in the westernmost five metres, reduced over the next five metres east and absent in the easternmost five metres (10–25 m east remain unexcavated, except for topsoil levels). Underneath, we encountered a far less stony deposit of soft brown sandy silt (K.005), which yielded pottery up to c. 1.40 m depth below the surface. Modern glazed pottery and a nail were found in the east of the trench (K.006), some 80 cm below the surface, providing evidence for the minimum depth of modern disturbance.

The pottery recovered included more CEMRIB, as well as sherds thought to be more recent than most material from the Dariali and Gveleti Fort assemblages, including a sherd of the eighteenth to nineteenth century.[5] Metal artefacts comprised iron rods and nails, a silver strip[6] and two iron curb bits with ring-shaped terminals (K.002/12.3–4). The latter were found near the corner of the 'L' and are hard to date, but (like the other metal finds from the trench) not necessarily very old. Just as in Trenches A and B, we encountered no certain ancient or medieval deposits, although K.005, whilst containing still more stone than the layers into which the graves of Gveleti cemetery had been dug, might be an older cultural layer. The presence of a substantial layer, partially at least of recent date, of heavy rocks made manual excavation of the trench a physically highly demanding task, whilst the vicinity of modern pipelines prevented us from using machinery to strip off bulk deposits. It seems unlikely that there were burials within the confines of the trench, but we did not excavate it to sufficient depth to be sure.[7] The odd older sherd, besides much modern material, provides further circumstantial evidence for medieval activity in the area.

In the same season, we were alerted to the discovery of three stone cists further south. Inspection and subsequent excavation (via three trenches, each of 2 × 2 m size, Trenches H, I and J) revealed that there were indeed stone cists, remarkably similar in construction to those unearthed by us at Dariali and by Mindorashvili at Gveleti (Figs 9:1 and 9:3–9:6). Yet, brief examination of the interior of the three cists revealed that, whilst clearly real graves, the inhumations inside were of much more recent date than any of the parallels.[8] The human remains found were left in peace or reburied. Perhaps they attest a remarkable conservatism, with similar burial forms being practised for well over a millennium, perhaps some older stone cists were reused in the more recent past.

A final attempt was made in 2015 to locate Gveleti Cemetery immediately next to the area explored when the pipeline trench was dug in the early 1990s.[9] We excavated three more trenches (R, S and T), covering six, three and sixty square metres respectively. We identified an area for possible excavation north of a water stream and west of the main gas pipeline where there is little rock fall – the latter unsuitable for burials. We understand that this stream has been diverted recently and its course is of no significance for the location of the cemetery. Should the ground have been waterlogged in Antiquity it is unlikely that it would have been used for burial – even if the cemetery was very close (perhaps immediately to the north of Trench T). We excavated a small test pit and subsequently expanded it (Trench R) and found, under the topsoil (R.001), a thin layer of slate (R.002) over a deposit of mid brownish grey silty sand (R.003) with few stones. This appears to conform to the geology of the area where the cemetery was found a quarter of a century ago. In Trench R, a bone and three pieces of pottery were found in c. 1.07–1.10 m depth in context R.003. The sherds correspond to classes well represented at Dariali Fort and include a fragment of a cooking pot of the tenth century or later.[10] Trench S was further north, excavated to a depth of c. 50 cm, and slightly closer to the graves explored in 1991. It yielded pottery in c. 40 cm depth, including one potentially late antique sherd.[11]

Trench T, further north and almost reaching the edge of the reported location of the cemetery, was covered by modern upcast, almost certainly from the nearby pipeline. The upcast was particularly deep in the south and east of the trench, whilst what appear to be undisturbed natural layers were much closer to the surface in the north-west of the trench – following the natural slope. Modern glass was found as deep as c. two metres below the present surface, which however is still some 0.50 m above the boggy area further south, in the area of Trenches R and S. Underneath, the soil was noticeably less stony than in the trenches excavated in 2013 and 2014 further east. Evidently, there has been little rock fall in this area protected by a cliff (as opposed to the scree slope overlooking the northern leg of Trench K). Extensive natural clay deposits (T.004, T.006 and T.007) in the trench under the modern upcast may be undisturbed. These alluvial clay layers slope down from north to south and from west to east, following the lay of the land. They may have formed when landslides blocked the sediment-rich Tergi/Terek River leading reportedly to the temporary creation of huge lakes.[12] Iago Kazalikashvili, who has taken part in the cemetery excavations, confirmed that early medieval graves unearthed in 1991 had been cut into clay layers similar to those our team encountered and that we were close to the edge

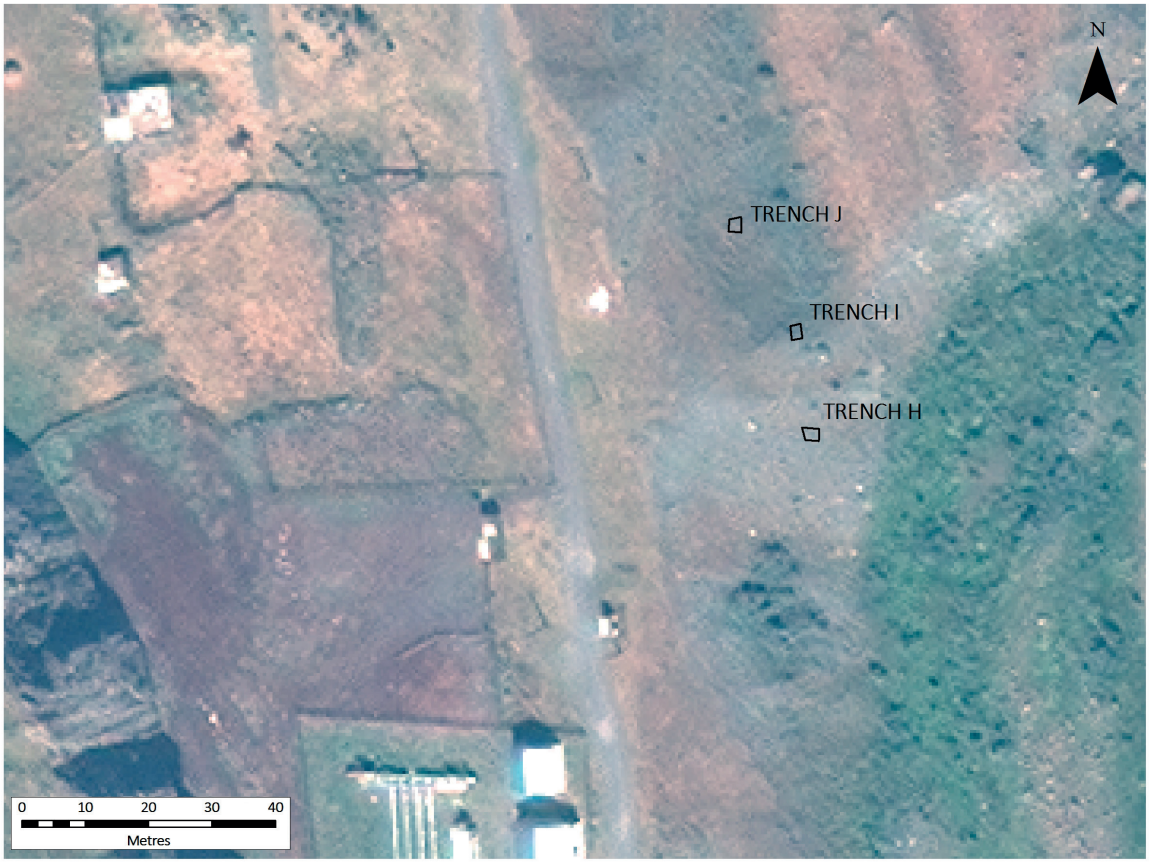


Fig. 9:3: Excavations of stone cists containing modern burials, excavated in 2014, by Nadia Khalaf and the Dariali project. Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).



Fig. 9:4: Trench J, looking north: a stone cist of strikingly similar architecture to those unearthed at Dariali and Gveleti Cemeteries.



Fig. 9:5: Trench H, looking north: a further post-medieval stone cist grave.



Fig. 9:6: Trench I, looking south: another post-medieval stone cist grave, with Gveleti Fort in the background (right).

of the cemetery. We observed no ancient cut in the clay, just modern cuts (including one for a defunct telegraph posts). Despite substantial efforts, the large trench being excavated to a substantial depth (of up to 3.65 m below the surface at the deepest point), reaching the bedrock and water table in places, no graves were found. The pottery assemblage, like those from nearby Trenches R and S, had much in common with that recovered from Dariali Fort.[13]

All three trenches yielded probably early medieval pottery. Trenches R and T produced one sherd each that is likely to be late first millennium,[14] distinctly later than the cemetery. Evidently not all (if any) of the pottery can be logically explained as redeposited grave goods or contemporary occupation nearby. Whilst there had been ceramic vessels amongst the grave goods, there was also a rich variety of metal objects and other artefacts, such as beads. The absence of any parallels for non-ceramic objects in the grave inventories unearthed in 1991 would suggest that there are no (and certainly not many) redeposited grave goods amongst the finds from our trenches. The gorge was a major traffic artery for the past two millennia or more, and there will have been particularly heavy traffic at times when Dariali Fort was most intensely occupied. Whether lost by people dwelling nearby in the hinterland of the fort or by passers-by, the area will not have been virgin land in Late Antiquity and the Early Middle Ages.

Undeniably, the results of our attempts to shed more light into Gveleti Cemetery have been disappointing. Our excavation strategy deliberately involved endeavours that were almost certain to yield significant insights, notably our excavations on Dariali Fort, and others that were of an unpredictable outcome. Had not the presence of modern pipelines prevented us from using machinery in the area of greatest potential, it would have been possible to systematically strip the rocky overburden fairly rapidly. Manual excavation through deep stony layers, with heavy boulders sometimes wedged firmly into stony profiles, involved exceptionally hard work, whilst being confined to much smaller areas and lesser depth. Yet, it is always easy to be wise with the benefit of hindsight. In the case of Gveleti Cemetery, finding more graves of the period would have added a major new dimension to our project – a trial that seemed worth the effort, even if highly unpredictable experiments can yield big dividends or none.

Our main results, insignificant as they are, may be summarised as follows. The presence of perhaps early medieval pottery from several of the trenches, some of which may have been redeposited when the pipeline was built (but probably not very far), provides circumstantial evidence for human activity in the area reaching back to the Early Middle Ages if not before. Perhaps sterile Trench B was beyond the area frequented at the time (although it was of small size and many other small trenches yielded only a handful of sherds, so that it is hard to be sure how meaningful the absence of finds is). Worth noting is also that the area of Trenches R, S and T yielded thick clay deposits. It would have been far easier to dig graves here than in stonier terrain. These trenches are furthermore in the immediate vicinity of the graves excavated a generation ago.[15] The absence of further graves in these trenches suggests strongly that there never was a large cemetery here, as failure to expand in this direction would be hard to explain, had the graveyard served a large community over a long period of time. This does not mean that there

are no graves left to be discovered in future. During the rescue excavations by Mindorashvili and his team, only graves in immediate danger were excavated and there appeared to be further graves around. Yet, in the light of the absence of burials in the trenches excavated in 2013, 2014 and 2015 (not to mention that the patch of soft soil suitable for grave digging was small and surrounded by stony ground), the cemetery cannot have been large. Our failure to find redeposited grave goods may indicate that there has been no grave robbing in recent times and that any graves left may well be undisturbed. A further observation, if of no direct relevance for the cemetery, concerns the suitability of the high-quality clay deposits, easy to mould, for producing pottery. Even if there is no concrete evidence for their exploitation for this purpose (unsurprising as there will be similar material elsewhere in the zone temporarily flooded by the Tergi), they demonstrate that potters could have operated not far from Dariali Fort.

9.2. The enigmatic Amali Cairns and the power of nature: Trenches Z and AA

Trenches Z (2 × 3 m) and AA (1.60 × 2.70 m) were excavated on a terrace overlooking the Amali Valley.[16] There was a distinct stone cairn in the centre of each trench, just two amidst a cluster of 68 certain or probable stone cairns (Figs 9:1 and 9:7–9:14). These cairns had been surveyed, by Kristen Hopper[17] and subsequently the fieldwork team, prior to excavation. Oral dating proposals ranged from the Bronze Age to modern times, and the relatively small size, and the absence of any large clearance cairns (as not uncommon in the area), suggested that these could mark burials. Whilst 24 cairns were circular, roundish or of non-geometric shape, 37 were of rectangular, sub-rectangular or oblong shape (not counting a further seven whose shape we were unable to classify, mostly as they were overgrown with scrub). None, of course, were perfectly geometric, but those classified as 'rectangular, sub-rectangular or oblong' (including the Trench Z and Trench AA cairns) were of sufficiently elongated form that it seemed unlikely that this was random. Whilst there is no doubt that



Fig. 9:7: The Trench Z cairn.



Fig. 9:8 The Trench AA cairn.

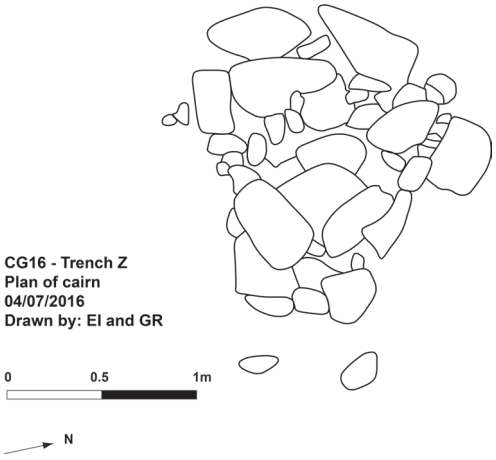


Fig. 9:9: Plan of the Trench Z cairn.



Fig. 9:10: Plan of the Trench AA cairn.



Fig. 9:11: Trench Z after excavation (with the Amali Valley in the background).

they are human creations, our working hypothesis that they may mark burials proved to be mistaken. Trench Z was excavated to 1.25 m below the modern surface, through hard stony and evidently undisturbed natural deposits, Trench AA to a depth of 0.56 m. No finds, burials or other structures emerged. After backfilling, small stone cairns were re-erected on top of the filled-in trenches.

The date and purpose of the cairns on natural ground remains a mystery. Were they clearance cairns, despite their fairly uniform dimensions? Perhaps, but it is tempting to think that the site of the cairn cluster was a place of special significance rather than no more than pasture partially cleared from stones. If grazing animals had been the intended beneficiaries of clearance operations, it would be hard to explain why the cairns are confined to the spot with the best views and a small area, whilst there is a similar abundance of stones all over the Amali and Tergi River Valleys. What indeed seem to be clearance cairns near Gveleti Cemetery are of much greater and less standardised dimensions, and we are not aware of a close parallel, elsewhere in Dariali Gorge, for a cluster of uniformly small cairns similar to the Amali terrace site. Whilst unproven and perhaps unprovable, one wonders if their unique landscape setting may hold the clue for their interpretation. Vast masses of rock, ice and mud will have swept through the steep valley hundreds of times over the past two millennia, the terrace providing a safe



Fig. 9:12: Trench AA after excavation.

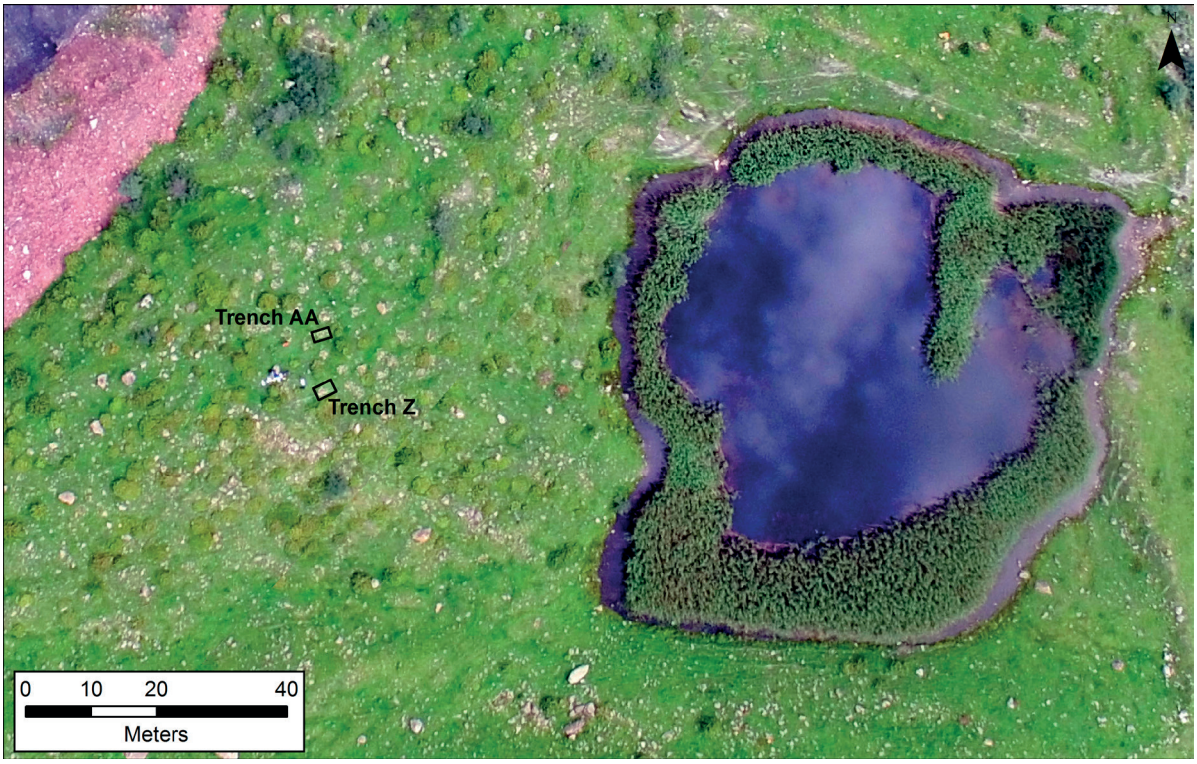


Fig. 9:13: Excavations in the Amali Valley (Trenches Z and AA) by Kristen Hopper, plotted onto drone image by Davit Naskidashvili. The cairn cluster (centre, left) overlooks the Amali Valley (left), largely devoid of plant cover due to recent landslides, and a natural lake (right).



Fig. 9:14: At the edge of the death zone: an unexcavated cairn of irregular shape overlooking the landslide-prone Amali Valley.

observation platform over the death zone. The cairns were no more than the proverbial stone-throw away from the destructive path of the landslides. There can be few places were the power of nature would have been more terrifyingly evident to the spectator. Is it possible that the piles of stone were erected for some symbolic or ritual purpose at the prominent spot overlooking the fatally dangerous Amali Valley? We may never know.

Notes

1 We are very grateful to Dr Davit Mindorashvili and Iago Kazalikashvili for their support throughout the endeavour. Numerous team members were involved in the excavations. Georgian colleagues and team members, including Lana Chologauri, Davit Naskidashvili, Ketevan Gotsiridze and Professor Vakhtang Licheli offered advice on the Georgian publications and records on the 1991 excavations.

2 Mindorashvili 2005, 19–101, 163–66, 176–77, 199–201, 211–20 pls VI-XV; cf. *id.* 2000; cf. Gamq'relidze *et al.* 2013, 143–44; see also chapter 25.3.2.

3 We are indebted to Dr Davit Mindorashvili and Iago Kazalikashvili for guiding us to the location of the original excavations.

4 See chapter 11.5.4.1.

5 See chapter 11.5.4.2.

6 See chapters 15.2.8, 15.2.12 and 15.2.16.

7 We are grateful to Iago Kazalikashvili, who had taken part in the excavations of the original cemetery, for his advice. He did not think that Trench K could contain burials at a deeper level, whilst not entirely ruling it out for those areas further away from the base of the slope.

8 A radiocarbon sample (OxA-31345), from the cloth or sack of a mature female (identified by Anthi Tiliakou and Cate Shupe) in Trench J, provided a date of 1.33346±0.00402, *i.e.* AD 1976–1978 at 95.4% probability (d13C= -25.94). The body must be of similar or more recent date. There were no visibly modern artefacts or items of clothing found in the grave, and it is a mystery to us why a burial of such recent date should have been simply inserted in a sack in a grave of the same style as those in Trench G near Dariali Fort, which are a millennium earlier. Trench I contained a burial of a male wearing well-preserved traditional (leather?) dress, thought to be perhaps of seventeenth to nineteenth-century date. It was not disturbed and re-covered. In Trench H, we identified human leg bones. The grave, unlike the other two, was heavily disturbed in recent times to judge by the presence of a cigarette butt and plastic fragments. We re-covered the grave and did not exhume any remains.

9 Trenches R, S and T were excavated under the direction of Davit Naskidashvili and Dr Emanuele Intagliata, with a team of workmen.

10 See chapter 11.5.4.3.

11 See chapter 11.5.4.4.

12 See appendix I.

13 See chapter 11.5.4.5.

14 See chapters 11.5.4.3–11.5.4.5.

15 We are indebted to Dr Davit Mindorashvili and Iago Kazalikashvili for advice, on site and remotely, on the location of the early medieval cemetery and the observation that the early medieval graves had been dug in soft soil.

16 Excavated under the direction of Davit Naskidashvili and Cate Shupe.

17 See chapter 10.4.2.

10

Landscape investigations in the Dariali Pass

Kristen Hopper, Dan Lawrence, Lisa Snape, Lana Chologauri, Seth M.N. Priestman, Lyudmila Shumilovskikh, Konstantin Pitskhelauri and Graham Philip

10.1. Introduction

Our landscape investigations in Georgia have been conducted using a combination of field survey and remote sensing data, both aimed at developing an understanding of settlement and land use beyond the scale of individual sites. Large scale landscape analysis, especially of later periods, is a relatively new phenomenon in the Southern Caucasus, but over the last decade or so a range of important survey projects have begun to examine this diverse and archaeologically fascinating region.[1] At the same time, several scholars have made use of landscape data to investigate the emergence and structure of frontier regions in later territorial empires, particularly during the late antique period.[2] The research discussed in this chapter is informed by both of these developing fields. In the Dariali Gorge, our intensive survey to the south of the Dariali Fort was designed to recover archaeological remains from sites and other features in order to contextualise settlement at the fort itself, as well as to assess longer term patterns in land use and past lifeways in an upland environment. This investigation complemented work undertaken by the Persia and its Neighbours project team in Azerbaijan and Dagestan, the overarching aim being to assess the nature of frontiers in this key region, and especially to examine what David Breeze[3] in a different context has labelled the 'frontier in depth'.[4] Here again, however, the evidence recovered requires a wider temporal range than the late antique period, and allows us to examine questions beyond those associated with the form and function of frontiers and empires.

10.2. Landscape investigations in Khevi

The Dariali Pass Survey area is located in the Kazbegi/Stepantsminda district in the Mtskheta-Mtianeti region of Georgia in the Greater Caucasus Range, and is part of the region historically known as Khevi, which includes the Tergi/Terek River Valley, the Sno River Valley and the Truso Valley (Fig. 10:1). Despite its relatively marginal location, the area has been subject to a number of archaeological and ethnographic research projects over the course of the twentieth century. An excavation undertaken in the 1990s near the now abandoned village of Gveleti had uncovered a number of burials dating to the sixth-eighth centuries AD,[5] and there had been several wide-ranging investigations by Georgian ethnographers and archaeologists at a number of well-known towers, churches and fortifications that stretched along both the Tergi and Sno River Valleys south of Dariali Fort.[6] The objective of our survey was to increase the quantity and density of archaeological remains in the area by combining the use of both historical and modern satellite imagery and pedestrian survey. A key strategy involved the investigation of terrace field systems in the area. Given the mountainous environment,[7] we hypothesised that periods that witnessed a noticeable increase in terrace construction should be those that saw more general intensified human activity in the landscape. We therefore excavated a number of small soundings in the terrace systems in order to understand their construction and use, and to obtain dating evidence – in particular samples of sediments suitable for analysis by Optically Stimulated Luminescence (OSL).[8]

10.2.1. The physical landscape of the survey area

Our survey area extended along the Tergi River Valley between the Georgian-Russian border in the north and the settlement of Lower Ukhati in the south, and included a portion of the adjoining Sno Valley (up to the vicinity of the settlement of Karkucha) (Fig. 10:1). Mount Kazbeg, rising 5,047 m above sea level is the most well-known and prominent geographic feature of this region. Mount

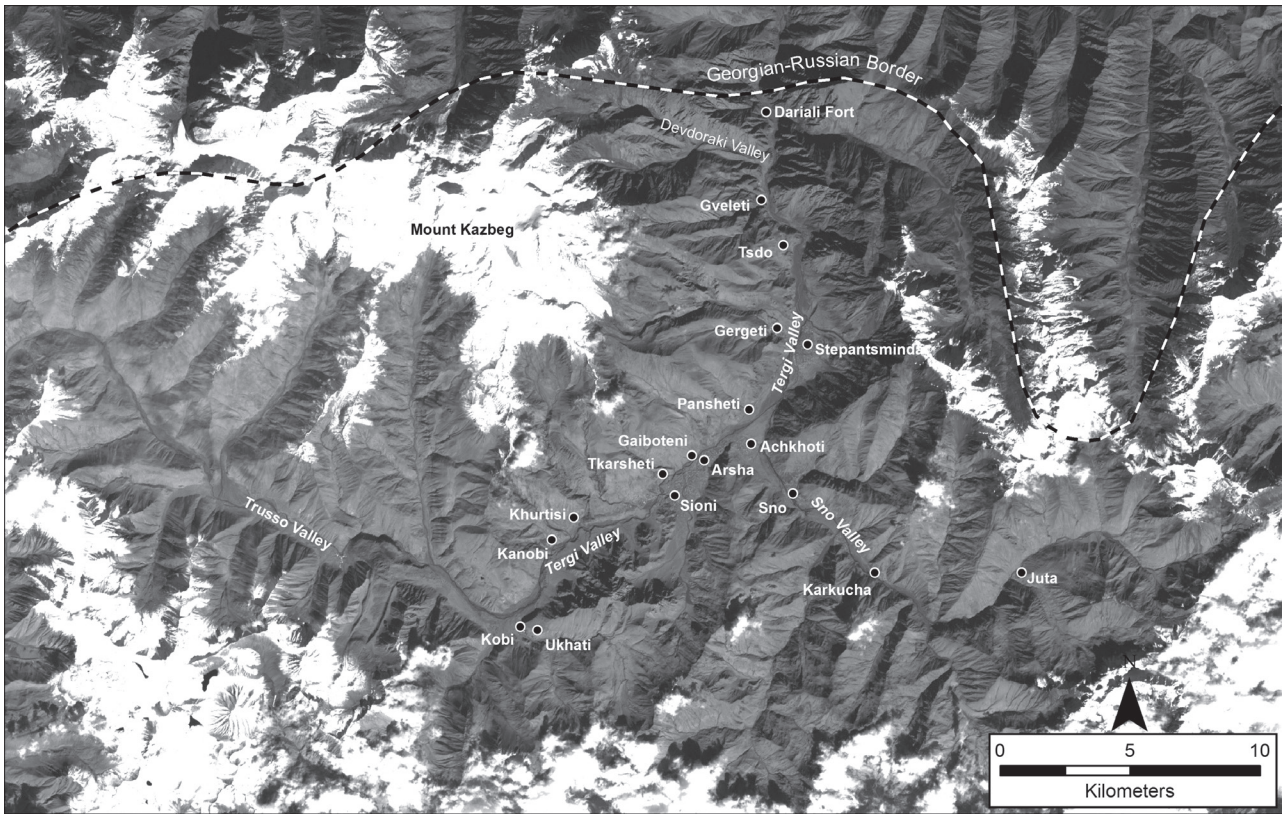


Fig. 10:1: Location of the Darial Gorge and the valleys that make up historical Khevi. Imagery: panchromatic Landsat 7 acquired 6 October 2002 (data available from the U.S. Geological Survey).

Kazbeg formed as a result of significant displacement of the microplates of Transcaucasia exposing weakly metamorphosed volcanic and sedimentary sequences composed of clayey and carboniferous shales, siltstones, gravels and tuff sandstones of Early and Middle Jurassic age.[9] The main geomorphological features and processes visible within the gorge include the extensive fast flowing Tergi and its associated tributaries, which have significantly altered the floodplain through time. The hydrological history of the gorge can be traced by the preservation of palaeochannels and extensive fluvial terraces that have been dissected by the Tergi as it formed an anastomosing braided channel in the wider open floodplains in the south. The topography of the mountains is a constant reminder of the glacial processes that occurred, producing deep valleys and glacial scouring on mountain slopes.[10] Due to the rugged volcanic terrain, the gorge is prone to widespread hillslope processes in the form of rock falls and landslides caused by glacial snow-melt. Feeding into the gorge are extensive deep colluvial fans, some are still actively accumulating and others have stabilised, enabling permanent occupation.

As part of the Tergi River Valley, the Dariali Gorge (or Pass) extends from just north of Stepantsminda (also known as Kazbegi) towards and beyond the Georgian-Russian border. From near Stepantsminda to Dariali Fort, the base of the valley descends from c. 1,740 m to c. 1,250 m. The gorge is relatively narrow and steep-sided, particularly on its east side, and historical accounts indicate that it was even narrower in the past.[11] Within the gorge, the Tergi flows rapidly and is prone to regular avulsions within the highly constricted valley floor. Robert Lyall,[12] travelling through in the early nineteenth century observed that 'the Terek [Tergi] rolls its course with great rapidity, sometimes separated into a number of branches; no less than 800 soldiers were occupied in raising mounds of great stones and trees, called counter-forces to keep it from destroying the road, and to confine it within a regular channel.' There is a limited amount of flat, arable land within the gorge. Settlement in the recent past appears to have been concentrated in side valleys, lower slopes, plateaus and outcrops ranging in altitude between 1,400 and 2,100 m. In the vicinity and south of Stepantsminda, however, the valley opens up considerably. Changes in the geology are also notable at this juncture. The granite and colluvium that predominate in the narrow gorge, transition to sandstones, marls and andesites. The wider floodplain, comparatively large areas of gently sloping valley sides and flatter uplands mean that these areas have greater potential for both settlement and cultivation[13] (see Fig. 10:2). Similar conditions exist along the Sno Valley which meets the Tergi River Valley near the village of Achkhoti.

The area can be subject to extremely cold temperatures in the winter, often falling below freezing.[14] Significant snowfall and avalanches have also been known to restrict



Fig. 10:2: The Tergi River Valley near Dariali Fort (top left), The Tergi River Valley near Sioni (top right), The Sno River Valley near Sno (bottom).

movement through the region.[15] Most precipitation, however, is received during the summer months.[16] The study region is dominated by subalpine vegetation occurring at altitudes between 1,900–2,500 m.[17] At mid to high altitudes, vegetation is sensitive to subtle changes in climate, temperature, wind and soil. The preservation of soil is particularly important in dynamic mountainous environments to prevent erosion. Georgia has a variety of soil types within a small area due to significant vertical zoning. The area investigated largely consists of mountain-meadow soils. These soils are widespread in high altitude cold alpine regions that formed under elevated moistening due to strong leaching.[18] Such soils form on the weathered substrates derived from sedimentary and metamorphic rocks that typically form the Central Caucasus mountain range,[19] which provide perfect conditions for subalpine vegetation such as herbs and grasses. Modern systematic soil survey of the region clearly showed that upland areas (>1,800 m) of the gorge were classified as poor to very poor/unusable soils, and only small patches of land on recently occupied thick colluvial fans are moderate to good quality soil for agriculture.[20] The Mid-Late Holocene pollen records mapped for Georgia by Connor and Kvavadze suggest that the landscape was dominated by coniferous forests and high mountain grasslands.[21] Palynological investigations in the frame of the project[22] reveal changes in the position of the forest line during the last 4,500 years. The landscape of interest in the Central Caucasus is dominated by subalpine vegetation occurring at altitudes between 1,900–2,500 m.[23]

10.2.2. Modern land use in the region

The extreme topography and upland climate present in the study area encourages stockbreeding (predominantly sheep, but also some cattle), though some cultivation also occurs. The region has an abundance of upland pasture, accessible in the summer months. Transhumance systems in which sheep were moved between summer pastures in the Kazbegi region and winter pastures in the lowlands on either side of the Caucasus range (*e.g.* the Nogai Steppe in Dagestan) have been in use for hundreds of years; these systems only recently collapsed after access to winter pastures ceased with the closing of the border between Georgia and Russia after the breakup of the Soviet Union.[24] Cattle were also kept on the available alpine pasture in the summer, while in the winter they were pastured near to villages, and kept indoors overnight.[25]

From at least the mid- to late nineteenth century to the present day, agriculture has played a secondary role to pastoralism in the local economy. Sources indicate that

small-scale cultivation of vegetables and legumes was common, and areas of relatively flat, arable land not in use for pasturage, were devoted to growing hay needed to feed animals in the winter months.[26] This pattern of agricultural land use appears to continue today, as observed in the field, and seen on the modern WorldView-2 imagery (Fig. 10:3). In the vicinity of most villages, garden plots can be found, while hay is grown near to the villages, and in areas of what may have formerly been upland pasture. In the past, the forest was also heavily exploited. By the time Radvanyi and Thorez[27] were writing their description of the Dariali region in the 1970s, however, forested areas had almost completely disappeared. A comparison of CORONA imagery from the 1970s and modern WorldView-2 imagery from the last ten years or so indicates that reforestation has occurred in some areas (*e.g.* near to Stepantsminda) (Fig. 10:4; see also Fig. 10:42). This may reflect more recent changes in fuel use by local communities or deliberate policies at regional or national levels or a considerable decrease in pastoral activities.

10.3. The landscape survey in Khevi

10.3.1. Remote sensing of satellite imagery

Both declassified CORONA spy photography and contemporary high resolution imagery (WorldView-2) were used to identify potential archaeological features and for GIS-based analyses (Fig. 10:4). Types of imagery, dates of acquisition, resolution and coverage are detailed in Table 10:1. The CORONA spy photography was registered to orthorectified Landsat imagery obtained from the USGS (United States Geological Survey). The WorldView-2 imagery was purchased from DigitalGlobe in orthorectified format. ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer) and 1 arc-second SRTM (Shuttle Radar Topography Mission) data provided information about the topography and were used for Digital Elevation Models (DEM); both have a spatial resolution of 30 m.

CORONA, declassified American spy satellite imagery, has become widely used since its release in the 1990s for

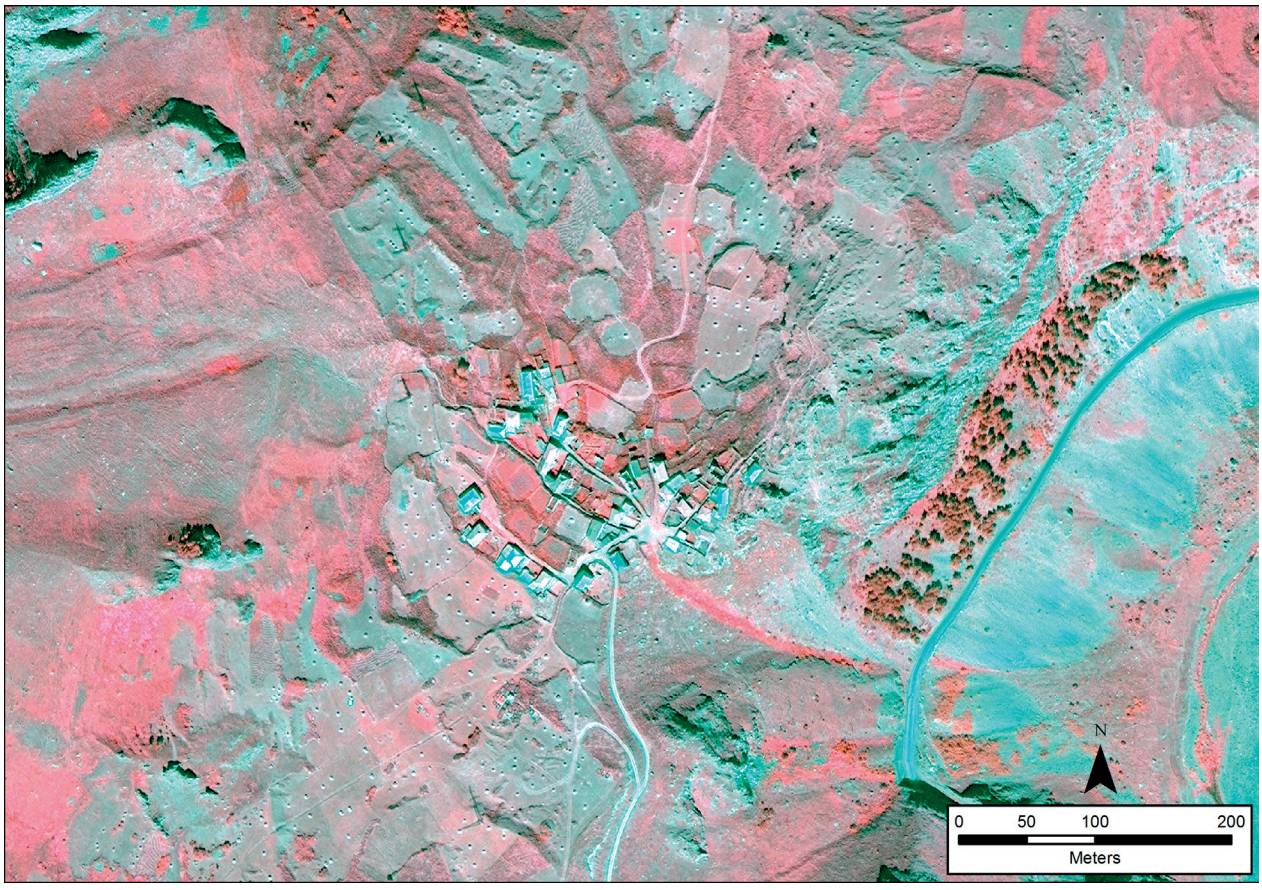


Fig. 10:3: A false colour infrared (NIR1, R, G) image of fields in the vicinity of Tsdo (DPS-6). Vegetation appears bright red, while the recently harvested fields appear grey. Hay bales (visible as small light-coloured dots) are visible within the harvested fields to the north and south-west of the village. Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).

Table 10:1: Details of Imagery Used.

Imagery	*Date*	*Resolution*
Landsat 7 (Path – 170, Row – 030)	6 October 2002	10 m panchromatic 30 m multispectral
CORONA 1105 mission (DS1105-1057DF076 DS1105-1057DF075)	7 Nov 1968	2–4 m
CORONA 1115 mission (DS1115-2154DA083) (DS1115-2154DA084)	20 Sep 1971	2–4 m
WorldView-2	01 Sept 2010 01 October 2012	0.5 m
Quickbird	18 Sept 2006	0.6 m
ASTER (DEM)		30 m
SRTM (1 arc-second product) (DEM)		30 m



Fig. 10:4: Satellite images of the settlement of Stepantsminda. A) Landsat 7 acquired 6 October 2002 (data available from the U.S. Geological Survey), B) WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved), C) CORONA Mission 1105 acquired 7 November 1968 (data available from the U.S. Geological Survey).

remote prospection of archaeological sites.[28] Taken in the 1960s and 70s, these images have been useful for viewing a range of landscape types, in the Near East in particular, as these appeared prior to recent programmes of agricultural intensification. However, in this case the CORONA imagery proved less useful than the higher-resolution modern WorldView-2 imagery taken between 2006 and 2012. There are two reasons for this: 1) The CORONA imagery contained a significant amount of shadow, a consequence of the mountainous landscape and the angle of the sun at the time the images were acquired, the effect of which is to overwhelm the more subtle differences in reflectance that have generally characterised archaeological remains; 2) The kinds of archaeological features that characterise this region are more likely to be structures of low-relief as opposed to the tell or tappeh-type sites characteristic of lowland areas across the Near East (often called 'Gora' in Georgia). The relatively low quality of the CORONA imagery available, coupled with the dense ground cover characteristic of the region, meant that such sites were often obscured. 3) There has been little to no intensification of cultivation in the region between the 1960s and 2012, and minimal expansion of settlement other than in the vicinity of Stepantsminda and the Upper Tergi River Valley, and therefore far less destruction of cultural remains in recent decades than has been the norm across much of the Near East – thus removing one of the usual advantages of CORONA data.[29] However, where settlement expansion has occurred it appears to have been at the expense of field systems rather than earlier settlements (see for example Fig. 10:4). Ethnographic, demographic and economic studies reinforce this picture. For much of the twentieth century, the major economic activity in the region was pastoralism.[30] It appears that even by the 1930s, cultivation of cereal crops had declined significantly due to the fact that it was cheaper to buy

flour imported from elsewhere than it was to produce it locally.[31] In the absence of agricultural intensification, population expansion or major infrastructure projects, the majority of features identified on the CORONA imagery were still visible in a similar state of preservation on the WorldView-2 imagery. The modern imagery was both higher resolution and multispectral, allowing more features to be identified.

Before beginning our first field season, a desk-top assessment of the various imagery sources was undertaken. The types of features that were identified included terrace field systems, abandoned structures (both single features and groups that appeared to represent settlements), and other anomalies that could not clearly be identified as modern. Abandoned structures and settlements were easily distinguished from modern villages and towns as they generally lacked roofs. Linear features, clearly not representing modern roads, were also highlighted as potential paths or drove ways. With few exceptions, all the features identified on the imagery were located within or adjacent to the river valleys. While over the long-term the majority of settlement has been located in the more accessible portions of the river valley, sites and features in the rockier upland terrain may have also existed. However, stone built features (by far the most common building material type in the region) are difficult to distinguish from the natural surroundings in this context.

10.3.2. Field survey

Employing traditional pedestrian survey methodologies to mountain/upland environments can be challenging due to terrain, land-cover and accessibility.[32] Traditional full coverage transect survey proved next to impossible over such dramatically steep topography. In light of this, we decided to undertake a hybrid survey methodology which involved visiting all areas of interest identified through the imagery analysis alongside a topographically informed survey that investigated accessible landforms capable of supporting agriculture and pastoral practices. The latter were defined as landforms up to c. 2,000–2,100 m with gently sloping or flat topography that could be accessed without unnecessary risk to the surveyors. An additional complication became apparent in the field, where significant ground cover present in the summer impeded site identification and the systematic collection of dating material. In the case of the first issue, this was partly overcome by remote-sensing; the WorldView-2 images used were taken in the autumn (after vegetation had begun to die back and harvesting had taken place). At times these provided more information on ground based features than surveyors could see in the field.

In June and July 2013 and July 2014, landscape survey and geoarchaeological investigations were undertaken in the study region.[33] In the first season, we focused on recording historical sites and landscape features in the Dariali Gorge between the Georgian-Russian border and Stepantsminda (see Fig. 10:1). Accessible landforms were traversed by members of the team spaced between five and ten metres apart and all features encountered were recorded. In the following season, efforts were focused on two tasks: spot visits to terrace field systems and other features identified on the imagery along the Tergi River Valley between Stepantsminda and Lower Ukhati, and recording the locations and context of the numerous towers and fortifications that are strung along the Tergi and Sno Valleys. All GPS points were given a unique ID or waypoint (WP) number and are listed below.[34] A site was defined as a broadly spatially contiguous set of features. These were each assigned a DPS (Dariali Pass Survey) number (*i.e.* DPS-1). Not all features recorded were assigned site numbers; such cases are simply referred to by their WP number. Over the course of the two seasons, we recorded and mapped 21 sites including fortifications, terrace field systems, settlements and burials (Fig. 10:5). An attempt was made to collect a sample of surface ceramics from each site. However, thick vegetation cover and geomorphological processes (*e.g.* sediment deposition) has meant that little to no ceramic material was recovered. Dating these features is therefore difficult, if not impossible, except in very broad categories.

10.3.3. The sites and features database

We have incorporated the results of the remote sensing and field survey with information gathered from previous archaeological investigations and ethnographic and historical sources to produce a database of sites and features in the region. Both Davit Mindorashvili[35] and Ts'itlanadze[36] offer extensive accounts of archaeological work in the region up to the 1990s. Although much previous research has focused on excavations, a number of surveys of varying type and quality have been carried out. In the late 1800s, several villages are mentioned as having been surveyed[37] and in the 1930s A. Kruglov is reported to have recorded and collected ceramics from c. 300 medieval sites across Khevi (though the material survives, it lacks associated spatial data).[38] Later surveys, undertaken in the 1960s and 70s by the Iv. Javakshavili Institute of History, Archaeology and Ethnography and the Zhinvali Archaeological expedition, led by R. Ramishvili and G. Ghambashidze, focused on recording graves and tombs at numerous locations in Khevi.[39] Finally, during investigations in the region by Mindorashvili,[40] he and his team carried out a survey of the numerous towers in an attempt to understand their construction and date. Ethnographic studies[41] have also provided further information on historical villages and landscape features. These data have been integrated with the results of the satellite remote sensing and our own field survey, along with data derived from Soviet period 1:50,000 maps, to create a database of sites and features located within the survey

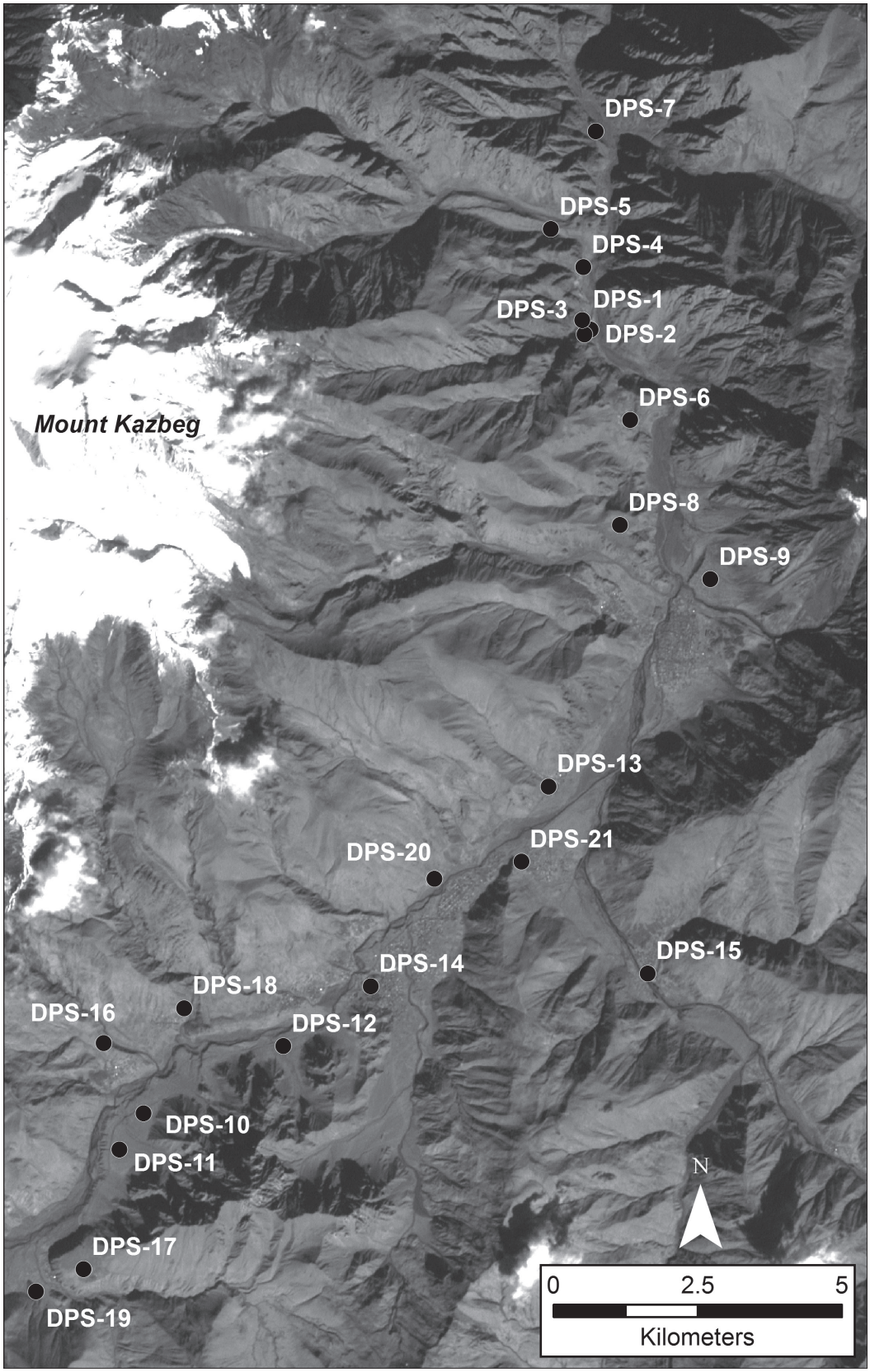


Fig. 10:5: Sites recorded by the DPS survey. Imagery: panchromatic Landsat 7 acquired 6 October 2002 (data available from the U.S. Geological Survey)

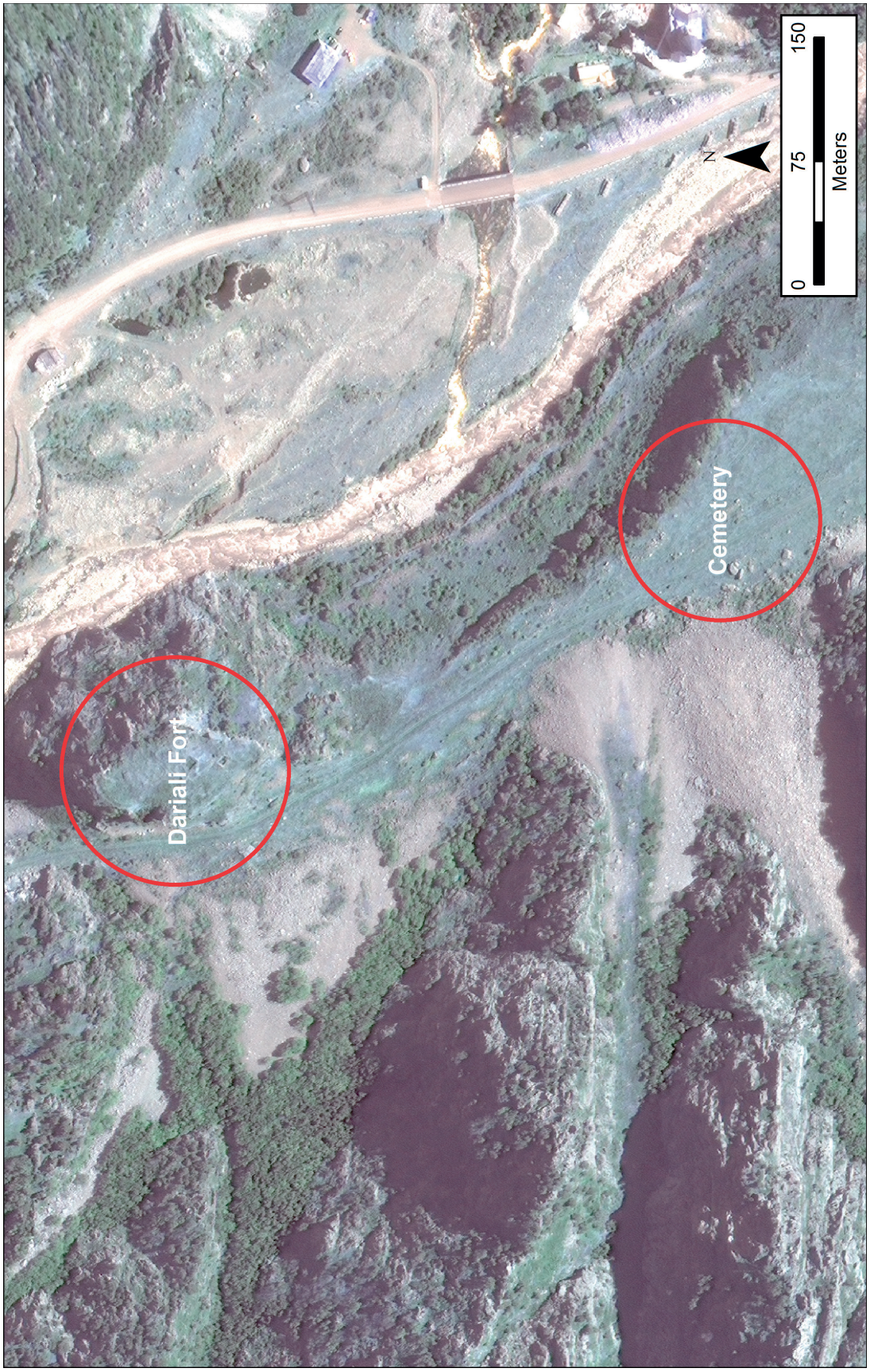


Fig. 10:6: Location of Dariali Fort cemetery (DPS-7). Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).

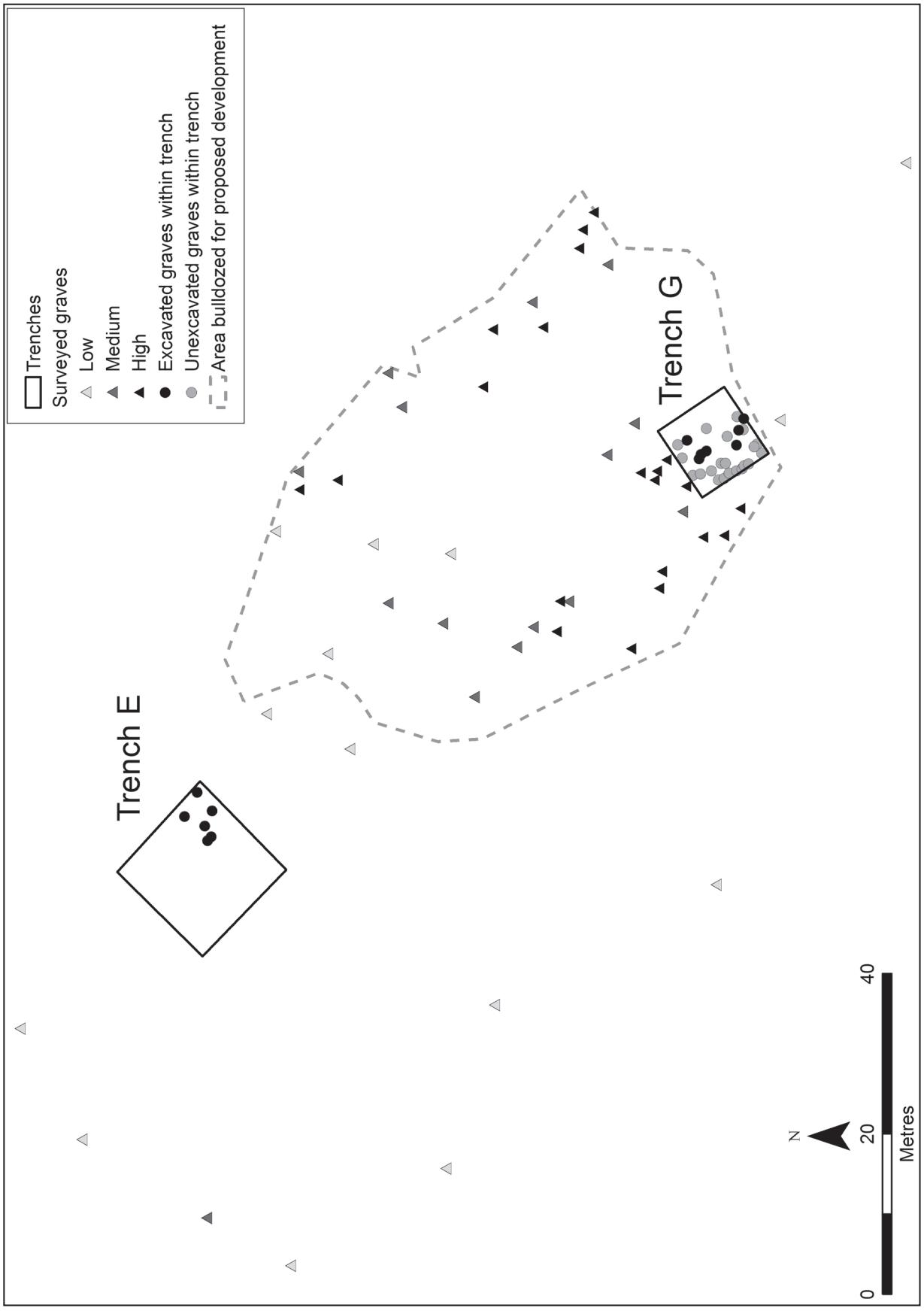


Fig. 10:7: Graves south of Dariali Fort and the locations of Trench E and G. Each feature was assigned a certainty assessment – low, medium, high, or definite (within the limits of the cleared Trench E or G areas).

area.[42] Some challenges were encountered in integrating the data from multiple sources, due to variations in spatial certainty. In many cases, clear correlations could be made between sites mentioned in textual sources or visible on maps (often associated with extant villages or well-known historical or archaeological sites) and field or imagery derived data. However, this was not always the case, and where uncertainty exists this has been noted in the site record and following descriptions.

10.4. Archaeological and historical landscapes of Khevi

This section will describe the sites and features investigated in the Tergi and Sno River Valleys by the Dariali Pass Survey. The material is presented geographically by valley, moving from north to south. This generally reflects the order in which the survey progressed, and allows us to consider the features identified within their local context. Fortified sites are the most common type in the study region, and are a frequent feature of upland regions in Georgia in general.[43] In Khevi, these include prominent forts (such as Dariali Fort), fortified settlements and individual fortified features, such as houses and towers. In many cases they are found in association with modern villages.

10.4.1. Dariali Fort and cemetery (DPS-7)

Dariali Fort (DPS-7) sits on top of a high promontory on the west bank of the Tergi, and is mentioned in numerous classical and historical sources[44] (see Figs 10:5–6 for location). A survey of the site and its environs was undertaken by P. Bayern in the late nineteenth century, and excavations were carried out by Ts'itlanadze in 1962–1963 and Mindorashvili in the late 1980s; Mindorashvili also investigated a medieval cemetery south of the fort.[45] Excavations by the Caucasian Gates Project (the initial name of our project), between 2013 and 2016, have provided evidence for occupation from the fourth century AD up to c. 1000 AD and between the late thirteenth to early fifteenth centuries.[46] Textual sources, which mention the Caucasian or Caspian Gates, also allow for the possibility of an earlier date.[47]

Prior to the start of excavations at Dariali by the project, all visible and accessible architectural features were recorded with a Total Station.[48] The fort and the architectural features associated with this defensive structure have been described in more detail elsewhere.[49] A cemetery was also investigated to the SSE of the fort. This was initially brought to our attention by the discovery of several cist burials located in an area c. 80 m (north-west to south-east) by 50 m (north-east to south-west) that had been bulldozed in preparation for the building work (Fig. 10:7). To determine the extent of the cemetery, the flat areas of the plateau to the west and south of the promontory were systematically traversed and all visible graves were recorded with a single point on the total station. The full extent of the cemetery was difficult to determine due to vegetation cover. A total of 84 graves or possible graves were recorded with varying levels of certainty – low, medium, high, or definite (see Fig. 10:7). The resulting distribution of features clearly favours the areas which were cleared (the density of features, and the certainty attached to them lessened considerably outside of the bulldozed area). With this caveat in mind, it appears that the cemetery extended to the north-west and west of the cleared area for a further 30 m (and up to 60 m). The south-eastern limits of the cemetery do not appear to have extended much beyond the cleared area, as only two further possible grave features were located in this direction. To the east, the edge of the cemetery is defined by the sharp drop off to the valley below. Graves eroding out of the face of the plateau edge suggest that the cemetery might have extended further in the past. The excavation of several of these graves has already been reported, and has produced radiocarbon dates spanning the late seventh/eighth-late tenth/early eleventh centuries AD.[50] To the south of the cemetery, no archaeological features were visible, though the landform was accessible for a further c. 700 m before reaching the steep banks of the Amali River that flows into the Tergi. No crossing point of the Amali River valley was located.

10.4.2. The Devdoraki and Amali Valleys

The Devdoraki and Amali Valleys connect the Devdoraki Glacier to the Tergi River Valley via the Devdoraki and Amali Rivers (see Fig. 10:1). The Amali River is deeply incised. Landslides along this course appear to occur on average every few years or so (most recently with devastating effect in 2014 and 2015) and are caused when large amounts of ice break away from the glacier (compare Figs 10:8–9). Similar events are described by nineteenth century travellers.[51] The northern side of the west–east running valley has steep sides and is highly inaccessible. However, south of the Amali River (beginning from nearly 3 km west of where the valley meets the Tergi River Valley) is a gently sloping plateau c. 300–400 m wide. At its eastern end, this landform sits roughly 20 m above the Amali and Tergi. Two small lakes are located at the eastern end of the valley. Another small lake is also located at the western end of the valley.

The valley was surveyed from its eastern edge above the Tergi to a point c. 2 km into the valley. Due to the proximity to the border, we did not survey further into the valley. However, satellite images and map data indicate isolated features beyond this point that appear to represent single ruined structures. These are on, or near, the route through which the glacier is accessed.[52]



Fig. 10:8: The Amali Valley looking west toward the glacier in 2013. Photo by Dan Lawrence.



Fig. 10:9: The Amali Valley looking east in 2016 following the landslide. Drone Photo by Davit Naskidashvili.

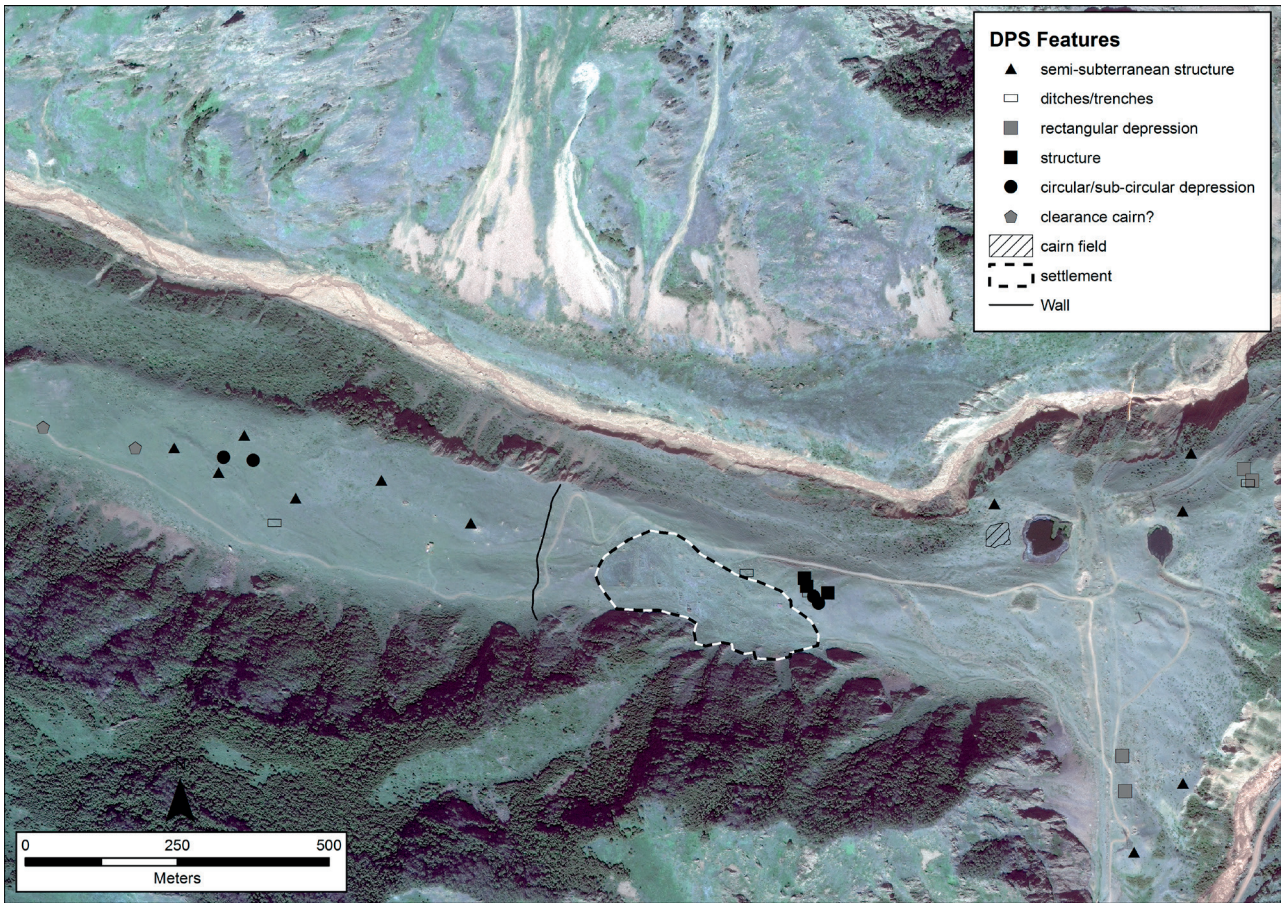


Fig. 10:10: Map of the features recorded in the Amali Valley. This includes a settlement (DPS-5) indicated by the broken line and associated features within the valley. Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).

Within the area of pedestrian survey, remains of a settlement and various other stone and earth installations were located and designated as DPS-5 (Fig. 10:10). The settlement and associated enclosures are located approximately 750 m into the valley from the point where it intersects with the Tergi River Valley. Some of the structures appear to have been out of use for a considerable period of time, although repairs to a few of the buildings speak of some reuse in the recent past, a view supported by the presence of modern refuse at the site; the structures would not have been suitable for anything beyond temporary shelter during the summer months. However, we did not encounter anyone at or near the village during the survey. Approximately 100 m north from the western edge of the settlement are the remains of a wall that runs across the plateau from south to north, ending where it meets the southern bank of the Amali River. The wall is positioned near the break of slope above and to the west of the village. The ruined state of this feature makes it difficult to estimate its original height, but it may have been used to keep animals in or out of upper pastures. While the lower portion of the wall is likely buried, it would not have been of sufficient height to serve a defensive purpose (Fig. 10:11). Equally, its narrow width and construction technique suggests it was primarily a field wall, though the stones used in construction are of considerable size for such a purpose. It is possible that it also acted as a boundary marker or served some purpose connected to local disputes in the eighteenth or nineteenth century (see below).

Circular or oval pits of generally between one and five metres in diameter, sometimes connected by linear depressions, were also located throughout the valley, along with a number of rectilinear, stone lined (sometimes employing mortar) semi-subterranean features (Fig. 10:12). These too, often had a linear depression leading to/away from them. The rectilinear semi-subterranean features were roughly five metres in diameter and had a 'window' or gap in the stone-work set into the end opposite to the linear depression. Local residents suggest that the rectilinear features, at least, may have served as foxholes during conflicts in the eighteenth and nineteenth century. It is possible that the circular or oval depressions may have been used similarly or have had an altogether different purpose.

We also located what appeared to be a group of cairns in a prominent location to the west of the larger of the two lakes at the eastern end of the valley (Figs 10:13–15). In 2016, our fieldwork team undertook a detailed survey of



Fig. 10:11: The settlement of Daba in the Amali Valley. The wall which spans the width of the valley is visible in the mid ground parallel to, and in front of, the modern track. Photo by Dan Lawrence.



Fig. 10:12: Semi-subterranean features in the Amali Valley. Photo by Seth Priestman.



Fig. 10:13: Location of the cairn field next to the lake. Drone Photo by Davit Naskidashvili.



Fig. 10:14: Closer view of the cairn field in the Amali Valley. Drone Photo by Davit Naskidashvili.

these features. A total of 68 certain or probable cairns were identified. Each feature was described, photographed and its extent recorded with a Total Station. The cairns varied in size, with the majority being 1–3 m in diameter.[53] There is no obvious trend in their orientation. The majority of the cairns were rectangular or sub-rectangular in shape, though irregular, circular and sub-circular morphologies were also recorded.

Due to their clustering and placement in a prominent location, above the zone affected by landslides, we suspected that they might be burial cairns. Approximately 700 m south of the entrance to the Amali Valley, a



Fig. 10:15: One of the cairns in the Amali Valley. Photo by Kristen Hopper.

cemetery was excavated by Mindorashvili in the 1990s and dated to the late antique period.[54] Consisting of cist burials, these graves were markedly different, and suggested that the cairns in the Amali Valley, now shown to be unrelated to any burials, may be of another date. However, in the case of the cairns in the Amali Valley we found no obvious structural features.

Excavation of two of the cairns has not revealed any evidence for any form of burial.[55] Clearance cairns, resulting from the clearing of agricultural fields, are found throughout the region, but are generally less uniform in size and are almost always located in proximity to features such as terraces, or field walls. No evidence for ancient or recent cultivation as represented by field systems was evident in the Amali Valley. While it is not impossible that the cairns in the Amali Valley could have resulted from field clearance, it seems strange that in an area replete with rocky ground, such features would be limited to this hilltop, if the goal was to clear the surrounding area for cultivation. The function of these features currently remains a mystery.

Local informants indicated that the settlement located in this valley was called Daba, and people used to reside here with their herds during the summer months. Writing in the eighteenth century, Vakhust'i Batonishvili (Bagrationi) indicates that there was a place north of Gergeti called Gveleti, that was formerly called Daba;[56] however, Itonishvili[57] indicates that at some point, Daba came to be the name of the place located c. 2 km to the north of the village of Gveleti, where animals were brought to graze, and would seem to correspond to the location visited in our survey.

Indeed, the keeping of large herds of sheep in the Dariali region during the summer months appears to have been common up until 1991. Independence from the Soviet Union, insecurity and the resulting establishment of national borders meant that winter pastures, located in Dagestan, were no longer assessable to the inhabitants of this region bringing an end to this transhumance system.[58] As a result, herd sizes have declined dramatically in many parts of Georgia since 1997.[59] While we encountered a few cows and horses near the location (but no sheep or goats), there did not appear to be any intensive use of this landscape for grazing during the visits we made to the site in June and July of 2013 and 2014. It seems possible that the Amali Valley may have been used predominantly for

summer grazing over the long term, a supposition supported by the lack of clear evidence for investment in agriculture (*i.e.* terraces or field walls). Frequent landslides that appear to follow the course of the Amali River may have also influenced land use, as despite the fact that the more elevated areas of the valley may have been out of reach of such landslides, cultivation and even permanent settlement on this landform may have been perceived as risky.

10.4.3. Fortifications and settlements along the Tergi River Valley

Here we present a brief overview of the main settlements, fortifications and landscape features that were recorded by the field survey between the Amali Valley and the junction of the Truso and Tergi River Valleys. Three sites were visited in the Dariali Gorge, between the Amali Valley and Stepantsminda/Gergeti. The steep-sided gorge, and the fast-flowing river have created conditions under which settlement and cultivation are limited to the raised west bank of the river near Gveleti (extending along the Tergi River Valley immediately south of the Amali Valley) and several high plateaus (c. 1,800 to 2,100 m) also on the west side of the gorge.

10.4.3.1. Gveleti (DPS-1 to DPS-3)

Gveleti Settlement (DPS-1) is located at the confluence of the Tbitstskali (Gveletistskali) and the Tergi Rivers (Fig. 10:16). The site consists of the ruins of a settlement and the remains of a tower (Figs 10:17–18). A few modern houses are located at the northern extent of the village, but did not appear to be occupied at the time of the survey, though hay is still harvested in the vicinity. The tower, square at its base and surviving to a height of around 6 m, is constructed of large roughly square blocks held together by mortar, and tapers as it increases in height. Only two corners of the tower survive (roughly east and west) (Fig. 10:18). Lyall[60] described 'numerous villages, with square pyramidal towers, and surrounded by walls' particularly on the west bank of the Tergi; he notes that these towers were no longer in use at the time of his travels in the early nineteenth century. This tower may well be one of this type. Several other features including an enclosure and a possible cist grave were located c. 100 m further west in the side valley (WPs 83–86), on the same side of the river as the village. A church, with remains of frescoes dated to at least the thirteenth/fourteenth century, is reported to be located on a hill north of the village, briefly visited by a member of the team.[61] There is a second small church with a crypt located on the Lower Gveleti Fort identified by Mindorashvili and explored by the fieldwork team.[62]

Across the stream and overlooking the village from the south are two fortifications (DPS-2). Sitting atop high promontories overlooking the Tergi, access to these forts (henceforth referred to as the Upper and Lower Gveleti Forts) is achieved through the side valley mentioned above. The ruins of two towers are mentioned by Mak'alatia[63] at Gveleti, but it is uncertain if this refers to the tower in the village and/or the Upper and Lower Gveleti Forts.

Various archaeological features were recorded in the valley leading up to the main fort including several small stone walls and a walled cave (DPS-3) (Fig. 10:19). Excavations were carried out on the Lower Gveleti Fort and are described above. Radiocarbon dates indicate that activity took place at the lower fort between the late eighth and tenth century, the late tenth and thirteenth century, the late thirteenth and early fifteenth century and the mid-fifteenth and seventeenth century.[64]

The relationship between the forts, and the settlement and tower is unknown. No ceramics were located by the survey due to thick vegetation. A village called Gveleti is mentioned in the document *Gergetis sulta matiane* dating to the fifteenth century.[65] Vakhusht'i Bagrationi, an eighteenth-century geographer, also mentions Gveleti, locating it on the west bank of the Tergi between Gergeti and Dariali.[66] Gveleti was occupied by people from Ingushetia in the nineteenth century and Mokhevians from Tsdo and Kazbegi (Stepantsminda) in the twentieth century.[67] By 1926, the village had only 14 inhabitants comprising four households, though some people from Khevi had summer dwellings and kept animals here.[68] The better state of preservation of the houses and structures observed in the village, suggest that these belong to its most recent incarnation, and they may be of a substantially different date to the tower and forts. Indeed, while we cannot offer a more specific date for many of these features, it is likely that this is a post-medieval village.

A saddle running roughly north-east to south-west sits between the steep rock wall of the gorge and the spurs on which the upper fort at Gveleti is located. Immediately beyond this to the south we located a small rubble retaining wall, perhaps blocking access to the forts from the south (WP-44). After crossing this wall, one finds a small 'goat track' running south along the steep hillside toward the village of Tsdo (see below). Approximately 200 m along the track from the wall that was mentioned above is a small square stone structure that may have acted as a lookout (WP-46) (see Fig. 10:16).

10.4.3.2. Tsdo (DPS-6)

Continuing southwards the next settlement is the village of Tsdo (DPS-6) (see Fig. 10:5 for location). The village and an associated terraced field system[69] sit in a slight depression between the gorge wall proper and a high ridgeline whose eastern edge drops sharply toward the Tergi. The site is accessed from the south via a switchback. At present, the village appears only to be occupied during the summer months by a handful of families. Census information from 1926 indicates that that Tsdo had 31 households and a population of 161;[70] however, over the course of the twentieth century Tsdo, like many

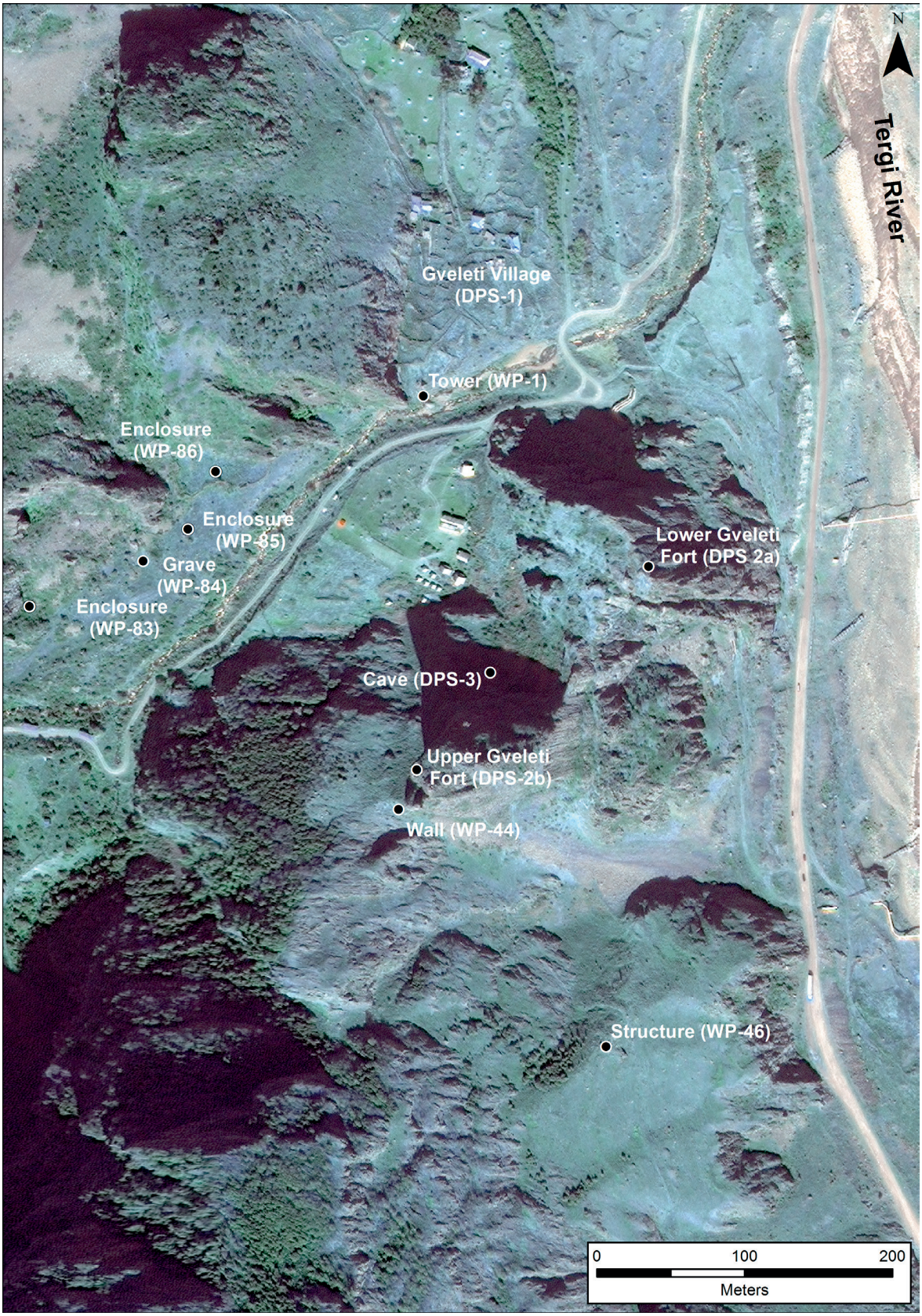


Fig. 10:16: Map of features near Gveleti). Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).



Fig. 10:17: Gveleti Village, looking north. Photo by Seth Priestman.



Fig. 10:18: Ruins of tower at Gveleti. Photo by Kristen Hopper.

of these small villages in Khevi (particularly ones at higher altitudes) were abandoned and the populations moved into towns (such as Stepantsminda) or to larger cities elsewhere.[71]

Interspersed with the modern houses are the remains of what are clearly older stone architectural features; these are more frequent as one ascends the ridge line (Figs 10:20–21). On top of the ridgeline the ruins of



Fig. 10:19: The approach to Gveleti Fort. The holiday camp is in the foreground. The walled cave is indicated with an arrow. Photo by Kristen Hopper.

numerous stone structures are found, including on the highest point, what appeared to be a small fortification, or perhaps even a tower (Figs 10:22–23). The tower is roughly rectangular, forming a room of 8 × 4 m. Further walls are visible on the same level as the tower, extending to the south and forming an L-shaped complex of structures. Below the tower are numerous roughly circular enclosures. Mak'alatia[72] indicates that by the earlier twentieth century the ruins were part of a chapel called Kviregvtisshvili, and a tomb was located nearby. A stone ram sits on one of the walls of the fortification (Fig. 10:22). An Orthodox Christian shrine is also found on the western edge of this complex (Fig. 10:23). A village of this name is mentioned in a fifteenth-century document of Sakdrishvili of Gergeti (*გერგეტელ საყდრიშვილთა XV საუკუნის საბუთი*, translit. *Gergetel Sakdrishvilta XV saukunis sabuti*).[73]

10.4.3.3. DPS-8 and the Chkheri Valley

The remains of another possible settlement and a terraced field system (DPS-8) were located c. 1.8 km south of Tsdo on a high plateau (see Fig. 10:5 for location). This site consisted of a cluster of stone walls and structures near the northern edge of the plateau and an extensive terraced field system (including field walls and clearance cairns) (Figs 10:24–25).[74] The structures suggest that the settlement may have only consisted of a few households. While there was no evidence of recent settlement, hay is still harvested and horses grazed on the plateau (clear from the false colour infrared WorldView-2 image and observations made in the field – Fig. 10:26). Itonishvili[75] indicates that an abandoned village called Kobi or Kvabi (*ქობი/ქვაბი*),[76] which is named in textual sources from the second half of the eighteenth century, was located on a plateau to the south of Tsdo. From this description it is probable that DPS-8 is Kobi (Qvabi). If so, it seems that the site was abandoned at least by the 1920s, as it was not mentioned in Mak'alatia's[77] list of villages in the Tergi River Valley from 1926.

Access to this site is extremely difficult from the north, despite the existence of a rough path. Interestingly, built into the steep rock face on the north approach, we located a small square stone structure that could have served numerous purposes including that of a lookout. Easier access was achieved from the south, where the plateau could be ascended from the north bank of the Chkheri River, near the village of Gergeti, via a steep footpath. However, no vehicle access is possible. The difficult access to the site may account for its relatively early abandonment and lack of later resettlement.

A number of enclosures are also visible along the left (north) bank of the Chkheri. These could be relatively



Fig. 10:20: The Village of Tsdo looking north-west. Photo by Dan Lawrence.



Fig. 10:21: Ruins of earlier structures between the modern houses at Tsdo. Ruins are also visible on the ridgeline in the background. Photo by Seth Priestman.



Fig. 10:22: The fortified building or tower on the outcrop above Tsdo overlooking the Tergi River. A stone statue of a ram is visible on top of the wall. Photo by Dan Lawrence.



Fig. 10:23: Left: the tower-like structure at Tsdo (with ram) and the modern shrine (white stone structure). Photo by Dan Lawrence.

recent and probably served to keep animals out of areas where fodder is harvested for winter. On a high promontory, further into the valley, several structures were identified through the inspection of satellite imagery and Soviet maps and designated as DPS-52 (Fig. 10:27). A complex of rectilinear rooms was confirmed in the field during a visit to the site in 2017 by Przemysław Polakiewicz, a member of our team. The exact function or date of this feature is not currently known, though its location along the river valley immediately north of Gergeti (see discussion below) may indicate that it functioned as some kind of fortification, lookout or refuge.

10.4.3.4. The Tergi River Valley (Stepantsminda/ Gergeti to Lower Ukhati/Kobi) and the Sno Valley

South of where the Chkheri River flows into the Tergi, the Tergi River Valley widens considerably. Porter[78] describes the change in terrain well:

> We descended gradually into a wide valley, crossing the Terek [Tergi] over a wooden bridge, at no great distance from the village. Here the river totally lost its rapidity and violence, flowing gently through the vale, which its refreshing waters covered with the finest verdure. The bordering mountains, also, at this part, showed luxuriant green, clothing the numerous ravines which indented their sides, and gave shelter to clusters of picturesque huts, inhabited by Ossitinians, and usually drawn around the remains of some old stone tower, which, in ancient days, had commanded and protected these minor passes from the inroads of hostile tribes.

On its west bank sits the village of Gergeti which is overlooked by the famous Gergeti Church and Monastery, built in the fourteenth century[79]. Immediately across from Gergeti, on the east bank of the Tergi, is the town of Stepantsminda, formerly known as Kazbegi. The most famous archaeological find from this region, the Kazbeg Treasure, was excavated in the village in 1877. The 'treasure' included several hundred metal objects, including an Achaemenid-period silver bowl that has been dated to the sixth/fifth centuries BC. Unfortunately, the site was looted during the excavations and many objects were dispersed among private collections and museums.[80] The context of these finds is in dispute, however, and it is not certain if the objects were associated with a burial.[81] Other excavations also took place in the latter half of the nineteenth century in and around the village; the finds appear to range from the first century BC/first century AD through to the Middle Ages. The most recent work appears to have been undertaken in the 1960s during which several late medieval burials were uncovered.[82] The archaeological evidence, though perhaps biased by the attention that has been focused in this vicinity, suggests that this may have been a favourable location for settlement over the long-term, likely due to the availability of flat or gently sloping land.

Itonishvili[83] indicates that the modern settlement of Stepantsminda is composed of two earlier villages – Kazbegi and Targmani. While many of the sites discussed thus far have either been abandoned or seen reductions in population over the course of the twentieth century, Stepantsminda has grown in size. A comparison of the historical and modern imagery clearly shows that settlement has expanded south into an area that appears to have formally been covered by field systems (see Fig. 10:4). We did not attempt to survey within the limits of Stepantsminda because the modern town would have destroyed or obscured all surface archaeological remains. We did, however, undertake a detailed recording of the field systems located immediately north of the settlement (DPS-9) which is described below.[84] In future, survey to the east and south of Stepantsminda should be prioritised, and development in the town requiring sub-surface work should be monitored.

Southwards from the vicinity of Stepantsminda and Gveleti our survey was more selective and focused mainly on recording terrace field systems (discussed below). However, we also made brief visits to several abandoned settlements and towers/fortifications. We recorded the remains of a possible settlement and burials (DPS-16) on a gentle slope above the modern village of Kanobi (see Fig. 10:5 for location). The moderately high but flat valley on which the village and site sit is bounded on the south by the deeply incised Tergi River Valley and to the east by another deeply incised river valley, with steeply sloping banks that flows into the Tergi. Little is visible of the old Kanobi either on the imagery or on the ground. Two low mounds were visible approximately 30 m apart, but the height of the vegetation may well have obscured less obvious features (WP663-WP664) (Figs 10:28–29). The north-east edge of the site is marked by a steep drop of nearly 30 m to the river valley below. Here, walls and/or structures were found eroding out of the section, approximately 20–50 cm below ground level (WP662). Further north (c. 40 m) along the section, a cist grave was visible, and a second was noted another c. 40 m northwards (WP665-WP666).

Near the southern extent of the survey area, we also visited the site of Ukhati (DPS 17), which sits on a high gently sloping plateau above the Tergi floodplain (see Fig. 10:5 for location). There is a sharp drop towards the river on the west side of the plateau. The site is backed by steep mountains to the east. To the south of the site is a deeply incised valley containing the Narvani River that flows into the Tergi. On top of the plateau were the remains of what appears to be a field system, several circular depressions and the remains of a village. Several modern houses appear to be in use, at least seasonally. The topography of the site is reminiscent of sites such as Tsdo (DPS-6) and DPS-8, and it sits at a similar altitude (c. 2,100–2,150 m), though clear traces of terracing were not located. Terracing, however, might not have been needed on this wide, gently sloping plateau.



Fig. 10:24: Structures at DPS-8. Possibly the remains of the settlement called Kobi (Kvabi). Photo by Dan Lawrence.



Fig. 10:25: Wall and other features at DPS-8. Photo by Dan Lawrence.

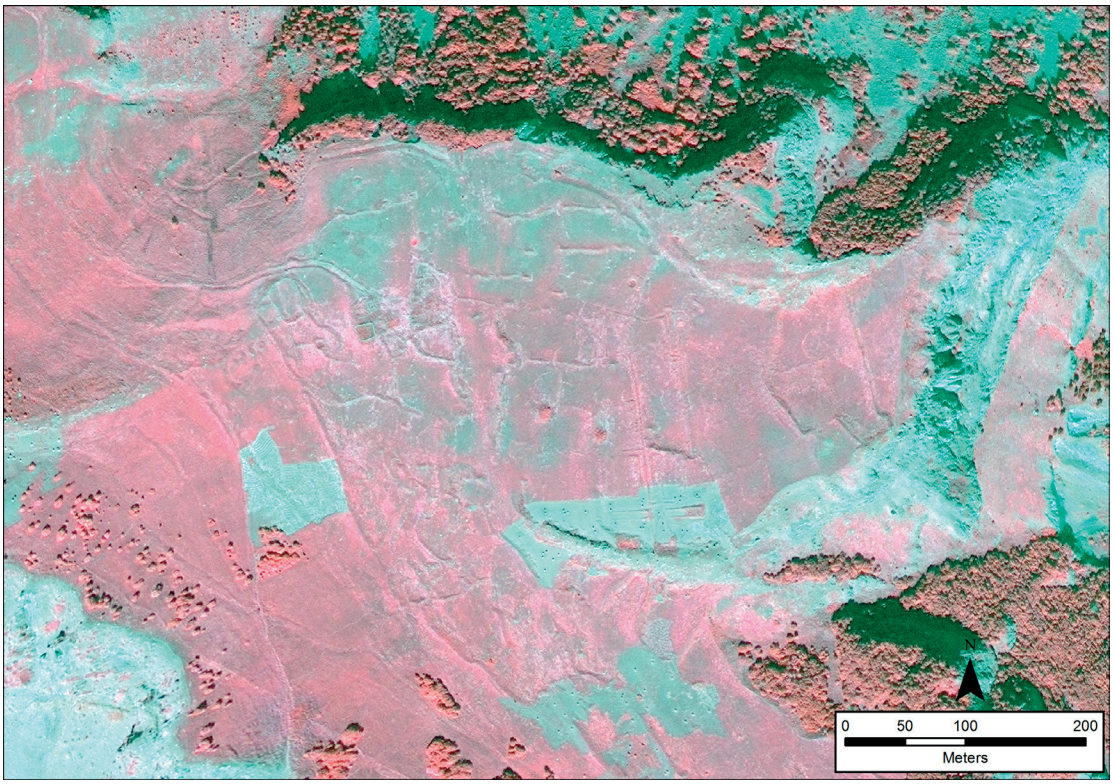


Fig. 10:26: A false colour infrared (NIR1, R, G) image of fields in the vicinity of DPS-8. Vegetation appears bright red, while the recently harvested fields appear grey. Hay bales (visible as small light coloured dots) are visible within the harvested fields in the bottom centre of the image. Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).



Fig. 10:27: Photos of structures on hill in the Chkheri Valley (DPS-52) looking toward Stepantsminda. Photo by Przemysław Polakiewicz.



Fig. 10:28: Low mounds in field at Old Kanobi (DPS-16). Photo by Kristen Hopper.

10.4.3.5. Towers

Towers were noted as a prominent and already antique feature of the Tergi River Valley by the first half of the nineteenth century .[85] Examples, such as that at Gveleti have already been mentioned. The remains of towers are also found in Stepantsminda and Gergeti. These features have been commented on by travellers, ethnographers and archaeologists for much of the twentieth century.[86] Most recently, Mindorashvili[87] and his team, during their investigations in their valley between 1988 and 1991, surveyed a number of towers, and made observations on trends in morphology and broad periodisation. However, dating these features is difficult because of the lack of independent dating materials and our limited understanding of the nature and significance of local architectural changes through time.

We visited a number of these tower features during our survey. The majority were associated with settlements (ruined or still extant). These features (along with several that were not visited in the field but are known from other sources) are summarised in Table 10:2. Both semi-circular and square towers are found in the region and may have served as watchtowers or refuges. The semi-circular towers are generally dated to an earlier period (early medieval) than the square ones; this appears to be based on architectural comparisons to examples from other regions.[88] Some of the towers (*i.e.* the ones in Pansheti, Sno and Sioni) are said to have been built by prominent families as places of refuge and are likely the latest in date (Table 10:2; Figs 10:18, 10:30–38).[89] Did any of the fortifications and towers in the Tergi or Sno River Valleys form an integrated system? Without knowing which towers were contemporary, this is difficult to tell. At this point, we can only say for certain that there was contemporary activity on Dariali Fort and Gveleti Fort, likely in the eighth to tenth or early eleventh centuries and again in the late thirteenth to fourteenth century. None of the surviving dated architecture on Gveleti Fort is earlier than the fourteenth century, even if it seems likely that there were earlier collapsed or demolished dry-stone structures.[90]

Studies evaluating the visibility and inter-visibility of sites and features within an archaeological landscape have provided interesting insights about interconnectivity, particularly in the context of defensive landscapes.[91] While more rigorous models can be applied with the improvement of the data, we evaluated the possibility of an integrated tower communication system by undertaking a visibility analysis in a GIS. A visibility analysis determines the areas of the landscape that are visible from a chosen point (observer point); in this case, the observer points are the towers. An SRTM 30 m DEM was used for determining the height of the terrain. The tower locations were determined either from GPS coordinates taken in the field or from satellite imagery; the margin of error for the former is c. 5–10 m, while it can be up to 30 m for the latter. Furthermore, the original height of most of the towers is difficult to determine given their ruined state, however, a number (*e.g.* Khurtisi, Pansheti 1, Sioni) are over 10 m tall (and in some cases, almost 15 m). Taking this into account, along with the resolution of the DEM, and the lack of information on the original height of the towers, we varied both the observer height (10 m, 15 m

Table 10:2: Towers in the Tergi and Sno River Valleys visited by the DPS (and other selected examples).

Location	*ID*	*Description*	*Associated settlement and other context*	*Dating*	*Visited*
Gveleti Village	DPS-1	Square base, tapering as it increases in height. Dry-stone. Much of the tower has collapsed, so height cannot be estimated, >5 m	Tower associated with ruins of village; Gveleti Forts located immediately across river to the south	Late medieval?	Yes (Fig. 10:18)
SW of Gergeti		Semi-circular	Located SW of Gergeti. Freestanding, not associated with other structure	Not established	no
Stepantsminda		Remains of two towers are said to be located in Stepantsminda – Guguet and Zaliet. Both have a square base, tapering as they increase in height (Itonishvili 1984, 12)	Within the limits of the modern town	Seventeenth/eighteenth century? (Itonishvili 1984, 11)	no
S of Stepantsminda	DPS-86	Remains of a circular tower with attached fort. The tower is preserved to a height of c. 8 m, tapering as it increases in height. Dry-stone construction	South of and overlooking Stepantsminda	Not established	Yes (Fig. 10:30)
Pansheti	DPS-13a	Square base, tapering slightly as it increases in height. Lower tower – c. 8 m high. Employs mortar	Associated with old village of Pansheti, which is to the north of the current settlement (Itonishvili 1971, 102)	Not established	Yes (Fig. 10:31)
	DPS-13b	Square base, tapering slightly as it increases in height. Upper tower – c. 12 m high on the side facing the slope. Employs mortar. Survives to full height			
Arsha	DPS-20	Ruins of fortifications with towers, one rectangular and one rounded	Amongst other ruined buildings, built into a hillside near Gaiboteni, across the river from the modern village of Arsha. This is likely the old village of Arsha which is said to have moved across the river in the 1930s (Itonishvili 1984, 18)	Sixteenth/seventeenth century (but possibly older *e.g.* ninth/tenth century (Itonishvili 1984, 19); A fort at Arsha is mentioned in seventeenth text (Bagrationi) (Itonishvili 1984, 19)	Yes (Fig. 10:32)
Sioni	DPS-14	Square base, tapering as it increases in height. Employs mortar. Survives nearly to full height (>10 m)	Located on the east bank of the Tergi, on a high spur overlooking the village. The tower sits on the north-west edge of the spur overlooking the highway. The church is approximately 100 m south-east of the tower on the same spur	The church was built in the ninth/tenth century (Itonishvili 1984, 24; Zakaraia 1972, 45). The tower has been dated to the late medieval period (Itonishvili 1971, 88)	Yes (Figs 10:33–34)

Table 10:2: (Continued)

Location	*ID*	*Description*	*Associated settlement and other context*	*Dating*	*Visited*
Khurtisi	DPS-18	Semi-circular tower. The walls are 1–1.5 m thick. The tower is built into the outcropping rock on the east side. The base of the tower is built 3 m lower on the west side. At least c. 15 m high	Khurtisi Tower is located next to a Church on an outcrop above and to the north east of the village of Khurtisi	Sixteenth-seventeenth century (Itonishvili 198, 27)	Yes (Fig. 10:35)
Near Lower Ukhati/Kobi	DPS-19a	Ruins of circular/semi-circular tower. Constructed using large stones and mortar. On the south-east end of the outcrop, surviving to approximately 3–4 m high	Towers sit on a prominent forested outcrop which overlooks the valley between the Baidara River and the Narvani River immediately south of where they converge with the Tergi. A church is nestled between the two towers	Not established	Yes (Fig. 10:36)
	DPS-19b	Remains of square tower base. Constructed using large stones and mortar			
Achkhoti	DPS-21	Square base (c. 5 m in diameter), tapering as it increases in height. Dry-stone. There is an arched window in the north-west side of the tower. The south-east side has almost completely collapsed	Located on an outcrop above the modern village of Achkhoti. The village of Achkhoti is relatively recent (twentieth century), prior to this there was only a tower in this location (Itonishvili 1984, 20)	Not established	Yes (Fig. 10:37)
Sno	DPS-15	Both a fort and tower are referenced in Sno (Mak'alatia 1934, 121–22). The tower is square at its base, tapering slightly at its top; it appears to have had several phases of construction/repair	The DPS survey visited the prominent tower which is set on a large rock outcrop in the middle of the village	Seventeenth century or earlier (Itonishvili 1984); Sixteenth or seventeenth century (Zakaraia 1972, 52)	Yes (Fig. 10:38)

Table 10:3: Percentage of total number of towers and fortifications in the sample that can see 0, 1, 2, or 3 other towers or fortifications in the Tergi and Sno River Valleys.

Number of other towers observed	*10 m observer height, no surface offset*	*10 m observer height, 10 m surface offset*	*15 m observer height, no surface offset*	*15 m observer height, 10 m surface offset*	*20 m observer height, no surface offset*	*20 m observer height, 10 m surface offset*
0	31%	19%	19%	13%	19%	13%
1	25%	25%	38%	25%	25%	19%
2	38%	38%	38%	38%	50%	44%
3	6%	13%	6%	19%	6%	19%
4	0%	6%	0%	6%	0%	6%

and 20 m) and the height of the surface being observed (ground level, 10 m above ground level as represented by the DEM). Bearing these caveats in mind, several observations can be made.

According to the visibility analysis, most of the towers were in view of at least one other tower. The exceptions were Dariali Fort and Gergeti Tower, from which no other tower was visible at any observer height. For Dariali Fort, it is clear that the parts of the landscape that were visible were almost exclusively to its north and east, regardless of the change in observer height (Fig. 10:39). If, as suggested by travellers to the region in the nineteenth century, the gorge was in places much narrower in the past, this view would have been further restricted, likely to the east and south in particular. This clearly demonstrates that Dariali Fort was built to guard the pass against enemies coming from the north. The lack of inter-visibility of Gergeti Fort with any other tower is perhaps explained by our lack of knowledge of the location of the towers in Stepantsminda – it seems likely that they would have been able to see or have been seen by the tower at Gergeti since this is straight across the valley.

Depending on observer height and the height of the object being observed, between 44% and 69% of towers/fortifications could see at least two other sites. However, in many cases where this occurred, at least one of the visible sites was in the immediate vicinity of the observer point (*e.g.* < 50 m away), or the two towers that could be viewed were in proximity to each other (< 50 m apart) (*e.g.* Pansheti Tower 1 can see Pansheti Tower 2, or Khurtisi Tower can see both of the towers on the outcrop south of Lower Ukhati/Kobi) (Tables 10:3–4).

The viewsheds for the Upper and Lower Gveleti Fort do not differ dramatically, though the higher position of the Upper Gveleti Fort offers slightly wider views. The current dating evidence suggests that Dariali Fort was occupied earlier than the Gveleti Forts, though they may have been used contemporaneously in the late thirteen or early fourteenth century (and perhaps sometime between the eighth-tenth century). However, it does not appear that inter-visibility between these two specific structures was ever a major consideration, although other stations, possibly positioned at higher elevations, could have enabled communication.

Both the upper and lower fort at Gveleti can see the entrance to the Amali Valley. Interestingly, the fortlet/tower, at Tsdo is just visible from both Gveleti Forts at multiple observer heights, assuming that the tower at Tsdo was at least 10 m high; this was confirmed by observations in the field in which it was clear that the ridgeline on which the Tsdo fort/tower site was visible from Upper Gveleti Fort. From the opposite direction, a viewer in Tsdo tower (at a 15 m observer height) would have been able to see the Upper Gveleti Fort. Even so, it is difficult to determine if Tsdo tower and the Upper Gveleti Fort were ever in direct visual communication as we do not know if the towers/fortifications at these sites were ever contemporary. Tsdo Fort is however, clearly visible from the tower to the south of Stepantsminda, but the Gveleti Forts are not. Factoring in the towers that were said to exist within Stepantsminda itself (for which we do not have location data) could of course, change our perspective on inter-visibility even more. The possibility that such towers could be seen from Tsdo is highly likely, but it is unlikely that they would have been seen by either the Upper or Lower Fort at Gveleti, or by the Gveleti Village Tower. Furthermore, the towers in Stepantsminda may have been considerably later in date than the Gveleti Forts. Most of the other towers and fortifications conform to a similar pattern in that they can see none, one, or two other towers. The overall impression is that these features were placed in defensible positions with good views of their immediate surrounding territory, but were not part of an integrated long-distance signalling or defensive system (even if there might have been short local chains).

This may suggest that in many cases, towers and fortifications were focused on a 'community territory', a concept defined by Given and Hadjianastasis in their study of Cypriot landscapes of the Ottoman period.[92] The community territory is composed of 'networks of places and meanings' the limits of which are defined by daily activities and interactions with the landscape.[93] For instance, a community territory is demarcated not just by the edge of a settlement, but by the limits of daily movement such as trips to fields or pastures, or by the distances that voices or church bells carry from the village. Furthermore, they observed that in the case of the Ottoman villages of the Troodos Foothills, this community territory was often defined by relief and possibly the lack of inter-visibility between the communities.[94]

However, in certain cases more localised integration of the towers and fortifications can be suggested. For example, the towers with the widest views (and which can see the most other towers) are Achkhoti, which is situated at the juncture of the Tergi and Sno River Valleys and the tower/fort south of Stepantsminda. The former has excellent views, can see several other towers and was not clearly associated with a settlement.[95] This suggests that the function of Achkhoti Tower was to monitor traffic coming from the north and access to the Sno Valley. The tower south of Stepantsminda, again, freestanding (as in not within a settlement), also appears to have functioned as a way of monitoring traffic, in particular coming from the south up the valley, and could have been in communication with Tsdo, Panshetti or Arsha/Gaiboteni.

In summary, the limited inter-visibility between Dariali Fort and Gveleti Forts (the towers in the Tergi and Sno River Valleys with evidence for use in similar periods) provides no evidence for an integrated regional defence system involving these towers in those specific periods. However, with further refinements to chronological and spatial data and the application of rigorous statistical

Table 10:4: Inter-visibility between towers/fortifications in the Tergi and Sno River Valleys.

Observer	*Height (m)*	*Dariali Fort*		*Gveleti Village Tower*		*Gveleti Upper Fort*		*Gveleti Lower Fort*		*Tsdo Tower*		*Gergeti Tower*		*S. Stepants. Tower*		*Pansheti Tower 1*		*Pansheti Tower 2*		*Gaiboteni/ Arsha Tower*		*Sioni Tower*		*Khurtisi Tower*		*Tower S of Kobi 1*		*Tower S of Kobi 2*		*Achkhoti Tower*		*Sno Tower*	
Surface Offset (m)		0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Dariali Fort	10																																
	15																																
	20																																
Gveleti Village Tower	10																																
	15																																
	20																																
Gveleti Upper Fort	10																																
	15																																
	20																																
Gveleti Lower Fort	10																																
	15																																
	20																																
Tsdo Fort	10																																
	15																																
	20																																
Gergeti Tower	10																																
	15																																
	20																																
S. Stepants. Tower	**10**																																
	15																																
	20																																
Pansheti Tower 1	**10**																																
	15																																
	20																																

Table 10:4: Inter-visibility between towers/fortifications in the Tergi and Sno River Valleys (Continued)

Observer	*Height (m)*	*Dariali Fort*		*Gveleti Village Tower*		*Gveleti Upper Fort*		*Gveleti Lower Fort*		*Tsdo Tower*		*Gergeti Tower*		*S. Stepants. Tower*		*Pansheti Tower 1*		*Pansheti Tower 2*		*Gaiboteni/ Arsha Tower*		*Sioni Tower*		*Khurtisi Tower*		*Tower S of Kobi 1*		*Tower S of Kobi 2*		*Achkhoti Tower*		*Sno Tower*	
Surface Offset (m)		0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10
Pansheti Tower 2	**10**																																
	15																																
	20																																
Gaiboteni/ Arsha Tower	**10**																																
	15																																
	20																																
Sioni Tower	**10**																																
	15																																
	20																																
Khurtisi Tower	**10**																																
	15																																
	20																																
Tower S of Kobi 1	**10**																																
	15																																
	20																																
Tower S of Kobi 2	**10**																																
	15																																
	20																																
Achkhoti Tower	**10**																																
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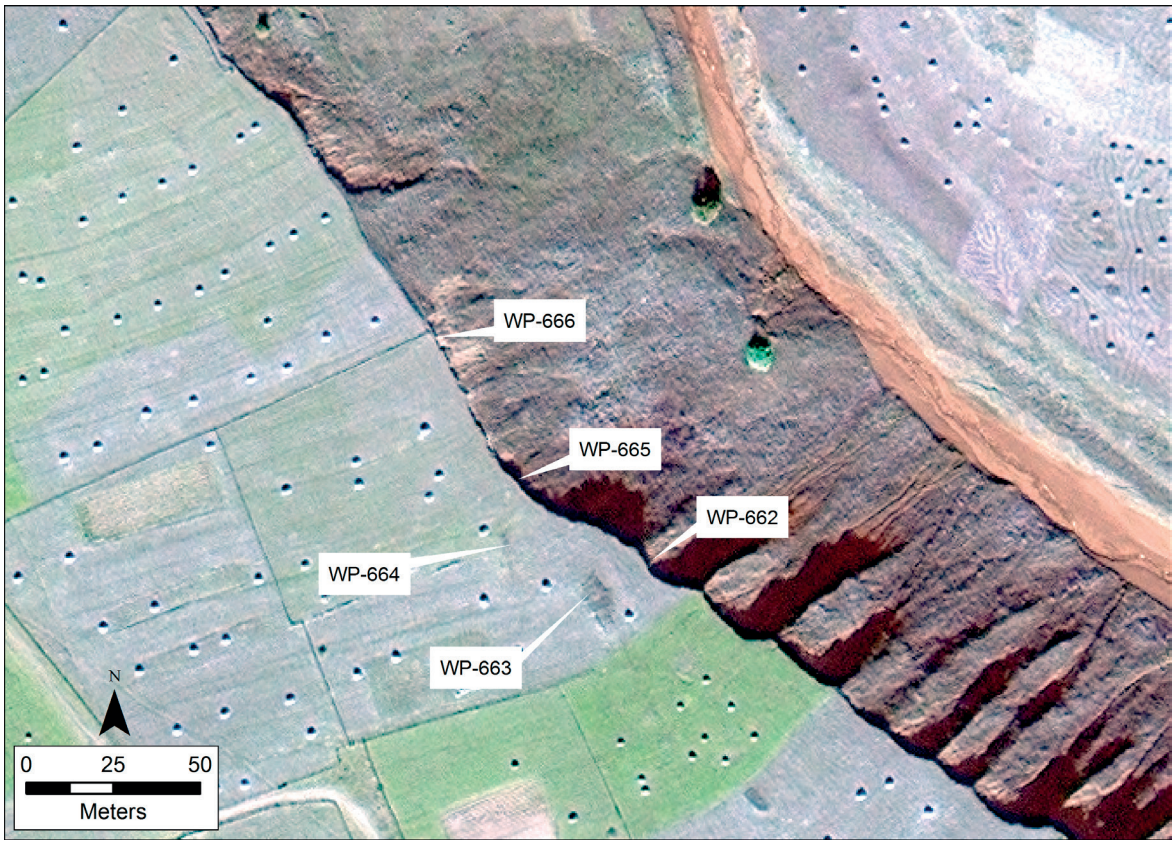


Fig. 10:29: Features recorded at DPS-16 (Old Kanobi). Imagery: WorldView-2 acquired 1 October 2012 (© DigitalGlobe, Inc. All Rights Reserved).



Fig. 10:30: Tower south of Stepantsminda. Photo by Eberhard Sauer.



Fig. 10:31: Towers in Pansheti. Photo by Kristen Hopper.



Fig. 10:32: Arsha Fort. Photo by Kristen Hopper.



Fig. 10:33: Sioni Tower and church view. Photo by Dan Lawrence.



Fig. 10:34: Sioni Tower. Photo by Kristen Hopper.



Fig. 10:35: Khurtisi Tower. Photo by Dan Lawrence.

models, future analysis may be able to better explore these possibilities. It is also possible that defensive communication systems may have existed in particular periods, utilising structures and features that have not survived in the archaeological record. However, it is clear that many of the towers and structures discussed here appear to have functioned as lookouts, or places of refuge in the event of local raids or skirmishes. The free-standing examples such as the one south-west of Gveleti, or above Khurtisi are perhaps more likely to have served as the former. Those within settlements may have also been used as refuges and can also be seen as symbols of wealth and power built by important local families, exemplified by a documented example at Pansheti.[96]

10.5. Terrace field systems

Some of the most robust landscape features noted during the survey were the remains of terrace field systems (Fig. 10:40). These are distinguished by roughly parallel sets of treads and risers running perpendicular to the direction of the slope, therefore, resembling steps. The treads are the horizontal or gently sloping surface of the 'step', while the risers are the vertical or more steeply sloping portion of the 'step'. Because of their scale and distinct morphology, these were also the most easily identified feature type on both the historical and modern imagery. Furthermore, they appeared, for reasons that will be discussed in detail below, not to have been maintained in the recent past. These systems were of particular interest as they suggested a significant investment in agriculture at some point in the history of the settlement of this landscape. Within the survey area, terrace field systems were located, mapped and in several cases targeted for geoarchaeological investigations.

10.5.1. Survey and mapping of terrace field systems

Three large terrace field systems were visited and mapped in the Dariali Gorge (DPS-6, DPS-8 and DPS-9). This involved mapping the extent of the terrace risers, associated walls and other features, as well as recording construction materials and identifying locations for excavation and geoarchaeological sampling. While several appeared to have been divided into modern plots (often for growing fodder for animals), it was clear that in no case had the terraces been maintained in the recent past. At these locations, each terrace 'riser' was photographed and recorded (a GPS point was taken at each end of the edge of the riser). The construction material visible in the face of the riser (stone or earth) was also recorded, as well as any other features associated with the terraces. A further four systems were also recorded between Stepantsminda and Lower Ukhati/Kobi (DPS-10, DPS-11, DPS-12 and DPS-19), though in lesser detail due to time constraints; however, these systems were clearly visible on the imagery. The plans of these systems clearly indicate elements mapped in the field as compared to those only recorded on the imagery. Finally, one system was located only on the imagery and designated DPS-51.

10.5.1.1. DPS-6

Remains of a terrace field system were identified on both the CORONA and WorldView-2 imagery in the vicinity of the village of Tsdo (DPS-6) (Fig. 10:41) On the ground, terrace fields were visible on the northern end of the high ridgeline on which the ruins of the fortifications/structures were located (see above), in the valley north of the village and on the hillside above and to the south-west of the village (Fig. 10:42). There was a high correlation between the terraces visible on the imagery and those visible on the ground, though it was clear that the terraces had not been maintained in the recent past. The terrace risers had slumped forward due to erosion and the subsequent deposition of material between the risers and the terraces below them. In total, 44 terraces were recorded in the field, though there are several possible terrace risers visible on the imagery that could not be clearly located on the ground. All of the terraces are located between 1,650 and 1,850 m. As can be seen in Fig. 10:41, there are several groups of terraces that can be differentiated by location, direction of slope and construction material.

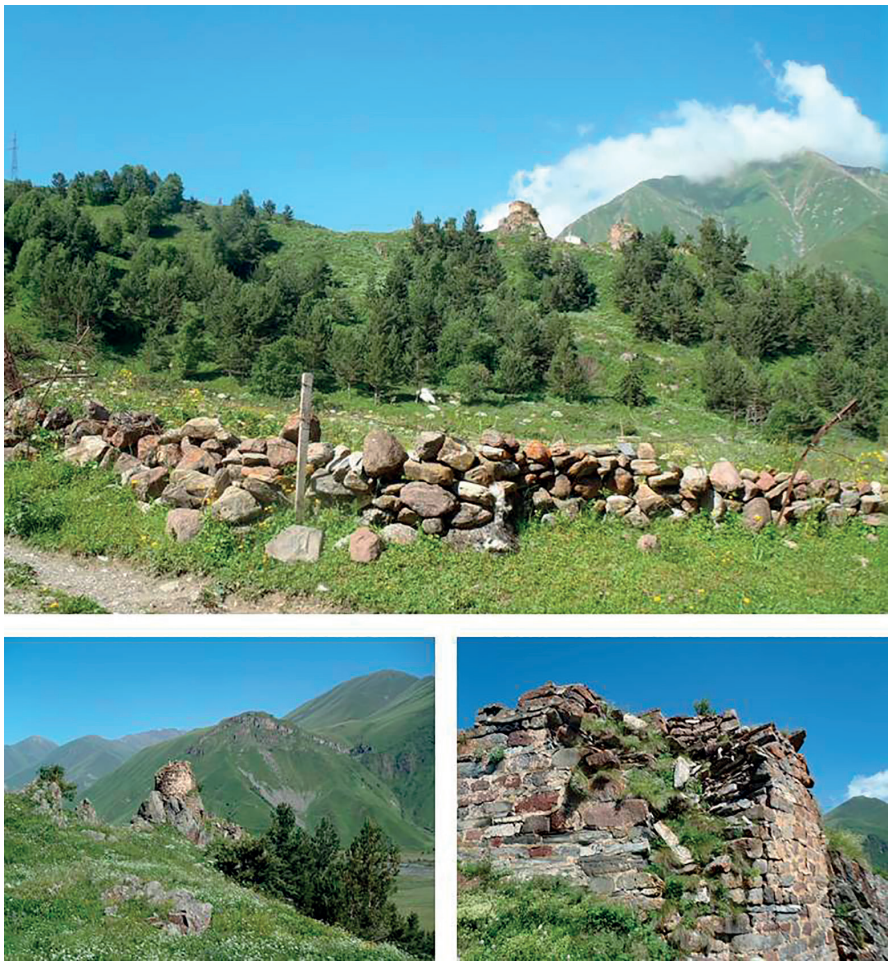


Fig. 10:36: Towers near Kobi and Ukhati. Photos by Kristen Hopper.



Fig. 10:37: Achkhoti Tower. Photo by Kristen Hopper.



Fig. 10:38: Sno Tower. Photo by Dan Lawrence.

The terraces located on top of the ridgeline (numbered 1–9 and 12 on Fig. 10:41) to the north-east of the village had considerably higher risers than those located on other parts of the site; the largest terrace riser (Terrace 2 on Fig. 10:41) measured c. 5 m in height (Fig. 10:43). Furthermore, all in this group were faced with stone. In the vicinity several irregular stone enclosures were located (*e.g.* between terrace risers 5 and 7). The chronological relationship between these terraces, the enclosures and the ruined fortifications on the southern end of the ridgeline, is unclear.

To the north of the village two more sets of terraces are clear. One set of at least seven terraces runs from south to north within the depression between the ridgeline and the gorge side (numbered 10–11, 13–17 and 22 on Fig. 10:41), while another set of at least eleven terraces descend from south-west to north-east along the gorge side (numbered 18–21 and 23–31 on Fig. 10:41). In all cases, the terrace risers appear to have been constructed of earth and were considerably lower in height than those on the ridgeline. Clearance cairns, piles of stone removed from the fields to aid ploughing, were concentrated near terraces 19 and 20. That these features were clearance cairns was clear; they had no structure or internal features that would suggest they were burial cairns, or other kinds of markers. It is possible that these clearance cairns are the result of relatively recent agricultural practices, as they appear in fields that are in use on the WorldView-2 imagery from September 2006 and 2010. However, they could be from a range of dates. It does seem likely, however, that they represent the removal of stones from the fields closest to the settlement. These fields, in particular, show the most obvious evidence for division into small plots for personal gardens.

A linear depression with walls on either side was located running roughly north for c. 30–40 m from terrace 24 toward terrace 25; an earthen bank was also visible outside of the wall on the eastern side. Closer inspection of the imagery suggests the feature may run for c. 70 m. The walls were dry-stone and 4–5 courses in height, and not dissimilar in construction to many of the other wall features associated with terrace field systems recorded in this survey. The feature runs perpendicular to the slope. While its function is unknown, it may have served as a channel draining water from the system.

To the south-west of the village, further examples of both stone-lined and earthen terraces were located (numbered 34–44 on Fig. 10:41). These eleven terraces descend down the gorge-side from west to east ending just before the main access road to the site.

The overall impression given by the differences in slope direction and construction material is that the visible remains may include several different phases of construction, and represent use and reuse through time. The fact that the distribution of the modern fields/plots (c. 30 ha) almost exactly matches the area covered by the terraces, adds to the impression of reuse of the same limited area of cultivatable land over a considerable time. Due to the height of the vegetation cover at the time of the survey, there was little in the way of surface material suitable for dating, with only three small sherds of pottery having been found across the entire site.

Small garden plots were visible on the terraces immediately north of the village, but the rest of the terraced area appeared to be covered in natural vegetation. However, a WorldView-2 image allows us to clearly identify land cover within the area of the terraces in September 2006 and 2010. A false colour infrared WorldView-2 image produced by using a specific band combination (NIR[1], R, G) of the multispectral image, highlights a patchwork of light red (vegetated) areas and recently harvested plots that appear grey/brown in colour (see Fig. 10:3). This is further supported by the presence of small circular features 2–4 m in diameter within the grey/brown plots that probably represent hay stacks recently harvested. Ethnographic studies mention that the hill above the modern settlement (where a number of terraces are located) was used for growing hay for animals, with the harvest commencing in September.[97]

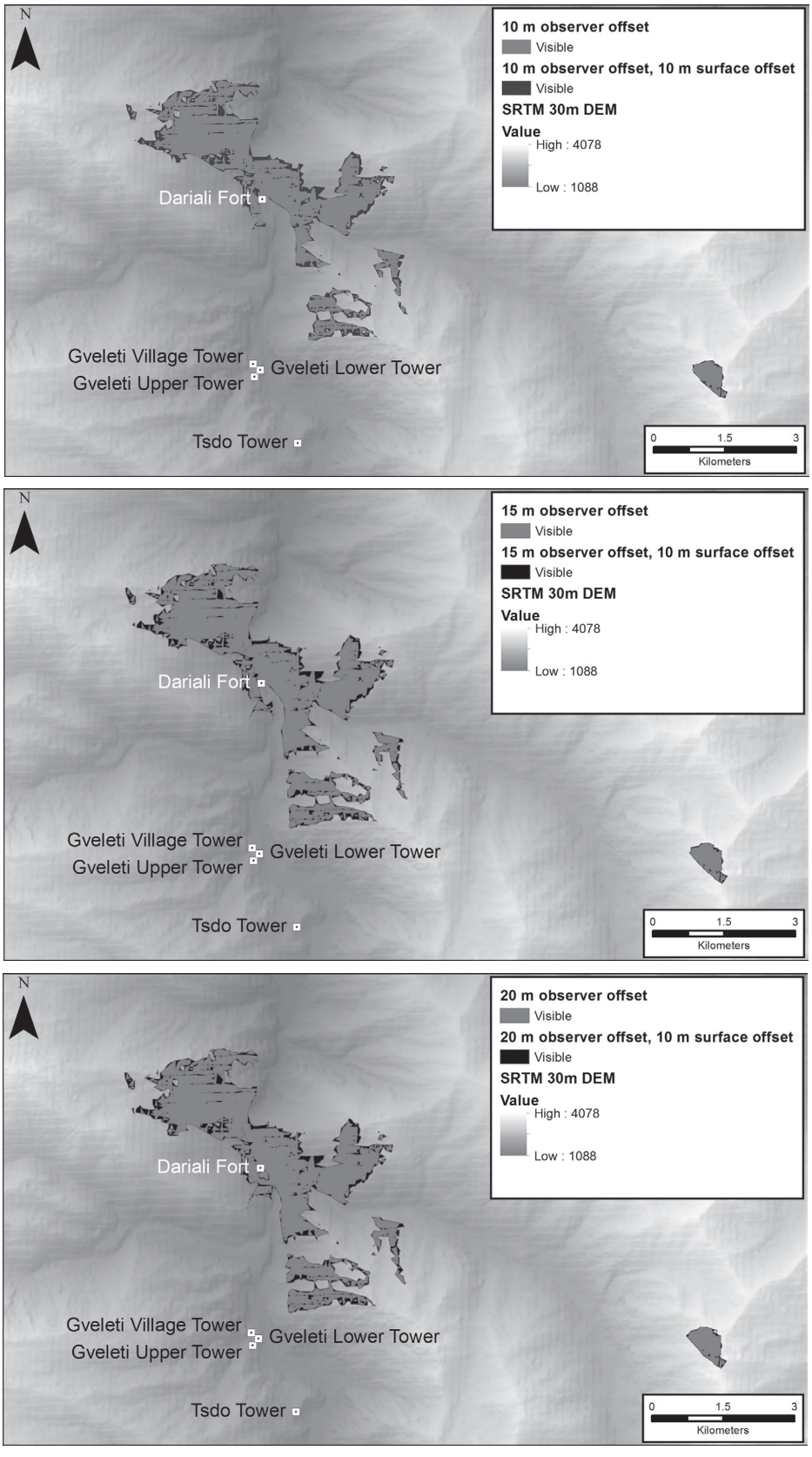


Fig. 10:39: Visibility from Dariali Fort for 10m, 15m and 20m observer heights. Imagery: SRTM 30m DEM (data available from the U.S. Geological Survey).

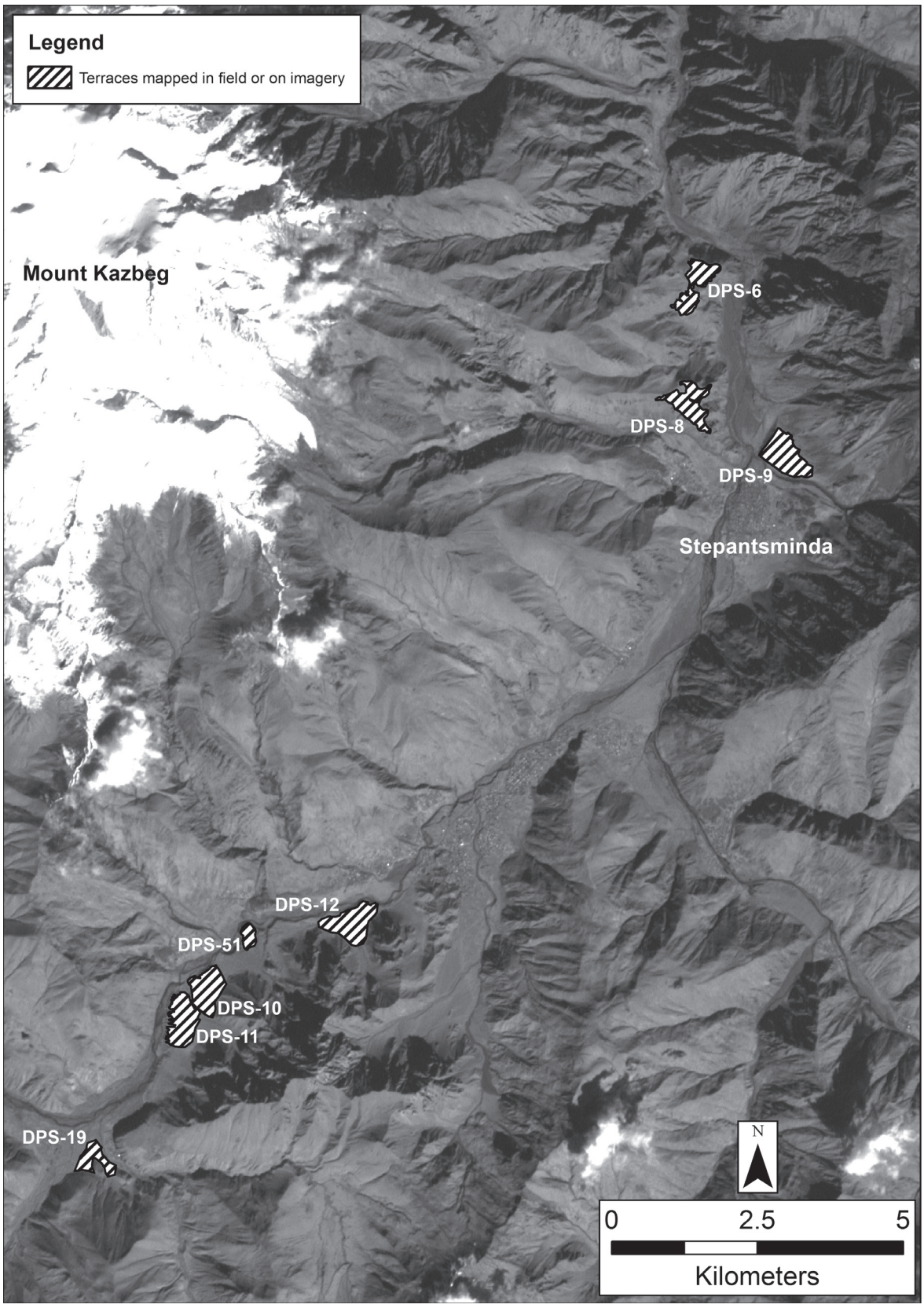


Fig. 10:40: Location of terraces mapped in the field and on the imagery. Imagery: panchromatic Landsat 7 acquired 6 October 2002 (data available from the U.S. Geological Survey).

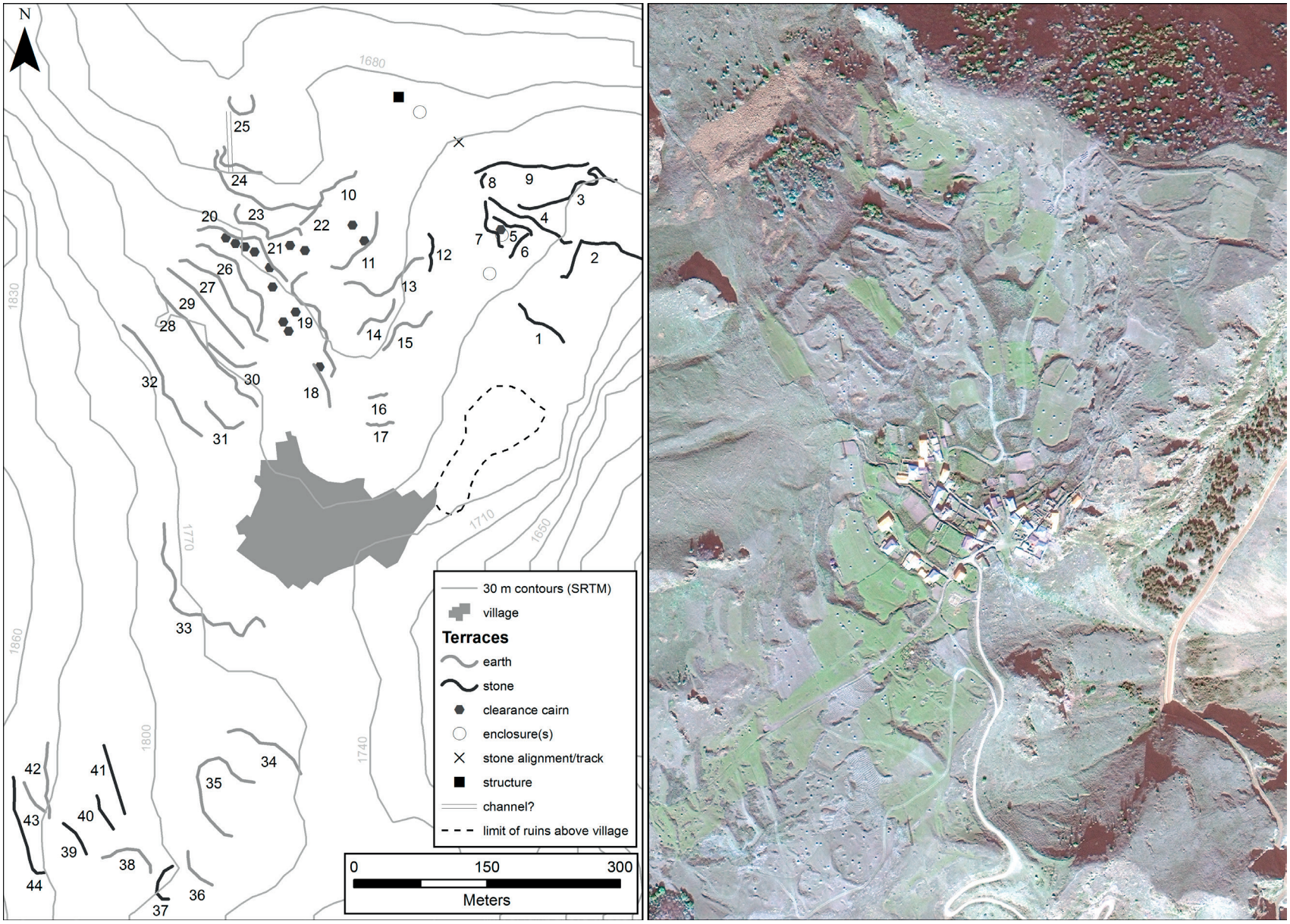


Fig. 10:41: Plan of the terraced fields and other features mapped at Tsdo (DPS-6). Imagery: WorldView-2 acquired 1 October 2012 (© DigitalGlobe, Inc. All Rights Reserved).Survey).



Fig. 10:42: Looking south toward the terraced fields at Tsdo (DPS-6). Photo by Seth Priestman.

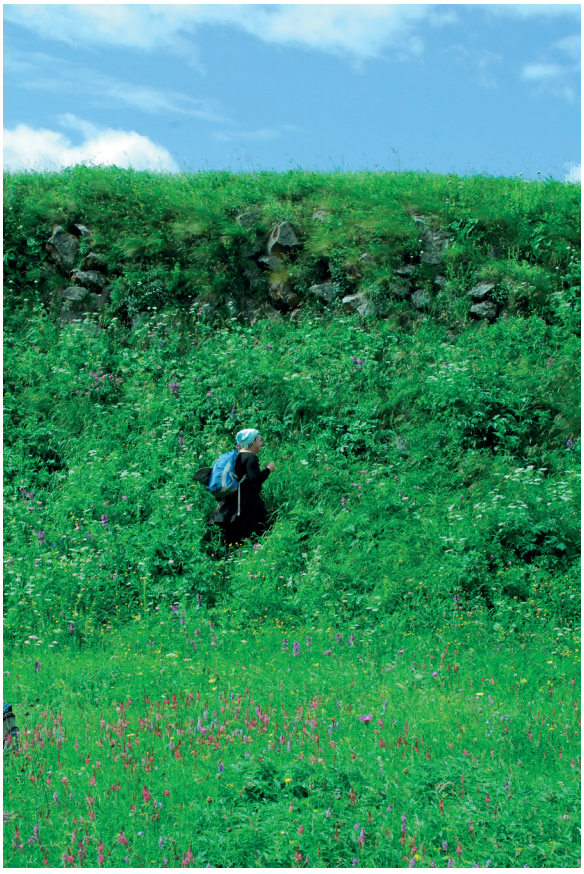


Fig. 10:43: Terrace riser 5 at Tsdo (DPS-6). The riser is c. 5m high and the facing is constructed of stone. Photo by Dan Lawrence.

10.5.1.2. DPS-8

At DPS-8, along with the remains of the structures discussed in the previous section, a total of 19 terraces were recorded on the ground, covering an area of c. 34 ha (Figs 10:44–45). None of the terrace risers were constructed of stone. Located on a relatively flat plateau on the western side of the gorge that ranges in altitude between c. 1,950 and 2,050 m, the terraces descend from west to east following the natural contours of the plateau. There were several other linear features on the imagery that could not be clearly correlated with terrace risers in the field, but may represent the remains of slumped terraces. The slumping of the terrace risers suggested that they had not been maintained for some time. Confirmation comes from the fact that when images dating to the 1960s/1970s were compared to those taken in the last decade, there was no visible change in the alignment or signature of the terraces. No evidence for modern cropping was identified in the field survey, although horses were being grazed on the plateau. As at Tsdo, however, the false colour infrared image indicates differential ground cover in the autumn suggesting harvesting of the natural vegetation for animal fodder, though less intensively than at Tsdo (Fig. 10:26). No ceramic material was located in the survey.

10.5.1.3. DPS-9

Another large terrace field system was located on the imagery immediately north of Stepantsminda on the

eastern bank of the Tergi (designated DPS-9) (Figs 10:46–47). The fields are separated from the village by a deeply incised stream which flows into the Tergi. The terrace system makes use of a rough triangle of flat land between the stream and the steep walls of the gorge.

There were 46 terraces recorded at DPS-9. The majority were constructed of earth, though there were several stone-lined examples concentrated in the centre of the system. Several of the terraces, while constructed of earth, also had a rubbly stone wall running parallel to the base of the riser (Fig. 10:48). Rough rubble walls run perpendicular to and connect the ends of many of the terraces, forming crude plots. There are also a number of clearance cairns of the same material. The remains of several small structures have been built into some of the terraces. We also recorded 33 circular depressions with a diameter of between 2 and 5 m. It was hypothesised that these may act as rainwater or snow-melt collection, but this cannot currently be confirmed. Three rectangular depressions with stone superstructures were also noted. A small chapel, set on a large boulder, is located near the top of the system.

No cultivation was taking place at the time of the visit, though a few small parcels of land had been fenced off for growing hay. In terms of modern agricultural practices, other than within the plots noted in the field survey, there was no differential ground cover visible on the false colour infrared image (Fig. 10:49). There were also considerable amounts of material derived from the steep rocky slopes behind this landform that had been deposited on the terraces and field plots. Cattle were being grazed in this area; a practice which locals indicated had been going on for most of the twentieth century.

The extant field walls appear to post-date the construction of the terraces, though it is difficult to speculate as to when the terraces were last maintained, particularly as some of the stone walls are built into the terraces. What appears clear, however, is that there has been little or no change between the locations of field walls and clearance cairns from the 1960s to the present day, as evidenced by CORONA and WorldView-2 images. Furthermore, a large underground gas pipeline (constructed prior to the CORONA image, which was taken in November 1968) cuts through the system on a north-south axis. These facts would appear to confirm the suggestion that the area was not used for cultivation from at least the mid-twentieth century.

Interestingly, while not visited in the field, field walls that have an identical signature on the CORONA imagery to those discussed above are also visible to the south and east of Stepantsminda. While many of these features are today under the modern village, they are clearly visible on CORONA (Fig. 10:50). The gentle slope of this area means that it may not have required terracing to make it suitable for cultivation. It seems that, at least in the phase represented by the field walls, a much larger area (extending under modern Stepantsminda) was cultivated. However, the entire area covered by terraces and field walls need not have been in use simultaneously. Once more, the lack of surface material renders it hard to date these features and their various phases of use. Despite this, it should be noted that this is the first significantly large, gently sloping, area of land immediately adjacent to the river valley that one encounters when travelling southward along the valley from Dariali Fort.

10.5.1.4. Terrace fields in the Tergi River Valley South of Stepantsminda

The river valley widens considerably south of Stepantsminda. Modern settlements are mainly concentrated on the left bank of the river where the landforms are steeper. On the right bank the slope of the land is more gentle, and where side streams flow into the main river valley the remains of several terrace field systems are visible between Sioni and Lower Ukhati/Kobi (Fig. 10:51).

DPS-12 consists of a heavily eroded terrace and wall system on a gentle slope (<15°) approximately 1.8 km south of the village of Sioni. The relationship between the terraces and the walls as at DPS-9, is difficult to determine, but may be later than the last maintenance of the terrace risers (Fig. 10:52).

Roughly 1.5 km further east, another set of field boundaries (DPS-51) was located on imagery (Fig. 10:53). While not visited in the field, analysis of the imagery suggests that these features are identical to several noted at DPS-12, though it is difficult to ascertain whether the linear features running parallel to the river valley represent terrace risers or simply rubble walls.

A further 1.5 km south-west, in another side valley are DPS-10 and DPS-11 (Figs 10:54–55). These terraces may be part of the same field system, but are separated by a deeply incised gully; together the visible area of terracing appears to cover at least c. 34 ha. The stream that flows through the gully is fed by two springs high up on the mountain behind the site. Each terrace riser at DPS-10 is relatively uniform, measuring approximately 1–1.5 m high. However, the risers are heavily slumped making it difficult to estimate their original height. The terrace risers are less apparent at DPS-11, though walls running perpendicular to the slope were visible, and appeared to be delineating plots. Two circular depressions, resembling those located elsewhere in the survey, were found near the bottom of the system, along with a number of stone structures that may have been part of a now abandoned settlement. Clearance cairns were also evident, but were heavily eroded and overgrown.

All of these systems have been heavily eroded by small drainage channels, and are cut by the Georgian Military Highway, on which construction commenced at the beginning of the nineteenth century and finished in 1863. Little

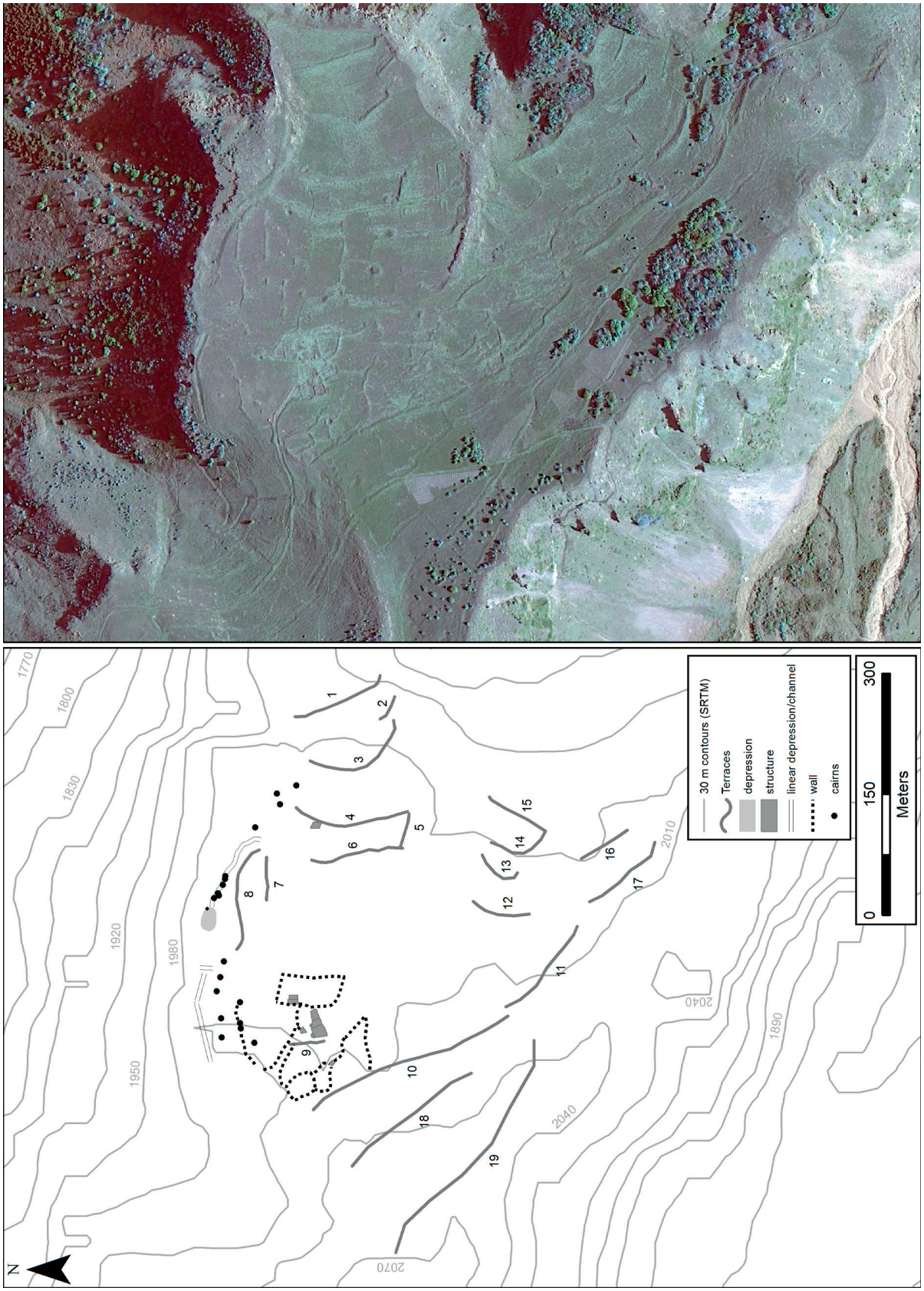


Fig. 10:44: Plan of terraces and other features at DPS-8. Imagery: WorldView-2 acquired 1 October2012 (© DigitalGlobe, Inc. All Rights Reserved).



Fig. 10:45: Terraces at DPS-8. Stepantsminda is visible in the background of the image. Photo by Dan Lawrence.

change can be observed between the features visible on the images from the 1960s/1970s and the present day. Furthermore, at DPS-12 for example, the terraces are also cut by a stream which flows into the Tergi, suggesting that the current path of the stream is more recent than this field system, or at the least, there has been significant downcutting since the system was in use. Indeed, palaeochannels can be seen on the WorldView-2 imagery which suggest that the stream may have moved gradually westward through time. Only a few small modern plots are visible on these landforms and, at the time of the field survey, appeared to be used for grazing sheep and cows.

Another terrace field system is located near Lower Ukhati/Kobi. Designated DPS-19, it is a relatively small system descending down either side of a rocky outcrop on which a church and the remains of several towers are located (see previous section). The field system may also have been cut by the Military Highway. Modern field boundaries are visible covering a portion of the terraced area and clearance cairns and rubble walls matching those discussed in the previous examples (*e.g.* DPS-12 and DPS-9 are found to the north of the highway). The relationship between the church/towers and the fields is indeterminate.

10.5.1.5. Terrace morphology from field survey and remote sensing

Some general observations can be made regarding the types and locations of terrace fields. All of the systems are located at altitudes of c. 2,100 m or less. Landforms above c. 2,000 m in the Southern Caucasus are more commonly used for pasture,[98] though there are numerous examples of terracing at much higher altitudes from other parts of the world, such as the Andean Mountains, Peru (2,800–3,800 m).[99] In this case, however, it seems that the availability of flat or gently sloping land may have dictated the location of terrace field systems more than altitude.

The terrace examples cited here can be divided into several broad categories. The morphology of the terraces at DPS-6 (Tsdo) and DPS-8 is dictated by the type of landforms on which they sit. At DPS-6, for example, the terraces are far less regular in length, spacing and orientation than the examples located on the alluvial terraces in the wider river valley to the south. Furthermore, the greater range of terrace size and construction type may indicate a lengthy period of use and reuse of these features. At DPS-8, while the terraces are again adapted to the specific topography of this high plateau, there appears to be more uniformity in their orientation and construction than at DPS-6 (Tsdo).

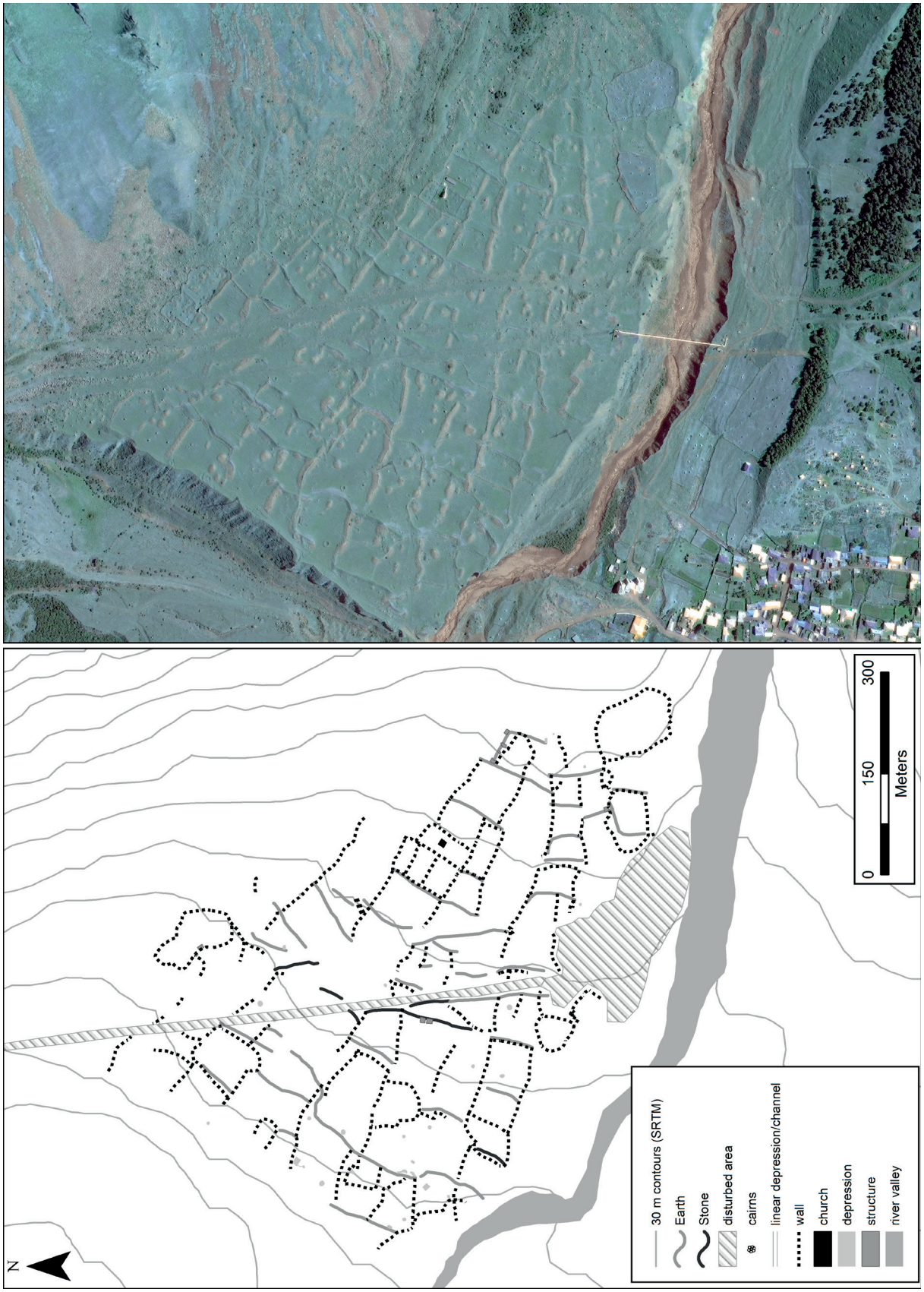


Fig. 10:46: Plan of terraces and other features at DPS-9. Imagery: WorldView-2 acquired 1 October2012 (© DigitalGlobe, Inc. All Rights Reserved).



Fig. 10:47: DPS-9. Stepantsminda is located to the east of the terrace field system. Photo by Dan Lawrence.



Fig. 10:48: One of the terraces at DPS-9. A rubble wall has been built at the bottom of the terrace riser. Photo by Dan Lawrence.

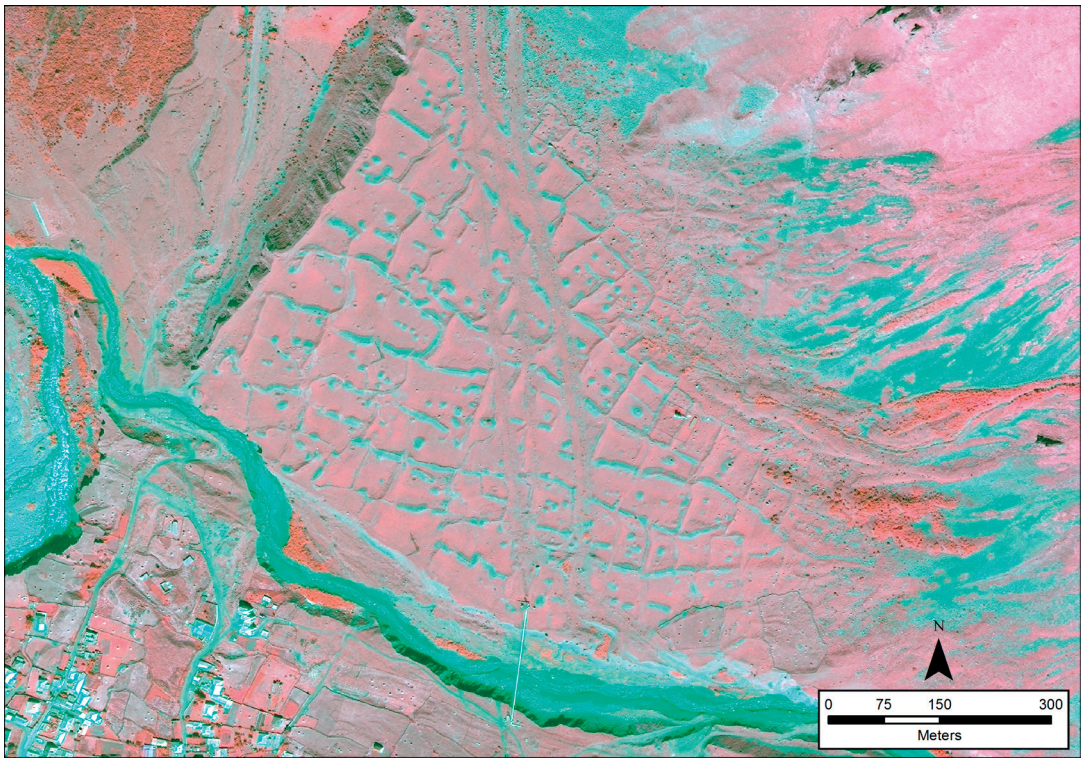


Fig. 10:49: A false colour infrared (NIR1, R, G) image of fields at DPS-9. Vegetation appears bright red. The lack of different ground cover within the field plots, excepting the small fenced in areas in bottom right of the image suggests that hay harvesting does not take place here. Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).

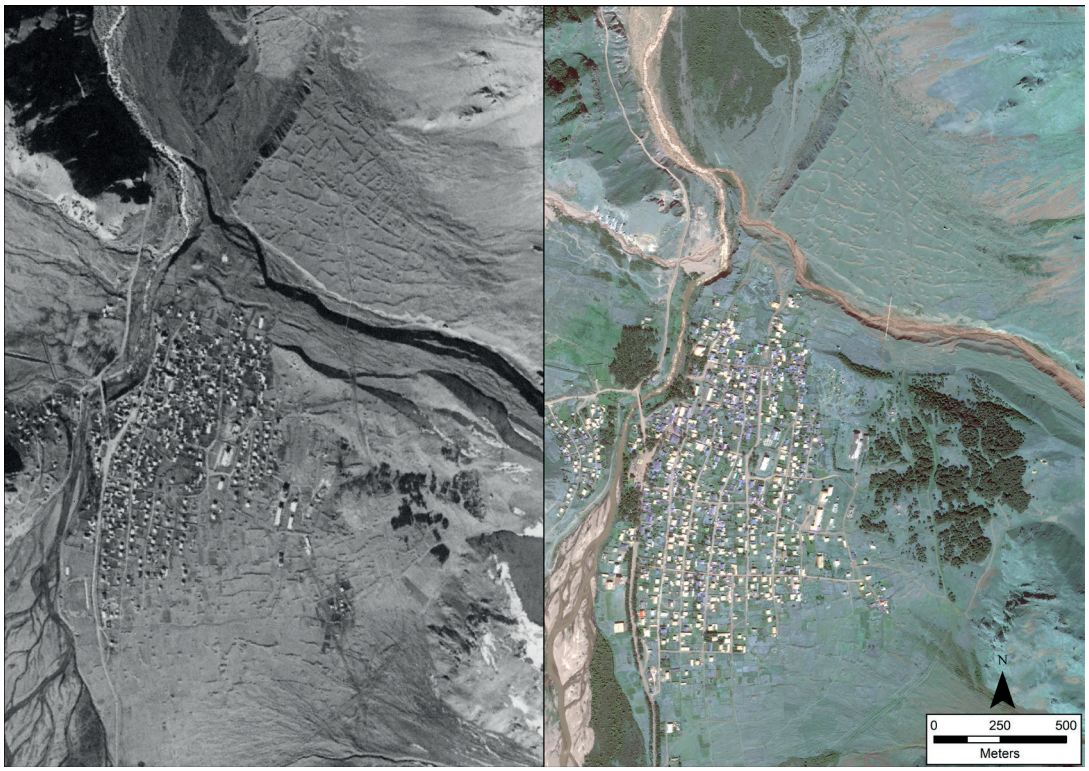


Fig. 10:50: Field systems in the vicinity of Stepantsminda visible on a CORONA image (left) acquired 7 November 1968 (data available from the U.S. Geological Survey) and on a WorldView-2 image (right) acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved). Note that the field systems visible to the south of Stepantsminda on the CORONA image were built over by the time the WorldView-2 image was taken.

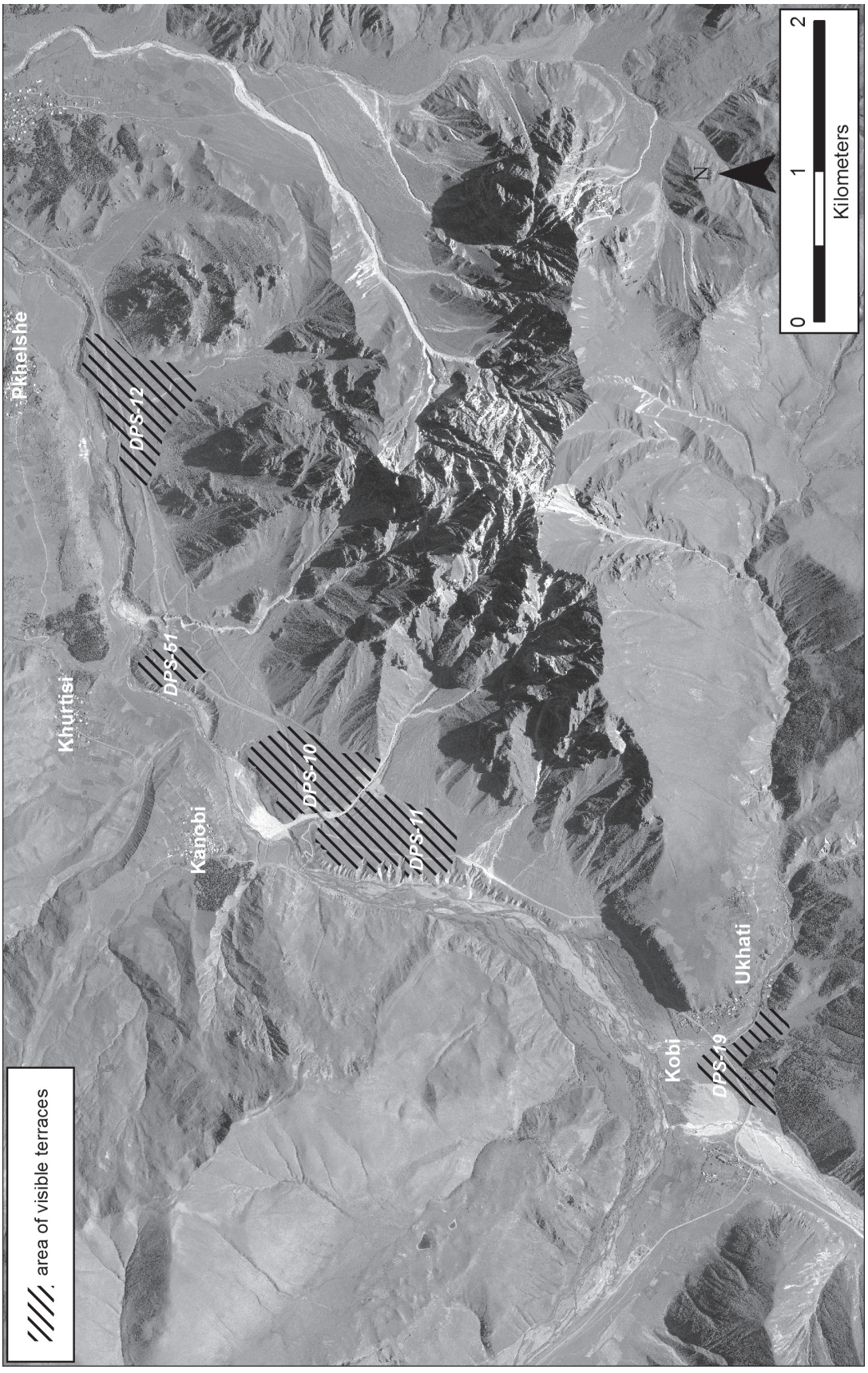


Fig. 10:51: Terraces south of Stepantsminda. (Imagery © DigitalGlobe, Inc. All Rights Reserved).

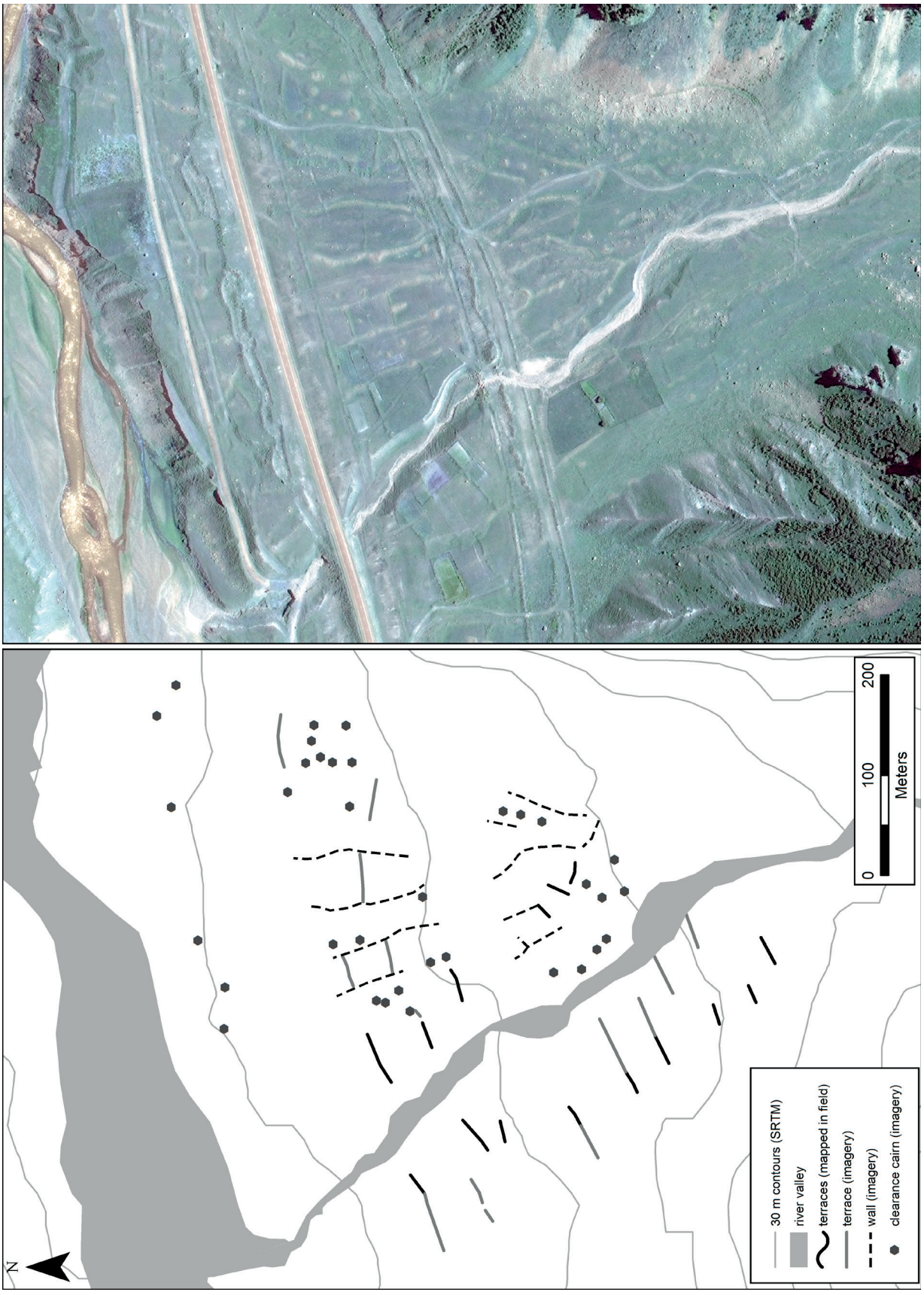


Fig. 10:52: Plan of terraces and other features at DPS-12. Imagery: WorldView-2 acquired 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).

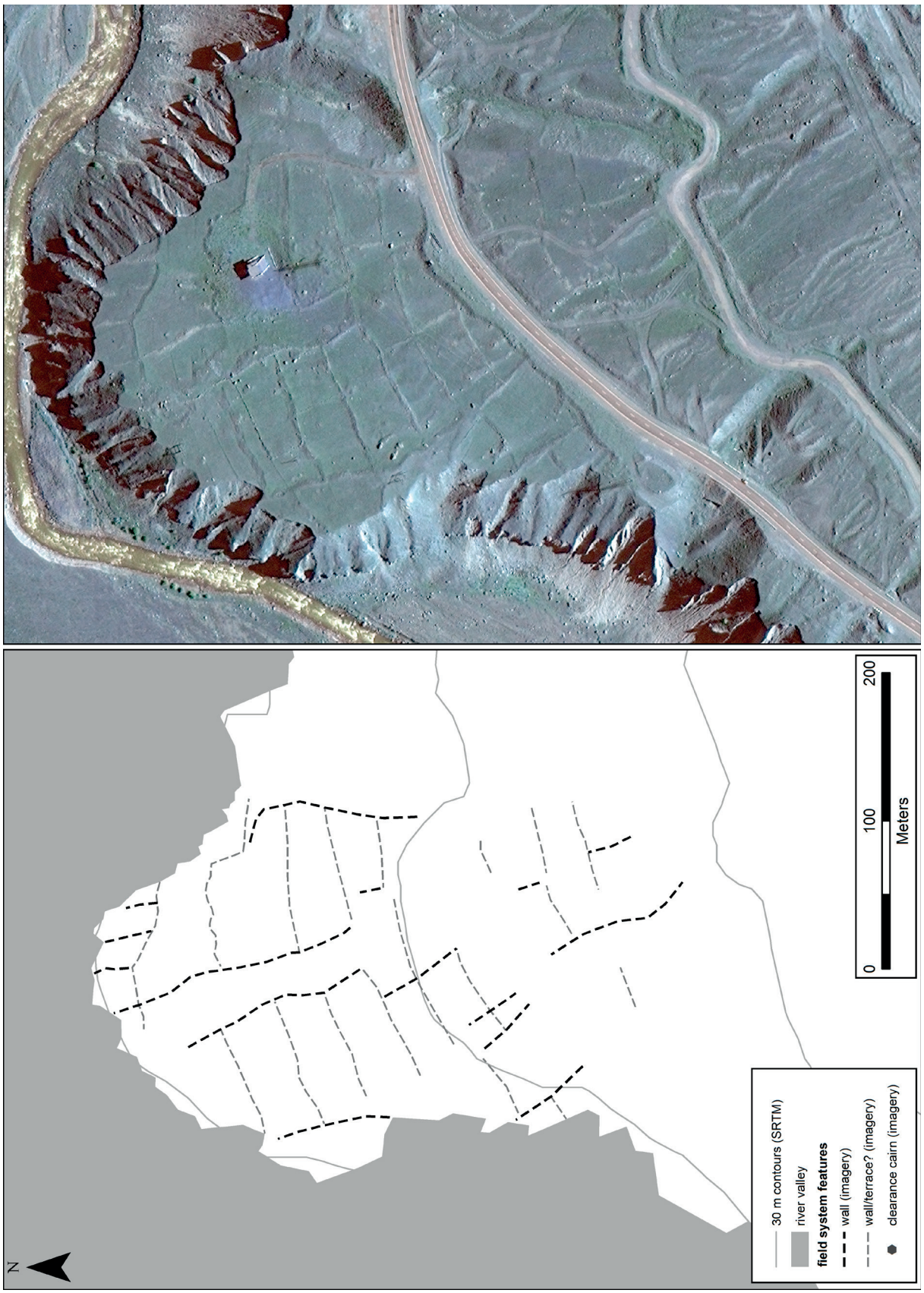


Fig. 10:53: Plan of terraces and other features at DPS-51. Imagery: WorldView-2 acquired 1 October 2012 (© DigitalGlobe, Inc. All Rights Reserved).

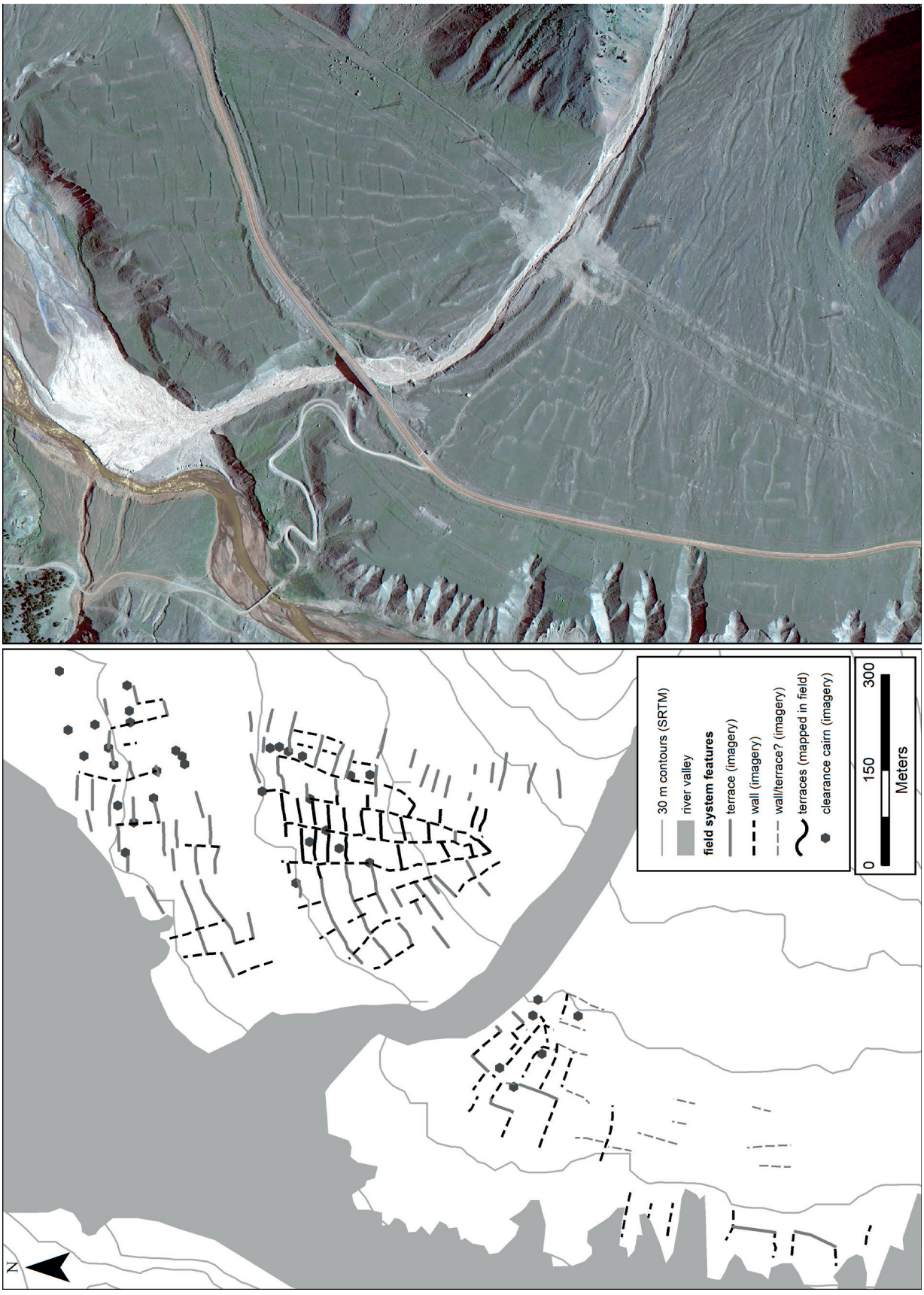


Fig. 10:54: Plan of terraces and other features at DPS-10 and DPS-11. Imagery: WorldView-2 acquired 1 October 2012 (© DigitalGlobe, Inc. All Rights Reserved).

This may be a consequence of less subsequent activity after the abandonment of settlement on the plateau.

Similarities can be observed between the terraces at DPS-10, DPS-11, DPS-12, DPS-51 and, though less clearly, at DPS-19. This may be suggestive of a similar date for the construction of these terraces. At all but the last of these sites there is evidence for the division of the terraces into small field plots by walls or linear piles of stone running perpendicular to the terraces. At DPS-10, the size of these field plots can be measured and appear to range between 350 and 4,500 m^2 (the size of the largest plot may be exaggerated due to the poor survival of the wall features in some contexts) (Fig. 10:56). Similar sizes are observable on the few plots (< 10) at DPS-11 and DPS-51 that have not been disturbed by roads, tracks or erosion. The lack of clear examples of terraces at DPS-11, but the presence of walls on the same alignment (and by extension the existence of similar field plots) is interesting.

Similarly, the terraces at DPS-9 have been divided into smaller plots, though the chronological relationship between the terraces and the walls is difficult to ascertain. The maintenance of the terraces would have been made difficult by the construction of the field walls up against the base of the riser, perhaps suggesting that the division into smaller plots was a later development. In the Kislovodsk Basin, more than 200 km to the north-west, on the north side of the Caucasus, terrace field systems have been extensively studied.[100] The origin of mountain terraces in this region was originally thought to date to the Early Bronze Age or the Middle Ages. The Early Bronze Age hypothesis was based on radiocarbon dating of buried soils,[101] and pottery.[102] The dating of terraced field systems in this region to the Early Middle Ages was also based on radiocarbon dating of soils and through the association of the terraces to nearby forts.[103] More recently, a detailed investigation of these terraces was undertaken to test these earlier theories.[104] In this study, ceramics and one radiocarbon date were used to assign certain terrace types to the Early Koban culture (first century BC), while ceramics were used to assign other types to the Classical Koban period (sixth century BC).

One of the three main field system types that were recognised in the region included 'sloping promontories with boundary walls that form allotments of rectangular form with areas from 20–300 to 2,000–3,000 m^2' that have been dated by association with settlements to the second half of the first millennium AD.[105] While not terraced, they suggest that these types of plots are the result of a particular ploughing technique, *i.e.* 'cross ploughing with an ard pulled by two oxen'. A similar technique could have resulted in the formation of the plots at the sites under discussion in the Tergi River Valley. This does not necessarily imply a similar date for their construction. A summary of the main archaeological features and the geomorphological setting of each site investigated are provided in Table 10:4.

10.5.1.6. Modern land use and terrace field systems in the Tergi River Valley

It seems likely that the majority of the terrace systems discussed in this section were not used for cultivation in the recent past. This can be inferred by the lack of change between the 1960s/1970s and the present day, as clear from multiple imagery sources, ethnographic studies and local accounts. Only at DPS-6 (Tsdo) (and to a much lesser extent DPS-8) is there considerable evidence for continued use of the terraced area for growing animal fodder and private gardens. While the terraces may not have been maintained, the large, relatively flat areas of land they provide were clearly used for other purposes. A number of studies conducted between the 1930s and the present indicate that pastoralism was the main economic activity in the region in the twentieth century, with agriculture taking on a secondary role.[106] This reliance on a system of pastoral transhumance remained in place until the closing of the Georgian-Russian border nearly thirty years ago.[107] Mak'alatia,[108] however, does mention some fields and terraces that were in use for agriculture and growing fodder in the 1930s. These are difficult to correlate to specific locations with any certainty. Specific terrace field systems are mentioned by Itonishvili[109] across the river from the village of Kanobi and Khurtisi; the former, called Asakhedi, may correlate to DPS-10 and/or DPS-11, while the latter likely refers to the terraces at DPS-51. In both cases, their reported use appears to have been grazing and growing hay respectively. Overall, it seems that by the 1930s, land previously used for agriculture had been abandoned, or given over to hay fields to produce winter fodder for animals that were not moved to summer pastures at lower altitudes.[110]

It is likely that even prior to the twentieth century, these terrace field systems were not being intensively cultivated. Pastoralism is reported to have become increasingly important to the local economy from the second half of the nineteenth century when, due to the incorporation of Georgia into the Russian Empire, it became easier to move animals to the Northern Caucasus on a seasonal basis.[111] Furthermore, the fact that the Military Highway cuts through all of the terrace systems between Sioni and Lower Ukhati/Kobi, suggests that these fields were not in use for cultivation after the construction of the road along its modern route in the nineteenth century.[112] Travelling through the region in the early nineteenth century, Lyall[113] describes the 'barren hills' of the valley between Stepantsminda and Lower Ukhati/Kobi, although it is likely that his description was to some extent exaggerated for poetic effect.

Dating the terraces based on proximity to settlements is problematic, particularly in high mountainous regions, where clear relationships between sites and landscape features are unclear. The constant use of gently sloping to flat landforms for settlement and our incomplete



Fig. 10:55: DPS-10 and 11 looking south-west. Photo by Dan Lawrence.

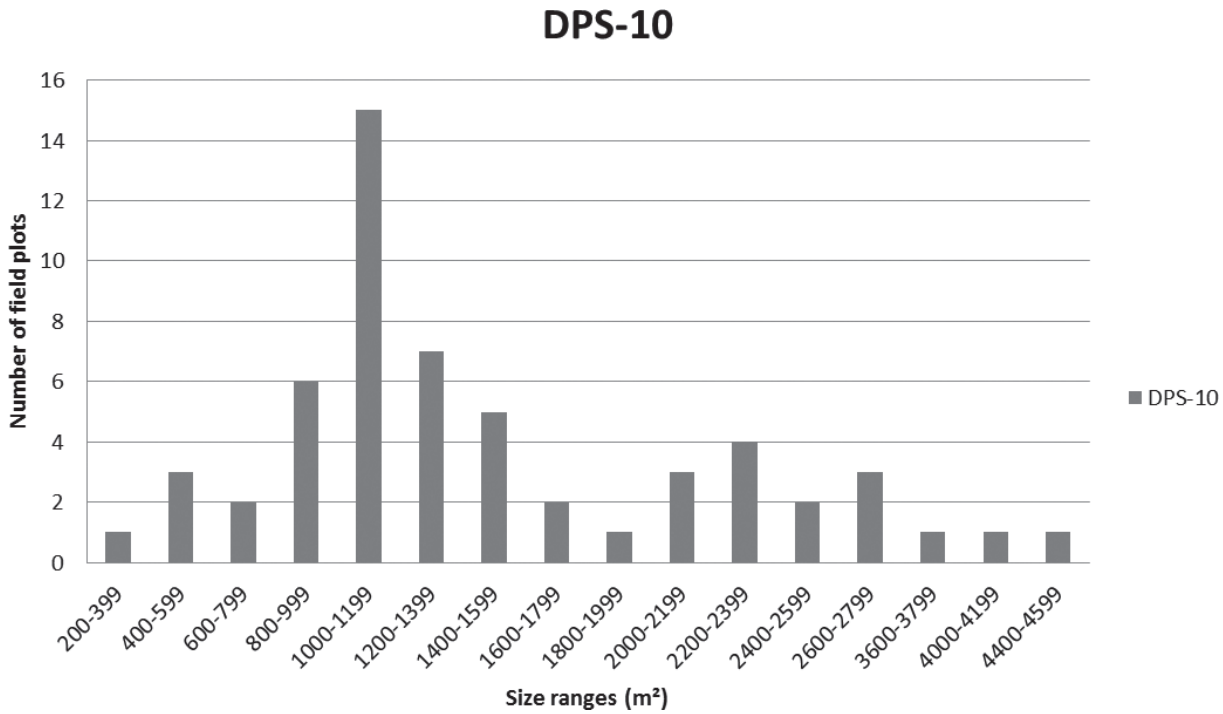


Fig. 10:56: Size range of field plots at DPS-10.

knowledge of the long-term settlement pattern in the region only allow for broad dating proposals. Little to no ceramic evidence was recovered from the surface of the fields due to thick vegetation cover. This could be a factor of preservation (though ceramics were minimal at all locations despite clear differences in recent land use) or reflect ancient/historical land use practices (*e.g.* the fields were not being manured), or both. However, terrace fills at some sites yielded abundant pots sherds. Although heavily abraded, these ceramics did provide some level of chronological control. This supports our methodology applied in the region combining survey with small scale excavation, which has implications for developing landscape archaeology in high altitude regions elsewhere. For this reason, in the 2014 season several terraces were selected for excavation in order to provide information on their construction and maintenance and to obtain samples for absolute dating combined with pottery and palaeoenvironmental/geoarchaeological analysis.

10.5.2. Geoarchaeological investigations of selected terraces

Targeting stratigraphy preserved within fields and terraces, which provide a local archive of landscape management, our aim is to determine whether the preservation of earlier systems could be located at these sites. This is important as ancient landscapes in this region have low visibility, partly due to destruction by natural processes commonly occurring in dynamic mountainous environments (landslides, meandering rivers, flash floods), but also by later anthropogenic landscape change. Only four of the sites identified were investigated in more detail due to issues of accessibility and the level of preservation of stratigraphy; these include DPS-10, DPS-9, DPS-8 and DPS-6. Sedimentary descriptions of each terrace are provided below.[114] At each site, a test sample was collected to characterise the sediments and to determine their suitability for OSL dating of quartz minerals.

10.5.2.1. Excavation, recording and sampling

Excavations took place in areas least affected by modern disturbance. At each site, slightly different excavation methodologies were employed; they included a combination of hand excavation, auguring, cleaning of naturally eroded sections and machine excavation. Each trench (1 × 3 m) was excavated perpendicular to the edge of the terrace and then down to the lowest fill. At certain site locations, the terraces were naturally eroding from the section undercut by the River Tergi. This meant that each section could be easily cleaned, recorded and sampled without full excavation. Each section was recorded, at a scale of 1:20, onto permatrace to show the thickness and extent of each context and the location of samples taken. Each context was described using standard sedimentary descriptions,[115] which included soil texture, sorting, soil colour, using Munsell soil colour charts and boundary types.[116] All artefacts retrieved were bagged and located on the sections for identification and relative dating purposes. Organic remains, such as charcoal, were also retrieved and assessed to check for suitability for C^{14} dating. OSL tube samples were taken from the basal deposits and overlying sediments were sampled for background radiation measurements. Some trenches were abandoned as they were mainly composed of large boulders and were too unstable and dangerous to sample. OSL sampling involved inserting a 20 cm by 4 cm black PVC pipe into the deposit, sealing the ends and labelling the sample and the section drawing, and photographing prior to removal. Each tube sample was labelled and sealed with thick black PVC plastic and black duct-tape to avoid light exposure. An additional sediment sample was taken from around the tube sample (maximum of 30 cm distance) for environmental dosimetry analysis. A detailed description of OSL dating methodology is provided below.[117]

Summary

At DPS-10, these agricultural terraces reached a maximum depth of 72 cm, 74 cm and 121 cm below ground level respectively and consisted generally of poor-quality cambic umbrisol soils formed on gentle slopes. They were built on top of colluvial fan deposits and well-sorted fluvial sands. The soils uncovered at DPS-9 are broadly characterised as weakly developed regosols with poor soil quality and little organic material, but abundant rock inclusions. The soils preserved at the modern village of Tsdo (DPS-6, Terrace 4), formed on top of an andosol soil with preserved volcanic ash lenses and pyroclastic material, which had been later modified to form deep hortisols modified by modern agricultural activities. Frequent pottery sherds were recovered from the upper layers and appeared to have been significantly reworked. The maximum depth of the terrace sequence was 251 cm below ground level. At DPS-8 the two terraces (Terrace 18–412–16 section and Terrace 10–412–17) had deep humic-rich mountain meadow soils (Umbrisol – Humic soil), typically found in alpine regions of the Caucasus.[118]

10.5.2.2. Terrace typology

The terraces investigated can be grouped into four main types:

1) Shallow terraces: mainly contain thin soil layer above fluvial colluvial sediments on shallow slopes, sometimes found with supporting large stones.
2) Deep walled terraces: built on steep slopes often above volcanic deposits, if located near modern agricultural plots, upper horizons are often found to be significantly reworked.
3) Deep earthen terraces: most are found located on fluvial and clay rich deposits formed on steep slopes on plutonic bedrock, soils are highly acidic and humic.

Occasionally some have remains of terrace walls which have subsequently collapsed into the terrace riser and covered by sediment aggradation.

4) Stone and cobble filled terraces: formed on moderately steep slopes where colluvial sedimentation is common. Terrace deposits are usually minerogenic and rich in clay and large stones.

In the case of the Dariali Gorge, the definition of an agricultural terrace becomes unclear, as in many locations, an agricultural terrace is used for different reasons, such as the reduction of soil erosion. For example, at DPS-9 large cobbles and stones were used to build a large bank or revetment to provide stability. Furthermore, terraces are constructed to deepen soil and improve water retention and drainage, and the redirection of excess surface water, is among many reasons why terraces are utilised.[119] Not all of the terraces identified could perform all possible functions. However, one dominant function of terraces in this region was to stabilise slopes and to increase surface area for pasture land. Before Soviet times, the area provided pastureland for over a million sheep in the summer seasons.[120]

10.5.2.3. Stratigraphic investigations

Excavation of terraces and field systems, in combination with the insights provided by the remote sensing of satellite imagery, enabled a deeper understanding of their formation, preservation and function. In a number of sections, remains of walls and single stones and rocks used to stabilise and promote natural sediment build-up were uncovered that were not visible on the ground. This has implications for future survey strategies in upland regions covered by dense vegetation as most pottery was recovered from the fills of the terrace rather than the surface, which can be difficult to see during survey due to dense vegetation.

The sites with the most potential for obtaining well-preserved sediment stratigraphy were from thick terrace sequences located on top of high plateau sites. In two cases, terrace sections, 412–10 (DPS-9) and 412–16 (DPS-8), showed evidence for wall collapse and subsequent rebuilding.[121] Rapid deposition and destruction of terraces as a result of natural processes meant that such landscape features had to be continuously maintained and rebuilt. However, in several sections, preserved sediment stratigraphy with thin lenses offered the best opportunity for the resetting of quartz minerals.

Where terrace walls were present, they were generally constructed from unworked stone arranged to form deep well-structured walls, such as at DPS-6. In other areas, random large stones were used to aid sediment accumulation, which then became rapidly covered over with sediment to form the riser. Fine-sediment input into the system most likely came from many different sources, and was transported downslope via runoff and gravity and then deposited into the fills of terraces. These features are important archives as they trap sediments that provide a record of past anthropogenic activities, climate and environmental change. In dynamic environments, such as the Central Caucasus, the preservation of sediment stratigraphy is usually limited because of the continuous reworking of the landscape, which makes those sediments that are preserved behind terraces of particular importance for environmental reconstruction.

10.5.2.4. Chronology

OSL dating is now becoming one of the primary methods for dating ancient agricultural terracing, but has mainly been applied in areas of the Levant and the Mediterranean.[122] The first stage of the OSL characterisation was to understand the mineralogical components and luminescence characteristics of the samples taken from basal deposits from a range of terrace and field systems identified in the field survey. Those with the most suitable characteristics (*i.e.* frequent bright quartz signals) were assessed using the full measurement procedure. The sample from DPS-10 had very bright signals dominated by feldspar. These minerals require a different measurement procedure to that outlined in our main chapter on OSL dating.[123] As this was beyond the scope of the current research, this sample was excluded from full dating analysis. Samples from DPS-9 contained no quartz due to the nature of the source rock (slate and mudstone) which lacks any large-grained quartz component. The two sites with the best potential for OSL dating were DPS-6 and DPS-8, as the bedrock deposits were of igneous (plutonic) origin which generates abundant quartz. Due to the relatively short transport distances down slope, the majority of grains were only partially exposed to daylight during transport (*e.g.* by slope runoff processes) prior to deposition. The overlying soil deposits were also sampled from the two sequences but these were affected by both low-intensity quartz signals and bioturbation. Therefore, the basal deposits were used for dating of the earliest depositional event within the terrace/field sequences.

All charcoal samples recovered from the sections was too small to be dated using C^{14}. On the basis of our OSL dates, the basal deposit from terrace 4 at DPS-6 at the modern village of Tsdo, was formed in the fifteenth or early sixteenth century (1472±40 AD) (Table 10:5). Pottery, ranging in date from the late antique (early medieval in Georgian chronologies) to the late medieval period was also recovered from this sequence. Some of this earlier material may have been present due to anthropogenic sediment reworking during the building of the terrace, but is unlikely to have come from far. The basal deposit from terrace 10 at DPS-8 gave an OSL date of (1722±70 AD), suggesting that it was deposited in the late seventeenth or eighteenth century; one pottery sherd likely dating to a post-sixteenth century horizon was found within the fill of the terrace.

Table 10:5: Summary table of the OSL dates for the two terrace basal deposits.[1]

Sample	*Age model*	*OSL date (BC/AD)*	*σA1*	*σB2*	*Age (years ago)*
412–9.1	MAM	1472 AD	±27	±40	543
412–17.2	MAM	1722 AD	±63	±70	293

[1] See chapters 10.8 and 24.

10.5.3 Pottery finds from the terraces

In terms of the finds from the DPS terrace survey, it is significant to note that three of the main classes in the Dariali Fort Trench F assemblage are well represented amongst the finds from the excavation of two terraces at DPS-9 (*i.e.* CEMRIB, HASOG and GREBS from Terrace 11 and 45, Table 10:6). The most distinctive and diagnostic category represented within the assemblage is a class of fine cream coloured jars with ribbed decoration covering the exterior surface (CEMRIB). This class spans the period from at least the fourth to tenth centuries and for the most part it is difficult to date the fragments more precisely within this range. HASOG is a coarse tempered, hard orange kitchenware that has a similarly long period of circulation that appears to extend into the high medieval period, *i.e.* even later than CEMRIB. GREBS has a coarse tempered dark grey coloured fabric and burnished exterior surfaces. This class represents the dominant cooking-pot tradition within the Dariali Fort sequence and is dated within a more restricted range from the mid-seventh to ninth centuries (Phases 4 to 5b).

Of the three classes, which are all predominately associated with the early medieval period, CEMRIB is the most abundantly represented and occurs in most levels in both terrace excavations, including at depths of up to 1.60 m below the surface. It may be significant that the two potentially earliest dated fragments – a particularly fine cream coloured body sherd and a diagnostic jar rim sherd – come from the deepest levels reached within the Terrace 11 excavation. However, as they come from mixed and reworked contexts, we must be careful with our conclusions. In the same excavation, within what is an admittedly limited ceramic sample, there appears to be some evidence for a decline in the overall proportion of unidentified fragments below around 40 cm depth from the surface (a drop of 74% to 33% between the samples from the top 40 cm and those below). Although the fragments from the terrace excavations are small and sometimes abraded, we can say that most of the non-identified pieces have a distinctive fabric and inclusions that have no parallel amongst the finds from the excavations so far undertaken at Dariali and Gveleti Forts. Together these sequences appear to cover a fairly broad chronological range, with the fourth to tenth century period well represented at Dariali Fort, and intermittent smaller-scale occupation elsewhere. The most likely explanation for the unidentified pieces is that they belong to classes that circulated during a later period than the main sequence currently known from Dariali Fort (*i.e.* post tenth century) and probably also later than the eleventh – fifteenth century period represented in the sequence recorded from Gveleti Fort. Unidentified pieces are most likely to belong to the late or post-medieval period. The distribution of non-identified fragments towards the surface within the Terrace 11 excavation may therefore be a significant indicator of the later use of the fields, and the presence of earlier pottery may be taken as an indication of older, relatively undisturbed deposits at a greater depth. Finally, the overall volume of ceramic finds from the excavations is potentially informative. From contemporary terrace systems in the Kislovodsk basin in the Northern Caucasus, excavations yielded an average of around 1.5 kg of pottery per cubic metre of sieved deposits.[124] This compares to just 370 g of pottery from the entire excavation of Terrace 11, and 91 g from Terrace 45. This comparison may indicate a variation in the intensity or duration of soil enrichment practices. Alternatively, it may simply be related to differences in ceramic finds retrieval methods used in the Kislovodsk Basin and in our project.

10.5.4. Summary of the results of the terrace field investigations

While it seems likely that these terrace field systems had fallen out of use by the nineteenth century at the latest, dating their construction and identifying periods of intensive land use in the region is difficult. Within the Dariali Gorge, targeted investigations have resulted in dates for the formation of basal deposits of specific terraces (Table 10:7). The date from Terrace 4 at DPS-6 (Tsdo) indicates construction of this terrace riser in the fifteenth century. Pottery from the excavated sequence reflects a range of classes that may date from the late antique through late medieval period. This may be the result of the reworking of sediment from the area during terrace construction. However, the presence of early medieval pottery types point to an earlier phase of activity within the vicinity. Textual sources confirm the existence of a village called Tsdo from the fifteenth century.[125] The location of Terrace 4 within the grouping of similarly constructed (stone-faced) terraces on the high ridgeline on the eastern part of the site may indicate a date for the construction of this entire grouping. If so, its proximity to the ruins of the tower and fortifications, also on the

Table 10:6: Pottery recovered from the terrace excavations[1]

Site	*Location*	*BGL*	*Sherds*	*Part*	*Class Code/ID*
DPS-8	Core near settlement 2014 excavation	0.35	2	Body	2× reddish brown coarse tempered and heavily abraded body sherds, identification uncertain, Pot sherd from Terrace 10, c. post 15th century?
DPS-6	T4 (from fill in wall) Context 3		2	Body	1× possible GREBS body (*i.e.* the main cooking pot class from Dariali Fort Trench F from mid-7th to 9th century period); 1× thick walled orange pottery body sherd with white inclusions and a grey core. Not a familiar class from the other excavations therefore possibly post 15th century?
DPS-6	T4	0.10	8	1x rim; 7x body	2× CEMRIB body; 1× possible GREBS body; 1× coarse reddish brown jar rim sherd with a grey core. Class and type not represented in the other excavations so most likely this post-dates the 15th century; 4× mixed body frags. identification uncertain
DPS-6	T4	0.40	19	Body	3× CEMRIB body; 2x HASOG body (1 certain, 1 possible); 8× cream/orange pottery body sherds, possible CEMRIB but identification uncertain; 5× fine orange body sherds, identification uncertain; 1× grey pottery with white inclusions, identification uncertain
DPS-6	T4	0.45	6	1x handle; 5x body	3x CEMRIB body; 1x HASOG body; 1x coarse reddish-brown body sherd; 1x dark grey cooking pot handle with coarse inclusions, identification uncertain
DPS-6	T4	0.50	12	Body	7x CEMRIB body; 1× HASOG body probable identification; 4× mixed orange pottery body sherds, identification uncertain
DPS-6	T4	0.75	12	Body	4x CEMRIB body; 1× GREBS body (probable but not certain identification); 1× reddish body sherd with white inclusions, identification uncertain; 1x fine reddish body sherd, identification uncertain; 5× small fragments of fine cream/orange body sherds, identification uncertain
DPS-6	T4	1.10	4	1x rim; 3x body	2× CEMRIB body; 1× coarse cream/orange coloured body, identification uncertain; 1× CEMRIB rim very characteristic jar form with a flared mouth, a triangular section rim and a sharp collar immediately below the lip. The type is clearly related but not identical to the main CEMRIB rim form represented in the Trench F assemblage
DPS-6	T4 (white layer) Context 5	1.60	1	Body	1× CEMRIB body, particularly fine cream coloured piece maybe earlier than the other pieces (late antique?)
DPS-9	T45 (#1)		4	Body	3× CEMRIB body; 1x hard reddish-brown body fragment with a black outer surface. Could potentially be GREBS but the identification is uncertain
DPS-9	T45 (#2)		1	Body	1× reddish coloured pottery body sherd with coarse inclusions, appears fairly abraded, identification uncertain
DPS-9	T45 (#3)	1.56	1	Body	1× CEMRIB body
DPS-9	T45 (#4)	1.57	1	Body	1× CEMRIB body

[1] See chapter 11 on class codes and pottery in general.

ridgeline, is intriguing but inconclusive. Overall, the nature of terracing at DPS-6 suggests multiple phases of terrace construction, and a continual reworking of this landform up to the present day. This presents a contrast to the terrace system at DPS-8. Here, there is less evidence for variation in terrace construction technique. The settlement on this site, if its identification with that of Kobi (Kvabi) is correct, appears to have been abandoned by at least the early twentieth century if not earlier, although the location may have continued to be used for growing hay.[126] The basal deposit of Terrace 10 at DPS-8 indicates a date for the construction of this terrace in the early to mid-eighteenth century. This would correlate with mentions of the settlement of Kobi (Kvabi) in documents from the second half of the eighteenth century.[127] While these results provide us with information on potential periods of terrace construction, we need to be careful in making wider assumptions based on such a small sample.

In more recent times, landforms with evidence for terrace field systems appear to have been in use for pasture or for growing animal fodder.[128] However, the eighteenth-century Georgian prince and geographer Vakhusht'i Bagrationi indicates that crops included wheat, barley, flax and oats.[129] Even so, it is likely that these crops only produced enough to supply local populations. Indeed, long-distance transport of produce is indicated as having been important to inhabitants of Dariali Fort in the tenth century according to Mas'udi,[130] and the diets of individuals found in the early medieval cemetery near the fort reflect high C_4 values suggesting access to food resources grown in regions with longer-growing seasons and warmer temperatures.[131]

The location of terrace and other field systems within the Tergi River Valley appears to be dictated by the availability of flat or gently sloping landforms at altitudes below c. 2,000–2,100 m. The initial investment in terrace fields may have occurred at different times throughout the valley. Linking this to increases in population, as seen in other highland regions *e.g.* the European Alps,[132] and periods of major historical socio-political change, could be two possible reasons for the widespread occurrence of terraces. However, a much larger dataset and improved chronological control of both sites and associated landscape features is required. They do, however, suggest significant investment by local communities, in particular geomorphologically stable landforms. In some cases, the terrace systems suggest use, reuse and potential reworking (*i.e.* the construction of what appear to be later field plots on the terraced fields at DPS-9). Whether these events represent continual use or periodic investments in cultivation is difficult to decide (perhaps reflecting the changing importance of pastoralism and cultivation over the long-term). However, traces of agricultural investment (*i.e.* terrace field systems) even if abandoned for a considerable period of time represent 'reusable landscape capital'.[133]

One other possibility for the extensive systems found in the region could be the response to major climate and environmental change. As seen today, rural seasonal activities are closely related to the physical and environmental conditions. For large periods of the year, upland areas are inaccessible due to snow cover, making even small-scale agriculture unfeasible. The construction of terracing in the period between the fifteenth and eighteenth centuries could have been a response to a combination of socio-political change and changes in climate and environment.

The local palaeoenvironmental records now available for the Dariali Gorge can provide some insights, particularly for the late antique periods.[134] Between 850 BC and AD 350 the pollen diagram for the Dariali Gorge indicates an increase in human activity with possible anthropogenic deforestation, possible cultivation of cereals and the intensification of pasture in the region. Furthermore, from AD 350 to 1000, this trend is accompanied by the introduction of walnut growing in the lowland areas. The record shows a hiatus in sedimentation possibly caused by a slope erosion event. However, again from AD 1450 to 1750, there is evidence for human activities, including cultivation and pasturing and the spread of pine forest. Ultimately, while the new pollen data from the Dariali Gorge provide an important starting point, we require further detailed regional high-resolution climate data for the Late Holocene period from the mountainous regions of the Central Caucasus to fully understand climate and environmental impacts on a local and regional scale.

10.6. Discussion

10.6.1. Problems of interpretation and presentation

There are still many hurdles to overcome before we can construct an accurate and detailed picture of long-term settlement and land use in the study area. However, we can begin to assess the relationship between the fortifications at Dariali and Gveleti and the surrounding landscape. Table 10:8 represents an attempt to provide a comparison between a wider pattern of settlement and land use and the occupation/use of Dariali and Gveleti Forts. As should be clear from the evidence presented, it is not possible to produce a quantified or formal assessment, and here we provide an impressionistic and interpretive visualisation of the data as it stands.

Several aspects should be taken into consideration in interpreting the data regarding the broader regional settlement pattern (the row labelled DPS in the table that represents dated sites and features given a Dariali Pass Survey number):

- This only includes sites and features with dating information, and this information varies in quality and chronological precision.

Table 10:7: Summary of characteristics of terrace field systems investigated in the field (see Fig. 10:40).[1]

Site	*Area (ha)*	*Riser facing material*	*Terrace riser height*	*Associated sites/ features*	*Typology*	*Geomorphology*	*Water Source*	*OSL Sections and Samples*	*Site*
DPS-6	30	Earth and stone	c. 1–5 m. The stone-lined examples on the ridgeline are generally taller than those in the lower areas.	Terraces, settlement (Tsdo), underground tunnels, walls, fort.	Type 2	High basalt plateau (Histosol, Andosol)	Slope runoff/ snow-melt	412–9 (1) (Terrace 4)	OSL – basal deposit of Terrace 4 = 1460±50 AD Pottery: late antique to medieval, but likely includes material from reworked sediment as a result of terrace construction
DPS-8	34	Earth	Some less than 1 m, but in general no more than 2–2.5 m in height. Difficult to estimate as the terraces are heavily slumped	Field systems, settlement (Kobi or Kvabi?), trackways, possible irrigation channel and garden plots, animal pens	Type 3 and type 2	High basalt plateau (Umbrisol, Mountain meadow soil)	Slope runoff, snow-melt, spring water	412–16 (Terrace 10) 412–17 (1) (Terrace 18)	OSL from basal deposit of terrace 10 = 1730±30 AD Pottery: one sherd from Terrace ten providing a post-15th century date
DPS-9	41	Earth and stone	Some less than 1 m, but in general no more than 3 m in height. Difficult to estimate as the terraces are heavily slumped	Field systems, Post-medieval to modern church and field plots. Stepantsminda	Type 4	Colluvial fan (Regosol)	Slope runoff/ snow-melt	412–10 (1) 412–11 (1)	No certain dates from ceramics.
DPS-10	34	Earth	Most are c. 1–1.5 m in height, terraces are heavily slumped	Field systems, walls. May be associated with settlements on the west side of the Tergi River Valley such or remains of possible village near the Military highway at the edge of the system	Type 1	Colluvial fan (Fluvisols and umbrisols)	Slope runoff/ snow-melt, river and spring water	412–4 (1), 412–7 (1) and 412–8 (1, 2)	–

(Continued)

Table 10:7: (Continued)

Site	*Area (ha)*	*Riser facing material*	*Terrace riser height*	*Associated sites/ features*	*Typology*	*Geomor-phology*	*Water Source*	*OSL Sections and Sample*	*Site*
DPS-11	37	Earth	Most are c. 1–1.5 m in height, terraces are heavily slumped	Field systems, walls. May be associated with settlements on the west side of the Tergi River Valley such or remains of possible village near the Military highway at the edge of the system	Type 1	Colluvial fan (Fluvisols and umbrisols)	Slope runoff/ snow-melt, river and spring water	N/a	–
DPS-12	40	Earth	Most are less than 1 m in height, terraces are heavily slumped	Associated with settlements on the west side of the Tergi River Valley, such as Pkhelshe or Goristsikhe or earlier settlements	Type 1 and type 4	Colluvial fan (Fluvisols and umbrisols)	Slope runoff/ snow-melt, river and spring water	N/a	–
DPS-19	19	N/a	N/a	Kobi? Lower Ukhati? Earlier settlements?	Type 2	Colluvial fan (Histosol, umbrisols and fluvisols)	Slope runoff/ snow-melt, river and spring water	N/a	–
DPS-51	9	N/a	N/a	Khurtisi?	Type 4	Colluvial fan (Fluvisols and umbrisols)	-Slope runoff/ snow-melt, river and spring water	N/a	–

[1] On the OSL samples, see chapters 10.8 and 24.

- The counts of dated features/locations include not just settlements, but churches, burials, hoards etc.
- The increase in the number of sites and features dated to the fifteenth-twentieth centuries is in part a reflection of the relative abundance of textual and ethnographic records relating to these periods compared to the preceding ones. While numerous settlements are mentioned in fifteenth-century documents, they may have been occupied considerably earlier, and as such we only have a *terminus ante quem* for their initial settlement.

Correlating the landscape sequence with those at Dariali and Gveleti Forts also requires an understanding of the scale and intensity of occupation at those sites. As in the wider landscape, quantifiable data such as size through time are difficult to measure due to the repeated use of specific locations and consequent erasing of earlier levels. The interpretation below is based on radiocarbon dates[135] and discussions with the excavation team and associated specialists, and again should be taken as impressionistic rather than strictly empirical.

10.6.2. Long-term settlement and land use in Khevi

Prior to the mid-first millennium AD, we have a limited understanding of human settlement in the region. However, this is likely due to our incomplete knowledge of the archaeological record rather than a consequence of limited occupation or use of the area. Furthermore, prehistoric activity in the area may have involved less settled modes of subsistence. A chance find of two Early Bronze Age ceramic vessels (Kura-Araxes ware) by Mindorashvili and his team near the village of Tkarsheti in the early 1990s[136] indicate some activity dating to the third millennium BC.

The Kazbeg Treasure, having been attributed to the sixth/fifth century BC, provides another point of reference in the long-term settlement history of the region, but as an isolated group of finds, offers little context for wider patterns. The objects include a few imports, notably an Achaemenid silver phiala with an Aramaic inscription, but appear to be mainly of local origin; though they reflect wider stylistic patterns apparent in assemblages from across what is now Georgia.[137] This evidence may speak to the connectivity of this region with the wider Southern Caucasus in the Achaemenid period. There may have been some activity in the sixth-third century BC at the base of Dariali Fort as indicated by the radiocarbon dates, perhaps campfires lit by passing travellers.[138] However, further investigation is required before the nature or intensity can be commented upon.

Artefacts (including jewellery and coins) dating to the first century BC – first century AD (possibly from a burial context) have also been found in the vicinity of Stepantsminda.[139] Again, it is difficult to comment on a wider pattern based on such a small sample. The Dariali Fort is mentioned by Greek and Roman authors in texts from the first and second century AD; these indicate its importance as a route-way, and the interest that the Iberians, and possibly Romans had in controlling movement, and perhaps levying taxes in kind for goods passing through it.[140] Some small scale cultivation in the vicinity of Dariali Fort[141] may have been occurring at this time frame (first century BC – first century AD), though the type and intensity of activity cannot be ascertained at this juncture. While speculative, the lack of *in-situ* material dating earlier than the fourth century AD in Dariali Fort may be a consequence of later levelling and rebuilding[142] or could signal a major mismatch between available textual and archaeological data. Wider land use patterns are also complex.

The pollen diagram from a core taken in the Dariali Gorge indicates that between 850 BC and AD 350 there is probable evidence for increased human management of the landscape through deforestation, the possible cultivation of cereals and the intensification of pasture, but understanding how this evidence relates to smaller time blocks within this span is currently not possible.[143]

Excavations on Dariali Fort have produced evidence for a main phase of occupation from the late fourth century AD to c. AD 1000 or to the first third of the eleventh century.[144] At present there is limited evidence for activity between the fourth and eighth centuries AD in the wider landscape. This takes the form of burials excavated near Gveleti, c. 2.5 km south of the Dariali Fort, which produced material dated to between the sixth and eighth centuries.[145] However, a fort/tower at Sno may have been built in the seventh century,[146] but (as no longer extant) this is hard to verify. Pottery located in the terrace fill at Tsdo may be as early as the late antique period indicating activity in the vicinity (it was likely deposited in this context as the result of soil re-working as opposed to the terrace building event), but again the dating is not conclusive.

Several sites and features (mainly churches and associated burials) in the Tergi and Sno River Valleys have been attributed to the ninth-tenth centuries AD. The churches at Sioni, Akhaltsikhe and Arsha Fort have been dated to this period and a specific type of tomb, with similarities to those found in Gergeti and dated to the ninth-tenth centuries, were also found at all three sites.[147] At Tkarsheti, ninth-eleventh century graves are said to have been excavated in association with the church.[148] There was clearly a relatively significant level of activity at this time, at least in comparison to earlier periods.

Dariali Fort (or at least parts of it) and the cemetery to its south were also in use during the eighth to tenth or early eleventh centuries AD. A considerably higher volume of artefacts has come from this part of the sequence, in comparison to those from the fourth-seventh century. However, the volume of finds is not proportional to the excavated volume, and therefore a misleading metric on its own. There appears to have been a considerable amount of levelling and rebuilding on top of the fort in the eighth-tenth centuries that has likely erased areas of earlier occupation.[149] However, the ceramic analysis of finds from Trench F (on top of Dariali Fort) provides compelling evidence for a possible change in the type of occupation or site use that occurred sometime after the mid-seventh century. This may partly explain the difference in the volume (and average weight) of finds, especially as it is accompanied by a change in the composition of the ceramic assemblage.[150] At Gveleti Fort, one radiocarbon date indicates late eighth-tenth century activity, but the nature and intensity of occupation then is uncertain.[151]

A potential increase in pasturing and cereal cultivation accompanies possible deforestation in the vicinity of Stepantsminda in the period between AD 350–1000 as indicated by the pollen core. Furthermore, the spread of walnut cultivation is evidenced in the lowland areas as indicated by the constant presence of *Juglans* pollen in the record.[152] Mas'udi, writing in the mid-tenth century, attests that the garrison at Dariali Fort received supplementary provisions of food from Tbilisi, perhaps indicating that cereal cultivation in the local valleys was not producing a significant surplus.[153] The isotopic analysis of the individuals recovered from the Dariali cemetery supports this, indicating that several 'had a significant contribution of

Table 10:8: Comparative visualisation of wider pattern of settlement and land use (DPS) compared to the dates from excavated sequences at Dariali and Gveleti Fort and the pollen core from Stepantsminda. Text within the DPS row indicates that there is an OSL date from a terrace.

	Bronze Age	Early Iron Age	11th C. BC	10th C. BC	9th C. BC	8th C. BC	7th C. BC	6th C. BC	5th C. BC	4th C. BC	3rd C. BC	2nd C. BC	1st C. BC	1st C. AD	2nd C. AD	3rd C. AD	4th C. AD	5th C. AD	6th C. AD	7th C. AD	8th C. AD	9th C. AD	10th C. AD	11th C. AD	12th C. AD	13th C. AD	14th C. AD	15th C. AD	16th C. AD	17th C. AD	18th C. AD	19th C. AD	20th C. AD
DPS																												Terrace 4 at DPS-6			Terrace 10 at DPS-8		
*Dariali Fort								Extent of occupation/activity unknown: seasonal temporary use?					Activity in area/fields below fort					c. late 4th-early 11th C. AD									Late 13th-early 15th C. AD						
+Gveleti Fort																						Late 8th-10th C. AD		Late 10th /11th-13th C. AD			Late 13th-14th/15 thC. AD		Mid-15th-17th C. AD				
Pollen sequence	**2550-2150BC**-open pine forest & burning **2150-1100BC**-increase in temperate forest line to higher altitudes & burning, possible agriculture		**1100-850 BC** Decrease in temperate forest line and burning of pine birch forest			**850 BC- AD 350** Possible deforestation by humans, possible cultivation of cereals and intensification of pastures												**AD 350-1000** Continued possible deforestation by humans, possible cultivation of cereals and intensification of pastures, as well as beginning of walnut cultivation in lowlands							**AD 1000-1450** hiatus						**AD 1450-1750** Spread of pine forest and increased human activity				

DPS – Number of sites expressed as a percentage of the total sample (i.e. 0-2% of 100%). This includes only sites with dating information.	0.1-2	2.1-4	4.1-6	6.1-8	8.1-10	10.1-12	12.1-14

+* Gaps in the sequence do not necessarily imply periods of abandonment. They could also represent periods in which activity at Gveleti or Dariali Fort was occurring at locations that were not excavated

C4 resources to their diets, *i.e.* food grown in a climate with a warm temperature and a long growing season.'[154] Interestingly, the ceramic analysis indicates that the sources of ceramic supply varied notably between regions to the north and the south in the fourth and tenth centuries AD;[155] it is possible that food supplies may also have come from various locations through this time period depending on the political, social, and economic circumstances.

There is no evidence for architecture or dated deposits at Dariali Fort between the early eleventh and the late thirteenth or fourteenth centuries; while the fort could have been abandoned, this could also suggest a shift in occupation away from the excavated areas.[156] At present there is no evidence supporting the association of Dariali Fort with Queen Tamara, ruler of Georgia between AD 1178/1184 and 1213, and it is likely that the popular name 'Tamara's Fort' was an attribution post-dating the High Middle Ages.[157] Gveleti Fort, on the other hand, does appear to be in use from the late tenth/eleventh through to the twelfth or thirteenth century.[158] However, there is limited evidence for activity in the wider landscape, where the only clear evidence comes from graves excavated in Juta and Artkhmo in the late 1800s and attributed to the high medieval period.[159] The paucity of evidence during the High Middle Ages (mid-eleventh to thirteenth centuries) contrasts sharply with the ample archaeological and textual evidence recovered elsewhere in Georgia.

In the wider Khevi region c. 300 sites containing medieval pottery were recorded by Kruglov in the 1930s,[160] though perhaps representing a considerable period of time (late antique/early medieval through late medieval). However, the lack of documentation is reported to have made it difficult to associate the recovered material with specific sites.[161]

Several churches are attributed to the thirteenth-fourteenth centuries AD, the most famous, being Gergeti Trinity, constructed in the first half of the fourteenth century.[162] Occupation on Dariali Fort is apparent between the late thirteenth and early fifteenth century, while there is also dated activity on Gveleti Fort during the late thirteenth/fourteenth-fourteenth/early fifteenth centuries, and again from the mid-fifteenth-seventeenth centuries. Understanding the wider settlement pattern becomes much easier from the fifteenth century, as textual evidence[163] now tells us that the following villages within our study area were occupied: Akhaltsikhe, Artkhmo, Gaiboteni, Gveleti Village, Kanobi, Khurtisi, Qeduri, Kobi (Kvabi), Tkarsheti and Tsdo. However, this only provides us with a *terminus ante quem* for their earliest occupation. Historical documents from the eighteenth century,[164] travellers' accounts from the nineteenth century,[165] and ethnographic accounts from the early twentieth century[166] further increase our understanding of settlement in the region for the last three hundred years. This increase in information may be partly responsible for the apparent increase in the number of sites and features that is apparent in Table 10:8 from the fifteenth through nineteenth centuries. Even so, increased knowledge of a wider pattern of settlement can allow us to begin to think about connectivity throughout the region. For example, while only speculative, it is possible that Gveleti Fort may often have served as a local refuge for people from nearby settlements, like Gveleti Village, if at least on one occasion for Davit VIII.[167] However, some caution needs to be exercised as it appears that villages changed locations through time, but may have maintained the same name.[168]

While we require a larger sample to understand the use of entire terrace field systems, an OSL date from the basal deposit of at Terrace at DPS-6 (Tsdo) of 1460±50 AD, indicates some landscape investment in the vicinity of the site roughly contemporary with the earliest mention in textual sources. The presence of ceramics from the same terrace fill indicates activity in the area from the late antique through the medieval period. At DPS-8, an OSL date from the basal deposit of a terrace provides us with a date of 1730±30 AD. If the site corresponds to that of Kobi (Kvabi), mentioned in fifteenth and eighteenth century texts, then landscape investment in the vicinity seems plausible. Terrace building may have served various purposes, including providing areas for cereal (and other crop) cultivation, growing hay for livestock provisioning and stabilising land forms for animal grazing (and over time likely all three). Determining the function of individual terraces is not currently possible. However, from the pollen record we can see an increase in human impact on the environment (and an increase in evidence for both cultivation and pasturing), as well as the spread of pine forest between AD 1450 and 1750.[169]

By the early twentieth century, a number of villages appear to have dwindled in population or abandoned.[170] Terrace fields appear to have been used mainly for hay, divided into smaller field plots or served as grazing land suggesting that the local economy may have relied more heavily on transhumance and village-based herding, with people and villages engaging in small-scale cultivation of hardy crops. More recently, the closing of the border between Georgia and Russia fundamentally changed the local economy as it put an end to traditional transhumance practices which required free movement between the two states.

10.6.3. Contextualising an upland 'frontier' landscape – control and connectivity

The deposition of scree and sediment from the upper slopes, and the considerably more destructive landslides that occur in the gorge, along with seasonal flooding of the river,[171] make this a dynamic landscape. A constant issue throughout the landscape survey, and also one apparent in the excavations, is that the clear use and reuse of particular locations for settlement, cultivation and grazing has resulted in the attenuation of earlier landscapes. In the lowland regions of the Southern Caucasus, it has often been twentieth century, and in particular Soviet period, agricultural programmes that have erased or significantly

altered earlier landscapes.[172] Our study region appears to have escaped this destruction due to the recent emphasis on pastoralism over agriculture, but this only takes us back to the last period of intensive landscape change, likely in the seventeenth-nineteenth centuries. The investigation of the Dariali Pass and adjoining valleys has provided little evidence for landscape investment contemporary to activity at either Dariali Fort, or the late antique period. This may reflect the poor recovery of earlier landscape features, due to destruction caused by the repeated use of the same land forms. However, we should also note that this area is likely to have been used for pasture for long periods of time, and therefore the sorts of infrastructure we might associate with intensive agriculture are less likely to be present. Finally, as a key transport corridor, the interest of external polities may have remained primarily focused on defence and the control of movement rather than food production.

Settlement location appears to be influenced, unsurprisingly, by altitude and the availability of accessible flat to gently sloping land. This is demonstrated clearly in the Dariali Gorge (the upper Tergi River Valley, north of Stepantsminda) by a comparison of the results of our 2013 survey (settlements and terrace locations) with data on slope and elevation obtained from a DEM (Digital Elevation Model) based on SRTM data; almost all landforms accessible from the valley bottom with a slope gradient of less than 15° and an elevation equal to or below 2,000 m. were associated with archaeological sites and features.[173] This does not mean that communities in the past were exploiting these land forms only, but that they were the best locations for settlement and subsistence activities that included some cultivation, and were likely the most accessible, especially during the winter months.

Because of more favourable conditions (*i.e.* larger contiguous areas of flat to gently sloping land), more settlements are located in the vicinity and south of Stepantsminda in both the Tergi and Sno River Valleys. Here, the Tergi River Valley is considerably wider and settlements appear to have moved more frequently (*e.g.* from one side of the river to another), as demonstrated by the ethnographic evidence from the last few centuries. There are several references to villages located on what were colloquially known as former field systems (*e.g.* Kanobi).[174] Even so, none of the arable land appears to have been out of use for long. While difficult to date, the palimpsest nature of the field systems to the north of Stepantsminda (DPS-9) attests to this. At some point following the construction of the terraces, the system was divided into smaller field plots, and the risers appear no longer to have been maintained. These eventually fell out of use, and the location is now primarily used for the grazing of local livestock. The population of the region, and their primary mode of subsistence, may have varied between pastoralism and cultivation through time and certain locations may have fallen out of use. However, the 'reusable landscape capital',[175] or the infrastructure associated with agricultural investment in the landscape, such as terraces, field walls, or clearance cairns would remain and so provide a useful base for reinvestment in the landscape. Despite the fact that there may have been variations in subsistence strategies (possibly influenced by political, cultural and technological changes), there is also clear continuity in terms of land use location influenced by ecological factors.

Architectural traditions of the region also appear to reflect the need for maximising space. Dolidze indicates that two-storey houses, tower houses and fortified houses developed because of the landscape setting; settlements tended to expand upwards to save the limited arable land.[176] This type of architecture also reflects a landscape in which social and political instability is common (though fortifications can also serve as expressions of power). While regionally diverse and adapted to local environments, fortified settlements, notably hilltop settlements, are prominent throughout the highlands of the Southern Caucasus from the Late Bronze Age.[177] At the regional scale, the endurance of these types of settlements probably reflects the dynamic history of a region that served as a meeting point between the communities of the uplands and lowlands, local polities and successive foreign empires for thousands of years.[178] At the local scale of our study area, tensions must have existed in the past between different groups, from village to village as well as through ethnic and cultural divisions.

Mobility, and seasonality, also played a key role in shaping the politics and economics of this region over the long term. These are important themes in the discussion of long-term settlement patterns and the formation of complex polities in Southern Caucasus Archaeology.[179] In general, the highland landscapes of the Southern Caucasus are particularly suited to specific agro-pastoral strategies involving the movement of animals between summer and winter pastures. In the Greater Caucasus, there is an abundance of upland pasture, often only accessible for grazing in the summer months, which formed part of a regional system with winter pastures often in lowland areas of modern Azerbaijan and Dagestan.[180] In Khevi, these traditional systems of transhumance were crucial to the local economy up to the end of the Soviet Union, as they have been for at least several centuries, if not millennia.[181]

Over the long-term, the economy may have been heavily reliant on the seasonal movement of animals (especially from the north of the Dariali Pass). How would the economy have been affected by periods in which a fortified and highly controlled frontier zone existed? Furthermore, how would such periods influence or change local settlement patterns? Currently, our understanding of the long-term settlement pattern and local environmental record is not fine-grained enough for us to see the impact of such political changes. The closing of the border between Georgia and Russia brought an end to the traditional transhumance systems of the region that relied on winter pastures in Dagestan, altering the economic focus of the region. This situation, however,

may not reflect that of the past, as this modern example relies on the technology and levels of control only possible in modern nation states. Artefact studies, and especially the work on the pottery, indicate that ancient frontier controls must have been more fluid. Through the main period of occupation of Dariali Fort, the garrison, and presumably the wider community living within the Dariali Gorge, continued to receive a regular supply of high-bulk, low-value staple commodities such as coarse pottery from sources located both within the central Northern Caucasus and the Eastern Georgian lowlands. At the same time, the relative contribution of these supply sources did fluctuate, pointing towards profound changes in the regional subsistence base, particularly during the late Sasanian period.[182] More broadly, however, there is a degree of stability in the sources of ceramic supply and a level of conservatism with the persistence of particular pottery industries through many centuries that reinforces one of the main findings of the landscape study: the continuity and endurance of subsistence practices within the region. The effects of shifts in local, regional and interregional power are varied and complex and require further research to fully elucidate in this context.

10.7. Dariali Pass Survey Site Gazetteer

Sites surveyed in the field by the DPS

DPS-1: Gveleti Village

Coordinates: UTM 38N 469193, 4728414[183]
Location: The remains of the village are located c. 1.5 km south of the entrance to the Amali Valley on the western bank of the Tergi.
Geomorphology/Topography: On a flat area of land just above flood plain. The walls of the gorge rise steeply just east of the village. The village is immediately north of a stream called Tbitstskali (Gveletistskali) that flows into the Tergi.
General Site Description: Foundations of a number of rectangular structures (likely dwellings) and the remains of a square-based tower built of stone, with some brick. The tower sits next to the stream, just south of the main settlement. A large sub-circular enclosure measuring c. 50 m in diameter is located immediately east of rectangular structures.

A further c. 100 m along the Gveletistskali Valley from settlement, we located a large irregular enclosure built against the steep rock face on the north side of the valley (WP-86). This side of the river valley is not currently accessible from the village. To the west of the large enclosure is what appears to be a single grave marked by a ring of stones, with five flat stones covering the top (WP-84). A rectilinear dry-stone enclosure c. 3.3 × 1.75 m is found another 80 m into the valley. One wall utilises a massive boulder (WP-85).

Pottery Types and Dating: No pottery. The abandoned, but still standing building was likely in use in the last century. A village called Gveleti is mentioned in documents from the fifteenth-eighteenth centuries[184] and was inhabited up until the early twentieth century; it appears to have been nearly abandoned by the 1930s.[185]
Recorder and Date: KH, EM, FM, KK 17/6/2013 and 24/6/2013.[186]

DPS-2: Gveleti Fort

Coordinates: Upper Fort UTM 38N 469170, 4728078; Lower Fort UTM 38N 469339, 4728242
Location: c. 150–300 m south of Gveleti Village in the Tergi River Valley.
Geomorphology/Topography: The forts are located on top of a narrow spur on the western bank of the Tergi River. The Gveletistskali runs past the northern and western side of the spur. There is a steep drop off to the north, east and south. The lower fort is accessed from the north-west.

The visible remains of the lower fort consist of a square tower with semi-circular enclosures around and below it. The upper fort is further along the spur (to the south-west) at a higher altitude. It is not easily accessible.

Several features were located on the slopes of the gully through which the lower fort is approached. This includes several small sections of wall running both across and perpendicular to the valley (WP-3). There is also a stone room built into the hillside below the fort containing a wooden cross.

Between the spur on which the upper fort sits and the wall of the gorge is a small section of dry-stone wall (c. 1 m wide and 8 m long) possibly erected to block access to the gully from the south (WP-44). A further 200 m to the south-east, also on the steep slope, is a small dry-stone rectilinear structure, 2–3 m in diameter that possibly functioned as a lookout post (WP-46). Thirty metres south-west of this feature another section of wall (c. 2 m) long was visible on the hill side.
Site Subdivisions: Upper and lower fort.
Pottery Types and Dating: No pottery collected. Radiocarbon dates from the excavations suggest some activity in the late eight-tenth century, late tenth/eleventh-twelfth/thirteenth century, late thirteenth-fourteenth/early fifteenth century and mid-fifteenth-seventeenth century.[187]
Recorder and Date: KH, EM, FM 17/6/2013.

DPS-3: Walled cave near Gveleti

Coordinates: UTM 38N 469232, 4728170
Location: c. 200 m south of Gveleti village in the Tergi River Valley.

Geomorphology/Topography: The site is located c. 100 m up the wide gully which provides access to the Gveleti Forts.
General Site Description: Cavern with walled entrance. There are two offset stone walls at the entrance that create a narrow passage into the cave. The walls contain mortar. The distance between the two walls is c. 1 m. It is possible that some of the material used to construct the walls has been removed from the walls of the cave. The cavern is 5 m deep. There appears to be a significant amount of deposit on the cave floor, with ash throughout. A few pieces of burnt wood were found on the floor of the cavern. No artefacts and no other cultural features visible. The cave may be in use as a shrine.
Pottery Types and Dating: None. The walls appear to be rather recent.
Recorder and Date: KH, EM, FM 17/6/2013.

DPS-4: Gveleti Cemetery

Coordinates: UTM 38N 469208, 4729335
Location: 1 km north of Gveleti village and 2.5 km south of Dariali Fort.
Geomorphology/Topography: Flat to gently undulating area on west bank of the Tergi. A stream separates the site into two. The area has been disturbed by the building of a pipeline.
General Site Description: Several cist graves were excavated by a Georgian team at the site when a pipeline was put through the location in 1991.[188] No graves were located on the surface in our survey, but several were noted in later seasons eroding out of the bank above the Tergi near this location. In general, the area appears heavily disturbed, and any archaeology would seem to be subsurface.
Pottery Types and Dating: No pottery on surface. Previous excavations suggest a late antique/early medieval date (sixth-eighth centuries AD). Excavations by the team also found relatively recent burials (which do not form part of the cemetery excavated in the early 1990s, but are further south).[189]
Recorder and Date: KH 18/6/2013.

DPS-5: Daba and the lower Amali Valley

Coordinates: UTM 38N 468646, 4729995
Location: in the Amali Valley the entrance of which is c. 1.5 km south of the Dariali Fort and the same distance north of Gveleti Village.
Geomorphology/Topography: The valley slopes from east to west, with the centre of the valley sitting at least 20 m above the deeply incised Amali which flows along the north side of the valley.
General Site Description: The settlement of Daba is located c. 700 m into the valley. Other features are distributed throughout the valley and are described below.

Settlement

The village consists of a cluster of structures at the bottom of the valley (WPs 29–40). The village does not have a uniform layout. There are however, several repeated types of structures and arrangements of structures throughout. There are individual units of small square buildings with attached rounded dry-stone enclosures. Several of these enclosures have a long narrow area walled off, with an opening at one end. These resemble sheep runs, but without a second entrance their function is unclear. They are, however, likely related to keeping animals. The buildings generally have small windows and internal niches, perhaps to keep important belongings. Several of the buildings have been repaired and used in the recent past.

Water is also being funnelled down from a spring higher up in the hills on the southern side of the settlement to a makeshift animal trough constructed of rubber tires. It seems likely that animals are still grazed here seasonally. There were no people or animals present at the time of the survey (June/July).

There was a considerably amount of modern refuse at the site, deposited by recent reuse. No pottery was located. It is likely that the settlement dates from the last few hundred years, though some of the structures or indeed the area may have been used in earlier times.

Wall

A wall composed of large rocks and boulders up to one metre in diameter has been constructed across the valley running N-S (WPs 20–28). Its northern terminus is just above the steep drop off the river, while the southern end abuts a steep hill side. The wall could have been used to keep animals in the upper pastures. While the lower portion of the wall is likely buried, it would probably not have been of sufficient height to serve a defensive purpose.

Cairns

Two cairns constructed of cobbles and stones between 0.10 m-0.30 m were located on the upper slopes of the valley. One was found next to a road (WP-9), making it possible that they have resulted from field clearance. Another was found at least 40 m from the road, perhaps suggesting another use. It is however difficult to tell at this point.

North and east of the settlement, on a high undulating plateau we located an area of c. 50 × 40 m which contained c. 68 potential burial cairns (WP-79–81). They are generally constructed of a ring of outer stones, filled with rubble and other large stones. A detailed mapping of these features was undertaken in 2016. To the north and west there is a steep drop to the river valley, and to the east there is a lake. The cairns appear to have a variety of morphologies and no clear pattern of orientation. Excavation established that they do not cover burials and their significance is open to debate.[190]

South of this location, on another rise a few features were noted that might represent cist graves. These are located closer to the settlement (WP-77 and WP-82).

Rectilinear stone features and circular/sub-circular depressions

Throughout the course of the valley we located 16 square stone lined semi-subterranean features that were set into the edge of ridges or into mounds (though this may be the upcast from their construction), and often had a 'channel' or 'linear depression' leading away from them. The first few metres of these linear depressions were often stone lined. These features were roughly 5 m in diameter and had a 'window' or gap in the stone work set into the end opposite the 'linear depression'. At least three rectangular depressions were also located, as well as numerous circular and oval depressions, sometimes connected by 'channels'.

One of the best-preserved examples (WP-7) is oriented N-S and measures c. 4 m in length. The feature is c. 2.5 m for most of its width until the walls step in to form a 0.75 m entrance for the front half of its length. A linear depression runs into the feature through this opening. A 'window' is located opposite the opening in the back wall of the feature. One (WP-12, WP-15) has a rather elaborate system of linear depressions that extend 18 m to the north-west and 15 m to the south-east of the feature. Small side linear depressions only 1–2 m in length are placed along the length of these larger linear depressions. The features are in various states of preservation and while not datable at this point, they clearly have not been maintained for some considerable time.

We initially wondered if these features also had some use for collecting water, but their locations and the slope of the 'linear depressions' did not appear to display any uniformity. Several local informants later suggested that these square features may have been foxholes for armed individuals to take cover in, related to local conflicts in the eighteenth and nineteenth century. This would explain the 'window' like feature and their strategic locations on high ground or on the edge of a cliff. It is possible that the circular or oval depressions may have served a similar function, or may, as we initially thought, be related to water collection.

Pottery Types and Dating: No pottery. At least part of the settlement called Daba was inhabited until relatively recently.

Recorder and Date: KH, SP, EI, KK, DL 18/6/2013, 24/6/2013.

DPS-6: Tsdo

Coordinates: UTM 38N 470125, 4726705

Location: 4 km north of Stepantsminda on the west side of the Tergi River Valley.

Geomorphology/Topography: The village and terrace field system are located on a high plateau on the west bank of the river. A high ridgeline on the east side of the plateau creates a sheltered 'bowl' between it and the gorge wall. The site can be accessed from the north with some difficulty, but the main access is from the south.

General Site Description: the site consists of ruined structures interspersed with the modern village of Tsdo. A tower-like structure and circular enclosures are found on the ridgeline just above the village to its east. To the north and south-west of the village there is evidence of terraces. The terraces are no longer under cultivation, save for a few small plots and hay fields. Numerous clearance cairns were located within the areas of the terraces. Paths are visible between terraces zigzagging down hillsides.

On the highest point of the ridgeline sits a tower-like structure. It is roughly rectangular, forming a room of 8 × 4 m. A stone ram statue with metal horns is perched on one of the walls of the tower. Further walls are visible on the same platform extending to the south forming an L-shape. A Christian shrine, still in use, sits on the bottom part of the L-shape. Below the tower are numerous roughly circular enclosures.

There is inter-visibility between Tsdo and Gveleti Fort, as well as a path along the hillside between them.

Pottery Types and Dating: a few sherds of badly preserved pottery were located near the clearance cairns but no samples were retained. OSL dating of the basal deposit of Terrace 4 provides a date of 1460±50 AD for the construction of that particular terrace. A small sample of ceramics from the excavations of the same terrace indicate possible activity in the area between the late antique and medieval periods.

A village called Tsdo is mentioned in fifteenth century documents, but it could have existed prior to this .[191]

Recorder and Date: KH, SP 20–21/6/2013.

DPS-7: Dariali Fort and Cemetery

Coordinates: UTM 38N 469426, 4731692[192]

Location: approximately 1 km south of the Georgian/Russian border in Georgia.

Geomorphology/Topography: located on a raised landform on the west bank of the Tergi.

General Site Description: Dariali Fort sits on top of a high flat outcrop on the west bank of the river with excellent views of the pass to the north. In the south, on the opposite side of the pass, is a small stone tower. Visible on top of the fort are several rectangular stone built structures and walls.

Approximately 350 m to the south are several cist burials. Investigations at the site suggest an extensive cemetery.

A path is visible extending from the fort, past the cemetery, toward the south (as well as to the north, leading here to a modern bridge across the Tergi River). It has clearly been used as a road in the recent past and probably broadly follows an ancient route. However, it also appears to be the best access track on the high ground from the fort to the south. The track ends c. 1.5 km south of the fort, terminating where the Amali meets the Tergi. There

are several levels of tracks near this point and, while it is possible to get down near the river terrace, there does not seem to be easy access across the Amali River. Considerable erosion appears to have taken place along the edges of the river terrace.
Site Subdivisions: fort and cemetery.
Pottery Types and Dating: excavations indicate human presence (fires) from the sixth/fourth century BC onwards and agricultural/horticultural activity in the vicinity of the fort from the first century BC/first century AD, with the main phase of occupation between the late fourth c. AD to the late tenth/early eleventh century. After this, there appears to be a hiatus in occupation (in the excavated areas) until the late thirteenth to early fifteen centuries AD (or a shorter period within these parameters). Following this, there is no evidence for occupation until the twentieth century. The cemetery was in use between the eighth-late tenth/early eleventh centuries AD.[193]
Samples: one bag of pottery was collected from the area of the fort and cemetery.
Recorder and Date: KH 22/6/2013.

DPS-8: Unknown, but possibly Kobi (Kvabi)

Coordinates: UTM 38N 469844, 4724856
Location: On top of high plateau between c. 2 km south of Tsdo and 1.5 km north of Gergeti.
Geomorphology/Topography: Site is located at c. 2,000 m, on a high flat to gently sloping plateau. There is a shear drop off to the Tergi to the east side of the plateau.
General Site Description: The site consists of field systems (terraces and enclosures), several structures (probably representing the remains of a village, cairns, walls and several channels. There are no roads leading to the site and the best access is achieved by following a hiking trail up the south side of the plateau from the Chkheri River Valley.

The remains of several enclosures and structures are clustered on the north-western part of the plateau. These mostly consist of roughly rectilinear structures within or around larger enclosures. In one case, one of the structures appears to be built into a terrace.

Along the northern boundary of the site are two large linear depressions running roughly east-west, with several smaller linear depressions branching off. These may be channels. There is also a concentration of cairns along this northern boundary. Several appear to be clearance cairns, while several others are in proximity to a large enclosure wall, though their relationship is uncertain. A further few are located near the channel and are difficult to associate with any function at this time.

The terraces on the plateau are all constructed of earth and run roughly parallel in a north-west to south-east direction. There are two cases of roughly north-south-aligned terraces constructed between the ends of two longer north-west to south-east terraces. The system and settlement are abandoned.

Pottery Types and Dating: None from survey. OSL dating of the basal sediment from Terrace 10 provides a date of 1730±30 AD for the construction of that terrace. One sherd of pottery from the same terrace suggests a sixteenth century date.

Based on its location, the site may correspond to the settlement of Kobi (Kvabi), which already existed prior to the fifteenth century, when it is recorded that a village called Qobi (Kvabi) donated gifts to Gergeti Church. It is also mentioned in the second half of the eighteenth century in a document from the reign of King Erekle II (1762–1798). It was said to have been abandoned at the end of the eighteenth century, but a new village was built immediately to the north of the old and settled by Osetian people in the nineteenth century. However, it was again abandoned because of hostilities between the Osetians and other local groups. The two villages were said to be separated by fields used for growing hay.[194]
Recorder and Date: DL, KH 5/7/2013.

DPS-9: Field system north of Stepantsminda

Coordinates: UTM 38N 471414, 4723921
Location: immediately north of Stepantsminda.
Geomorphology/Topography: on a gently sloping landform on the east side of the Tergi River Valley. A stream, which flows into the Tergi, divides the field system from the town. A significant amount of rock and sediment has been deposited from the higher slopes to the east of the system. The fields gently slope towards a sharp drop off into the flood plain.
General Site Description: field systems associated with the settlement at Stepantsminda. Fields are accessed by crossing a deeply incised stream which runs west toward the Tergi. System consists of at least 46 terraces descending from east to west. The majority of the terraces are made of earth, but several toward the lower end of the system are constructed of or are reinforced with stone. Running parallel to the front of some of the terraces, as well as perpendicular to them (connecting the ends of the terraces) are numerous dry-stone walls (WP-200–210). Many of these walls have collapsed and are difficult to distinguish from the clearance cairns that are dotted about the fields.

There are several large dry-stone enclosures which appear to be well maintained and in recent use. Many of them have barbed wire and wood incorporated into them and enclose part of a pre-existing terrace. These are likely for keeping grazing animals out of winter fodder.

Numerous circular and sub-circular depressions are also located on the south and west edges of the system, near the steep drop off to the river (*e.g.* WP-219). They consist of rounded depressions with upcast banks averaging between 1–3 m deep and 3–6 m in width. There are also two stone-lined depressions (including WP-222). Both are rectangular, with two linear depressions/channels running parallel from one of the long axes. Are these features

for water collection? Several natural channels also flow towards the west from the hills above.

Several stone structures have also been built into the walls below terraces. In one case, faint remains of rectangular and circular structures were located along one of the few east-west running terraces (WP-225–229).

A small church constructed on top of a large boulder is also located in the fields (near WP-250). The church was not accessible as it was fenced off due to it being in a poor state of preservation. It was constructed of stone and built between what are possibly two terraces.

Pottery Types and Dating: No pottery visible on surface. See terrace excavation section. Terraces may have fallen out of use (no longer been maintained) by the nineteenth century.

Recorder and Date: DL, KH 6–9/7/2013.

DPS-10: Unknown

Coordinates: UTM 38N 461578, 4714652

Location: Located on either side of the Military Highway in the Tergi River. Across the river from Kanobi.

Geomorphology/Topography: On a gentle slope above the Tergi River floodplain on its east side, backed by steeply sloping mountains. The highway cuts the site lengthways approximately two thirds of the way down the system. The bottom edge of the system has been eroded by the Tergi.

General Site Description: Large field system which may be connected to DPS-11; separated from it by a deeply incised gully. Terraces, walls and clearance cairns are clearly evident in the field and on satellite imagery. Two circular depressions (cisterns?) are also found along the upper side of the road edge (WP-631). The terraces seem to be largely uniform, generally 1–1.5 m in height. No stones appear to have been used in their facing, and they are heavily slumped. The walls, which run perpendicular to the terraces are probably better described as linear piles of stones; no coursing is visible. The clearance cairns are heavily eroded and overgrown. The field system appears to be laid out to take advantage of run off across the alluvial fan with terraces and walls widening towards the bottom of the system.

Ruined structures are found along the highway edge on its south side. It is possible that there were structures (a settlement?) along the course of the road that was destroyed during the construction of the road.

Pottery Types and Dating: No pottery was found on the surface.

Recorder and Date: DL, KH, LSK, LS 5–7/7/2014.

DPS-11: Unknown

Coordinates: UTM 38N 461162, 4714024

Location: On the same landform as DPS-11, separated from it by a gully.

Geomorphology/Topography: On a gentle slope above the Tergi floodplain on its east side, backed by steeply sloping mountains. The highway cuts through the site. The bottom edge of the system has been eroded by the Tergi.

General Site Description: A series of walls running perpendicular to the slope of the same alluvial fan on which DPS-10 sits and possibly part of the same system. Some of the walls clearly creating field plots, but there is no evidence of terracing. The walls have no visible courses. Field clearance cairns are common.

Numerous channels run along the slope, perpendicular to the walls. In some cases, stones appear to have been stacked or arranged at the edges of the channels. The channels are fed by a stream flowing between DPS-10 and DPS-11. The stream becomes more deeply incised as it descends and has carved out a deep gully at its confluence with the Tergi. Two springs are visible on the mountain behind the site. One circular depression (WP-638) was found at the north-eastern edge of the site.

Pottery Types and Dating: N/a.

Recorder and Date: DL, KH, LSK, LS 5–7/7/2014.

DPS-12: Unknown

Coordinates: UTM 38N 464001, 4715817

Location: Located on both sides of the Military Highway in the Tergi River Valley, on its right (eastern) bank. Across the river from Pkhelshe.

Geomorphology/Topography: On a gentle slope above the Tergi River floodplain, backed by steeply sloping mountains. A stream flows through the middle of the site. It appears to be cut by the Military Highway.

General Site Description: Heavily eroded terrace and wall system. A channel runs through the centre of the site following the slope. A road also cuts across the centre perpendicular to this. The north-eastern part of the site is heavily attenuated by road construction. There is rubble present against the face of the terraces but it is unclear whether this has been piled against them post-use or was part of the original construction. Stone alignments are found running perpendicular to the terraces on the east side of the stream and are probably heavily eroded walls. Clearance cairns are frequent.

Pottery Types and Dating: No pottery was located on the surface.

Recorder and Date: DL, KH, LSK, LS. 5/7/2014.

DPS-13: Pansheti

Coordinates: UTM 38N 468604, 4720321

Location: In the Tergi River Valley c. 3 km south-west of Stepantsminda.

Geomorphology/Topography: Village is on a low rise above the floodplain and is also built into the lower slopes of the mountain behind.

General Site Description: The village was initially visited because of a prominent tower clearly visible from the road. A second lower (in height and elevation) tower is located within a ruined village behind the modern settlement. The towers and old village are built on a

rocky outcrop. The higher tower is approximately 12 m in height; the entrance appears to be formed by a small arched opening on top of a steep cliff. It is surrounded by steep drop offs on all sides. The lower tower is c. 8 m in height and more easily accessed. Both towers are square and built of large blocks (c. 0.4 × 0.4 m) bonded with mortar. Construction techniques of the buildings in the old village vary, but include flat slates aligned horizontally, often mixed with courses of larger light stones. There are mineral springs located approximately 1.5 km to the north-east of the village.
Pottery Types and Dating: N/a.
Recorder and Date: DL, KH, LSK, LS 5/7/2014.

DPS-14: Sioni

Coordinates: UTM 38N 465521, 4716855
Location: In the Tergi River Valley c. 7.5 km south-west of Stepantsminda. Along the eastern side of the Military Highway to Tbilisi, on the east bank of the Tergi.
Geomorphology/Topography: Situated above Tergi Flood Plain. The village is nestled around a prominent spur jutting out of the hills on the eastern side of the site. The modern village extends to the other side of the highway and the Tergi onto the lower slopes of the western bank.
General Site Description: The site consists of a church and tower positioned upon a high spur above the village of Sioni. The tower sits on the north-west edge of the spur overlooking the highway. The church is approximately 100 m south-east of the tower on the same spur.
Pottery Types and Dating: The church was built in the ninth/tenth century.[195] The tower is likely later (seventeenth-nineteenth century?).[196]
Recorder and Date: DL, KH 13/7/2013.

DPS-15: Sno

Coordinates: UTM 38N 470329, 4717077
Location: In the Sno River Valley, c. 3.5 km south-east of where it flows into the Tergi.
Geomorphology/Topography: Just above the Snostskali River flood plain, nestled against the base of the forested mountains to the north, and a smaller tributary to the east. Terrain gently slopes from the base of the mountain toward the river.
General Site Description: Ruins of church and other structures on a hill top above the village. A tower is set on a large rock outcrop in the middle of the village. The tower appears to have several phases of construction/repair. Within the modern village, there is a significant number of ruined stone structures. Various structures in the village display a distinct style of wall construction – alternating courses of flat stones and small cobbles. There is also a shrine above the village which celebrates the holy day of Atengenoba (12th August).
Pottery Types and Dating: The village is said to have been founded in the early medieval period, but the tower is likely considerably later.[197]
Recorder and Date: DL, KH 13/7/2013.

DPS-16: Old Kanobi

Coordinates: UTM 38N 460888, 4715872
Location: On gentle slope above the modern village of Kanobi on the west side of the Tergi River Valley.
Geomorphology/Topography: On a moderately high slope above the Tergi River floodplain, backed by steeply sloping mountains. The village is bounded on the south by the deeply incised Tergi River Valley and to the east by another steep-sided deeply incised river valley which flows into the Tergi.
General Site Description: The village of Kanobi was initially visited due to its proximity to DPS 10, 11 and 12. A local resident led us to the location of the remains of what might have been an older village above the modern one, located in fields fenced off for animal fodder. The site is located near the edge of the deeply incised river valley which flows along the eastern edge of the site. There is a steep drop off below the site of at least 30 m to the river valley below. Walls and/or structures (WP-662) were found eroding out of the top of the section of the river valley, approximately 0.2–0.5 m below ground level. 40 m further north along the section a cist grave was visible, also eroding out of the section, while a second was visible a further 40 m to the north (WP-665-WP-666). Two mounds were also present 10 m in from the edge and approximately 30 m apart (WP-663-WP-664). They may denote the remains of other structures on the site.
Pottery Types and Dating: No pottery was found. A village called Kanobi is mentioned in a fifteenth century document.[198]
Recorder and Date: DL, KH, LSK, LS 7/7/2014.

DPS-17: Upper Ukhati

Coordinates: UTM 38N 460538, 4711945
Location: On a high plateau above the east bank of the Tergi, immediately above Lower Ukhati/Kobi.
Geomorphology/Topography: The site sits on a high flat to gently sloping plateau above the Tergi floodplain. There is a sharp drop towards the river on the west side of the plateau. The site is backed by steep mountains to the east. To the south of the site is a deeply incised valley containing the Narvani which flows into the Tergi.
General Site Description: We visited the site after noting a goat track leading from the slopes above and just south of DPS-11 toward the high plateau on which Ukhati sits. Once on top of the plateau, we noted the remains of a field system, several circular depressions (possibly cisterns) and the remains of a village. Several modern houses exist within the area of ruined buildings and appear to still be in use, at least seasonally. A road leading down from

the site was located on the southern side, snaking down through the Narvani River Valley that runs perpendicular to the main pass.
According to Mak'alatia's maps of the valley,[199] this site is Upper Ukhati. Lower Ukhati appears to have existed south (and at a lower elevation) likely in the Narvani River Valley.
Pottery Types and Dating: No pottery was found. Was occupied in the eighteenth century (but could also have been inhabited earlier and later).[200]
Recorder and Date: DL and KH 10/7/2014.

DPS-18: Old Khurtisi

Coordinates: UTM 38N 462281, 4716474
Location: On the western side of the Tergi River Valley above the modern village of Khurtisi.
Geomorphology/Topography: The site is located on a slope above and to the north-east of the village of Khurtisi. The Kesia River, which flows into the Tergi, runs by the east side of the site through a steep valley.
General Site Description: The site consists of a tower, church (and associated structure). The tower sits on a slightly elevated mound above and to the north of the other structures. There are the remains of the old village of Khurtisi, c. 120 m down slope from the tower/church. The tower is circular and the south side has collapsed. The walls are 1–1.5 m thick. The tower is built on the east side on the rock outcrop. The base of the tower is 3 m lower on the west side than on the other sides.
Pottery Types and Dating: A village called Khurtisi is mentioned in fifteenth century documents,[201] the tower may be sixteenth/seventeenth century.[202]
Recorder and Date: DL and KH 12/7/2014.

DPS-19: Tower and Church near Lower Ukhati/ Kobi

Coordinates: UTM 38N 459710, 4711557
Location: On the left bank of the Narvani River c. 800 m before it meets the Tergi. Around 500 m south of Lower Ukhati/Kobi.
Geomorphology/Topography: Located on a prominent forested outcrop between the Baidara River and the Narvani immediately south of where they converge with the Tergi.
General Site Description: The site consists of two towers and a church on a prominent outcrop overlooking the pass. The ridgeline on top of the outcrop runs roughly north-west to south-east. On the south-east end of the outcrop is a circular tower, surviving to approximately 3–4 m height. A square tower sits at the north-west end. Between the two is a church, which is still in use. A series of terraces (four to five) run roughly parallel to the outcrop (south-east to north-west) on its north-east side down toward the Military Highway. At the bottom of the terraces there are two conjoined circular depressions, similar to those found at other sites and preliminarily interpreted as cisterns.
Pottery Types and Dating: No pottery was found.
Recorder and Date: DL, KH, KER 12/7/2014.

DPS-20: Arsha Fort

Coordinates: UTM 38N E 466628, N 4718722
Location: In the Tergi River Valley, on its western side, immediately across the river from modern Arsha and beside the village/hamlet of Gaiboteni.
Geomorphology/Topography: Sitting on the lower slopes above the west bank of the Tergi.
General Site Description: Complex of ruined stone structures including at least two towers, one rectangular and one rounded. A wall encloses the complex on the side facing the river. At least three houses amongst the ruins are still inhabited, and there are several garden plots.
Pottery Types and Dating: No pottery was collected. Sixteenth/seventeenth century?[203]
Recorder and Date: DL, KH, KER 12/7/2014.

DPS-21: Achkhoti Tower

Coordinates: UTM 38N E 468140, N 4719017
Location: In the village of Achkhoti immediately after turning off the Military Highway onto the Sno-Akhaltsikhe-Juta road.
Geomorphology/Topography: Set into the north-east side of an outcrop c. 2 km south of where the Tergi and Snostskali rivers converge.
General Site Description: A ruined tower is located on the side of an outcrop overlooking the village of Achkhoti. The tower is square (c. 5 m in diameter) and aligned north-east to south-west. It employs dry-stone masonry. There is an arched window in the north-west side of the tower. The south-east side has almost completely collapsed.
Pottery Types and Dating: N/a.
Recorder and Date: DL, KH, KER 12/7/2014
Sites described in textual sources/maps and/or located on imagery, but not recorded in the field during the landscape survey.

DPS-22: Unknown

Coordinates: Unknown
Location: On a hill north of Gveleti Village.
General Site Description: Church with frescoes.[204]
Dating: Thirteenth-fourteenth century based on frescoes.[205]

DPS-23: Stepantsminda

Coordinates: UTM 38N 470961, 4722866

Geomorphology/Topography: The modern town of Stepantsminda is located on the east bank of the Tergi. The east side of the valley is gently sloping to flat in this location.
General Site Description: Stepantsminda (formerly known as Kazbegi) is reported to have originally been two villages (Kazbegi and Targmani), that have since amalgamated.[206] The remains of two towers are said to exist in the town; these were called Zaliet and Guguet.[207] The oldest houses still standing in Stepantsminda are no older than the seventeenth or eighteenth century.[208]

Remains of terrace fields and clearance cairns interspersed with modern field/garden plots are visible to the east and south side of Stepantsminda on the CORONA and WorldView-2 imagery.
Dating: The most famous objects from excavations in Stepantsminda come from the 'Kazbegi Treasure' which has been dated to the sixth-fifth century BC.[209] Other excavations in the town have revealed late medieval graves, first century BC – first century AD objects, and an undated statue of a stone ram.[210]

DPS-24: Artkhnotsi

Coordinates: None
Location: Tergi River Valley.
General Site Description: Settlement no longer exists.
Dating: Unknown, but the site was abandoned by the time Itonishvili was writing about it in the early 1980s.[211]

DPS-25: Akhaltsikhe

Coordinates: UTM 38N 472283, 4715271
Location: In the Sno River Valley to the south-east of Sno. On a gently sloping valley side on the left bank of the Snostskali River at the junction with the Artkhmostskali River.
General Site Description: Settlement and church. There are some ruins and graves in the vicinity of the village which may have been part of the earlier settlement.[212] Mindorashvili reports that tombs (related to the church) were excavated at Akhaltsikhe. These are described as a type of tomb also excavated in Garbani, Sioni and Arsha and are similar to those found in Gergeti dating to the ninth-tenth century.[213]

Burials, church, field systems/enclosures, settlement (archaeological and modern), uncategorised structures.
Dating: The church is said to date to the ninth or tenth century.[214] The settlement was occupied at least by the fifteenth century.[215] Some of the preserved houses are from the nineteenth or early twentieth century.[216]

DPS-26: Artkhmo

Coordinates: UTM 38N 470580, 4712253
Location: In the Artkhmostskali River Valley. On the left bank of the Artkhmostskali, on a high plateau above the floodplain.
General Site Description: Settlement, now abandoned.[217] The remains of a settlement (unroofed rectangular structures) are visible on the WorldView-2 imagery.
Dating: The village is mentioned in fifteenth century texts.[218] Bayern excavated graves in Artkhmo and Juta in the late nineteenth century that contained jewellery and weapons attributed to the high medieval period.[219]

DPS-27: Juta

Coordinates: UTM 38 N 479197, 4714083
Location: In the valley of the Jutistskali River
General Site Description: Settlement and burials (Fig. 10:57)
Dating: Bayern excavated graves in Artkhmo and Juta in the late nineteenth century that contained jewellery and weapons attributed to the high medieval period.[220]

DPS-28: Karkucha

Coordinates: UTM 38N 473545, 4714076
Location: In the Sno River Valley, south of Akhaltsikhe. On the right bank of the Snostskali.
General Site Description: Mentioned by Itonishvili[221] as both a historical and modern settlement, but no further information given.
Dating: Unknown.

DPS-29: Qoseli?

Coordinates: UTM 38N, 472476, 4715519
Location: In the Sno River Valley, south of Sno and immediately across the river from Akhaltsikhe.
General Site Description: Ruins, the remains of a tower and graves are mentioned by Itonishvili at Qoseli.[222]
Dating: None.

DPS-30: Miguda

Coordinates: UTM 38N, 471141, 4712897 (approximately)
Location: On the right bank of the Artkhmostskali River, above the floodplain. Exact location is difficult to determine.
General Site Description: Settlement; no longer exists.[223] The location of the site is given on the map by Mak'alatia.[224] A 'ruin' symbol also marks the location on Soviet 1:50,000 topographic maps.
Dating: None.

DPS-31: Mtrekhi

Coordinates: Unknown
Location: Sno Valley.[225]
General Site Description: Settlement, no longer exists.[226]
Dating: None.

DPS-32: Zemosopelai

Coordinates: Unknown
Location: Snostskali River Valley, very close to Sno.[227]
General Site Description: Ruins of a settlement and two towers (Kvires Tsikheebi).[228]
Dating: None.

DPS-33: Almasiani

Coordinates: UTM 38N, 458839, 4711962
Location: On the left bank of the Baidara, immediately before it joins the Tergi River, c. 1 km west of Ukhati.
General Site Description: Settlement mentioned in the 1926 census of the region and indicated in this location on Mak'alatia's map,[229] as well as Soviet 1:50,000 maps. Some modern houses are still located here. Itonishvili mentions that Almasiani was only 1 km (and across both the Ukhatis Tskali and Bidara Rivers) from Lower Ukhati/Kobi. He also notes that near Almasiani is a place called Ado's Field, named after a settlement of the same name that is no longer extant. Ado, the village is also mentioned in a fifteenth century document.[230]
Dating: None.

DPS-34: Bakhtris Tsminda Giorgi

Coordinates: UTM 38N 469042, 4732714
Location: Approximately 1 km north of Dariali Fort.
General Site Description: Fortified structure now marked by a religious place or shrine. A 'ruin' symbol also marks the location on Soviet 1:50,000 topographic maps.
Dating: See excavation report.[231]

DPS-35: Gaiboteni

Coordinates: UTM 38N, 466497, 4718592 (approximately)
Location: In the Tergi River Valley on the left bank of the river. The settlement was situated near to Old Arsha (DPS-20) and immediately across the river from modern Arsha.
General Site Description: Settlement.
Dating: Earlier than the fifteenth century.[232]

DPS-36: Garbani

Coordinates: UTM 38N, 466704, 4718074
Location: In the Tergi River Valley, immediately to the east of where the Terkhena flows into the Tergi, on the flat to a gently sloping floodplain on the right bank of the Tergi.
General Site Description: Settlement and church. Ruins and terrace fields near the site suggested to Itonishvili that this may be one of the oldest villages in Khevi.[233] Site was surveyed by a team from Iv. Javakshavili institute of history, archaeology and ethnography in the 1960s and the Zhinvali Archaeological expedition, led by Ramishvili and Ghambashidze, who excavated tombs, associated with a church, in the 1970s, dating to the ninth-tenth century.[234]
Dating: Itonishvili mentions there is a ninth-tenth century church in Garbani.[235]

DPS-37: Gergeti Village

Coordinates: UTM 38N, 469782, 4723498
Location: In the Tergi River Valley, on the left bank of the Tergi, across from Stepantsminda.
General Site Description: Settlement (still occupied) and tower.[236]

Field systems (date uncertain, but possibly modern) are visible in association with the settlement on the CORONA and WorldView-2 imagery.
Dating: None.

DPS-38: Gergeti Church/Monastery

Coordinates: UTM 38N, 468854, 4723370
Location: On a high plateau above the village of Gergeti in the Tergi River Valley.
General Site Description: Gergeti church and monastery complex. Several sources describe features near the church/monastery complex. A cave monastery is said to be located between Gergeti and mount Kazbeg.[237] Tombs (or 'underground graves') are also mentioned in the vicinity.[238] Near to Gergeti is a place called Saqotnia (the place of pots); the name either refers to a place where some ceramics were found, or where there was a clay source.[239]
Dating: Gergeti Church was built in first half of the fourteenth century.[240]

DPS-39: Gikhis Gora

Coordinates: Unknown
Location: On a small hill on the opposite bank of the river from Khurtisi.
General Site Description: Church, ruins and foundations of a tower. Itonishvili indicates that it was a watchtower.[241]
Dating: None.

DPS-40: Goristsikhe

Coordinates: UTM 38N 464497, 4716739
Location: In the Tergi River Valley south of Stepantsminda. On the valley side above the Tergi, on its left bank.

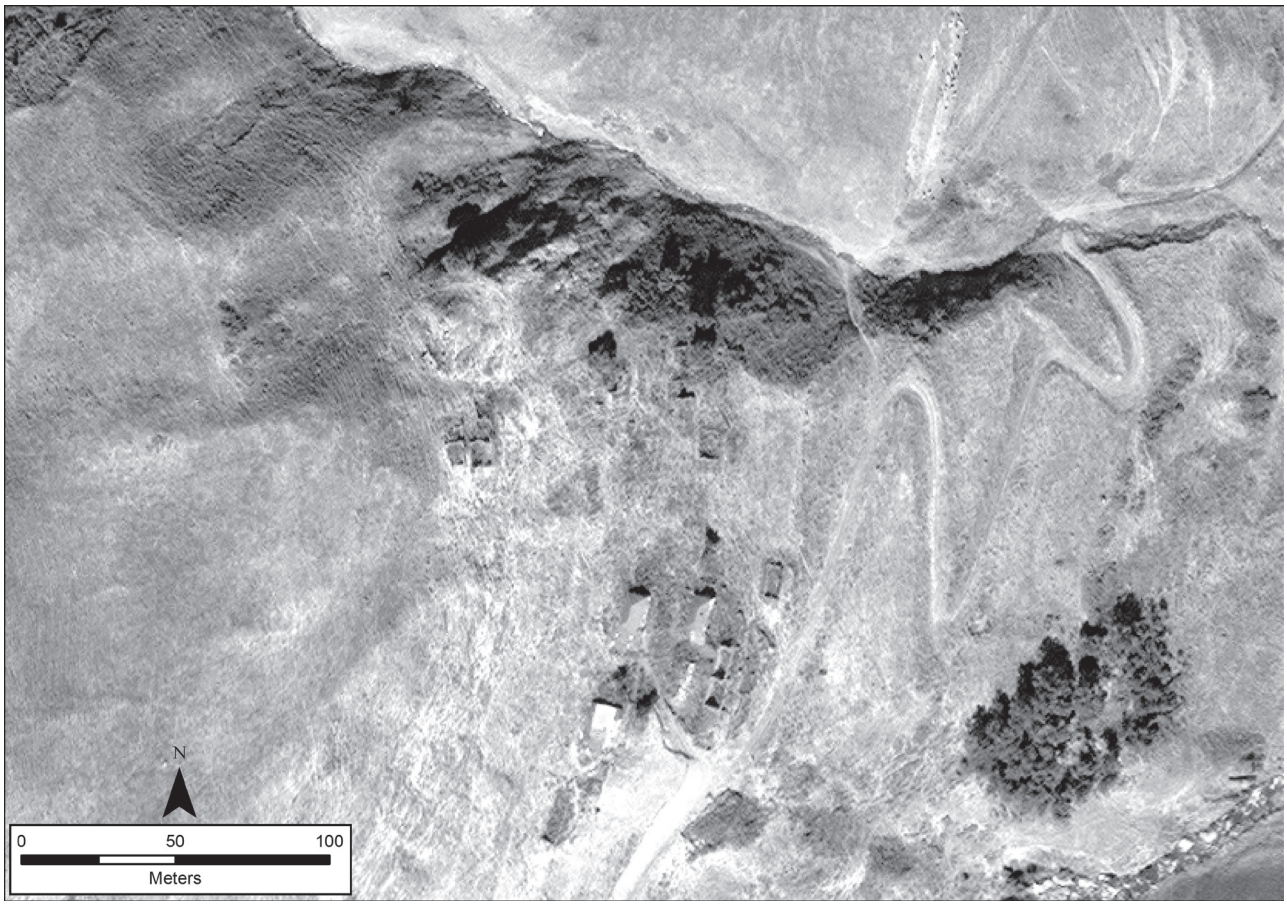


Fig. 10:57: DPS-26. Imagery: WorldView-2 acquired 1 September 2010. (© DigitalGlobe, Inc. All Rights Reserved).

Separated from Pkhelshe by an unnamed side stream that flows into the Tergi.

General Site Description: Settlement and tower. Itonishvili[242] indicates that only the base of the tower remains, and that it may be the same tower that is referred to as being located in Pkhelshe (located immediately next to Goristsikhe). He also indicates that there are some field systems in the vicinity. Modern field systems are clearly visible on the WorldView-2 imagery.

Dating: None.

DPS-41: Ivais Tsikhe

Coordinates: Unknown

Location: Located in the Tergi River Valley south of Stepantsminda and north of Khurtisi (very close to Khurtisi tower).

General Site Description: Fortification. The name translates as the 'Castle of Eva'. Destroyed by a landslide at some point in the past.[243]

Dating: None.

DPS-42: Merged with DPS-51

DPS-43: Kobi (near Lower Ukhati)

Coordinates: UTM 38N 459834, 4712161

Location: In the Tergi River Valley, at the junction with the Truso Valley. Kobi is located on Mak'alatia's[244] map immediately beside the Narvani River, which flows into the Tergi.[245]

General Site Description: Settlement which no longer exists according to Itonishvili,[246] but the general location is still referred to as Kobi by locals. A settlement called Lower Ukhati is located near here.

Porter, Lyall and Gille mention Kobi in their accounts of travel through the gorge.[247] Lyall[248] says that at Kobi there was a fort surrounded by earth ramparts that was used by travellers. It appears to have been a common stopping point for travellers through the pass.

Dating: Clearly earlier than the early nineteenth century, but how much earlier is difficult to tell.

DPS-44: Pkhelshe

Coordinates: UTM 38N 464154, 4716578
Location: In the Tergi River Valley, south of Stepantsminda. Located on the left bank of the river. Separated from Goristsikhe by an unnamed side stream that flows into the Tergi.
General Site Description: Settlement. There was a tower house (a particular type of traditional architecture) in this village recorded by Dolidze.[249] Itonishvili[250] also makes reference to a tower, the base of which was still extant in the 1980s and was used as the location of a religious monument. It is difficult to say whether or not this is the same tower referred to in the vicinity of Goristsikhe. In the 1960s, a survey of Pkhelshe by the Iv. Javakshavili institute of history, archaeology and ethnography located tombs in the vicinity.[251]

Modern field systems are clearly visible on the WorldView-2 imagery.
Dating: Unknown.

DPS-45: Qeduri

Coordinates: Unknown
Location: In the Tergi River Valley on the left side of the river. Said to have been located on a rocky outcrop near Tkarsheti.
General Site Description: Settlement. No longer exists.[252]
Dating: The village is mentioned in fifteenth century documents.[253]

DPS-46: Tkarsheti

Coordinates: UTM 38N, 465430, 4717909
Location: In the Tergi River Valley, south of Stepantsminda. On a rise above the river, on its left side.
General Site Description: Settlement with tower and church.[254] Itonishvili[255] reports that on the terrace above the village are some ruins. This may refer to DPS-76 (see entry in gazetteer).

Ninth-eleventh century graves were excavated in association with the church. Chance find of some Early Bronze Age pottery in the area.[256] Mentioned in a fifteenth century document.[257]
'Ruin' symbol on Soviet 1:50,000 map in the vicinity.
Dating: Early Bronze Age (in vicinity), ninth-eleventh century,[258] mentioned in a fifteenth century document.[259]

DPS-47: Tolgoti

Coordinates: Unknown
Location: In the Tergi River Valley, south of Stepantsminda. On the opposite side of River from Lower Ukhati/Kobi.[260]
General Site Description: Settlement. No longer exists.[261]
Dating: None.

DPS-48: Toti

Coordinates: UTM 38N 466538, 4719654
Location: In the Tergi River Valley, south of Stepantsminda, on the left side of the Tergi. On a high, gently sloping plateau c. 2,100 m.
General Site Description: Remains of a village are visible on the WorldView-2 imagery. At least one building still roofed, the rest appear abandoned. Fields are visible in the vicinity. Itonishvili[262] reports that people moved from Toti to Arsha because it was too high up in the mountains and living there was difficult. Almost the entire village was abandoned, but was sometimes used for summer houses (Fig. 10:58).
Dating: Earliest settlement unknown, but occupied into the first half of the twentieth century at least. Itonishvili reports that the village existed in the seventeenth century, but does not provide a source.[263]

DPS-49: Kuchani

Coordinates: Unknown
Location: In the Tergi River Valley to the south of Stepantsminda. On the right bank of the Tergi, possibly to the east of Sioni and Garbani.
General Site Description: Settlement. No longer exists. Indicated on the map of Mak'alatia[264] with some uncertainty.
Dating: Unknown.

DPS-50: Kalovani

Coordinates: UTM 38N 466125, 4715801
Location: South of Sioni, on the left bank of the Terkhena, which flows into the Tergi.
General Site Description: Settlement, possibly Kalovani as identified by Mak'alatia on his map of the region.[265] On the WorldView-2 imagery (2006–2012) remains of field systems, possible clearance cairns and abandoned structures are visible (Figs 10:59–60). Their orientation is different to modern field systems. On the CORONA imagery, these field systems look similar in signature to those at DPS-9. At least two 'ruin' symbols within 500 m each of other in this location on the Soviet 1: 50,000 map.
Dating: None, but the settlement appears to have been abandoned in the earlier half of the twentieth century.

DPS-51: Khurtisi Fields

Coordinates: UTM 38N, 462339, 4715556
Location: In the Tergi River Valley south of Stepantsminda. On the right bank of the Tergi, opposite Khurtisi.
General Site Description: Fields/terraces visible on the CORONA and WorldView-2 imagery (Fig. 10:61). Signature is similar to that of DPS-10. The system is cut by the Military



Fig. 10:58: DPS-48. Imagery: WorldView-2 acquired 1 October 2012 (© DigitalGlobe, Inc. All Rights Reserved).

Highway, and the terraces are being eroded by the Tergi on their north side. There does not appear to be any evidence for cultivation on the WorldView-2 imagery from October 2012. These fields may be the same ones mentioned by Itonishvili, which are said to be located opposite, and on the other side of the river (Tergi), from Khurtisi.[266] They used to be cultivated, but by the early twentieth century they were instead used for hay.

Dating: Unknown.

DPS-52: Unknown

Coordinates: UTM 38 N, 468614, 4724371

Location: In the Chkheri River Valley, on the left bank of the river, north-east of Gergeti.

General Site Description: Features possibly representing structures and walls/part of a pen/enclosure are visible on the WorldView-2 imagery (2006, 2010, 2012). At the time the imagery was taken in 2012, hay was being harvested from this location (Fig. 10:62).

'Ruin' symbol on Soviet 1: 50,000 map near this location. It may refer to these ruins or those of DPS-69 (see entry below). This location was visited in the field in 2017 by Przemysław Polakiewicz and some rectilinear stone structures were recorded in the field.

Dating: Unknown

Further possible sites were located through the remote sensing of satellite imagery or on maps, but were not ground-truthed due to time or access issues. Their locations and a brief description are listed in Table 10:9. Coordinates for all sites and features recorded during the field survey are also provided (Table 10:10).

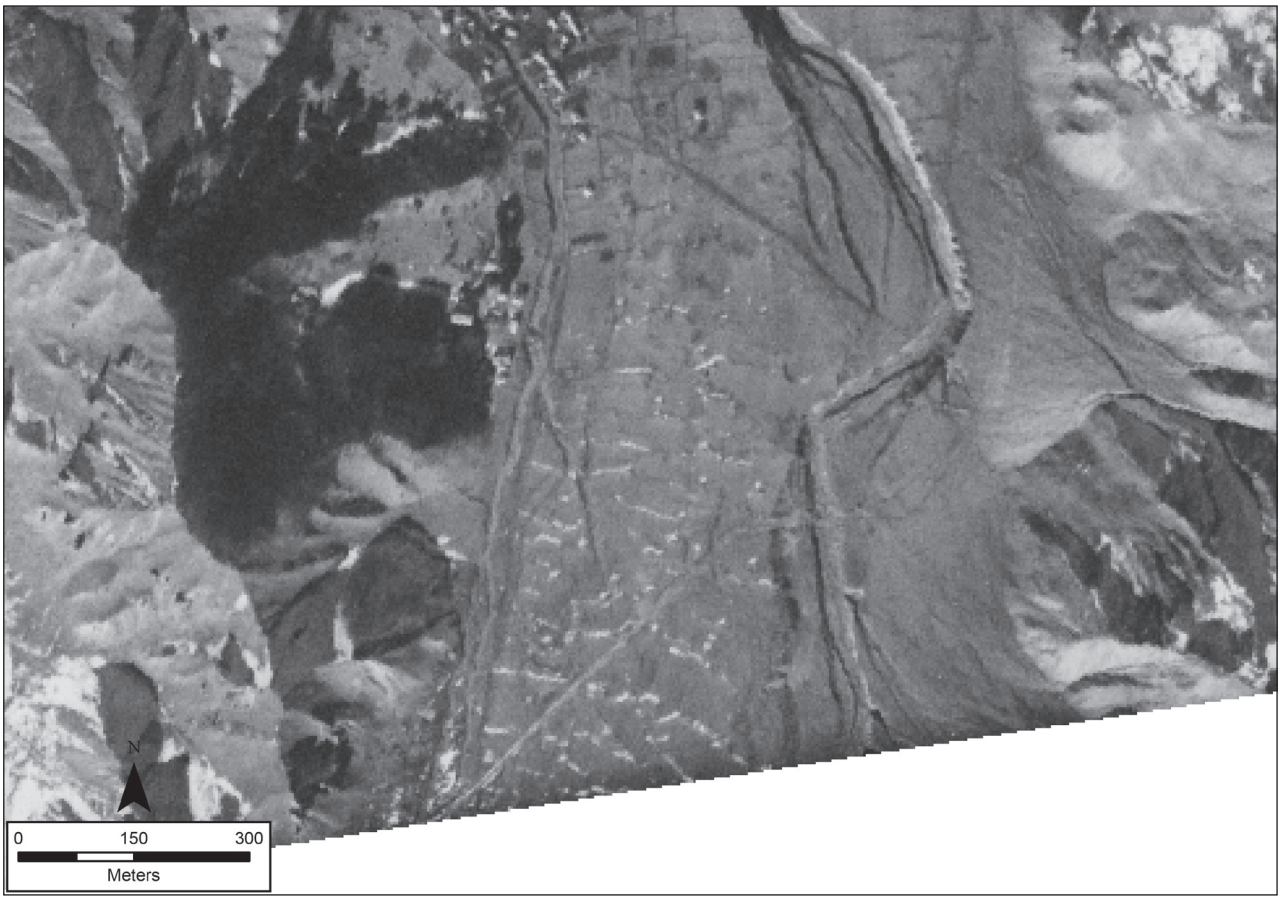


Fig. 10:59: Field systems at DPS-50. Imagery: CORONA Mission 1105 acquired 7 November 1968.

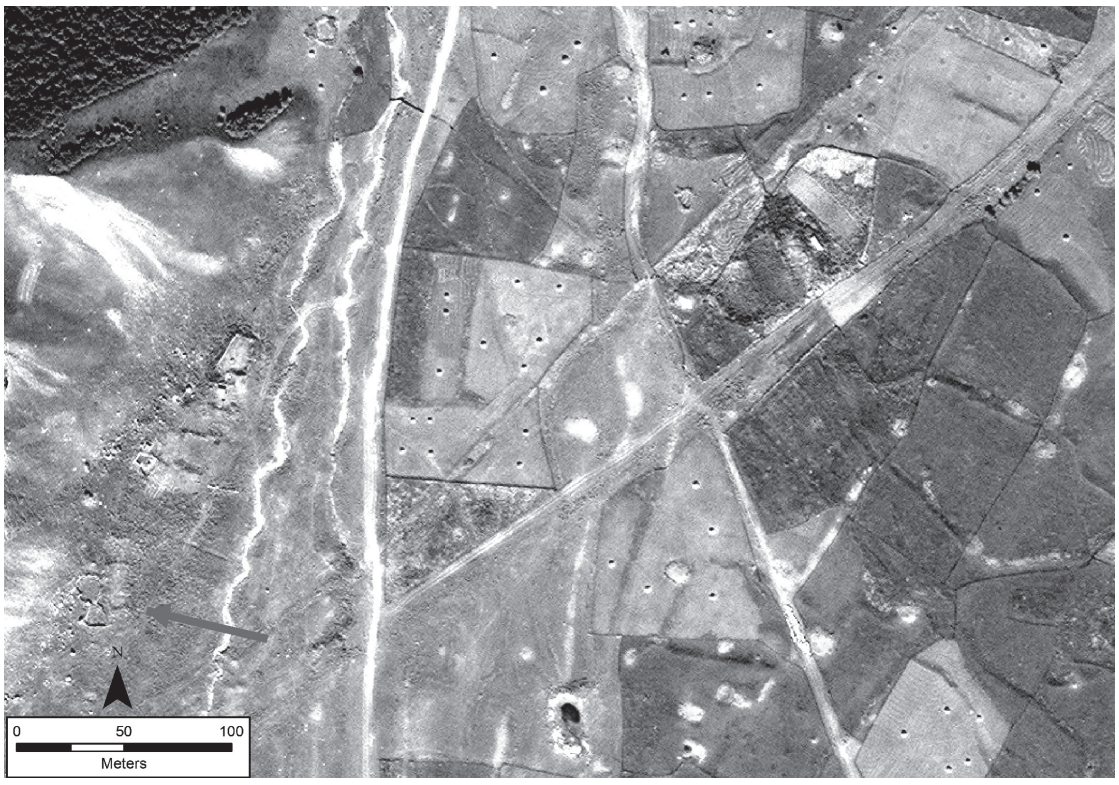


Fig. 10:60: Features at DPS-50 including ruined structures and enclosures (indicated by arrows), field walls and possible clearance cairns. Imagery: WorldView-2 acquired on 1 September 2010 (© DigitalGlobe, Inc. All Rights Reserved).

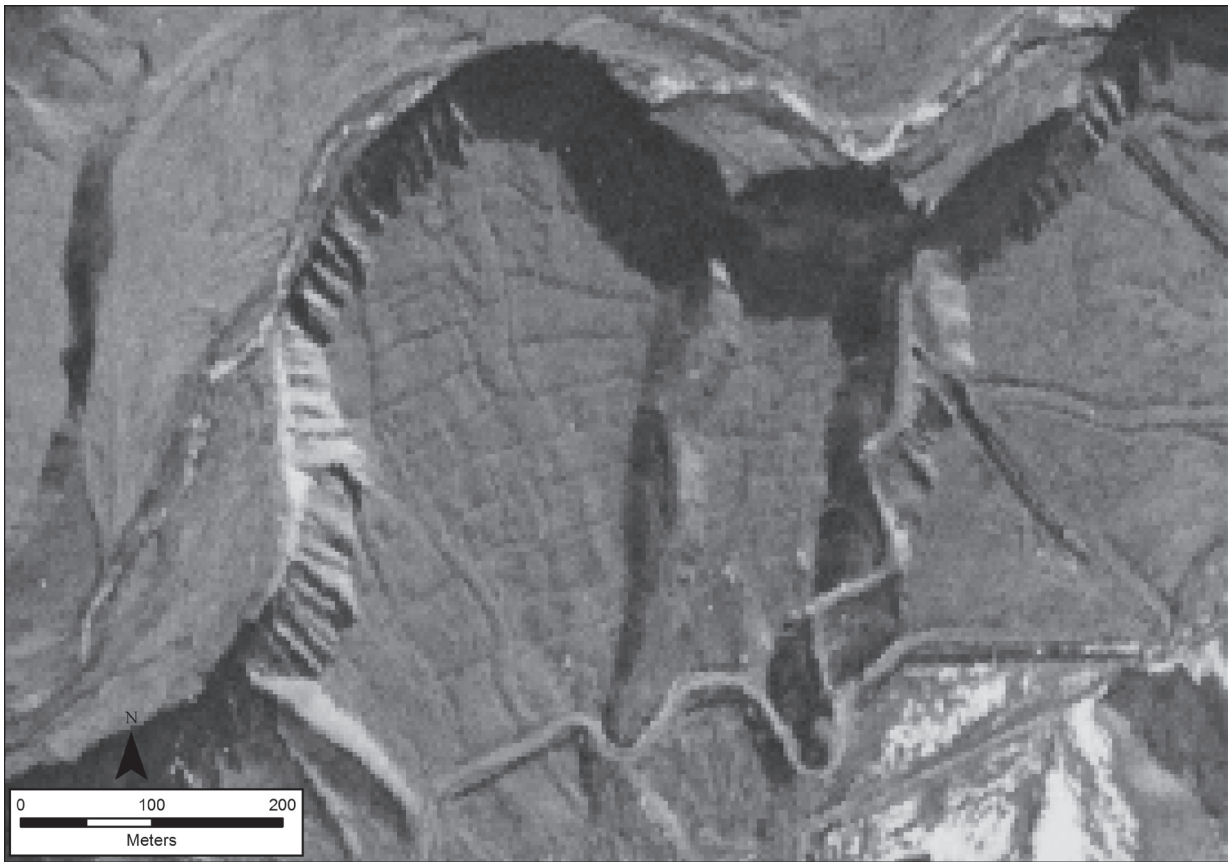


Fig. 10:61: DPS-51. Imagery: CORONA Mission 1105 acquired 7 November 1968.

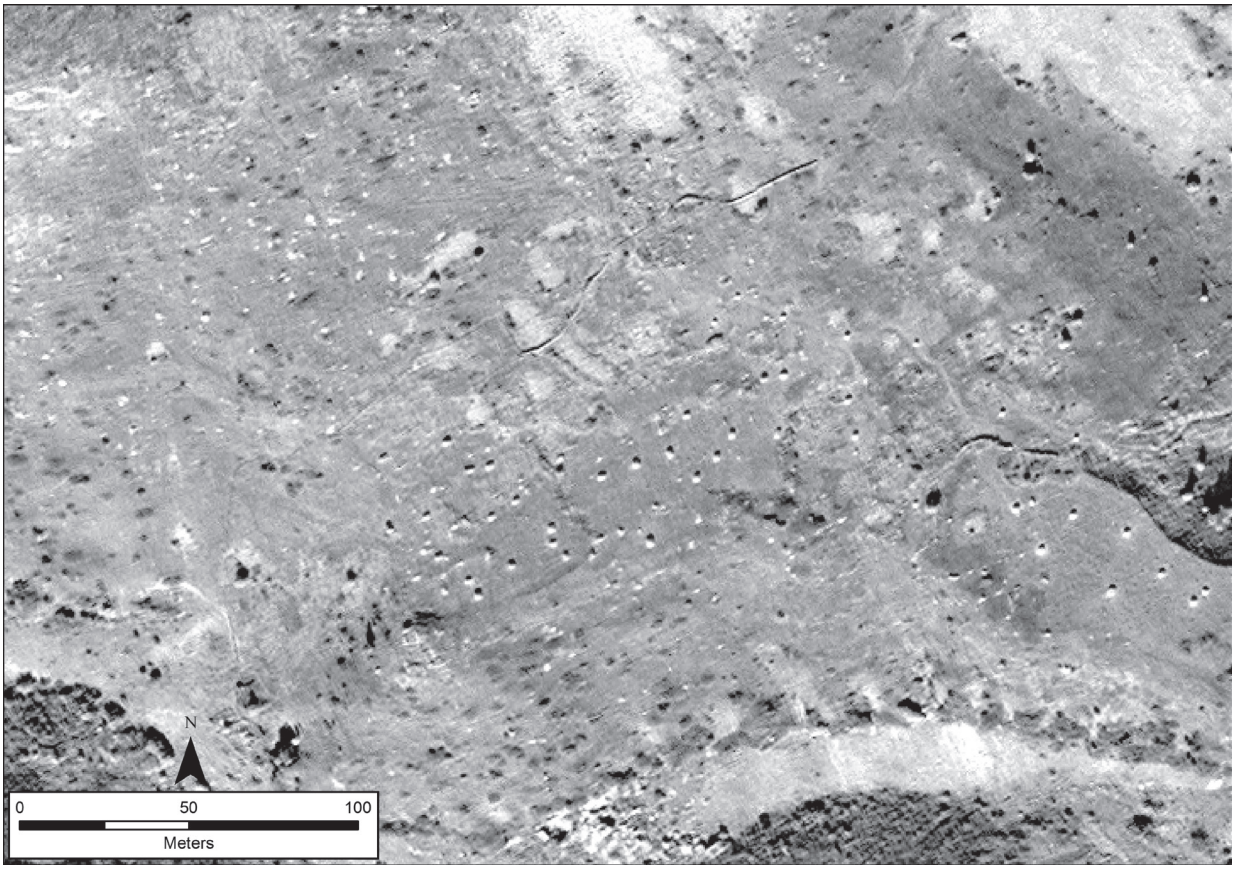


Fig. 10:62: DPS-52. Imagery: WorldView-2 acquired 1 October 2012 (© DigitalGlobe, Inc. All Rights Reserved)

Table 10:9: Possible sites located through remote sensing of satellite imagery or identified from maps.

Site ID	*Coordinates (UTM 38N)*	*Location*	*General Site Description (and Data Source)*
DPS-53	467255, 4719404	In the Tergi River Valley, south of Stepantsminda	Possibly part of an old village. Some modern structures also still visible. (WorldView-2 acquired 1 September 2010)
DPS-54	471270, 4718078	In a river valley that flows into the Snostskali River near Sno	Single ruined structure. Imagery source (Quickbird acquired 18 September 2006)
DPS-55	473544, 4718193	In a river valley that flows into the Snostskali River near Sno	Remains of structures (several appear clearly rectilinear). Linear wall features may be the remains of terraces (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010, 'Ruin' symbol near this location on the Soviet 1:50,000 maps)
DPS-56	473349, 4717862	In a river valley that flows into the Snostskali River near Sno	Two possible rectilinear structures (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010)
DPS-58	472038, 4716411	In the Snostskali River Valley, south of Sno. On the right bank of the river, on a steep slope	Single ruined rectilinear structure (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010)
DPS-59	465152, 4715838	In the Tergi River Valley to the south of Stepantsminda. Separated from DPS-12 by a rocky outcrop jutting into the valley	Features that may be heavily eroded parallel terrace risers or field boundaries. Clearance cairns are also visible. Similar in signature to some of the features at DPS-12 (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010 and 1 October 2012)
DPS-61	472134, 4712892	In a high valley running perpendicular to the Artkhmostskali River Valley, north-east of Artkhmo	Ruined rectilinear structure? (WorldView-2 acquired 1 September 2010 and 1 October 2012, 'Ruin' symbol on Soviet 1:50,000 map)
DPS-63	465683, 4712351	South of Stepantsminda. On the right bank of the Terkhena River	Group of rectilinear structures, possible settlement (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010 and 1 October 2012)
DPS-64	463932, 4711480	South of Stepantsminda. In the Narvani River Valley c. 3.5km east of Ukhati	Structures? The CIR image indicates an area of healthy vegetation in the vicinity that may indicate a spring (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010 and 1 October 2012, 'summer settlement' on Soviet 1:50,000 map)
DPS-65	469856, 4710662	South of Artkhmo, on the right bank of the Artkhmostskali River	Structures and enclosures. Possible settlement (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010 and 1 October 2012)
DPS-67	473954, 4730303	In the Khde River Valley on the right bank of the river.	Single rectilinear structure. (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010)
DPS-68		Above the Amali River Valley on a high slope	Individual structure, L-shaped (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010 and 1 October 2012, 'Ruin' symbol at this location on the Soviet 1:50,000 map)
DPS-69	468977, 4724390	In the Chkheri River Valley, on the left bank of the river, north-east of Gergeti	Field system/enclosures. These were also observed, but not recorded, in the field (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010 and 1 October 2012, 'Grotto' symbol on the Soviet 1:50,000 map)
DPS-70	468669, 719330	At the junction of the Tergi and Snostskali River Valleys. Immediately north of the village of Achkhoti	Remains of rectilinear structures on the edge of Achkhoti. Could be relatively modern (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010 and 1 October 2012)
DPS-71	465258, 4718099	In the Tergi River Valley, on the left of the river	Possible pen or enclosure (WorldView-2 acquired 1 September 2010)
DPS-72	463951, 4729537	In the Amali River Valley, approaching the glacier of the same name	Single ruined structure. Rectilinear. Visible (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010 and 1 October 2012, 'Ruin' symbol at this location on the Soviet 1:50,000 map)

(Continued)

Table 10:9: (Continued)

Site ID	*Coordinates (UTM 38N)*	*Location*	*General Site Description (and Data Source)*
DPS-73	468408, 4723552	In the Tergi River Valley. On a hill above the Gergeti Monastery complex	Single rectilinear structure. Related to the Gergeti Monastery complex (DPS-38) which is located downslope (c. 500 m east north-east) from DPS-73 (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010 and 1 October 2012)
DPS-74	469348, 4718822	On the right bank of the Snostskali River, immediately east of Achkhoti	Rectilinear ruined structure (Quickbird acquired 18 September 2006, WorldView-2 acquired 1 September 2010 and 1 October 2012)
DPS-75	465205, 4717915	In the Tergi River Valley, on the left bank. Immediately west of Tkarsheti	Rows of small rectilinear structures within a compound. Cemetery? (WorldView-2 acquired 1 October 2012)
DPS-76	464388, 4718006	In the Tergi River Valley. On a steep slope, c. 1km west of Tkarsheti	Possible terrace field system. Parallel terrace risers visible (WorldView-2 acquired 1 October 2012)
DPS-77	460695, 4717200	On a slope above the Tergi River (left bank)	Pens/enclosures (WorldView-2 acquired 1 October 2012, 'Summer settlement' on the Soviet 1: 50,000 maps
DPS-78	460559, 4716804	On a slope above the Tergi River (left bank)	Ruined rectilinear structure. Other anomalies in the area (WorldView-2 acquired 1 October 2012)
DPS-79	470126, 4727219 (approx.)	In the Tergi River Valley, immediately north of Tsdo	'Grotto' map feature on Soviet 1: 50,000 map
DPS-80	469465, 4728721 (approx.)	In the Tergi River Valley, next to the Georgian Military Highway, north of Gveleti	'Ruin' map feature on Soviet 1: 50,000 map
DPS-81	470672, 4726697 (approx.)	In the Tergi River Valley, east of Tsdo	'Ruin' map feature on Soviet 1: 50,000 map
DPS-82	470400, 4725951 (approx.)	In the Tergi River Valley, south-east of Tsdo	'Ruin' map feature on Soviet 1: 50,000 map
DPS-83	470014, 4725536 (approx.)	In the Tergi River Valley, on the left bank. On a slope above the Georgian Military Highway	'Ruin' map feature on Soviet 1: 50,000 map. There are the traces of a switchback road nearby, but no clear indication of what it leads to
DPS-84	468225, 4727087 (approx.)	In a valley that flows into the Tergi River Valley	'Ruin' map feature on Soviet 1: 50,000 map
DPS-85	472730, 4722795 (approx.)	In the Tergi River Valley, on the right bank	'Ruin' map feature on Soviet 1: 50,000 map
DPS-86	471420, 4721608 (approx.)	In the Tergi River Valley, on the right bank	'Ruin' map feature on Soviet 1: 50,000 map. A visit by team members in 2014 located the ruins of a dry-stone tower and fort at this location. The tower blocks access from the ridge which overlooks it. There are steep ravines at the approaches to the fort and its lower walls are on top of steep slopes and close to cliffs. No dating evidence was located
DPS-87	469165, 4720716 (approx.)	In the Tergi River Valley, immediately north of Pansheti	'Ruin' map feature on Soviet 1: 50,000 map
DPS-88	467843, 4719926 (approx.)	In the Tergi River Valley, on the left bank, south of Pansheti	'Ruin' map feature on Soviet 1: 50,000 map

(Continued)

Table 10:9: Possible sites located through remote sensing of satellite imagery or identified from maps. (Continued)

Site ID	*Coordinates (UTM 38N)*	*Location*	*General Site Description (and Data Source)*
DPS-89	471485, 4717951 (approx.)	In a river valley that flows into the Snostskali River near Sno	'Ruin' map feature on Soviet 1: 50,000 map
DPS-90	472252, 4717739 (approx.)	In a river valley that flows into the Snostskali River near Sno	'Ruin' map feature on Soviet 1: 50,000 map
DPS-91	472857, 4717600 (approx.)	In a river valley that flows into the Snostskali River near Sno	'Ruin' map feature on Soviet 1: 50,000 map
DPS-92	471820, 4717363 (approx.)	Above Sno, in the Snostskali River Valley	'Ruin' map feature on Soviet 1: 50,000 map
DPS-93	474818, 4713075 (approx.)	In the Snostskali River Valley, south of Karkucha	'Ruin' map feature on Soviet 1: 50,000 map
DPS-94	474546, 4712524 (approx.)	In a side valley that runs perpendicular to the Snostskali River Valley	'Ruin' map feature on Soviet 1: 50,000 map
DPS-95	474573, 4713354 (approx.)	In the Snostskali River Valley, south of Karkucha	'Ruin' map feature on Soviet 1: 50,000 map
DPS-96	476254, 4714137 (approx.)	In the Kora River Valley	'Ruin' map feature on Soviet 1: 50,000 map
DPS-97	477935, 4713068 (approx.)	In the valley of the Jutistskali River, south of Juta	'Ruin' map feature on Soviet 1: 50,000 map
DPS-98	476676, 4710584 (approx.)	In the Snostskali River Valley, south of Karkucha	'Ruin' map feature on Soviet 1: 50,000 map
DPS-99	471039, 4726570 (approx.)	In the Tergi River Valley	'Grotto' map feature on Soviet 1: 50,000 map
DPS-100	468876, 4707984 (approx.)	In the Artkhmostskali River Valley	'Ruin' map feature on Soviet 1: 50,000 map
DPS-101	469407, 4710060 (approx.)	In the Artkhmostskali River Valley, south of Artkhmo	'Ruin' map feature on Soviet 1: 50,000 map
DPS-102	466566, 4730550 (approx.)	In the Amali River Valley, c. 3km from where the valley meets the Tergi River	'Ruin' map feature on Soviet 1: 50,000 map
DPS-103	469607, 4732402 (approx.)	In the Tergi River Valley, north-east of Dariali Fort (DPS-7)	'Ruin' map feature on Soviet 1: 50,000 map. Named as 'Darial'
DPS-104	473768, 4730548 (approx.)	In the Khde River Valley, c. 4km from its junction with the Tergi River	'Ruin' map feature on Soviet 1: 50,000 map
DPS-105	464628, 4729377 (approx.)	Above the Amali River Valley on a high slope	'Ruin' map feature on Soviet 1: 50,000 map. Named as 'Alpla'

(Continued)

Table 10:9: (Continued)

Site ID	*Coordinates (UTM 38N)*	*Location*	*General Site Description (and Data Source)*
DPS-106	470819, 4727631 (approx.)	In the Tergi River Valley	Cross/shrine or tomb. Map feature on Soviet 1: 50,000 map. This feature is not visible on imagery, but a small church/ shrine have been observed in the field near this location (but not recorded)
DPS-107	474878, 4720389 (approx.)	High in the mountains in a river valley that flows into the Snostskali River near Sno	'Ruin' map feature on Soviet 1: 50,000 map
DPS-108	470960, 4716099 (approx.)	In the Snostskali River Valley, on the left (western) bank of the river. On a hill slope above the valley	'Ruin' map feature on Soviet 1: 50,000 map
DPS-109	468247, 4724480	In the Chkheri River Valley. West of DPS-52	'Grotto' map feature on Soviet 1: 50,000 map
DPS-110	474782, 4721081 (approx.)	High in the mountains in the river valley that meets the Snostskali at Sno	'Ruin' map feature on Soviet 1: 50,000 map
DPS-111	471064, 4717719 (approx.)	On a hillside, overlooking Sno. In the river valley that flows west and south to join the Snostskali River at Sno	'Ruin' map feature on Soviet 1: 50,000 map
DPS-112	469539, 4732159 (approx.)	In the Tergi River Valley, not far from the Dariali Fort	Labelled as 'Former Kossak Post' on Soviet 1: 50,000 map
DPS-113	472868, 4730963 (approx.)	In the Khde River Valley	'Ruin' map feature on Soviet 1: 50,000 map
DPS-114	475091, 4730230 (approx.)	In the Khde River Valley	'Ruin' map feature on Soviet 1: 50,000 map

Table 10:10: Dariali Pass Survey Waypoint List.[1]

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
1	469187	4728358	DPS-1 Gveleti Village	Stone walls, other standing structures. Settlement with tower	2013
2	469232	4728171	DPS-3 Gveleti Cave	Walled cave. Natural cavern (?) with two walls extending across front creating a partially hidden entrance	2013
3	469283	4728137	Between Gveleti Fort(s) and Village	Walls in gully between fort and walled cave	2013
4	469323	4728232	Between Gveleti Fort(s) and Village	Small stone room built into hill side. Below fort. Relatively modern?	2013
5	469339	4728243	DPS-2 Gveleti Fort	Lower fort at Gveleti	2013
6	469206	4729301	DPS-4 Gveleti Cemetery	Part of cemetery previously excavated. Pipeline cutting through are.	2013

(Continued)

Table 10:10: Dariali Pass Survey Waypoint List. (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
7	467915	4730326	DPS-5 Daba and the Amali Valley	Rectilinear stone feature with linear depression leading toward it	2013
8	467563	4730375	DPS-5 Daba and the Amali Valley	Track down to river	2013
9	467497	4730269	DPS-5 Daba and the Amali Valley	Cairn, c. 2×2 m in size. Composed of small stones (0.10–0.30 m) in diameter. On a slight mound	2013
10	467649	4730235	DPS-5 Daba and the Amali Valley	Cairn, c. 2×2 m. Composed of small stones (0.10–0.30 m) in diameter. On a slight mound	2013
11	467713	4730235	DPS-5 Daba and the Amali Valley	Rectilinear stone feature, with linear depression leading toward it	2013
12	467786	4730194	DPS-5 Daba and the Amali Valley	Rectilinear stone feature, with linear depression leading toward it	2013
14	467828	4730255	DPS-5 Daba and the Amali Valley	Rectilinear stone feature, with linear depression leading toward it	2013
15	467794	4730219	DPS-5 Daba and the Amali Valley	Limit of linear depression. Extension of WP-12. Ending in a pit (7×4 m)	2013
16	467843	4730215	DPS-5 Daba and the Amali Valley	Cobble lined depression 11×5 m	2013
17	467913	4730152	DPS-5 Daba and the Amali Valley	Rectilinear stone feature, with linear depression leading toward it	2013
18	468054	4730182	DPS-5 Daba and the Amali Valley	Rectilinear stone feature, with linear depression leading toward it	2013
19	468201	4730111	DPS-5 Daba and the Amali Valley	Rectilinear stone feature, with linear depression leading toward it	2013
20	468349	4730174	DPS-5 Daba and the Amali Valley	Wall running roughly N-S across valley	2013

(Continued)

Table 10:10: (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
21	468336	4730152	DPS-5 Daba and the Amali Valley	Wall running roughly N-S across valley	2013
22	468319	4730085			
23	468319	4730085			
24	468309	4730051	DPS-5 Daba and the Amali Valley	Wall running roughly N-S across valley	2013
25	468312	4730020			
26	468302	4729973			
27	468310	4729953			
28	468301	4730008			
29	468444	4729964			
30	468407	4730024			
31	468434	4730064			
32	468498	4730099			
33	468538	4730093	DPS-5 Daba and the Amali Valley	Boundaries of settlement (Daba)	2013
34	468580	4730059			
35	468672	4730015			
36	468729	4729974			
37	468772	4729910			
38	468729	4729891			
39	468589	4729907			
40	468515	4729970			
41	467668	4730220			
42	467716	4730192	Track	Points along well-worn track leading down valley	2013
43	467719	4730133			
44	469170	4728079	Valley to South of Gveleti Fort	Wall across pass behind Gveleti Forts	2013
45	469239	4727992	Valley to South of Gveleti Fort	Gully below wall which provides access (although difficult) to the pass	2013
46	469311	4727918	Hill side between Gveleti and Tsdo	Small fortlet on animal track between Gveleti forts and Tsdo. 30 m SW of this ‘fortlet’ is another section of wall (2 m in length) on the hill side	2013
48	469435	4727725	Hillside between Gveleti and Tsdo	Gully with access up to goat track	2013
48	470125	4726705	DPS-6 Tsdo	Fort and enclosures above modern village of Tsdo. South end of site	2013
49	470175	4726851	DPS-6 Tsdo	Northern end of features above Tsdo	2013
50	470226	4726860	DPS-6 Tsdo	Point of inter-visibility between Tsdo and Lower Fort at Gveleti	2013

(Continued)

Table 10:10: Dariali Pass Survey Waypoint List. (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
51	470272	4727009	DPS-6 Tsdo	Sharp drop (at least 10–12 m) at edge of large terrace on ridge line NW of Tsdo	2013
52	470492	4727013	DPS-6 Tsdo	Lower terrace with steep drop to river below. Terrace is accessed by well-worn path zigzagging up hill	2013
53	469938	4726920	DPS-6 Tsdo	Clearance cairn on western side of field terraces at Tsdo. Pottery found here. Many other clearance cairns found nearby	2013
54	470065	4727177	DPS-6 Tsdo	Square stone built structure on top of ridge line. Identical in design to those seen previously (see WP-7)	2013
55	470088	4727160	DPS-6 Tsdo	Small circular stone enclosure about 2 m across made from medium sized boulders	2013
56	470133	4727126	DPS-6 Tsdo	An alignment of seven large boulders running alongside a well-worn path that connects a higher terrace to the valley below	2013
57	470182	4727021	DPS-6 Tsdo	On a plateau just below the top of the ridge. There are banked areas of earth forming the edge of terraces, field clearance mounds and a roughly circular enclosure about 10 m across formed of boulders	2013
58	470170	4726773	DPS-6 Tsdo	Square tower-like structure at the highest point on the ridge c. 4 m wide and 8 m long. It has a little window in one end, with a lintel. The window looks straight down into the valley. Down below the fort there are numerous sub-circular enclosures	2013
59	469363	4731694	DPS-7 Dariali Fort	Base of Dariali Fort (on the S side, N of the cemetery)	2013
60	469539	4731518	DPS-7 Dariali Fort	Area of cist burials to the N of Dariali Fort	2013
61	469511	4731457	DPS-7 Dariali Fort	Another possible cist grave?	2013
62	469445	4730499	Track S of Dariali Fort	End of track leading S from Dariali Fort. Ends at a steep drop into the Amali River Valley. Due to erosion on the river banks, it is difficult to tell how the river was crossed in the past	2013
63	469380	4731833	DPS-7 Dariali Fort	Top of Dariali Fort	2013
64	469270	4729552	DPS-5 Daba and the Amali Valley	Rectilinear stone feature (4×3 m), with linear depression extending from it (oriented N-S)	2013
65	469293	4729569	DPS-5 Daba and the Amali Valley	Rectilinear stone feature (2×3 m), oriented NW-SE. 10 m long linear depression running away from it toward the SE	2013
66	469279	4729670	DPS-5 Daba and the Amali Valley	Rectangular depression (similar to others in the valley). Small stones collected in base	2013
67	469274	4729728	DPS-5 Daba and the Amali Valley	Rectangular depression (similar to others in the valley). Small stones collected in base	2013

(Continued)

Table 10:10: (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
68	469374	4729683	DPS-5 Daba and the Amali Valley	Rectilinear stone feature (2×2 m), oriented N-S. Traces of mortar. 15 m long linear depression running into it. On cliff edge	2013
69	469437	4730000	DPS-5 Daba and the Amali Valley	Overflow channel from lakes running E toward Tergi River	2013
70	469468	4730118	DPS-5 Daba and the Amali Valley	Boggy area, possibly lake in times of high rainfall	2013
71	469488	4730181	DPS-5 Daba and the Amali Valley	Rectangular depression (similar to others in the valley), 15×10 m. Associated linear depression. Small stones collected in base. Water runs from high ground to overflow over cliff edge	2013
72	469474	4730200	DPS-5 Daba and the Amali Valley	Rectangular depression (similar to others in the valley). Small stones collected in base	2013
73	469387	4730226	DPS-5 Daba and the Amali Valley	Rectilinear stone feature. Oriented NE-SW. Evidence of mortar between stones. 3×2 m. Perched on top of cliff edge. 5 m linear depression running into it from SW	2013
74	469373	4730131	DPS-5 Daba and the Amali Valley	Rectilinear stone feature. Oriented E-W. 7×2.5 m. Much larger than other examples. Linear depression (5 m long) runs into feature at a right angle from the higher ground to the S	2013
75	469063	4730143	DPS-5 Daba and the Amali Valley	Rectilinear stone feature. Oriented E-W. 5×3 m. Perched on cliff edge	2013
76	468886	4729969	DPS-5 Daba and the Amali Valley	Rectilinear stone feature. Resembles others in valley	2013
77	468951	4729983	DPS-5 Daba and the Amali Valley	Cairn, oriented E-W	2013
78	469041	4730077	DPS-5 Daba and the Amali Valley	Round to oblong cairns. Often with an outer ring of stones, filled and stacked with smaller stones. Grouped on top of an elevated area	2013
79	469061	4730078			
80	469079	4730098			
81	469079	4730115			
82	469123	4729887	DPS-5 Daba and the Amali Valley	Cairn, oriented N-S	2013

(Continued)

Table 10:10: Dariali Pass Survey Waypoint List. (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
83	468921	4728216	Valley S of Gveleti, N bank of river	Enclosure walls. Dry-stone. Square enclosure with two ends built against base of rock face. On same bank of Gveletistskali as ruined village at Gveleti, but not accessible from same side of river	2013
84	468998	4728247	Valley S of Gveleti, N bank of river	Large single grave. Ring of large stones in an oblong pattern. Filled with smaller stones. Five flat stones laid on top of these stones down the centre of the grave. 3.7×2.3 m. Oriented NW-SE. On same bank of stream as WP-85	2013
85	469028	4728268	Valley S of Gveleti, N bank of river	Small stone room/enclosure. 3.3×1.75 m. One of the long axes uses a massive boulder, while the other is constructed of smaller stones. Dry-stone, double faced. Deeper on the inside	2013
86	469047	4728307	Valley S of Gveleti, N bank of river	Large irregular enclosure with ends built into the base of the rock face. Possible animal pen. At least 60 m across. One small stone room built against the S wall. Similar to WP-85 except both walls constructed of dry-stone	2013
87	469289	4730135	DPS-5 Daba and the Amali Valley	Circular depression with stone wall surrounding it. Approximately two courses high, dry-stone, no mortar. An earthen channel runs SSW towards lake	2013
88	470167	4726978	DPS-6-Tsdo	Irregular dry-stone enclosure on W facing slope of ridgeline, mid-size rocks to large boulders, several courses visible, but crude construction. Length = 10 m on N-S axis	2013
89	469875	4727092	DPS-6-Tsdo	Top of stone-lined channel running for 30–40 m. The channel runs from the last terrace of a complex set running E-W and N-S on the hills behind and may have drained both systems in the past. 4–5 courses visible, no mortar, E side has earthen bank as well	2013
90	469767	4725132	DPS-8	Three-sided walled structure built right at the base of the cliff below DPS-8 at top of very steep slope. Dry-stone walls of large blocks – up to seven courses high. Unclear function, but lack of wall on sloping side suggests it may have been a water conduit	2013
91	469695	4725034	DPS-8	Cairn, probably field clearance	2013
92	469668	4725034	DPS-8	Start of long enclosure wall around wider field system	2013
93	469713	4725051	DPS-8	Gap in enclosure wall, possible entrance, with cairn and tumble on the end	2013
94	469719	4725052	DPS-8	Cairn on long wall, probably field clearance	2013
95	469745	4725052	DPS-8	End of long wall, again incorporating a cairn/stone pile	2013
96	469702	4725074	DPS-8	Round cairn	2013
97	469726	4725075	DPS-8	Small cairn (1 m diameter) with very large stones.	2013
98	469759	4725081	DPS-8	Two small cairns under 1 m in diameter, on top of two large boulders	2013
99	469671	4725088	DPS-8	Western end of channel running into gully further to the W. Channel is 3 m wide, earthen banks visible on both sides in some areas	2013
100	469744	4725106	DPS-8	Continuation of WP-99. Channel to edge of cliff, section clearly eroded away – probably met channel of WP- 101-102	2013
101	469747	4725105	DPS-8	West end of second channel; probably met 99–100 channel and then funnelled water off cliff	2013

(Continued)

Table 10:10: (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
102	469781	4725096	DPS-8	Eastern end of channel starting at WP- 101 Similar to other one (WP- 99-100), 3 m wide; earthen banks	2013
103	469787	4725086	DPS-8	Southern end of N-S channel running straight off cliff (at WP-104). Does not connect to WP- 101-102 channel	2013
104	469788	4725101	DPS-8	Northern end of N-S channel running back to WP- 103	2013
105	469777	4725076	DPS-8	Small cairn, 1×1.5 m, medium to large stones, irregular shap.	2013
106	469796	4725072	DPS-8	Small irregular cairn resembling a sort of long rectangle. Constructed of small to medium stones	2013
107	469863	4725094	DPS-8	WP- 107-111 are various points around structure. WP- 107 = outward channel edge	2013
108	469841	4725100	DPS-8	WP- 107-111 are various points around structure. WP-108 = edge	2013
109	469834	4725094	DPS-8	WP- 107-111 are various points around structure. – WP-109 = channel leading into structure, runs straight for approximately 6 m	2013
110	469838	4725084	DPS-8	WP- 107-111 are various points around structure. WP- 110 = edge	2013
111	469857	4725081	DPS-8	WP- 107-111 are various points around structure. WP-111 = outward channel edge	2013
112	469856	4725090	DPS-8	Wall within structure; delimited by WP- 107-111., Several courses high and relatively wide. Could be related to water control?	2013
113	469875	4725084	DPS-8	Cairn	2013
114	469878	4725078	DPS-8	Cairn in alignment of five cairns, WP114-118, all round, 1–-1.25 m diameter, medium sized stones	2013
115	469881	4725079	DPS-8	Cairn in alignment of 5 cairns, WP- 114-118, all round, 1–1.25 m diameter, medium sized stones.	2013
116	469891	4725073	DPS-8	Cairn in alignment of 5 cairns, WP-114-118, all round, 1–1.25 m diameter, medium sized stones.	2013
117	469898	4725070	DPS-8	Cairn in alignment of 5 cairns, WP- 114-118, all round, 1–1.25 m diameter, medium sized stones	2013
118	469902	4725070	DPS-8	Cairn in alignment of 5 cairns, WP- 114-118, all round, 1–1.25 m diameter, medium sized stones	2013
119	469946	4725027	DPS-8	End of 6 m wide channel coming from structure (WP- 107-111), may be natural depression, but looks anthropogenic in places	2013
120	469962	4725033	DPS-8	Cairn on top of boulder	2013
121	470004	4725006	DPS-8	Small circular cairn, 1 m diameter	2013
122	469991	4725002	DPS-8	Small circular cairn, 1 m diameter	2013
123	470014	4724982	DPS-8	Small circular cairn, 1 m diameter	2013
124	469975	4724959	DPS-8	‘Scoop’ out of terrace, may be erosion but only visible in one area	2013
125	469969	4724951	DPS-8	125–128 are the four corners of a small structure with a platform at WP- 128	2013
126	469961	4724954			
127	469961	4724965			
128	469969	4724961			
129	469662	4725023	DPS-8	Start of long enclosure wall on the other side of WP- 92	2013

(Continued)

Table 10:10: Dariali Pass Survey Waypoint List. (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
130	469665	4725012	DPS-8	Continuation of long enclosure wall starting at WP- 129	2013
131	469698	4724991	DPS-8	Gap in enclosure wall – possible entrance – running from WP-129 through WP-130	2013
132	469717	4724981	DPS-8	Junction of enclosure wall (WP-129-131) with another wall that runs toward a structure	2013
133	469743	4724977	DPS-8	Structure at end of wall running from 132	2013
134	469746	4724980	DPS-8	Centre of dry-stone structure, square with 5×5 m dry-stone walls, at least 4 courses high	2013
135	469754	4724991	DPS-8	Dry-stone structure built into terrace, 10 m along long terrace, 5 m out, at least 3 courses visible, aligned with structure visible at WP-136	2013
136	469754	4724991	DPS-8	Dry-stone structure built in front of (and joining) structure at WP- 135, 10 m along long terrace, 5 m out, at least three courses visible. This structure has a wall half way along dividing it into two 5×5 m rooms	2013
137	469745	4725007			
138	469779	4725000	DPS-8	Wall of compound around structures WP- 137-140 and joining other walls at WP- 133	2013
139	469777	4724978			
140	469777	4724923			
141	469733	4724964			
142	469722	4724962			
143	469715	4724965			
144	469713	4724963			
145	469707	4724962	DPS-8	WP- 141-150 are the corners of a set of structures with three separate 'rooms' and two curved walls on the outside	2013
146	469701	4724959			
147	469703	4724944			
148	469718	4724950			
149	469726	4724953			
150	469737	4724959			
151	469714	4724975			
152	469711	4724978	DPS-8	WP- 151-154 are the corners of a smaller structure within the complex of structures in this area. A wall runs from WP- 152 to WP- 132 and the long enclosure wall	2013
153	469707	4724977			
154	469708	4724970			
155	469638	4724907			
156	469623	4724984			
157	469638	4724959			
158	469658	4724965	DPS-8	WP- 155-162 are a series of fields surrounding and to the E of the structures. All structure walls were dry-stone, none more than three or four courses and barely visible in places	2013
159	469675	4724891			
160	469728	4724897			
161	469701	4724921			
162	469669	4724939			
200	471742	4723556			
201	471739	4723562	DPS-9	WP-200-203 small structure linked to larger enclosure (200–210), 2×2 m dry-stone wall forming square on three sides, fourth side is part of larger enclosure wall	2013
202	471747	4723558			
203	471749	4723557			

(Continued)

Table 10:10: (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
204	471766	4723551	DPS-9	Start of dry-stone wall extending out from enclosure (WP-200-210) via gap to enclosure (WP-215-218)	2013
205	471775	4723557	DPS-9	Gap in dry-stone wall starting at WP-204 and extending past WP-211	2013
206	471765	4723504	DPS-9	Continuation of dry-stone wall, clearly still in use. Six to seven courses high. Wire fence on top	2013
207	471704	4723498	DPS-9	Continuation of dry-stone wall, clearly still in use. Six to seven courses high. Wire fence on top. Start of dry-stone wall coming off and ending at WP-208	2013
208	471707	4723489	DPS-9	End of dry-stone wall coming from WP-207 and enclosure, clearly related but not maintained	2013
209	471681	4723528	DPS-9	Continuation of dry-stone wall, clearly still in use. Six to seven courses high. Wire fence on top	2013
210	471725	4723562	DPS-9	Continuation of dry-stone wall, clearly still in use. Six to seven courses high. Wire fence on top. Joins WP-200 again to form enclosure	2013
211	471775	4723565	DPS-9	WP-211-214 from a half circle dry-stone wall structure that is in turn joined to a wall running between enclosures WP-200-210 and WP-215-218-211 and WP-212 where it joins wall, WP-213 and WP-214 outer edges	2013
212	471801	4723564			
213	471788	4723558			
214	471788	4723553			
215	471818	4723563	DPS-9	WP-215-218 is a dry-stone wall enclosure, similar to 200–210. Six to seven courses visible in a well-structured wall. Well-maintained with wire topping the wall. Protects area inside from grazing animals	2013
216	471872	4723573			
217	471910	4723470			
218	471844	4723476			
219	471807	4723592	DPS-9	Depression, circular, 4×4 m diameter, 2 m deep. 0.5 m earth bank on all sides. Small stones in the bottom probably fallen in through use and post-use	2013
220	471805	4723620	DPS-9	WP- 220-221 are E and W ends of large pile of rubble and stones, likely a destroyed wall	2013
221	471851	4723631			
222	471854	4723638	DPS-9	Stone lined depression. Walls are three courses high on S side where structure is best preserved. Elongated semi-circle shape, 3×2 m	2013
223	471929	4723616	DPS-9	Area of possible (natural?) channels coming down from mountainside	2013
224	471845	4723650	DPS-9	Cistern (?) at base of (natural) channel below cliff. 7×4 m, 1 m wide. Walls visible, sloping down slightly. On the downslope end, there is a very ephemeral wall	2013
225	471856	4723707	DPS-9	WP-225-228 set of structures (?) running down higher spur. One definite structure, 7×5 m with internal walls (WP-225). Very hard to interpret, especially as covered by undergrowth	2013
226	471836	4723712			
227	471830	4723720			
228	471817	4723730			
229	471811	4723725	DPS-9	WP-229-232 are corners of low dry-stone wall, three to four courses, 0.5 m wide. Wall crosses terrace 5 at WP-232	2013
230	471856	4723691			
231	471828	4723668			
232	471787	4723685			

(Continued)

Table 10:10: Dariali Pass Survey Waypoint List. (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
233	471789	4723627	DPS-9	WP-233-234 are a dry-stone wall between Terrace 6 and the wall that runs between 236 and 235. Low and rather ephemeral, but definitely present	2013
234	471773	4723639			
235	471752	4723639	DPS-9	WP-235-238 is a dry-stone wall between Terraces 6 and 7. WP-236 and 237 on Terrace 6 respectively, join WP-235 and 238 on Terrace 7. The other end of WP-235 is dry-stone wall between WP-241 and 242	2013
236	471793	4723641			2013
237	471791	4723601			2013
238	471745	4723597			2013
239	471731	4723596	DPS-9	WP-239-240 is a dry-stone wall between Terraces 8 and 9. These waypoints are the points of intersection with the terraces. Wall is well preserved, up to six courses in places 2013	2013
240	471704	4723604			2013
241	471672	4723659	DPS-9	WP-241-242 is a continuation of the dry-stone wall beginning at WP-235 on Terrace 7. WP-242 represents the end and possible intersection with Terrace 10	2013
242	471698	4723645			2013
243	471723	4723720	DPS-9	Intersection of dry-stone wall starting at WP-232 with Terrace 10. The wall continues past the end of Terrace 11	2013
244	471733	4723741	DPS-9	Dry-stone wall abuts Terrace 11 and heads W via WP-246 ending at WP-258 on the NE side of Terrace 13	2013
245	471757	4723794	DPS-9	End of Terrace 11 and junction with dry-stone wall running from edge of Terrace 5 down the hill	2013
246	471694	4723754	DPS-9	Continuation of dry-stone wall beginning at WP-244 and ending at Terrace 13	2013
247	471720	4723739	DPS-9	WP-247-248 is a small dry-stone wall connecting WP-244-246 and a wall between S ends of Terraces 11 and 13. WP-248 is also where this wall meets the wall between the terraces	2013
248	471711	4723713			2013
249	471721	4723809	DPS-9	End of dry-stone wall starting at Terrace 11	2013
250	471715	4723806	DPS-9	WP-250-260: various points around small church complex. Church itself within barbed wire enclosure. Whole complex seems isolated from other systems, although loosely follows alignment of Terrace 12 at W edge. Wall runs from WP-250-251-252-253-254-257-259-260 and back up to alignment with WP-250. Wall between WP-252 and 258 and further internal walls between WP-255, 256 and 252-258 wall	
251	471721	4723818			
252	471696	4723845			
253	471703	4723861			
254	471653	4723878			2013
255	471643	4723862			2013
256	471630	4723835			
258	471654	4723779			
259	471646	4723783			
260	471646	4723756			
261	471625	4723682	DPS-9	Dry-stone wall heading E and connecting to WP-241	2013
262	471617	4723634	DPS-9	Point at which dry-stone wall emerges from middle part of Terrace 14	2013
263	471608	4723609	DPS-9	WP-263-264 is a dry-stone wall on S end of Terrace 14	2013
264	471590	4723614	DPS-9	WP-263-264 is a dry-stone wall on S end of Terrace 14	2013

(Continued)

Table 10:10: (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
265	471602	4723599	DPS-9	Circular depression (cistern?), 4×4 m diameter, 2 m deep. Earthen banks on three sides and small stones in bottom, although not lined – more likely fallen in during use/post-use	2013
266	471610	4723560	DPS-9	WP-266-270 (excluding WP-269) are the rough edges of area heavily disturbed by gas pipeline put in before CORONA images were taken (*i.e.* it is visible on CORONA). Clearly the result of earth moving activities during pipeline construction	2013
267	471592	4723599			2013
268	471563	4723666			2013
269	471583	4723698	DPS-9	End of dry-stone wall connecting to WP-261	2013
270	471560	4723711	DPS-9	WP-266-270 (excluding WP-269) are the rough edges of an area heavily disturbed by a gas pipeline put in before CORONA images were taken (*i.e.* it is visible on CORONA). Clearly the result of earth moving activities during pipeline construction	2013
271	471569	4723832	DPS-9	End of dry-stone wall connecting to mid-point of Terrace 12 at WP-257	2013
272	471601	4723909	DPS-9	Point at which dry-stone wall coming from WP-254 crosses Terrace 16 and continues W for 30 m ending at WP-275	2013
273	471587	4723925	DPS-9	WP-273-274 are the start and end of double walled feature coming off dry-stone wall between WP-272 and 275. 1–1.5 m gap between very shallow walls. Possible channel or routeway?	2013
274	471614	4723935			2013
275	471554	4723936	DPS-9	End of dry-stone wall coming from WP-272	2013
276	471636	4723994	DPS-9	Circular depression (cistern?), 4×4 m diameter, 1.5 m deep, low earthen banks on all sides	2013
277	471634	4723994	DPS-9	Junction of dry-stone wall with end of Terrace 18, continues E for an indeterminate distance and W to WP-278	2013
278	471592	4724041	DPS-9	End of dry-stone wall running past Terrace 18 at 277.	2013
279	471616	4724012	DPS-9	Circular depression (cistern?), 4×4 m diameter, 2 m deep, low earth banks	2013
280	471661	4723590	DPS-9	Bottom of dry-stone wall that joins WP- 240, mostly rubble, possible courses visible	2013
281	471597	4723610	DPS-9	Walled enclosure with dry-stone wall, four to seven courses, lots of rubble in centre, edge follows Terrace 20	2013
282	471655	4723601			
283	471654	4723658			
284	471626	4723680			
285	471619	4723676	DPS-9	Dry-stone wall connecting to WP- 270. There are a few standing stones but mostly rubble	2013
286	471567	4723701	DPS-9	Dry-stone wall running W, connects to WP-288, three to four courses visible in places but mostly rubble	2013
287	471556	4723696	DPS-9	Dry-stone wall running S from WP-286-288 wall, very hard to define and mostly rubble	2013
288	471519	4723717	DPS-9	Dry-stone wall running W, connects to WP-286, three to four courses visible in places but mostly rubble	2013
289	471503	4723630	DPS-9	Dry-stone wall, mostly rubble; may be damaged from pipeline to S. Joins WP- 289	2013
290	471558	4723640	DPS-9	Dry-stone wall, but mostly rubble; may be damaged from pipeline to S. Joins WP- 288	2013

(Continued)

Table 10:10: Dariali Pass Survey Waypoint List. (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
291	471501	4723677	DPS-9	Dry-stone wall running in front of Terrace 21, from WP- 291-293. Five courses in places	2013
292	471504	4723702			2013
293	471488	4723708			
294	471499	4723723	DPS-9	Dry-stone wall running between WP-292 and 294, toward and perpendicular to wall between 291 and 293	2013
295	471505	4723790	DPS-9	Dry-stone wall running towards Terrace 19, mostly rubble	2013
296	471533	4723792			2013
297	471542	4723827	DPS-9	Very ephemeral dry-stone wall running between WP-297 and 298	2013
298	471508	4723841			
299	471543	4723848	DPS-9	Very long dry-stone wall running from WP 299 to 300 and coming off Terrace 15. Aligned with other walls to bottom of system, but broken by various tracks and bulldozed areas	2013
300	471503	4723871			
301	471642	4724079	DPS-9	Dry-stone wall extending between WP-301 and 302, running from break of slope	2013
302	471618	4724081	DPS-9		
303	471594	4724050	DPS-9	Dry-stone wall, represented mostly by tumble and rubble extending from Terrace 19 between WP-303 and 304. Fades out just before Terrace 25	2013
304	471563	4724067	DPS-9		
305	471576	4724118	DPS-9	WP- 305-308 is an enclosure still in use; encircled by wire fence laid over well maintained dry-stone wall that is five to six courses high. Field inside has not been grazed recently. At WP-308 there is also a small L shaped dry-stone wall structure (1×1 m) built out from a massive boulder of very flat stones up to five courses high	2013
306	471526	4724230			
307	471509	4724186			
308	471526	4724173			
309	471539	4724158	DPS-9	Structure built into internal side of dry-stone wall WP- 305-308. 7×4 m in length running along wall. Appears to have small internal platform	2013
310	471517	4724161	DPS-9	Dry-stone wall with opening coming off from WP- 308. Wall makes a right angle here and ends at WP- 311	2013
311	471495	4724166	DPS-9	End of dry-stone wall starting at WP- 308 and running through to WP- 311	2013
312	471548	4724099	DPS-9	Start of dry-stone wall running to WP- 314. Extends out from dry-stone wall (WP-305-313)	2013
313	471527	4724067	DPS-9	End of dry-stone wall that began at WP- 305	2013
314	471518	4724104	DPS-9	End of dry-stone wall that began at WP- 312	2013
315	471539	4724039	DPS-9	Depression (cistern ?) dug into side of Terrace 26, 3×4 m diameter, 1.5 m deep, small earthen banks on all sides, small stones and rubble fallen into bottom	2013
316	471475	4724068	DPS-9	WP- 316-318 form a L-shaped wall in front of Terrace 27. Quite rubbly, but four to five courses visible in places	2013
317	471501	4724050			
318	471499	4724040			
319	471443	4723918	DPS-9	WP- 319-320 is a dry-stone wall (mainly rubble) It, passes Terrace 29 and ends at Terrace 30	2013
320	471402	4723943			

(Continued)

Table 10:10: (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
321	471391	4723926	DPS-9	Start of very long dry-stone wall running downhill towards end of entire field system. Ends at WP- 396	2013
322	471365	4723874	DPS-9	WP- 322-323 is a dry-stone wall running from the end of Terrace 30 to Terrace 31. Four to five courses visible in several places, constructed of small stones	2013
323	471450	4723863			
324	471413	4723743			
325	471419	4723756	DPS-9	WP- 324-327 is a dry-stone wall with gap between 325 and 326. Two to three courses in places but mostly eroded out	2013
326	471421	4723758			
327	471451	4723795			
328	471472	4723846	DPS-9	WP- 328-329 is the end of a dry-stone wall. It is also the junction point of this wall with the wall that runs between WP- 330-331. This wall runs in front of Terrace 33	2013
329	471485	4723876			
330	471467	4723875	DPS-9	WP- 330-331 is a dry-stone wall, mostly rubble	2013
331	471492	4723885			
332	471482	4723889	DPS-9	Circular depression (cistern?), round, 4×4 m, 1.5 m deep, low earth bank visible around edge	2013
333	471483	4723800	DPS-9	WP- 333-334 form a dry-stone wall ending just before Terrace 22	2013
334	471496	4723796			
335	471462	4723568	DPS-9	WP- 335-337 is a dry-stone wall. It is the first intact wall W of pipeline disturbance. Begins at WP-335, turns corner at WP-336 and ends at WP-337	2013
336	471443	4723612			
337	471475	4723586			
338	471441	4723608	DPS-9	Structure, possibly cistern (?), built into wall formed by WP-339-342. On two sides of structure, there are two parallel lines of stone visible. Dry-stone construction. Four courses visible on inner side, but only rubble/tumble on other side	2013
339	471440	4723614	DPS-9	WP-339-340 form dry-stone wall extension of enclosure delimited by WP-341-345 and include the structure described in WP-338 2013	2013
340	471431	4723603			
341	471400	4723621	DPS-9	WP-341-345 form a dry-stone wall enclosure. Walls are four to five courses in places and generally quite easily discernible. WP-341 is a gap in the wall, probably modern. WP- 342 is a possible cairn. WP-343 marks a continuation point of the wall. WP-344 marks a clear change in lichen colour on the wall, from green to reddish orange	2013
342	471385	4723640			
343	471391	4723656			
344	471431	4723661			
345	471422	4723609			
346	471438	4723656	DPS-9	WP- 346-347 is a dry-stone wall running from Terrace 34 (WP-346) to end in field (WP-347)	2013
347	471464	4723661			

(Continued)

Table 10:10: Dariali Pass Survey Waypoint List. (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
348	Number omitted				
349	471468	4723686	DPS-9	WP-349-350 is a dry-stone wall coming off Terrace 34. WP-350 is also the junction point of this wall. A small wall that connects to the wall is formed by WP-352-355	2013
350	471435	4723699			
351	471449	4723706	DPS-9	Circular depression (cistern?) in middle of field, 6×6 m diameter, 1.5 m deep. Earthen banks. Small stones accumulated in bottom	2013
352	471465	4723721	DPS-9	WP-352-353 is a dry-stone wall, up to six courses in places. Continues to 354 and turns outwards at 355	2013
353	471435	4723727			
354	471416	4723725			
355	471415	4723735			
356	471430	4723821	DPS-9	Structure, 7×5 m built into Terrace 32 (stone lined terrace). Four to five courses remain standing. The terrace wall may form the back of the structure Aligned along terrace with structure at 357	2013
357	471431	4723833	DPS-9	Structure similar to 356 but less well preserved	2013
358	471433	4724054	DPS-9	Rounded depression (cistern?), 5×4 m, 2 m deep. Earthen banks. Rocks accumulated in bottom	2013
359	471454	4724075	DPS-9	Rounded depression (cistern?), 5×4 m, 1.5 m deep. Earthen banks. Rocks accumulated in bottom	2013
360	471460	4724084	DPS-9	WP-360-361 is a dry-stone wall that has been damaged by the building of the pipeline. Very probably related to start of wall on other side of pipeline, WP-375	2013
361	471439	4724115			
362	471464	4724191	DPS-9	WP-362-365 is a very long dry-stone wall, poorly preserved. It has been destroyed by bulldozing at top (WP-362) and between WP-363 and 364	2013
363	471453	4724200			
364	471438	4724216			
365	471425	4724234			
366	471406	4724266	DPS-9	WP-366-367 is a dry-stone wall. The lowest wall in the system. As such it runs to the cliff edge at WP-367. Two to three courses are visible, as well as some related tumble	2013
367	471354	4724301			
368	471325	4724209	DPS-9	Bottom of dry-stone wall leading to enclosure (WP-369-374), joins enclosure at WP-369	2013
369	471362	4724178	DPS-9	WP- 369-374 is a dry-stone wall enclosure, not presently maintained, but walls preserved three to four courses high. Destroyed by bulldozing between WP-370 and 371. Joins second set of walls at WP-372 and a wall running behind Terrace at WP-373	2013
370	471387	4724233			
371	471411	4724190			
372	471400	4724163			
373	471388	4724175			
374	471369	4724170	DPS-9	WP-375-376 is a dry-stone wall extending from enclosure (WP-369-374) at WP- 372. It may be an extension of WP-360-361 wall. WP-376 represents the end of this wall at the start of the area disturbed by pipeline construction	2013
375	471403	4724156			
376	471422	4724129			
377	471394	4724091	DPS-9	WP-377-378 is a dry-stone wall extending from Terrace 35. It may be aligned with others further up in the system	2013
378	471423	4724061			
379	471417	4724131	DPS-9	WP-379-380 is a dry-stone wall running directly in front of Terrace 35 and curving down to Terrace 38	2013
380	471354	4724077			

(Continued)

Table 10:10: (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
381	471355	4724089	DPS-9	WP-381-384 is a dry-stone wall running between and perpendicular to WP-379 and 380, and wall formed by WP-374 and 383. Mostly rubble and tumble but was clearly once a wall	2013
382	471319	4724117			
383	471322	4724128			
384	471303	4724133			
385	471278	4724152	DPS-9	Depression (cistern?), 4×4 m, 2 m deep. Low earthen banks. Stones collected in bottom	2013
386	471262	4724083	DPS-9	WP-386-387-388/398-399, C shaped dry-stone wall with hard corners. WP-386-387 is a very low, but clear wall. WP-388/398-399 is much less clear and represented by an extended pile of rubble	2013
387	471283	4724071			
388	471267	4724051			
389	471228	4724021	DPS-9	WP-389-392, odd structure, rectangular and stone lined, approximately 10×4 m and 1 m deep. Waypoints are on four corners. Two channels lead off of it to other structure (cistern?) at WP-393	2013
390	471224	4724014			
391	471213	4724020			
392	471219	4724027			
393	471213	4724011	DPS-9	Depression (cistern?) with short channel (approx. 4 m) leading to stone lined cistern/structure at WP-389-392. 2×2 m, 1 m deep, Earthen banks. No stones collected in bottom	2013
394	471339	4723980	DPS-9	End of dry-stone wall running from end of Terrace 38 to end of Terrace 39 and over Terrace 40	2013
395	471385	4723961	DPS-9	End of dry-stone wall running from end of Terrace 30, mostly collapsed, some structure visible in places	2013
396	471316	4723978	DPS-9	Dry-stone wall running from WP- 321 via Terrace 30, still standing to five or six courses in places	2013
397	471284	4724002	DPS-9	Circular depression (cistern?), 4×4 m, 1 m deep, banked earth sides	2013
398	471268	4724051	DPS-9	WP-386-387-388/398-399, C shaped dry-stone wall with hard corners. WP-386-387 is a very low, but clear wall. WP-388/398-399 is much less clear and represented by an extended pile of rubble	2013
399	471237	4724071			
400	471238	4723940	DPS-9	WP-400-401 is a dry-stone wall leading from S end of Terrace 40 heading W	2013
401	471160	4723964			
402	471207	4723939	DPS-9	Depression (cistern?), 7×4 m, 2 m deep, rounded with earth banks and stones in bottom.	2013
403	471264	4723951	DPS-9	Circular depression (cistern?), 5×5 m, 3 m deep, with earth banks and stones in bottom	2013
404	471234	4723924	DPS-9	WP-404-406 is a dry-stone wall starting at middle point on Terrace 40. WP-405 is a gap in this wall (probably not secondary, but an original opening)	2013
405	471297	4723907			
406	471354	4723883			
407	471383	4723934	DPS-9	End of dry-stone wall extending from WP-406 in front of Terrace 30	2013
408	471498	4723602	DPS-9	South end of gas pipeline oriented roughly N-S. Extends across much of the terrace and field system	2013
409	471398	4724385	DPS-9	North end of gas pipeline that began at WP-408	2013
410	471057	4725799	Tracks N of DPS-9	Rock shelter (natural) with small wall, four to five courses high. Large horned goat skull placed in cave	2013
411	470797	4725316	Tracks N of DPS-9	SE corner of large concrete structure on river bank	2013

(Continued)

Table 10:10: Dariali Pass Survey Waypoint List. (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
412	471257	4724022	DPS-9	WP-412-413 is a dry-stone wall extending from Terrace 40	2013
413	471210	4724029			
415	471134	4723917	DPS-9	WP-415-421 is a dry-stone wall extending from Terrace 41 toward Terrace 40, It is cut by a track just before Terrace 40, probably originally joined it	2013
416	471091	4723900	DPS-9	WP-416-418 is a dry-stone wall running Via S end of Terrace 41, cut by track at 417, reaching Terrace 40 at 418	2013
417	471120	4723854			
418	471196	4723846			
420	471122	4723883	DPS-9	Depression (cistern?) 5×2 m, 1 m deep, elongated but rounded with banked earth and small stones in bottom	2013
421	471195	4723859	DPS-9	WP-415-421is a dry-stone wall extending from Terrace 41 to Terrace 40, cut by track just before Terrace 40, probably originally joined it	2013
422	471212	4723896	DPS-9	422–427 is a dry-stone wall coming off Terrace 40. A waypoint was taken at each corner. Three to four courses are visible in places	2013
423	471179	4723905			
424	471188	4723950			
426	471222	4723929			
427	471209	4723929			
428	471202	4723935	DPS-9	Depression (cistern?)	2013
429	471204	4723871	DPS-9	429–431, Channel (?) running along top of Terrace 40. 1 mwide, low earthen banks, heavily eroded. Cut by modern track at WP-230	2013
430	471206	4723859			
431	471198	4723844			
432	471187	4723826	DPS-9	Stone lined rectangular structure with two channels coming off it set into larger wall. Very similar morphology to structure at WP-389-392 but without depression (cistern?) attached. 6×4 m, 1.5 m deep. WP-432 and 433 are the two ends on the long axis	2013
433	471180	4723832			2013
434	471132	4723845	DPS-9	WP-434-435 runs from wall with cistern (?) (WP-432-433) to edge of cliff (WP-435). It clearly used to extend further but edge of cliff has collapsed into gorge	2013
435	471160	4723769			
436	471133	4723783	DPS-9	WP-436-437 is a heavily tumbled wall running E-W near river edge	2013
437	471181	4723784			
438	471169	4723795	DPS-9	Circular depression (cistern?), 4×4 m, 1 m deep, banked earth edges	2013
439	471195	4723781	DPS-9	WP-439-447 is a complex series of walls with multiple corners and one large enclosure (WP-443-447). Joins Terrace 46 at WP-445 and larger walls at WP-446 and 447 respectively on E side. Connects, eventually, to system associated with WP-324	2013
440	471237	4723765			
441	471233	4723761			
442	471239	4723765			
443	471245	4723761			
444	471246	4723753			
445	471282	4723767			
446	471291	4723765			
447	471261	4723708			
448	471390	4723671	DPS-9	Long dry-stone wall extending from WP-447 extending to WP-448 via S corner of Terrace 44. WP-448 also marks S edge of Terrace 45 running to WP-449	2013
449	471405	4723731	DPS-9	Long dry-stone wall extending from WP-446 to WP-449 via N corner of Terrace 44. WP-449 also marks N edge of Terrace 45 running to WP-448	2013
450	471347	4723714	DPS-9	Rounded depression (cistern?), 6×7 m, 2.5 m deep, earthen banks, stones in bottom	2013

(Continued)

Table 10:10: (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
451	471362	4723761	DPS-9	Circular depression (cistern?), round, 2×2 m, 0.5 m deep, banked earth, no stones in bottom	2013
452	471391	4723785	DPS-9	WP-452-453 rubble dry-stone wall	2013
453	471322	4723819			
454	471339	4723884	DPS-9	WP-454-457 enclosure wall coming off wall (WP-405-407) to form roughly square field (waypoints taken- on corners)	2013
455	471293	4723839			
456	471283	4723845			
457	471274	4723910			
458	471258	4723860	DPS-9	Rounded depression (cistern?), 3×4 m, 2 m deep, earthen banks	2013
459	471286	4723799	DPS-9	End of wall starting at 455 and abutting enclosure 454-457	2013
460	471271	4723823	DPS-9	Circular depression (cistern?), 5×5 m, 3 m deep, earthen banks	2013
461	471219	4723845	DPS-9	Circular depression (cistern?), 6×3 m, 1.5 m deep, elongated but rounded ends, earthen bank on all sides	2013
462	468750	4730020	DPS-5 Daba and the Amali Valley	Stone lined rectangular cistern 3.5×1.8 m, 0.7 m deep with linear depression running into larger complex (WP-462-465)	2013
463	468754	4730007			
464	468764	4730013	DPS-5 Daba and the Amali Valley	Start of linear depression associated with WP-462 and WP- 463. Runs down to ruined village and WP- 465	2013
465	468740	4729981	DPS-5 Daba and the Amali Valley	End of visible part of linear depression beginning at WP-464 and including two depressions WP-462 and 463. Linear depression probably continued into village, but is now eroded away	2013
466	468741	4729975	DPS-5 Daba and the Amali Valley	Village-end of linear depression and circular depression complex (WP-466-471). Like WP-465, this linear depression probably continued further into village but now stops at this waypoint	2013
467	468777	4729997	DPS-5 Daba and the Amali Valley	Continuation of linear depression visible from 466; point at which it is joined by other linear depression associated with circular depression at WP-469	2013
468	468786	4730016	DPS-5 Daba and the Amali Valley	End of visible part of linear depression beginning at 466	2013
469	468789	4729996	DPS-5 Daba and the Amali Valley	Roundish depression (cistern?), 7×5 m, 1.5 m deep, earth banks visible, joined to linear depression WP-466-468 by short further linear depression ending at 469	2013

(Continued)

Table 10:10: Dariali Pass Survey Waypoint List. (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
470	468774	4729979	DPS-5 Daba and the Amali Valley	WP-470 and 471 are double depressions (cisterns?) either side of linear depression between 466 and 468 (like leaves on a plant). Both circular c. 6×6 m, 1.5–2 m deep, earth banking on sides	2013
471	468765	4729990			
472	468669	4730026	DPS-5 Daba and the Amali Valley	WP-472-474 is a small linear depression complex dug into bank above village to form Y shape. WP-472 bottom of Y, WP-473 and 474 ends of top two prongs	2013
473	468643	4730040			
474	468648	4730032			
475	470323	4717078	Sno Village	Tower within village	2013
476	472323	4715381	Akhaltsikhe Village	Village built into hillside and extended into plain below – now two villages, Qoselta on hilltop and Akhaltsikhe below	2013
477	473673	4713937	Karkucha Village	Village visited in vehicle survey	2013
478	465557	4716870	Sioni Village	Church and separate tower on high point above village and valley	2013
481	464029	4716528	Pkhelshe	Village with anomaly to W but proved impossible to get to	2013
482	468725	4720285	Pansheti	Tower and other structures on ridge above village	2013
600	468613	4720315	Pansheti	Village	2014
601	461546	4714357	DPS-10	Terrace centre point	2014
602	461542	4714387	DPS-10	Terrace centre point	2014
603	461589	4714364	DPS-10	Terrace centre point	2014
604	461587	4714384	DPS-10	Terrace centre point	2014
605	461596	4714436	DPS-10	Terrace centre point	2014
607	461538	4714427	DPS-10	Terrace centre point	2014
608	461566	4714453	DPS-10	Terrace centre point	2014
609	461596	4714482	DPS-10	Terrace centre point	2014
610	461572	4714491	DPS-10	Terrace centre point	2014
612	461532	4714497	DPS-10	Terrace centre point	2014
613	461569	4714529	DPS-10	Terrace centre point	2014
614	461608	4714549	DPS-10	Terrace centre point	2014
615	461584	4714558	DPS-10	Terrace centre point	2014
616	461542	4714583	DPS-10	Terrace centre point	2014
617	461580	4714585	DPS-10	Terrace centre point	2014
618	461615	4714597	DPS-10	Terrace centre point	2014
619	461589	4714607	DPS-10	Terrace centre point	2014
620	461539	4714611	DPS-10	Terrace centre point	2014
621	461508	4714623	DPS-10	Terrace centre point	2014
622	461538	4714632	DPS-10	Terrace centre point	2014
623	461593	4714633	DPS-10	Terrace centre point	2014
624	461603	4714659	DPS-10	Terrace centre point	2014
625	461550	4714656	DPS-10	Terrace centre point	2014
626	461510	4714676	DPS-10	Terrace centre point	2014
627	461565	4714677	DPS-10	Terrace centre point	2014
628	461605	4714683	DPS-10	Terrace centre point	2014

(Continued)

Table 10:10: (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
629	461778	4714786	DPS-10	End point of remains of village	2014
630	461598	4714730	DPS-10	End point of remains of village	2014
631	461516	4714703	DPS-10	Point between two circular depression (cisterns?) c. 2 min diameter	2014
632	461395	4714122	DPS-11	Edges of modern track	2014
633	461378	4714137	DPS-11	Edges of modern track	2014
634	461369	4714145	DPS-11	Edges of modern track	2014
635	461357	4714063	DPS-11	Edges of modern track	2014
636	461319	4714074	DPS-11	Edges of modern track	2014
637	461243	4714278	DPS-11	Edge of field plot	2014
638	461162	4714360	DPS-11	Circular depression (cistern?) – 1–2 min diameter	2014
639	463988	4715827	DPS-12	Terrace centre point	2014
640	464027	4715786	DPS-12	Terrace centre point	2014
641	464071	4715752	DPS-12	Terrace centre point	2014
643	464149	4715667	DPS-12	Terrace centre point	2014
644	464169	4715651	DPS-12	Terrace centre point	2014
645	464182	4715641	DPS-12	Terrace centre point	2014
646	464112	4715448	DPS-12	Terrace centre point	2014
647	464071	4715462	DPS-12	Terrace centre point	2014
648	464051	4715488	DPS-12	Terrace centre point	2014
649	464011	4715554	DPS-12	Terrace centre point	2014
650	463977	4715581	DPS-12	Terrace centre point	2014
651	463949	4715641	DPS-12	Terrace centre point	2014
652	463927	4715712	DPS-12	Terrace centre point	2014
653	463918	4715730	DPS-12	Terrace centre point	2014
654	463883	4715798	DPS-12	Terrace centre point	2014
655	460721	4713351	Tergi River Valley, S of Stepantsminda	Top of section	2014
656	460837	4713483	Tergi River Valley, S of Stepantsminda	Channel with rocks on either side directing water over the edge	2014
657	460904	4713538	Tergi River Valley, S of Stepantsminda	Wall across gullies	2014
658	460891	4713553	Tergi River Valley, S of Stepantsminda	Wall across gullies	2014
659	460955	4713684	Tergi River Valley, S of Stepantsminda	S end of a wall across a gully	2014
660	460956	4713696	Tergi River Valley, S of Stepantsminda	N end of a wall across a gully	2014
661	461032	4714263	Tergi River Valley, S of Stepantsminda	Corner of stone structure in DPS-10	2014
662	460949	4715875	Tergi River Valley, S of Stepantsminda	Wall eroding out of section in gully face at DPS-16	2014
663	460940	4715870	DPS-16	Mound at DPS-16	2014
664	460912	4715883	DPS-16	Mound at DPS-16	2014
665	460914	4715901	DPS-16	Cist grave eroding out of section in gully face at DPS-16	2014

(Continued)

Table 10:10: Dariali Pass Survey Waypoint List. (Continued)

WP no.	*Easting*	*Northing*	*Location*	*Description*	*Year*
666	460894	4715942	DPS-16	Cist grave eroding out of section in gully face at DPS-16	2014
667	467162	4718127	Arsha	Modern tower structure above Arsha	2014
668	460799	4713465	Tergi River Valley, S of Stepantsminda	OSL Sample	2014
669	Number omitted				
670	460900	4713983	DPS-11	Section	2014
671	460961	4714167	DPS-11	Section	2014
672	460297	4711885	DPS-17	Centre point of three circular depressions	2014
673	460278	4711879	DPS-17	SW edge of site and possible terrace system	2014
674	460176	4711988	DPS-17	NW edge of site and possible terrace system	2014
675	460189	4712161	DPS-17	Two circular depressions	2014
676	460437	4711984	DPS-17	Bottom terrace to the NE of ruined village	2014
677	460482	4711848	DPS-17	Top terrace to the N of ruined village	2014
678	466624	4718720	DPS-20	Ruined fort at Gaiboteni/Arsha	2014
679	462243	4716551	DPS-18	Khurtisi tower and church	2014
680	459644	4711597	DPS-19	Lower Ukhati/Kobi tower and church	2014
681	468144	4719011	DPS-21	Achkhoti tower	2014
682	460891	4713889	DPS-11	Exposed terrace section sampled for OSL	2014

[1] There is a margin of error of up to c. 5–10 m for all coordinates listed in the table, due to the accuracy of the GPS.

10.8. Sedimentary descriptions from terrace field investigations

DPS-10

Three sections in this field system near Kanobi (412–4, 412–7 and 412–8) were found naturally exposed and examined (Tables 10:11–13; Figs 10:63–65).

DPS-9

At this site, two sections were hand excavated and two more were machine excavated. Sections 412–10 and 412–11 were both hand excavated, as they could not be accessed by machine. Compared to the other sections, these had well-preserved stratigraphy. The two machine excavated sections were not suitable for sampling, as the terraces were mainly composed of clearance stones rather than earthen deposits (Tables 10:14–15; Figs 10:66–67).

DPS-6

All terraces located at this site had large stone walls to support the riser. Due to the height of the terraces, only one section was excavated (412–9), through Terrace 4 (Table 10:16; Fig. 10:68).

DPS-8

Three trenches were hand excavated and two were recorded and sampled: 412–16, Terrace 18; and 412–17, Terrace 10 (Tables 10:17–18; Figs 10:69–70).

Table 10:11: Section 412–4.

Depth (cm) (BGL)	*Context number*	*Munsell soil colour*	*Description*
0–17 cm	1	Dusky red (2.5Y3/2)	Loose, poorly sorted, frequent pebble inclusions, frequent roots, gradual boundary
17–68 cm	2	Dark reddish brown (2.5Y3/3)	Soft and loose loamy sand, with visible silicate minerals, moderately well-sorted occasional granules, gradual boundary
20–70 cm	3	Dark reddish brown (2.5Y3/3)	Loose loamy sand, frequent pebbles and large stones, occasional charcoal, gradual boundary
54–67 cm	4	Dark reddish brown (2.5Y3/3)	Loose poorly sorted coarse sand and gravel deposit, gradual boundary
68–74 cm	5	Dark reddish brown (2.5Y3/3)	Compact, moderately sorted loamy silt, organic, sharp boundary
74–77 cm	6	Dark reddish brown (2.5Y3/3)	Compact silty clay deposit with occasional grit inclusions, gradual boundary
77–90 cm	7	Dark reddish brown (2.5Y3/3)	Compact silty clay deposit with occasional grit inclusions, sharp boundary
90–121 cm	8	Dark yellowish brown (10YR3/6)	Loose and poorly sorted coarse sand and gravel deposit, sharp boundary
>85 cm	9	Reddish brown (2.5Y4/3)	Compact, moderately sorted, fine and coarse sand, calcium carbonate present, lower boundary not excavated

Table 10:12: Section 412–7.

Depth (cm) (BGL)	*Context number*	*Munsell soil colour*	*Description*
0–13 cm	1	Dusky red (2.5Y3/2)	Compact, loam silt with occasional gravel inclusions, frequent roots, gradual boundary
13–43 cm	2	Reddish brown (2.5Y4/4)	Soft and loose loamy sand, with visible silicate minerals, moderately well sorted with occasional granules, gradual boundary
64–76 cm	3	Reddish brown (2.5Y4/3)	Loose poorly sorted coarse sand and gravel deposit, gradual boundary
43–50 cm	4	Dark reddish brown (2.5Y3/3)	Compact, moderately sorted sands, sharp boundary
50–74 cm	5	Dark reddish brown (2.5Y3/3)	Compact, moderately well sorted loamy silt, occasional organic material and grit inclusions, sharp boundary
50+cm	6	Reddish brown (2.5Y4/3)	Moderately compact, poorly sorted sand and gravel deposit. Lowest boundary not excavated

Table 10:13: Section 412–8.

Depth (cm) (BGL)	*Context number*	*Munsell soil colour*	*Description*
0–12 cm	1	Dusky red (2.5Y3/2)	Compact, loam silt with occasional gravel inclusions, frequent roots, gradual boundary
12–42 cm	2	Reddish brown (2.5Y4/4)	Loose sandy silt loam, poorly sorted, frequent pebble inclusions, gradual boundary
31–41 cm	3	Olive brown (5Y5/3)	Moderately sorted sandy silt, gradual boundary
41–53 cm	4	Olive brown (5Y5/3)	Loose, poorly sorted sandy silt, gradual boundary
42–72 cm	5	Olive yellow (5Y6/6)	Moderately compact, well sorted coarse laminated sands, lowest boundary not excavated

Table 10:14: Section 412–10.

Depth (cm) (BGL)	*Context number*	*Munsell soil colour*	*Description*
0–8 cm	1	Very dark greyish brown (5Y3/2)	Compact, silty clay with occasional gravel inclusions, frequent roots, gradual boundary
8–105 cm	2	Dark olive grey (5Y3/2)	Compact silty clay loam, poorly sorted, frequent pebble inclusions, gradual boundary
105–137 cm	3	Dark olive grey (5Y3/2)	Moderately compact sandy silt, frequent stones (slate), pebbles and pottery fragments, gradual boundary
Collapsed wall	4	N/a	N/a
>137 cm	5	Dark olive grey (5Y3/2)	Compact, silty clay, frequent pebble inclusions lowest boundary not excavated

Table 10:15: Section 412–11.

Depth (cm) (BGL)	*Context number*	*Munsell soil colour*	*Description*
0–16 cm	1	Very dark greyish brown (5Y3/2)	Moderately compact, sandy silt with occasional gravel inclusions, moderately sorted, frequent roots, gradual boundary
16–49 cm	2	Dark olive grey (5Y3/2)	Compact sandy silt, poorly sorted, frequent pebble inclusions, gradual boundary
49–146 cm	3	Dark olive grey (5Y3/2)	Compact silty clay, frequent stones and poorly sorted, gradual boundary
146–191 cm	4	Dark olive grey (5Y3/2)	Compact sandy silt with occasional large stones and frequent pebbles, poorly sorted, underlying boundary not excavated

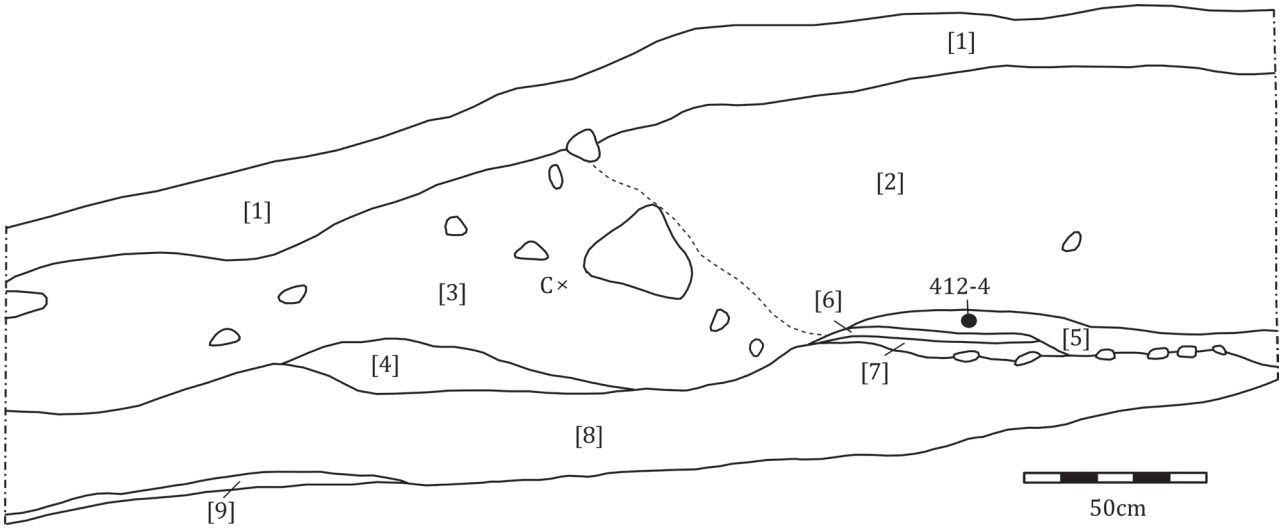


Fig. 10:63: Section through terrace sequence 412-4 at DPS-10. The locations of OSL test samples are indicated.

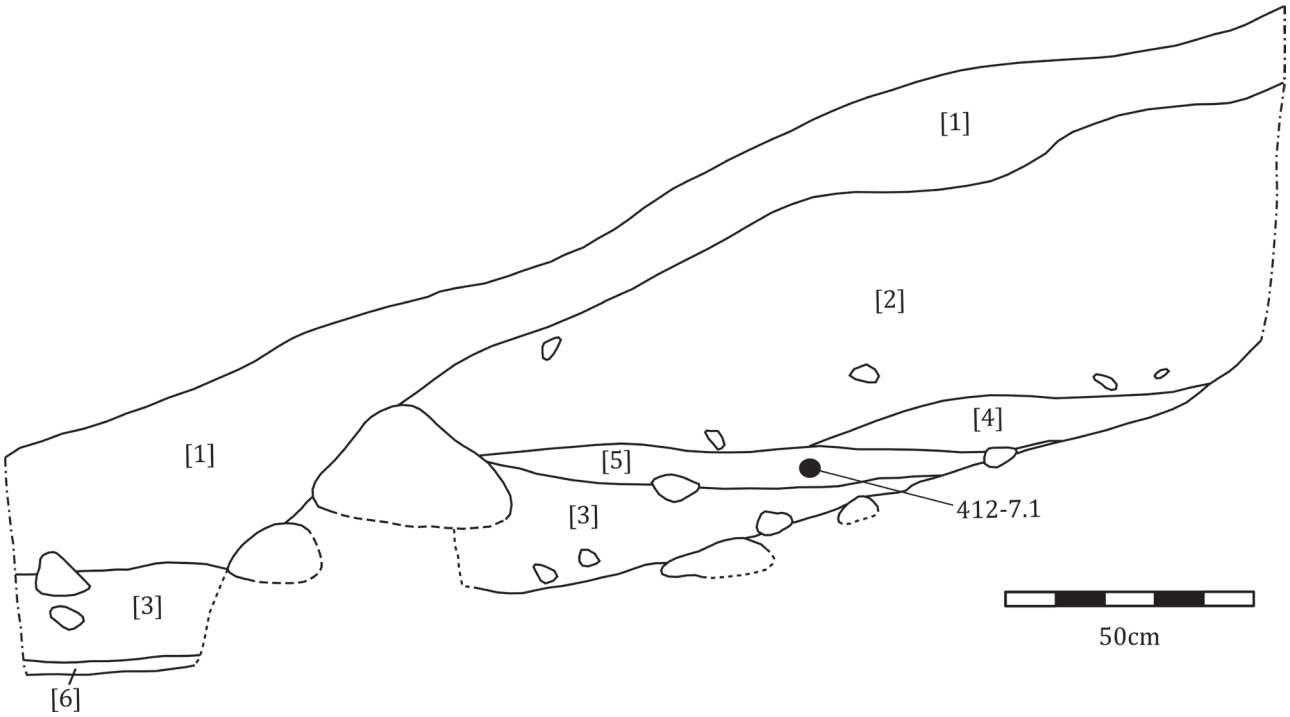


Fig. 10:64: Section through terrace sequence 412-7 at DPS-10. The locations of OSL test samples are indicated.

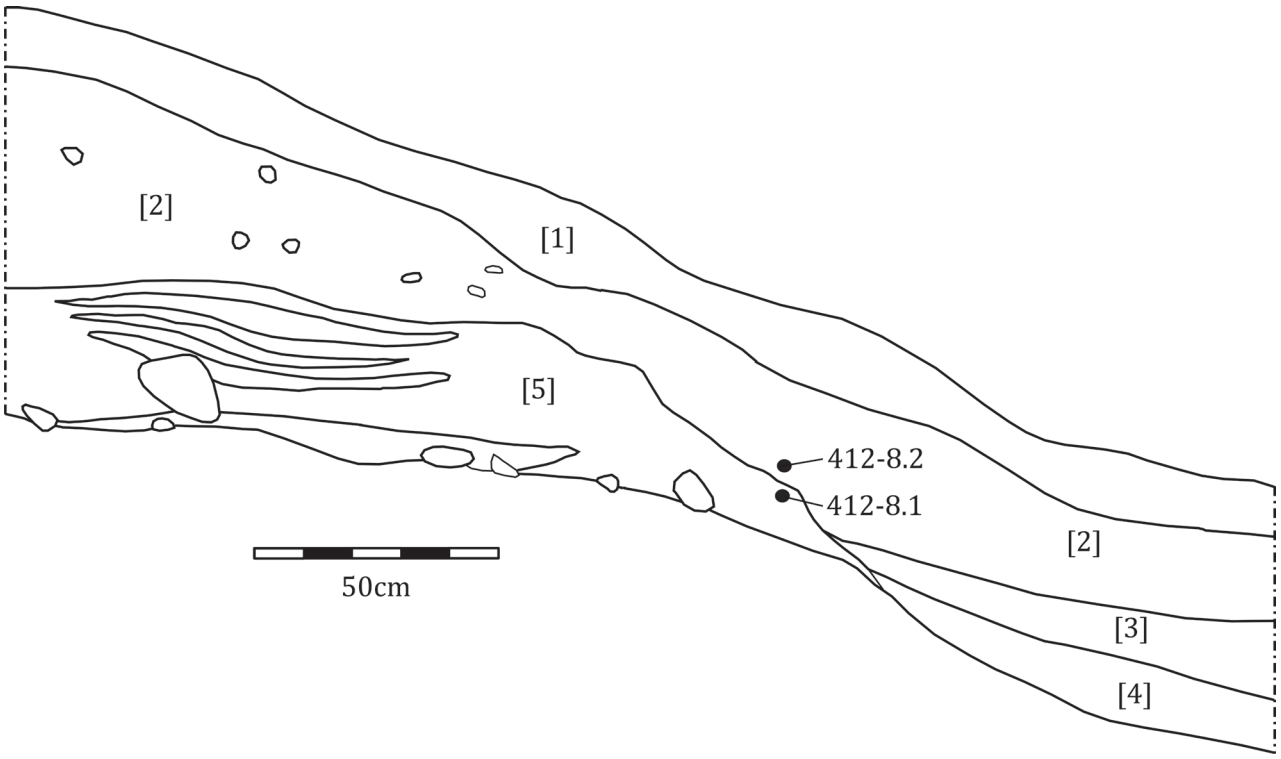


Fig. 10:65: Section through terrace sequence 412-8 at DPS-10. The locations of OSL test samples are indicated.

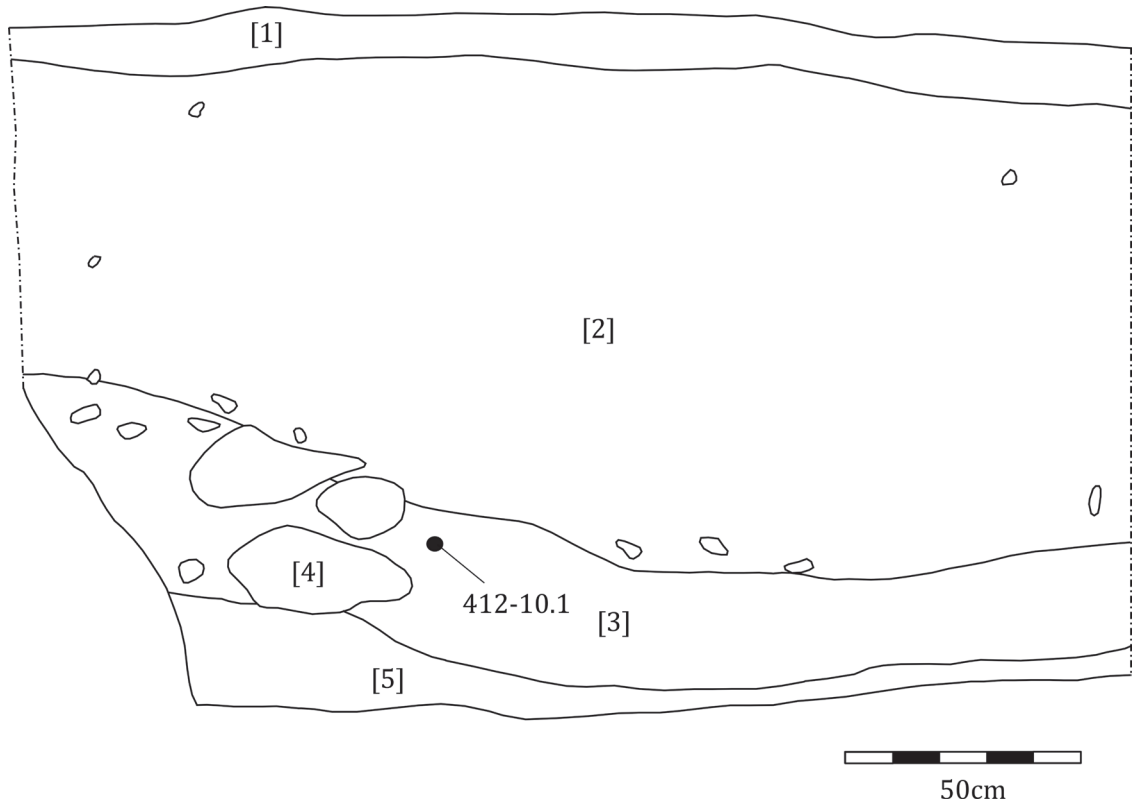


Fig. 10:66: Section through terrace sequence 412-10 at DPS-9. The locations of OSL test samples are indicated.

Table 10:16: Section 412–9.

Depth (cm) (BGL)	*Context number*	*Munsell soil colour*	*Description*
0–13 cm	1	Very dark greyish brown (10YR3/2)	Moderately compact, sandy silt with occasional gravel inclusions, moderately sorted, frequent roots, gradual boundary
13–75 cm	2	Light yellowish brown (10YR6/4)	Loose sandy silt, poorly sorted, occasional stone and pebble inclusions, some flecks of charcoal, abundant pottery, gradual boundary
75–127 cm	3	Greyish brown (10YR5/2)	Loose and crumbly sandy silt, poorly sorted, occasional stones and pottery fragments and frequent carbonate nodules occurred, sharp boundary
127–145 cm	4	Dark olive grey (5Y3/2)	Compact silty clay with occasional stones, moderately sorted, sharp boundary
145–193 cm	5	Dark yellowish brown (10YR4/4)	Compact sandy silt, poorly sorted, occasional stones and rock, one potsherd, sharp boundary
193–211 cm	6	Light olive brown (2.5Y5/4)	Compact silty loam, well sorted, occasional grit inclusions, sharp boundary
211–222 cm	7	Olive yellow (2.5Y6/6)	Compact silty loam, well sorted, occasional grit inclusions, sharp boundary
222–244 cm	8	Grey (7.5Y6/1)	Compact silty loam, well sorted, occasional grit inclusions, sharp boundary
244–251 cm	9	Olive yellow (2.5Y6/6)	Compact silty loam, well sorted, occasional grit inclusions, sharp boundary
>244	10	Grey (7.5Y6/1)	Compact silty loam, well sorted, occasional grit inclusions, lowest boundary not fully excavated
94–162 cm	11	Wall	N/a



Fig. 10:67: Section through terrace sequence 412-11 at DPS-9. The locations of OSL test samples are indicated.

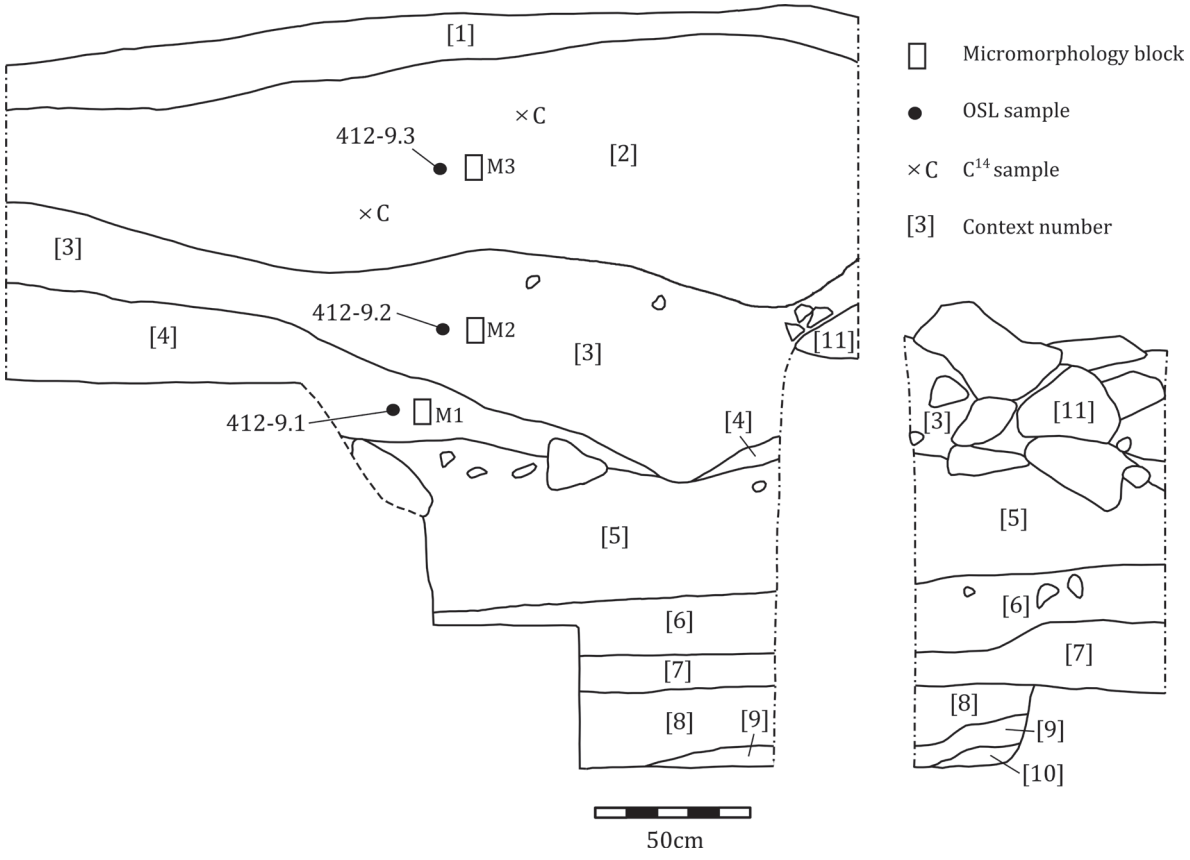


Fig. 10:68: Section through terrace sequence 412-9 at DPS-6. The locations of OSL test samples and micromorphology blocks are indicated.

Table 10:17: Section 412–16.

Depth (cm) (BGL)	*Context number*	*Munsell soil colour*	*Description*
0–5 cm	1	Yellowish brown (10YR5/4)	Compact, sandy silt with occasional grit inclusions, moderately sorted, frequent roots, gradual boundary
5–69 cm	2	Very dark brown, (10YR2/2)	Loose, loamy silt, moderately sorted, organic with frequent rootlets, frequent grit inclusions, gradual boundary
69–118 cm	3	Very dark greyish brown (10YR3/2)	Loose, loamy silt, moderately sorted, organic with rootlets, frequent grit inclusions, gradual boundary
118–161 cm	4	Very dark greyish brown (10YR3/2)	Loose sandy silt with pebbles and grit, poorly sorted, sharp boundary
161–194 cm	5	Dark greyish brown (10YR4/2)	Compact sandy clay, moderately sorted, occasional stones and grit inclusions, one potsherd, sharp boundary
>194 cm	6	Yellowish brown (10YR5/4)	Compact silty clay, well sorted, occasional grit inclusions, frequent calcareous nodules, lowest boundary not excavated
159–179 cm	7	N/a	Collapsed wall

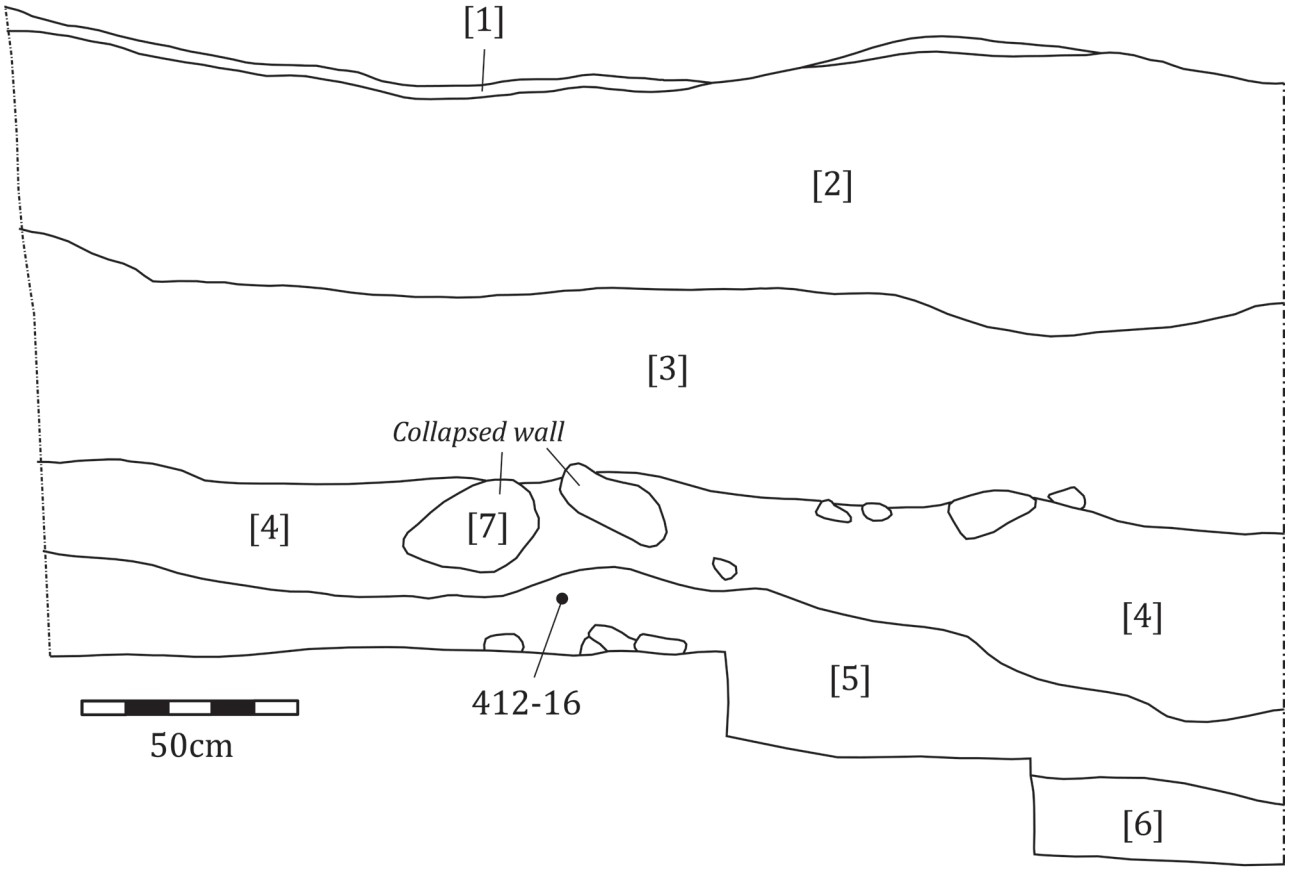


Fig. 10:69: Section through terrace sequence 412-16 at DPS-8. The locations of OSL test samples are indicated.

Table 10:18: Section 412–17.

Depth (cm) (BGL)	*Context number*	*Munsell soil colour*	*Description*
0–5 cm	1	Yellowish brown (10YR5/4)	Compact, sandy silt with occasional grit inclusions, moderately sorted, frequent roots, gradual boundary
5–85 cm	2	Dark greyish brown (10YR4/2)	Loose, loamy silt with frequent flecks of charcoal, pebbles and large stones, moderately sorted, gradual boundary
85–118 cm	3	Very dark brown (10YR2/2)	Moderately compact, sandy silt, moderately sorted, organic with rootlets, frequent grit inclusions, gradual boundary
118–127 cm	4	Very dark greyish brown (10YR3/2)	Compact sandy silt, frequent grit inclusions, moderately sorted, sharp boundary
127–137 cm	5	Dark greyish brown (10YR4/2)	Compact sandy clay, moderately sorted, occasional stones and grit inclusions, sharp boundary
>137 cm	6	Yellowish brown (10YR5/4)	Compact silty clay, well sorted, occasional grit inclusions, lowest boundary not excavated
>116 cm	7	N/a	Compact stone layer, sub-angular in shape, 5 cm in size, only exposed on the West side of trench, continued beyond limit of excavation
116–129 cm	8	N/a	Collapsed wall

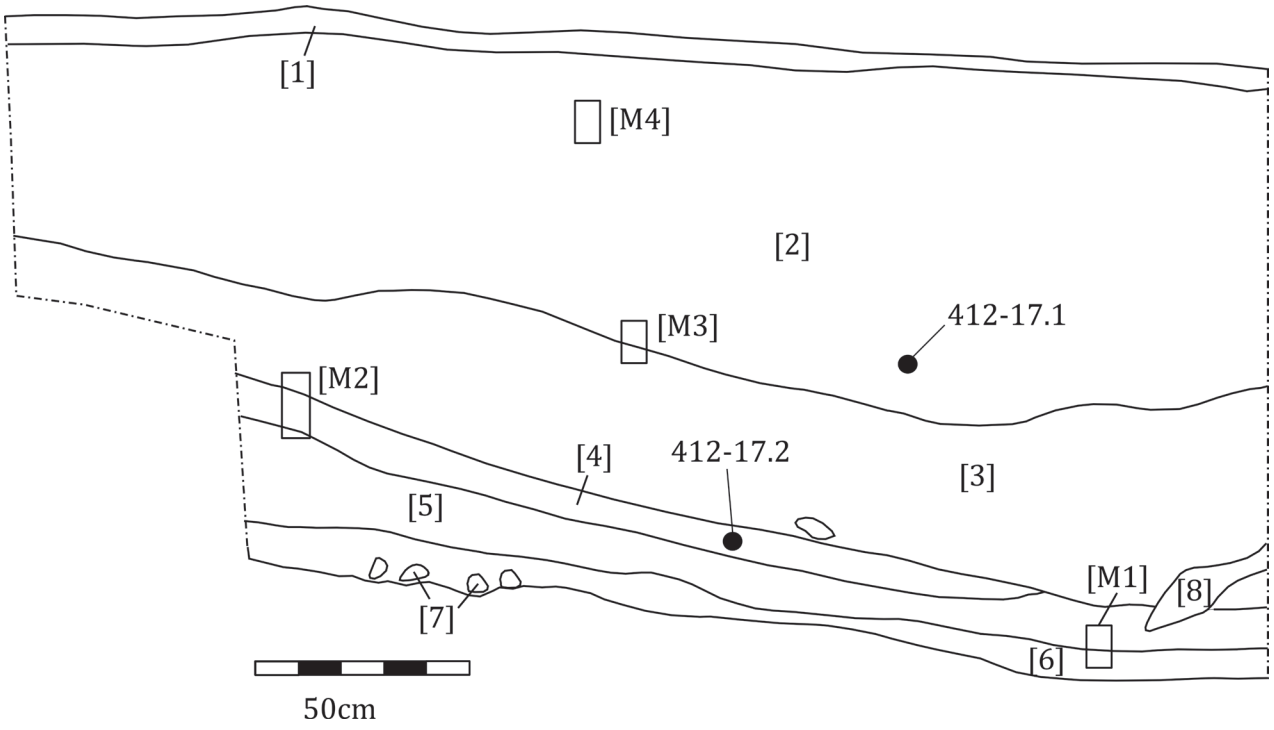


Fig. 10:70: Section through terrace sequence 412-17 at DPS-8. The locations of OSL test samples and micromorphology blocks are indicated.

Notes

1 Anderson *et al.* 2014; Badalyan *et al.* 2015; Hammer 2014; Lyonnet *et al.* 2012; Ratte *et al.* 2010; see also papers in Anderson *et al.* 2018.
2 Alizadeh 2014; Lawrence and Wilkinson 2017; Payne 2017.
3 Breeze 2011.
4 See also Howard-Johnston 2012.
5 Mindorashvili 2005; see also chapter 9.1.
6 *E.g.* Mindorashvili 2005; Itonishvili 1984; Ts'itlanadze 1976 etc.
7 See chapter 10.2.1.
8 See chapters 10.5.2.4, 10.8 and 24.
9 Gudjabidze and Gamkrelidze 2003; Zonenshain and Pichon 1986; Philip *et al*. 1989; Volodicheva 2002.
10 Volodicheva 2002.
11 Porter 1821, 71–72; see also appendix II.
12 Lyall 1825, 470.
13 Radvanyi and Thorez 1977, 308.
14 Radvanyi and Thorez 1977, 309; Nakhutsrishvili 2003, table 3.8.
15 Morgan 1889b, 37; Gille 1859; Radvanyi and Thorez 1977, 309.
16 Bock *et al.* 1995, 131.
17 Nakhutsrishvili 2013, 13.
18 Sumner 2000, 160.
19 Molchanov 2010.
20 Hanauer *et al*. 2017.
21 Connor and Kvavadze 2008.
22 See chapter 22.3.
23 Nakhutsrishvili 2013, 13.
24 Bock *et al*. 1995, 132; Didbulidze and Plachter 2002, 90–95.
25 Didebulidze and Plachter 2002, 97.
26 Itonishvili 1953, 190; Mkrtumian 1979, 224; Radvanyi and Thorez 1977, 318.
27 Radvanyi and Thorez 1977, 318.
28 Alizadeh and Ur 2007; Beck *et al*. 2007; Casana 2014; Casana *et al*. 2012; Fowler 2013; Philip *et al*. 2002; Wilkinson *et al*. 2013; Ur 2013.
29 Hritz 2014.
30 Itonishvili 1953; 1984; Mak'alatia 1936, 63; Radvanyi and Thorez 1977, 318.
31 Radvanyi and Thorez 1977, 318.
32 See, for example, Ur and Hammer 2009; Gassiot Ballbè *et al*. 2016.
33 The landscape survey was led by Dan Lawrence and Kristen Hopper. Lisa Snape supervised the excavation of terrace field systems and further geoarchaeological sampling. The team was assisted over the course of both seasons by Lana Chologauri, Annamaria Diana, Emanuele Intagliata, Koba Koberidze, Zurab Lemondzhava, Fiona Mowat, Seth Priestman, Lyudmila Shumilovskikh and Anthi Tiliakou.
34 See chapter 10.7: Table 10:10.
35 Mindorashvili 2005.
36 Ts'itlanadze 1976.
37 Mindorashvili 2005, 7.
38 Ts'itlanadze 1976, 9.
39 Mindorashvili 2005, 12; Ts'itlanadze 1976, 11–12.
40 Mindorashvili 2005, 151–52.
41 *E.g.* Dolidze 1959; Itonishvili 1953; 1967; 1971; 1984; Mak'alatia 1934.
42 See chapter 10.7.
43 Kobychev and Robakidze 1969.
44 See chapter 25 for references.
45 Mindorashvili 2005, 8–15; see also chapter 6.
46 See chapters 2–6 and 25.
47 See chapter 25.2.
48 K. Hopper and D. Lawrence in Sauer *et al.* 2015, 890 fig. 5.
49 See chapters 2–4.
50 See chapter 6; cf. A. Tiliakou *et al*. in Sauer *et al*. 2015, 895–96 table 1.
51 Lyall 1825, 503; Porter 1821, 75–76. See also appendix I.
52 Itonishvili 1984, 9. See also chapter 10.7: DPS-5.
53 The original count was 72 certain, probable or possible cairns, but four of these have been classified as 'uncertain' from the start, leaving 68 certain or probable cairns. Total station measurements suggest the mean diameter was 2.2m.
54 Mindorashvili 2005 and chapter 9.1.
55 See chapter 9.2.
56 Vakhusht'i = ed. and trans. Brosset 1842, 228–29.
57 Itonishvili 1971, 144.
58 Didebulidze and Plachter 2002, 93.
59 Didebulidze and Plachter 2002, 97.
60 Lyall 1825, 473.
61 Itonishvili 1984, 8; Kruglov 1937, 248, 250 fig. 4; Zakaraia 2008; Dr Denis Beletskiĭ, pers. comm.; see also chapter 8.8.
62 Mindorashvili 2005, 210, fig. V.4; cf. chapter 8.8.
63 Mak'alatia 1934, 247.
64 See chapter 8.
65 Itonishvili 1984, 8.
66 Vakhusht'i = ed. and trans. Brosset 1842, 228–29.
67 Itonishvili 1971, 137–38.
68 Mak'alatia 1934, 18, 247.
69 See discussion in chapter 10.5.
70 Mak'alatia 1934, 18.
71 Radvanyi and Thorez 1977, 315.
72 Mak'alatia 1934, 246–47.
73 Itonishvili 1971, 135–36.
74 See also chapter 10.5 for discussion of the terraces.
75 Itonishvili 1984, 4, 9.
76 Not to be confused with the location colloquially called Kobi that is found where the Truso Valley meets the Tergi River Valley, *i.e.* near the village of Lower Ukhati (c. UTM 38N 459848 E, 4712074 N).
77 Itonishvili 1984, 18–20.
78 Porter 1821, 84.
79 Zakaraia 1972.
80 Boardman 2000, fig. 5.73 a, b; Knauss 2006, 81; Miron and Orthmann 1995, 163–64. See also chapter 25.1.
81 Miron and Orthmann 1995,163–64.
82 Mindorashvili 2005, 6–8; Ts'itlanadze 1976, 10–11.
83 Itonishvili 1971, 105.
84 See chapter 10.5.1.3.
85 Gille 1859, 245; Lyall 1825, 473.
86 Itonishvili 1967; Mindorashvili 2005; Zakaraia 1972; 1973.
87 Mindorashvili 2005, 151–55.
88 Mindorashvili 2005, 151–55.
89 Itonishvili 1984, 17; Mak'alatia 1934, 124–27.

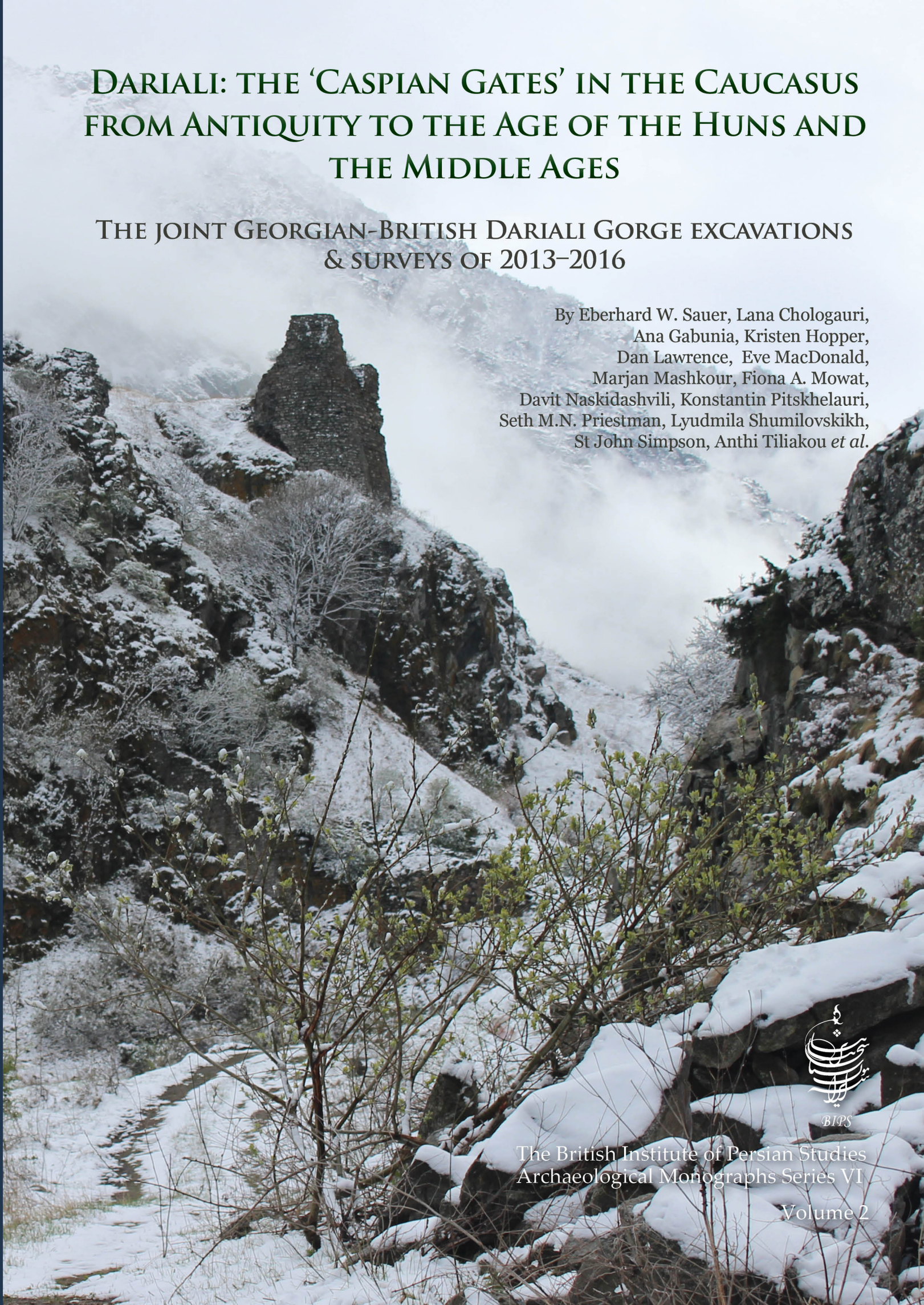
90 See chapters 2–4, 8 and 25; cf. Sauer *et al*. 2015.
91 *E.g*. Early-Spadoni 2015.
92 Given and Hadjianastasis 2010.
93 Given and Hadjianastasis 2010, 43.
94 Given and Hadjianastasis 2010, 57; Given and Gregory 2003; see also http://www.scsp.arts.gla.ac.uk/Pages/Fieldwork/viewsheds.html.
95 The modern village of Achkhoti (next to the tower) was apparently only settled in the twentieth century (Itonishvili 1984, 20).
96 Mak'alatia 1934, 124.
97 Itonishvili 1953, 202; 1971, 136.
98 Didebulidze and Plachter 2002.
99 Inbar and Llerena 2000.
100 Korobov and Borisov 2013; Borisov and Korobov 2012; Korobov 2012; 2017a; 2017b.
101 Skripnikova 2007.
102 Arzhantseva *et al*. 2001, 120.
103 Korobov and Borisov 2013.
104 Korobov and Borisov 2013.
105 Korobov and Borisov 2013, 1090.
106 Itonishvili 1953, 190–91; Mak'alatia 1934, 63–64; Radvanyi and Thorez 1977, 318.
107 Didebulidze and Plachter 2002.
108 Mak'alatia 1934, 63.
109 Itonishvili 1971, 52–53, 71.
110 Itonishvili 1953, 190–191; Radvanyi and Thorez 1977, 318.
111 Itonishvili 1971, 67.
112 Radvanyi and Thorez 1977, 315.
113 Lyall 1825, 477.
114 See chapter 10.8.
115 Jones *et al*. 1999.
116 See chapter 10.8.
117 See chapters 10.8 and 24.
118 Molchanov 2010.
119 See review in Arnaez *et al*. 2015.
120 Radvanyi and Muduyev 2007.
121 See chapter 10.8.
122 *E.g*. Avni *et al*. 2013.
123 See chapter 24.
124 Korobov and Borisov 2013, 1089.
125 Itonishvili 1971, 135–36.
126 Itonishvili 1984.
127 Itonishvili 1984, 9.
128 See chapter 10.5.1.
129 Vakhusht'i = ed. and trans. Brosset 1842, 228–29.
130 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 157.
131 See chapters 6.9, 20; cf. C. Pickard in Sauer *et al*. 2015, 899–900.
132 Della Casa and Walsh 2007.
133 Bevan *et al*. 2013, 271.
134 See chapter 22.3.
135 See chapters 2–6, 8, 22.3 and 25.
136 Mindorashvili 2005, 16.
137 Knauss 2005, 198.
138 See chapter 5.1.
139 Mindorashvili 2005, 7.
140 See chapter 25 and Sauer *et al*. 2015 for discussion and list of sources.
141 See chapter 5.
142 See chapters 2–3, 25.
143 See chapters 22.3.4–22.3.6.
144 See chapter 2–6 and 25.
145 Mindorashvili 2005.
146 Mak'alatia (1934, 122–23) indicates that a folk tradition states that a fort/tower at Sno was built in the seventh century on the orders of Shiola Gudushauri. A more recent castle or fortification at Sno may have been built in the seventeenth century (Itonishvili 1984, 21).
147 Mindorashvili 2005, 12.
148 Mindorashvili 2005, 13.
149 See chapters 2–3, 6, 11, 13, 15, 21 and 25.3–25.6.
150 See chapter 11.
151 See chapters 8.3 and 8.8.
152 See chapter 22.3.
153 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 157.
154 C. Pickard in Sauer *et al*. 2015, 899–900. See also chapters 6.9 and 20.
155 See chapter 11.
156 See chapter 25.6.
157 See also chapters 25.6–25.7.
158 See chapter 8.
159 Mindorashvili 2005, 7.
160 Mindorashvili 2005, 7.
161 Ts'itlanadze 1976, 9.
162 Zaqaria 1972.
163 *Document of Sakdrishvili of Gergeti from the fifteenth century (გერგეტელ საყდრიშვილთა XV საუკუნის)*; see Itonishvili 1971.
164 See Vakhusht'i = ed. and trans. Brosset 1842; see Itonishvili 1984, 9, 133 for a description of documents from the period of King Erekle (1762–1798).
165 Porter 1821; Lyall 1825; Gille 1859.
166 *E.g*. Mak'alatia 1934.
167 See chapter 8.
168 Examples include Arsha, Kanobi, Kobi. See chapters 10.4.3 and 10.7 for further details.
169 See chapter 22.3.
170 See Mak'alatia 1934 and Itonishvili 1984.
171 See also appendix I.
172 See appendix III; see also Hammer 2014; Smith and Greene 2009 for examples and discussion.
173 K. Hopper and D. Lawrence in Sauer *et al*. 2015, 889–92.
174 See chapter 10.7: DPS-16 for Kanobi.
175 Bevan *et al*. 2013.
176 Dolidze 1959, 246.
177 Early-Spadoni 2015; Hammer 2014; Lindsay and Greene 2013.
178 Kohl 1988, 595.
179 Anderson and Negus-Cleary 2018; Birkett-Rees 2012; Hammer 2014; Lindsay and Greene 2013; Wordsworth 2018.
180 Didebulidze and Plachter 2002, 93.
181 Bock *et al*. 1995, 131; Didebulidze and Plachter 2002, 95; Itonishvili 1971, 67.
182 See chapter 11.
183 The coordinates indicate the centre point, or main feature of the site. All WPs are listed in chapter 10.7: Table 10:10.

184 *Document of Sakdrishvili of Gergeti from the fifteenth century AD (გერგეტელ საყდრიშვილთა XV საუკუნის)*; Vakhusht'i = ed. and trans. Brosset 1842, 228–29 (from the eighteenth century).
185 Itonishvili 1971, 137–38; Mak'alatia 1934, 18–20.
186 KH = Kristen Hopper, DL = Dan Lawrence, LSK = Lisa Snape, SP = Seth Priestman, EM = Eve McDonald, FM = Fiona Mowat, KK = Koba Koberidze, LC = Lana Chologauri, LS = Lyudmilla Shumilovskikh, EI = Emanuele Intagliata, KER = Kim Eileen Ruf.
187 See chapter 8.
188 Mindorashvili 2005; see also chapter 9.1.
189 See chapter 9.1.
190 See chapter 9.2.
191 Itonishvili 1971, 135–36; *Document of Sakdrishvili of Gergeti from the fifteenth century (გერგეტელ საყდრიშვილთა XV საუკუნის).* See also Kruglov 1937, 247–48.
192 This point refers to a mid-point of the larger fort/cemetery area.
193 See chapters 2–6 and 25, with references.
194 Itonishvili 1984, 9, 133.
195 Itonishvili 1984, 24; Zaqaria 1972, 45.
196 Mak'alatia 1934, 123–27.
197 Mak'alatia 1934, 122.
198 Itonishvili 1971, 51–52; *Document of Sakdrishvili of Gergeti from the fifteenth century (გერგეტელ საყდრიშვილთა XV საუკუნის)*.
199 Mak'alatia 1934.
200 Itonishvili 1984, 28.
201 *Document of Sakdrishvili of Gergeti from the fifteenth century (გერგეტელ საყდრიშვილთა XV საუკუნის)*.
202 Itonishvili 1971, 65; 1984, 27.
203 Zakaraia 1973, 69. See also Kruglov 1937, 246.
204 Itonishvili 1984, 8; Kruglov 1937, 248, 250 fig. 4; Mak'alatia 1934, 247; Zakaraia 2008; Dr Denis Beletskiĭ, pers. comm.; see also chapter 8.8.
205 Itonishvili 1984, 8.
206 Itonishvili 1971.
207 Itonishvili 1984.
208 Itonishvili 1984.
209 Ts'itlanadze 1976, 102–04.
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220 Mindorashvili 2005, 7; Ts'itlanadze 1976, 7–8.
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222 Itonishvili 1971, 160–61.
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225 Itonishvili 1984, 4.
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230 Itonishvili 1971, 46–48.
231 See chapter 7.
232 Itonishvili 1971, 92.
233 Itonishvili 1971, 91.
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238 Mindorashvili 2005.
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241 Itonishvili 1971, 65.
242 Itonishvili 1971, 82.
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244 Mak'alatia 1934.
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246 Itonishvili 1984, 4.
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251 Mindorashvili 2005, 10.
252 Itonishvili 1984, 4.
253 *Document of Sakdrishvili of Gergeti from the fifteenth century (გერგეტელ საყდრიშვილთა XV საუკუნის)*; Itonishvili 1984, 25.
254 Itonishvili 1971; 1984, 25.vv
255 Itonishvili 1971, 85.
256 Mindorashvili 2005.
257 *Document of Sakdrishvili of Gergeti from the fifteenth century (გერგეტელ საყდრიშვილთა XV საუკუნის საბუთი)*; Itonishvili 1971, 85.
258 Mindorashvili 2005, 12–13.
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261 Itonishvili 1984, 4.
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Dariali: the 'Caspian Gates' in the Caucasus from Antiquity to the Age of the Huns and the Middle Ages

The joint Georgian-British Dariali Gorge excavations & surveys of 2013–2016

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Volume 2

SECTION C

Specialist Contributions

Finds, building materials, biological and environmental evidence and scientific dating

11

Provisioning and supply across an ancient frontier: the late antique and medieval ceramic sequence from the Dariali Gorge in the High Caucasus

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11.1. Introduction

11.1.1. Preface

The following report is based on the study and analysis of the ceramic finds from excavations undertaken in the Dariali Gorge in the High Caucasus in the Mtskheta-Mtianeti region of Georgia. In total, 28 trenches were opened at three main sites distributed over a c. 4 km stretch of the Dariali Gorge with the main work focusing on the late antique/early medieval stronghold of Dariali Fort (Fig. 11:1). The vast majority of the ceramic finds come from excavations undertaken within Dariali Fort (90% from Trenches F and Q) where the main occupation sequence spans the period from the fourth to tenth/early eleventh centuries AD with some later intermittent activity up to the twenty-first century. A detailed study of this material has been undertaken involving the classification and recording of the assemblage supported by formal description, illustration and full quantitative recording using multiple metrics: sherd count, sherd weight and Equivalent Vessel Estimates (EVEs). In total the assemblage comprises over 37,000 sherds with a combined weight of 990 kg.

While certain specific elements of the ceramic assemblage could be recognised by specialists from the outset, no comprehensive system existed for the detailed categorisation of the full spectrum of material. Details regarding the differentiation of ceramic products of different source or date have therefore had to be pieced together through visual examination and sorting of the material, technical studies of a small sample of pieces and the interrogation of the site phase distribution data. By combining the sizable body of excavated ceramics finds with the stratigraphic sequences and available absolute dating evidence, it is possible to provide a relatively accurate and robust temporal framework for the analysis of changing occurrence patterns of specific ceramic products. The available evidence for patterns of ceramic supply and consumption inform our understanding of routine processes of subsistence and provisioning within the Dariali Gorge and provide an indication of how these may have been transformed in different ways through time. As well as setting out the essential information required for the interpretation and analysis of the ceramic materials from the Dariali Gorge, this report aims to situate this new body of data within a wider discussion regarding the interaction between state level interventions − including the projection of power and maintenance of territorial control − and the actualised dimension of such factors within a specific local setting. At the edge of empire, how were the fundamental aspects of resource provisioning and community interaction structured and organised?

11.1.2. Scope of the project

The main focus of the Dariali Project was the investigation of the site of Dariali Fort. This consists of the ruins of a 0.4 ha monumental stone-built fortification perched high up on a rocky spur commanding a view over one of the narrowest sections of the Dariali Gorge in the High Caucasus overlooking the modern Georgian/Russian border (Fig. 11:1). The Caucasus chain presents a formidable natural barrier between the Central Asian steppe to the north and the fertile territories to the south. While there are a number of viable passes and communication routes through this mountain chain,[1] the Dariali Gorge represents the shortest and most accessible passage, and for this reason, control of the pass remained a critical issue of security over a long spread of history[2] up to the present day. The pass represents a key point of control



Fig. 11:1: Dariali Fort perched on a high rocky promontory controlling a bottleneck within the steep narrow ravine.

shielding the fertile lowlands or Georgia and, beyond that, the civilisational centres of the Eastern Roman Empire and the Middle East from the potential threat and destabilising influences of mobile pastoralist groups infiltrating from the north. In addition to the issues of security, the Dariali Gorge represents a crucial artery of communication via which commodities may have moved between different socio-economic and cultural spheres. The fortification at the Caucasian, Caspian or Alan Gates is situated at an elevation of over 1,300 m and occupies a key position from which strategic control could be maintained over the passage through the gorge. The area occupies a harsh upland environment that would have reached sub-zero temperatures through the winter months.

Excavations undertaken within the fort revealed an extended occupation sequence spanning the period from at least the late fourth to tenth/early eleventh centuries AD, with some intermittent later occupation; a period of at least 600–650 years. Within this range there was a particularly intense phase of cultural deposition related to the period from the eighth to tenth centuries. This period corresponds to the time when the Caucasian Gates formed the conventional northern limit of the territories of the Islamic Caliphate and its local representatives and successors.[3] In reality, control of the gorge may never have been static and there are indications of a more complex power play with the Dariali defences being overrun several times by the aligned forces of the Khazar Khaganate and the Alans who mounted a series of successful incursions from the north.[4] Most of the pottery finds relate to this stage of occupation, which falls towards the latter end of the 'early medieval' period as defined with Georgian literature.[5] An earlier phase of occupation dated from at least the later fourth century appears to be connected with the main construction of the fort and most of the substantial architectural components, such as the outer fort walls, were laid down at this time (*i.e.* the late fourth to fifth centuries). In terms of the deposition of cultural material, there is clearly a far lower concentration of finds associated with the earlier occupation of the fort in the late antique era, up to the seventh century.[6] This may be related to various different factors associated with patterns of site use and site formation processes, which will be considered in greater detail below. Historically this earlier phase of occupation is associated with another episode of Persianate influence with power fluctuating between the forces of the Sasanian Empire pressing their interests from the east, and various indigenous and external factions supported by the Eastern Roman Empire, including Lazica in the west of Georgia and the Alans to the north.[7] What we can say about the long-term importance of Dariali Fort is that it was a key point of strategic and military control

within the Dariali Gorge, but that the border it helped to define was not necessarily such a stable entity. It existed within a complex and often politically fragmented world in which local interests were not always neatly aligned with state demands or fixed projections of territorial control and land ownership.

11.1.3. Geographic parameters

Dariali Fort occupies a strategic position within the narrowest portion of the Dariali Gorge, which provides one of the main north-south communication routes through the east-west running Great Caucasus chain. The Great Caucasus is itself the product of the upthrust occurring within a wide zone of continental collision between the Eurasian and Africa-Arabian lithospheric plates, which have produced a complex geological mosaic of folded sedimentary rock from relict coastal and sea floor deposits interspersed with massive volcanic formations.[8] Within the gorge itself, east-west movement is in most places largely unviable due to the steep faces and massive height of the mountains that rise up on either side reaching heights of 5,047 m and 4,451 m to the west and east respectively. The only significant east-west movement that is possible within the gorge is along a series of short side valleys, each of which provide important areas of relatively flat cultivable land near to the zone of confluence with the Dariali Gorge,[9] but which themselves quickly ascent into narrow highland valleys and passes that are unsuitable for any substantial human movement or communication. Thus, the geography of the Dariali Gorge is heavily constrained and has acted to dictate the long-term pattern of human activity within the area, which must have been oriented on a strict north-south axis of movement. Furthermore, within the narrow upland portion of the Dariali Gorge, access from the south is via a high pass of 2,379 m at Jvari (*i.e.* the Cross Pass) just to the north of modern Gudauri. From there, the headwaters of the Tergi/Terek River form and flow south collecting further tributaries, forming a violent torrent in the summer months that passes below the base of Dariali Fort 36 km to the north of the pass and over 1,000 m lower in elevation (Fig. 11:2). The Tergi is charged both by the heavy rainfall in the area and especially by the glacial and snow water melt during the months of the year where the temperature climbs above freezing. To the north, the valley continues to descend rapidly and just 31 km beyond Dariali Fort, and c. 600 m lower in elevation, the valley opens out onto the wide, open steppe that continues on uninterrupted through Central Asia. The Dariali Gorge is in effect a short, steeply dropping, north oriented valley leading towards a high pass providing access to the south. In the space of just 87 km from the summit of this pass it drops almost 2,000 m in elevation.

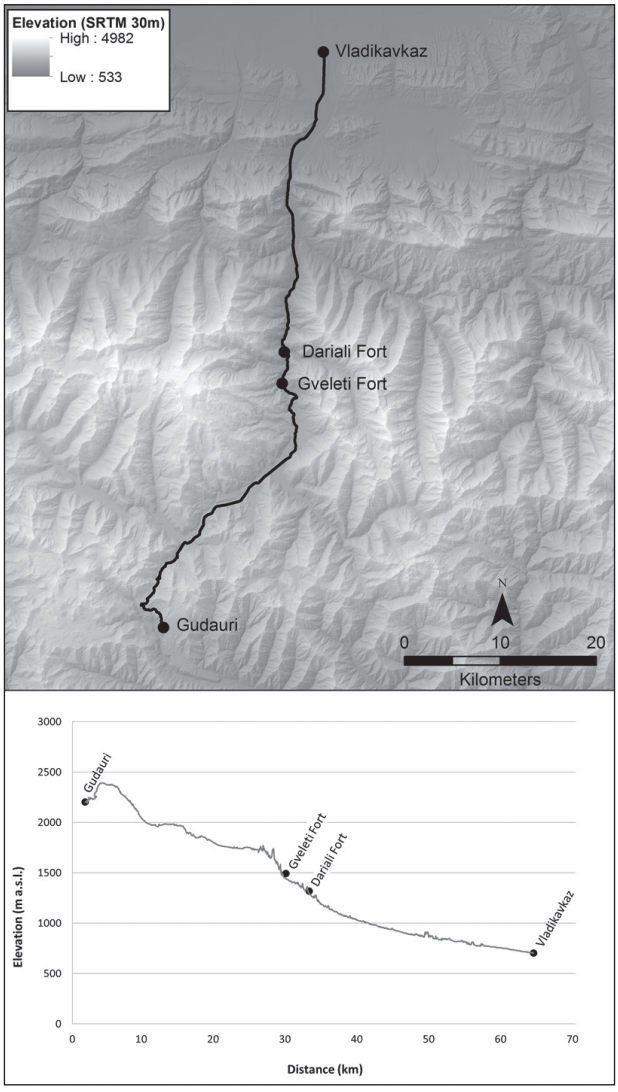


Fig. 11:2: Elevation profile of the Dariali Gorge, which drops almost 2,000m in the space of c. 87 km (travelling overland or 62 km as the crow flies) to the north of the high pass at Gudauri. Map prepared by Kristen Hopper. Base map SRTM 30m DEM courtesy of the US Geological Survey.

In terms of the provision of ceramics to Dariali Fort, the extreme geography of the region has two essential implications. The first is that the source of any ceramics found at the site is likely to lie either to the north or the south. This is helpful in narrowing down the scope of the investigation. Potential sources either to the west or east of the Dariali Gorge could only have been utilised if products were first transferred laterally through lowland areas before entering the gorge either via the high pass at Jvari or via the route in from the north around the modern city of Vladikavkaz. This would have added further transportation costs that are likely to have disadvantaged any such sources in comparison with those situated either directly to the north or the south.

The other related consideration is whether ceramics were manufactured on any substantial scale anywhere



Fig. 11:3: (Top) sediment input from deeply incised side valleys; (bottom left) gravel outwash in the valley floor; (bottom right) fine sediment load rapidly evacuated from the Dariali Gorge via the River Tergi/Terek in summer spate.

within the Dariali Gorge itself. This matter cannot be settled with any certainty, though some factors may be worth taking into consideration. The general consensus appears to be that ceramic production did not occur on any appreciable scale within the gorge,[10] and this seems to be consistent at least with the conditions that can be observed on the ground today. In this high-energy environment, rocks are broken down and decompose on the steep mountain slopes especially through the action of freezing and the resulting rock sediments washing down slope towards the Tergi (Fig. 11:3). Especially during the summer months, when the Tergi is most heavily charged through ice water melt, the narrow valley floor is scoured out and the main load of fine sediments are rapidly evacuated from the gorge. These conditions do not appear favourable to the formation of fine sedimentary clay deposits associated with slow moving water sources (Fig. 11:3).[11] Primary clays formed from the *in situ* disintegration of rocks provide another potential source of clay deposits within the gorge, but as far as one can tell, the clays associated with the ceramic products included within the Dariali Fort assemblage display marks of good plasticity, homogeneity and a mix of coarse inclusions, including rounded water-worn elements. These features are not characteristic of a primary clay deposit.

What is less certain is what conditions may have prevailed in the past and whether these were more conducive to the formation of clays. The deeply incised valley was carved out through glacial action and fluvial clay deposits may have formed at this time. Alternatively, the regular landslides from the Devdoraki Glacier off the east side of Mount Kazbeg are known to have dammed the course of the Tergi causing part of the valley to flood and may well at times have created lacustrine conditions in which fine clay particles could accumulate. The deep excavations conducted on the ancient river terrace at Gveleti cemetery revealed thick workable clay deposits[12] and similar sources could have been exploited for ceramic production in the past. Perhaps more significant is the fact that the systematic exploration of all areas suitable for cultivation and habitation within the gorge (see landscape section), have failed to produce any evidence for ancient kiln structures, waster material or other industrial debris. Again though, it is not certain what significance one can draw from this as the ground cover vegetation encountered, particularly in the summer months when the landscape survey took place,

tended to obscure most traces of cultural material other than obvious standing structures. Further detailed research would be required to conclusively rule out the possibility of local ceramic production within the Dariali Gorge. At the same time, based on the information currently available, it seems more likely that the ceramic products represented at Dariali Fort were brought there from lowland areas where suitable sedimentary clay deposits would be in abundant supply. In looking for the source of the ceramic products supplied to the garrison and associated wider community in Dariali Gorge, the most viable sources appear to have been those situated either in the lowlands of Eastern Georgia to the south or the Tergi basin in the Central Northern Caucasus to the north. Setting aside any other potential political factors or issues of security, in terms of the basic costs of heavy goods transportation and the commodity provisioning of Dariali Fort, sources of supply situated to the north would have had a strong economic advantage over those crossing the high pass from the south.

11.1.4. Excavated ceramic assemblages

Four seasons of fieldwork took place in Dariali Gorge with work undertaken annually in the summer months between 2013 and 2016 over a total of 22 weeks. Excavation work focused on three main areas spanning a c. 4 km stretch of the Dariali Gorge including from north to south: Dariali Fort, the Amali Cairns and Gveleti. Within these areas, investigation focused on different types of features. The most extensive excavations and the most productive from the perspective of the ceramic analysis are those from the summit of Dariali Fort, in particular Trenches F and Q.[13] Another excavation in the centre of the fort hit bedrock almost immediately (Trench O).[14] Other excavations associated with Dariali Fort were undertaken on a separate small rocky spur to the south of the main mound (Trench L),[15] around the remains of some fortification walls perched high on a precipitous shelf to the north of the site at Bakh'tari (Trench Y),[16] from close to the base of the main fort (Trenches M, P and X)[17] and from the flat cemetery area to the south of the fort (Trenches E, G and AB).[18] Most of these other trenches did not produce an abundance of ceramic finds, or where they did (particularly in the case of Trench X), they tended to be chronologically mixed. The information derived from the ceramic finds from these trenches will be briefly summarised below. For the local ceramic sequence and chronology and other information derived from this, most of this report is dedicated to the large assemblages and deep sequences from the top of the fort.

Moving *c*. 1.9 km to the south of Dariali Fort further up the gorge, the Amali Cairns are a series of c. 68 small round stone cairns situated on a terrace deeply incised to the north by the Amali River which descents from the slopes of Mount Kazbek (5,047 m) above. Two cairns were excavated but proved to be sterile (Trenches Z and AA).[19] At Gveleti work focused on two main areas: a flat area to the north where previous rescue excavations undertaken in 1991 by Dr Davit Mindorashvili revealed a cemetery area containing up to 16 burials dated between the sixth to early eighth centuries[20] (Trenches A, B, H, I, J, K, R, S, T)[21] and to the south from high up on a rocky promontory overlooking the Tergi in and around the remains of a series of compounds and fortifications (Trenches C, D, N, U, V, W) on Gveleti Lower Fort (Fig. 11:4).[22] None of the exploratory excavations undertaken within the vicinity of the Gveleti Cemetery were successful in identifying further related burials and few ceramic or any other cultural materials were identified in this area. The excavations from the Gveleti Fort produced a larger assemblage of ceramic material. This assemblage appears to partially overlap chronologically with that represented at Dariali Fort, but a substantial quantity of material also does not compare well and the most likely suggestion is that there is a period of somewhat later occupation represented at Gveleti Fort than there is at Dariali. These assumptions are partially confirmed by the C14 dating evidence, which indicates several phases of occupation spanning the period from the late eighth/tenth to sixteenth/seventeenth centuries.

In total 28 excavations were undertaken across the three separate areas covering a combined area of 934,69 metres squares (Table 11:1). Of these excavations, seven did not produce any ceramic finds and are thus of no further relevance to this section of the report (Trenches B, H, I, J, Y, Z, AA). The material from the remaining 21 trenches are presented below. Of these trenches, two from the top of Dariali Fort (Trenches F and Q) produced just under 90% of the pottery. This is partly related to the size of the areas excavated and the depth of the occupation deposits revealed, but it is also clearly associated with the nature of the activity represented in this area involving the long-term accumulation of material from intensive occupation on top of the fort. This can be partially demonstrated by comparing the number of sherds produced per metre square of excavation (Table 11:2). Interestingly, even within the interior or the fort there appears to be fairly substantial variation: Trench F produced 114 sherds per square metre compared with an equivalent of 68 from Trench Q, though again this is probably partially a reflection of the general depth of the occupation deposits on the west side of the fort interior and volume calculations would be required to provide a true comparison. In any case, the size of the assemblages from Dariali Fort, combined with the deep stratigraphy, long occupation sequence and large number of available C14 dates, makes Trenches F and Trench Q the most important elements of the study for examining long term changes in the development and composition of the ceramic assemblage.



Fig. 11:4: Gveleti Lower and Upper Forts on the rocky spur in the background looking south from the lower cemetery area.

Table 11:1: Summary of the trenches excavated in Dariali Gorge 2013-2016. Entries highlighted in grey produced no ceramic finds.

Trench	*Site*	*Season*	*Metres square*	*Sherds*
A	Gveleti Cemetery	2013	50.00	4
B	Gveleti Cemetery	2013	10.00	0
C	Gveleti Fort	2013	15.00	34
D	Gveleti Fort	2013	6.75	85
E	Dariali Cemetery, northern area	2013	130.12	379
F	Dariali Fort, west side	2013–16	170.00	19,445
G	Dariali Cemetery, southern area	2013	100.00	4
H	Gveleti Cemetery	2014	4.00	0
I	Gveleti Cemetery	2014	4.00	0
J	Gveleti Cemetery	2014	4.00	0
K	Gveleti Cemetery	2014	41.00	10
L	Dariali Fort, lower hill	2014	1.00	7
M	Dariali Fort, base of hill	2014	36.00	1,243
N	Gveleti Fort	2015	16.50	12
O	Dariali Fort, central area	2015	2.25	1
P	Dariali Fort, base of hill	2015	6.00	158
Q	Dariali Fort, north-west side	2015–16	204.50	13,881
R	Gveleti Cemetery	2015	6.00	3
S	Gveleti Cemetery	2015	3.00	3
T	Gveleti Cemetery	2015	60.00	9
U	Gveleti Fort	2016	2.70	32
V	Gveleti Fort	2016	2.00	12

(Continued)

Table 11:1: (Continued)

Trench	*Site*	*Season*	*Metres square*	*Sherds*
W	Gveleti Fort	2016	2.00	20
X	Dariali Fort, slope of hill	2016	40.00	1,697
Y	Bakh'tari Fort, ridge to the north	2016	1.00	0
Z	Amali Cairns	2016	6.00	0
AA	Amali Cairns	2016	4.32	0
AB	Dariali Cemetery, northern area	2016	6.55	65
Total			934.69	37,104

Table 11:2: Comparison the number of sherds produced per metre square of excavation from Gveleti Cemetery and surroundings (Trenches A, B, H, I, J, K, R, S, T), Gveleti Fort (Trenches C, D, N, U, V, W), Amali Cairns (Trenches Z, AA), Dariali lower/extramural areas (Trenches E, G, L, M, P, X, Y, AB), Dariali Fort, intramural areas (Trenches F, O, Q).

Area	*Metres Square*	*Total sherds*	*Sherds per m2*
Gveleti Cemetery	182.00	29	0.16
Gveleti Fort	44.95	195	4.34
Amali Cairns	10.32	0	0.00
Dariali Lower Areas	320.67	3,553	11.08
Dariali Fort	376.75	33,327	88.46

11.1.5. Previous research on medieval pottery in Transcaucasia

Work on the ceramic finds from Dariali has been constrained by the general lack of detailed published information or a robust independent ceramic chronology for the associated region. The recording methodology outlined below has been developed in response to these conditions. Several factors appear to contribute towards the lack of a detailed understanding of the late antique/early medieval ceramic sequence within the study area. In general terms, it is clear that a disproportionate amount of local archaeological expertise and attention is drawn towards other types of finds and periods. In particular the spectacularly rich precious metal finds mostly obtained from kurgan burials belonging to the Transcaucasian Bronze Age, or the links that bind parts of Georgia to a popular European Classical history via the Graeco-Roman influence, particularly in the west and Black Sea littoral region. Within the early medieval period, the field is dominated by historical discourse, particularly associated with the collection of local ecclesiastical sources written down at different times between the ninth and fourteenth centuries, collectively referred to as the *Kartlis Tskhovreba*.[23] Rather less attention has been dedicated to the archaeology of this period. Yet, while this characterisation may be true in a general sense, the archaeology of the late antique/early medieval period has certainly not been ignored.

A relatively long and active tradition of archaeological research exists in Georgia and the Northern Caucasus stretching back to at least the mid-twentieth century involving the exploration of a number of the substantial urban and religious centres and funerary complexes of the medieval period often on a large scale and with work continuing over several decades. The most obvious and notable example is the work on the multi-period site complex surrounding the ancient Iberian capital and long-term centre of royal and religious authority at Mtskheta, where work has been in continual progress since at least the 1950s.[24] Within Eastern Georgia, other long-running projects involving archaeological excavation of urban centres with a substantial early medieval occupation include Tbilisi,[25] Rustavi,[26] Dmanisi[27] and Urbnisi.[28] Rescue excavation has also played a significant part in the identification of medieval archaeology, including earlier interventions such as the flooding of Zhinvali and the excavation of parts of the extensive cemetery there in advance of the construction of a hydro-electric plant in the 1970s.[29] More recently, the huge construction projects associated with the installation of the BP gas pipeline through the country have provided both an incentive and a source of funding for the systematic exploration and recording of new archaeological sites[30].

As part of a relatively recent trend, there is also clearly a growing interest in research driven investigation targeting

the archaeology of the medieval period specifically. This includes on-going work by the Georgian National Museum started by Levan Chilashvili and then continued by Nodar Bakhtadzeh at the early monastic complex of Nekresi in Kakheti. The site is situated on the steep northern flank of the Alazani Plain overlooking the lowlands. Early work undertaken in the 1990s focused on a monumental structure interpreted as a possible fire temple or a building with an astronomical function that has been dated to the fourth to fifth centuries.[31] More recent work has been concentrated on at least three, large, early dated basilicas with multiple phases of construction. These are situated to the north of the fire temple higher up slope.[32] Excavated finds indicate the use of these churches between the fourth and sixth centuries and ceramics and other finds from this work provide an important benchmark for the period.[33]

Another important current research project on the medieval archaeology of Georgia is the work of the University of Georgia on the settlement complex of Samshvilde by David Berik'ashvili in the Kvemo Kartli region of south-east Georgia.[34] The site is situated on a high, narrow, naturally protected promontory isolated to the north and south by the confluence of the deeply incised channels of the Chivchavi and the Khrami Rivers. The drop from the plateau to the base of the gorge is around 200 m. The settlement consists of an outer town, a number of small chapels or churches and an inner citadel. The whole town covers an area of around 18 ha and is divided into three sections by two transverse walls with buttresses. A long-term project has been initiated involving the use of extensive mapping techniques, geophysics, building conservation and sample excavation. The remains so far uncovered mostly relate to the high medieval period.[35] In the west of Georgia, in the Samagrelo region, a long-running Anglo-Georgian project has been in continuous operation now since 2001 at the site of Nokalakevi.[36] The site consists of a substantial stone-built fortification covering an area of around 20 ha situated on a terrace protected within a bend in the Tekhuri River. While the site contains multiple phases of occupation dating back to the eighth century BC, most of the standing architecture relates to a phase of expansion during the fifth to sixth centuries AD when the site formed part of the core defence of the central Lazica territory.[37] Extensive and systematic work has been undertaken on the ceramic finds (see more below).

In the Northern Caucasus, there has been a continuing emphasis on medieval cemetery sites, which tend to produce finds of jewellery, beads and other ornamental objects but less abundant finds of pottery. Examples include the rescue excavations in the Mamison Gorge[38] – the next substantial pass to the west of Dariali – and the catacomb burials in the Dargavs cemetery.[39] Work undertaken at the c. second to fourth century urban scale settlement of Zigli in Ossetia is unusual in targeting occupation deposits and providing good quality publication of the domestic ceramic assemblage.[40] In the Kislovodsk basin, c. 220 km north-west of Dariali, pioneering work has been undertaken using modern landscape approaches to reconstruct long-term settlement density and land use patterns within a particularly dense concentration of features associated with the Early Middle Ages or eighth to tenth centuries.[41] Work on the ceramic finds in this area has mostly been aimed at providing chronological control for the settlement survey and there still appears to be a strong reliance on funerary assemblages, particularly those from Klin Yar[42] and Mokraya Balka.[43] What is less clear is whether these assemblages are closely replicated in settlement contexts or whether vessels interred in burials have their own distinctive characteristics.[44]

The value of ceramics as both a chronological marker and at times an indicator of cultural contacts, affiliation and material exchange have been recognised as a key component of the archaeological discipline since its inception and focus has been given to the study of this material. An integral aspect of the existing archaeological publications of medieval material within the region includes the description and illustration of associated ceramic finds and consideration of their source and origin. At times the quality of the material has also attracted specific interest from an art historical perspective, and this applies in particular to glazed ceramics and especially the distinctive green, brown and yellow on white sgraffiato with a stylised bird or animal motif, which appears to be specifically associated with centres of glazed ceramic production that thrived in Tbilisi during the period of Bagratid unification between the eleventh to thirteenth centuries.[45] Glazed ceramics have been the subject of a number of dedicated studies,[46] which collectively provide a fairly well established outline for the chronological development of stylistically defined groups, broadly aligned with the same developmental process documented elsewhere within the Middle East.[47]

Within the assemblage from Dariali, glazed ceramics represent a useful chronological marker where they occur, though with no finds dated earlier than the eighth or ninth centuries, and standing at just 0.3% of the overall ceramic assemblage, they represent a relatively insignificant component of the general ceramic finds. The vast majority of ceramic material from Dariali consists of plain, undecorated coarse wares, often with rough stone tempered fabrics and drab colours. Furthermore, the finds, coming as they do from occupation deposits, are presented in a heavily fragmented condition, and thus provide few intact examples or fully reconstructable vessel profiles. Our potential understanding and interpretation of such material is not helped by the fact that these coarse wares have not received a level of attention in any way commensurate with their frequency or volume. Where such material has been described, illustrated and published, there is a heavy emphasis on vessels towards the finer end of the quality spectrum for unglazed ceramics and on complete specimens, generally from funerary contexts. Large fragmentary assemblage of common utilitarian products

from early medieval domestic or urban contexts, which constitute the vast bulk of the material encountered, have generally not been studied in a systematic or comprehensive manner within Georgia or the wider Transcaucasian region. The work conducted on the material from Zilgi in Ossetia is an exception to this trend.[48]

The problems emphasised in the existing state of knowledge regarding the definition, provenance, dating and circulation patterns of common categories of unglazed ceramics for the medieval period in Georgia are in no way exceptional. The same knowledge deficiencies apply to the same, or in many cases to an even greater extent across the wider Middle East and probably many areas of the world. We still lack basic research and information on the major categories of wares that were manufactured at different times and on the specific locations of production. Certain analytical techniques that could help to elucidate this information, such as ceramic petrography and chemical composition analysis have not yet been applied on any appreciable scale. Even in the absence of more detailed or sophisticated analytical techniques, the basic methodologies adopted do not appear optimal for setting out a robust definition of the main ceramic types and wares upon which a chronological framework might be established. There are two associated aspects to this. Where common coarse wares are described and published, only a small number of selective examples are generally included and there appear to be only occasional examples where these are set out in a formalised typological scheme.[49] Such steps are not simply an exercise in organisation and presentation; they represent the essential building blocks upon which our knowledge of ceramics as a data source can be established.

The second related aspect that has not yet been widely addressed in Georgian ceramic research for the medieval period is ceramic quantification. Again the lack of quantitative recording is a common feature across most areas outside Western Europe and core parts of the Roman world.[50] Without such information it is impossible to establish the relative abundance (and significance) of individual ceramic products; to systematically compare the composition of ceramic assemblages between different sites, different types of deposition context, etc., or to document the changing frequency and occurrence of individual ceramic products through time. While the ceramic finds from the long-running Anglo-Georgian excavations covering the Hellenistic to early medieval occupation sequence at Nokalakevi in West Georgia have been subjected to quantitative recording, other than a general summary, the finds from this pioneering project have not yet been fully published.[51] The work undertaken on the material from Dariali provides the first published quantitative study of medieval pottery in Georgia or the Northern Caucasus. The work draws on a relatively large body of finds data covering a long stretch of history from at least the fourth to tenth centuries supported by a robust absolute chronology. The analysis of this material has the potential to establish a reliable ceramic chronology within which to chart changing patterns of ceramic use and consumption through the history and life of the region. At the same time, it is not always clear which cultural sphere the Dariali assemblage is most closely linked with and this represents a final specific complicating factor associated with the study that should be mentioned here. The site lies at the boundary and interface between two areas to the north and the south that have been persistently separated from one another in environmental, socio-economic and cultural terms and the source area for the supply of ceramic products is likely to bridge this wider geographic, linguistic and subject-area divide. This situation creates further challenges to the understanding and interpretation of the material.

11.1.6. Recording methodology

At the beginning of the Dariali project, we did not start out with a clear understanding of the different varieties of ceramics represented within the assemblage or of their likely dating or source. While some important information could be obtained via the existing published literate and local expertise,[52] the aim was to establish an independent classification and type series based on the characteristics of the Dariali pottery assemblage itself. Combining this classification with the phase occurrence data for specific varieties of ceramics, together with the absolute dating, it is possible to set out a robust independent, stand-alone framework for the ceramic chronology of Dariali. This can be used as a gauge against which to evaluate related sets of material from other sites. The implementation of full ceramic quantification in particular allows one not only to document the *occurrence* of specific varieties of ceramics within a particular stratigraphic period, but also to track the changing *frequency* of those categories across different areas of the site or through time. This becomes an important chronological indicator in itself. The changing frequency of particular kinds of ceramics often marks significant points of temporal transition, either in core elements of ceramic supply, or in the underlying technological characteristics or cultural attributes reflected in the regional ceramic assemblage.

Ceramic finds from Dariali – as with the majority of other find categories – were extracted by hand during the excavation process. Screening was not employed, except in the case of flotation (for relatively small quantities of soil only at the base, due to lack of flowing water at the main trenches) and this process did not yield any significant quantities of ceramic finds. This means from the outset that there is inevitably some variability in recovery rates and assemblage completeness levels based on the differing speeds with which deposits were excavated, how carefully the soil was checked for finds and perhaps to some extent by the experience levels or differing priorities of individual excavators. In general, however, the policy was for the full recovery of all pottery fragments. Naturally fragments of very small size are likely

to be mostly excluded from this process (*i.e.* those of c. 10–15 mm or less). Pottery from each individual excavation context were kept separate and bagged together. The excavation employed a single-context-recording system and individual contexts form the smallest unit of spatial differentiation for bulk finds. The method by which individual contexts were distinguished from one another is set out elsewhere within the report.[53] In certain cases, for particularly noteworthy finds, objects were given a 3D location within the trench before extraction using either a dumpy level and levelling staff or, especially in later years, a Total Station system. This mostly applies to small finds, more unusual find categories such as metal or diagnostic fragments of glass. For ceramics, most glazed fragments were given a 3D location as well complete vessels or other especially noteworthy finds. Those objects for which a 3D location was recorded were bagged individually and given their own find number (see more below).

The vast majority of ceramic vessel fragments were treated as bulk finds. This means that individual fragments can only be located within the excavation at the whole context level. Finds from each context were subject to an initial sorting and recording process upon completion of the excavation of a context, or at the close of work each day. Excavators were responsible for separating out the main bulk find categories from one another into separate groups. These consist predominantly of pottery, animal bone, occasionally, brick and tile, and in some cases non-diagnostic glass fragments. As noted above, other find categories were mostly recorded individually. Each find or find group associated with a particular context was assigned a finds number taken from a running consecutive list. The details of the find were entered on the finds list at the site and the corresponding information was added to a finds label placed with the finds themselves. This means that an individual finds number can apply to either a single object, often with its own 3D location, or to a bulk find group. Separate finds number lists were maintained starting from number '1' for each individual trench. Where a trench was returned to over multiple seasons, the finds numbers run on in consecutive order. Where the same context was excavated over multiple days, finds were bagged up and numbered at the end of each working day and a new set of numbers was applied the following day. While this added slightly to the administrative task surrounding finds processing and to the proliferation of finds numbers, because of weather conditions and other factors it was impractical to leave finds on site overnight awaiting the complete excavation of a context, and the task of integrating finds from different days under the same find number seemed to be attendant with too many risks and too little benefit to be warranted. The system adopted also has the added advantage that the finds from individual working days can be separated from one another and, in a few cases, this has proved to be of particular benefit, especially when dealing with large contexts or in remedying errors where a context may have been overcut or poorly defined.

The bags labelled with their individual find number, context details and other information were returned from site each day to the project base in Stepantsminda together with the trench documentation, which includes the finds lists. The initial post-excavation phase involved entering the details from the paper copy of the finds list into an electronic record, and then checking off the finds bags with their label information against this record. At the same time, certain basic details were recorded including the count (except in the case of ceramics and animal bone) and the find weight. In some cases, the basic identification of finds was also checked at this stage and amended in the electronic records where necessary. This initial recording phase proved important for double checking and correcting any inconsistencies or finds recording errors which inevitable arise when working with a large team, especially faced with often challenging conditions in an upland environment with rapidly changing weather patterns. Having completed this initial record check, finds groups were separated out from one another and passed on to the different sections of the finds processing team for further recording.[54]

Before recording, all ceramic finds were washed in fresh water to remove loose soil and other staining effects from the surfaces and section breaks to aid in the process of visual identification. After washing, the fragments were left to air dry often for several days or at least until they were sufficiently dry to be placed back into finds bags ready for further processing and eventual storage. Certain practical steps were taken to avoid the potential for finds labelling information to be mixed up or lost during the washing and drying process. For bulk find categories, which often came from site in a wet and soil coated condition, finds labels were written onto tags placed inside their own protective bag and placed inside the main finds bag facing outwards in a prominently visible position. During the washing and drying process, the bag labels could be removed together with the finds and placed in a plastic mesh basket with the label in its water-resistant cover attached to the side with tape. These steps helped to optimise efficiency and minimise potential errors.

As outlined above, we did not start out with a clear understanding of the range of materials represented in the Dariali assemblage and the first stage was to establish these parameters. The study undertaken draws on the experience of working in other regions where the basic classificatory framework first had to be established and details regarding the methodologies employed in previous studies are equally pertinent here.[55] The essential starting point for the ceramic study was to establish a reliable visual classification of the material. This information had to be pieced together and developed as the work progressed alongside the basic finds recording process that forms part of the excavation recording strategy. In some cases, the categorisation of the material is relatively straightforward and emerged quickly and in obvious fashion. In others, extensive sorting and examination was

required before the significant differences between individual ceramic products could be adequately recognised and effectively implemented in the recording. Naturally, our recognition and understanding of the associated material has continued to improve through the duration of the project and as a result, certain modifications to the recording process were implemented as the work progressed. In certain cases, it was necessary to check back through finds recorded at earlier stages in the project to ensure all groups were recorded in a consistent manner.

In order to facilitate the identification of the main categories of ceramic material represented within the assemblage, the first priority was to be able to freely sort the sherd material *en masse*, preferably working with a fairly large and representative sample and without having to take into consideration the risks of mixing unregistered finds from separate contexts. The smaller excavations generally did not provide such suitable material for this phase and their recording was left until a later stage. During the first excavation season in 2013, finds from the large, 100 m^2 Trench F (later enlarged to 170 m^2) on top of Dariali Fort, were all individually marked with their context and find number information together with a specific sherd identification number. Sherd labelling for these, and all subsequent sherds that were marked, was undertaken by applying thin translucent strips of paraloid B-72 and pure acetone mixed at a ratio of around 1:5. The solution provides a quick-setting, translucent layer and a smooth stable foundation for marking with strong black or white ink (depending on the colour of the underlying surface) applied using a Rotring pen with a 0.5 mm nib. Having marked all the finds, each fragment had its own number identifier and the whole assemblage could be freely sorted into groups organised according to the main characteristics of weight, density, feel, visual appearance and other features such as the size, nature and sorting of coarse inclusions, specific types of surface finish, and vessel form (Fig. 11:5).

The underlying aim of the classification is to the identity groups of material produced using similar raw materials following coherent preparation, formation, finishing and firing processes and technologies, and therefore most probably produced at a similar time and place. Such groups represent 'wares' or what can be more helpfully and neutrally termed a 'ceramic class'. At the most precise and refined level, a class may represent the products of the same ceramic workshop or manufacturing centre, where those products display consistent and recognisable traits. In other cases, a class may be somewhat more loosely defined representing the work of multiple kilns or workshops producing material according to the same general concepts, using shared and copied sets of procedures and using similar raw materials that cannot be consistently separated. In some cases, it is difficult to determine where in this spectral scheme a particular class lies, particularly when using only basic visual identification methods. In part these problems of identification will be determined by the natural variability of raw materials in use within the study area and on the scale of production and degree to which pottery manufacture is centralised and standardised. Typically pots produced on a small scale or household level may share certain common traits, particularly surrounding overall aspects of manufacture and design, but at the same time display some level of variability regarding specific details such as vessel size, form or fabric. Mass-produced products, on the other hand, which often originate from a centralised workshop, may display greater standardisation and greater use of mechanised processes. These factors, which have the potential to tell us something important about the organisation of utilitarian production and distribution systems, can to some extent be inferred from the nature of the pottery assemblage itself.

The task of the classification process is to attempt to capture the inherent complexity represented within the study material, which includes products displaying greater or lesser degrees of standardisation. Defining acceptable parameters of variation or where significant differences occur is the central challenge. This can include, for example, substantial colour differences within a single class produced by irregular oxidisation or reduction control within the same firing process, or some level of variability in the nature or frequency of coarse inclusions, which may be due to different ratios of temper being added to the clay mix for different types of products, or to a variation within a single clay source, or perhaps longer term shifts in a ceramic industry that remains in operation for a long time. An attempt has been made to describe the range of consistency or variability displayed within each class.

Each of the ceramic classes identified through the sherd sorting process is described and illustrated within the class catalogue below.[56] Classes are described in terms of their principal attributes and overall consistency. Particular attention is given to the characterisation of the fabric, especially macroscopic inclusions (*i.e.* >0.1 mm), which are examined and described using a 10x achromatic hand lens. An approximate size range for inclusions is given using a set of callipers measuring to within 0.1 mm. The degree of roundedness or angularity of inclusions is estimated from Powers' Scale of Roundedness.[57] The degree of particle sorting is estimated using a Scale of Pebble Sorting.[58] The frequency of inclusions in the fabric matrix is estimated using the white on black Visual Percentage Estimates Charts.[59] The range of colours represented within a fabric group is estimated using a Munsell Soil Colour Chart.[60] Where a wide range of colours is represented within a single fabric group, both extremes of the spectrum – from oxidised to reduced – are recorded. Where the colour range is narrow, a typical example has been selected and recorded. All features related to fabric colour and inclusions are recorded through examination of the fresh section break.



Fig. 11:5: Categorisation and sorting of ceramic material from Dariali Fort into class groups at the project base in Stepantsminda.

At the stage of sherd sorting, the material within each class was further subdivided by vessel form and in some cases decorative type. Where the same vessel form or narrow variations on the same form re-occur a number of times within the same site assemblage, these have been categorised as a 'type' and assigned a type code. Type codes have been broken down into three broad categories of 'jar rims', 'bowl rims' and 'cooking-pots' with the prefixes 'JR', 'BR' and 'CP'. In order to avoid introducing potential imbalance into the type occurrence data, a type has only been recorded as such where the diagnostic element of the vessel is represented (*i.e.* the rim). This becomes particularly relevant in a case such a Type CP1, where this is the only type associated with the class STECOV.[61] In this case, all sherds of STECOV must, by default, belong to the same vessel type even when presented as small non-diagnostic body fragments. Where only a single or a very small number of examples of a form occur within an assemblage, these have been recorded as 'one-off types'. A selection of the best-preserved examples of each type, together with one-off forms was made for the purposes of illustration[62]. Where sherds were found to join during processing, these were recorded as a single sherd on the sherd database and fixed together with cellulose nitrate adhesive to enhance the completeness of the profiles available for illustration and to minimise the count for single broken objects. In a few cases, where large numbers of joining fragments were found together belonging to the same vessel, the whole assemblage of fragments was assessed by a ceramic conservator and where possible, whole vessels or large portions of vessels were reconstructed (Fig. 11:6)[63].

Within the class catalogue,[64] all classes identified have been given a full descriptive class name. Throughout the remainder of the text they are referred to by a shortened acronym of this title written in capital letters. Acronyms are designed in most cases to be pronounceable and in this way serve as a mnemonic making them more usable than a simple list of class numbers or letter strings.



Fig. 11:6: Large kvevri wine storage jar from Dariali Fort being reconstructed by Nino Kamkamidze at the project base in Stepantsminda. Photo by Eberhard Sauer.

Within each class entry, standard information is provided, including where the class occurs, cross-reference to illustrations appearing elsewhere within the report, and descriptive entries for general characteristics, form, surface treatment and fabric. Under both the general class and fabric descriptions, specific emphasis is given to providing a realistic assessment of the level of consistency displayed within the class or fabric grouping as it has been defined. Visual classification is not an exact science and the problem comes in deciding when subtle variation apparent within the sample is likely to result from significant temporal differences, or the existence of alternative sources of supply. These factors appear to be especially pertinent in the case of the ceramic material from Dariali where there are long-lived production traditions and some pottery manufactured in a relatively crude manner not necessarily following standardised practices. All too often it appears that the uncertainty inherent in the classification of material is simply glossed over. Here, some attempt is made to capture this information within the description and to offer the reader an indication of where the definition of the material is regarded as being most reliable, and where improvements to the definition of the material may be required by further research in the future. The description of classes appears below.[65]

Having established the main class and type groups through the earlier phases of the project, the pottery from the remaining seasons in 2014, 2015 and 2016 and the smaller assemblages from other sites were recorded on a context-by-context basis. All of the pottery from a single context was laid out, sorted into categories and recorded in the sherd database. Those sherds that appeared suitable for illustration were separated out at this stage and individually marked and numbered. In some cases, bags were rechecked at the post excavation stage to ensure that particular categories of material had been consistently recorded.

11.2. Phase distribution and changing assemblage composition

For the purposes of understanding the long-term changes in the ceramic sequence from Dariali Gorge, the most important information comes from Dariali Fort. Of the two main trenches, Trench F provides the most informative evidence and the results from this excavation are presented in detail. The information from the other large trench (Trench Q), provide a useful point of comparison though here, due to a variety of factors, the level of chronological control and precision of phase attribution is less clear. Trench F in particular combines the important features of producing a relatively large and therefore statistically reliable dataset, having deep stratigraphy spanning a long chronological range and having large numbers of absolute dates. The analysis of the excavation sequences relies in the first instance on our ability to phase the stratigraphy in order to combine the large numbers of individual contexts

where these relate to near-contemporary events. There are a variety of potential approaches that could be adopted to establish the phasing and phase dating for the site. An ideal starting point would perhaps be to establish a relative sequence based on specific stratigraphic 'events'. For example, a building horizon represented across the excavation area, a change in architectural tradition, etc. If this could be achieved then other information such as the absolute dating determinations or the ceramic finds could be examined according to the associated stratigraphic phase units. Unfortunately, in the case of Dariali it is difficult to relate all the different walls and deposits formed around them to a coherent scheme in this manner, except in a few cases where there is an obvious architectural link, such as the laying down of the massive fortification walls, which probably all occurred at a similar time around the later fourth century.

In the absence of a coherent system of stratigraphic phasing, another approach to defining the chronology of the site is the use of ceramics finds to identify 'ceramic periods', *i.e.* periods within the excavation sequence where the ceramics appear similar. Ceramic periods can be defined both on the basis of the appearance of new classes or types, or significant changes in their proportion linked to factors of circulation and availability. Unfortunately, this approach is also problematic, both because of the effects of residuality, and the long-lived nature of many of the ceramic industries represented within the region. The phase distribution data for the ceramic finds does offer some important information on the chronology of the site, though generally, only rather crude time-periods can be defined on this basis.[66] At the same time, the imprecision and uncertainty surrounding the dating of many of the ceramics represented within the assemblage means that there are further significant problems in the use of a ceramic chronology.

A third approach to establishing the phasing and chronology of the site, and the one that this study largely depends upon, is the use of absolute dating in combination with the stratigraphic and architectural sequences. In total 48 radiocarbon determinations have been provided from separate samples of charcoal or bone from Trench F (one of which was dated twice). These provide age of death determinations for organic materials incorporated into sealed deposits, which when viewed sequentially, allow individual contexts to be grouped together into chronologically related phases (Table 11:3). One important factor to take into consideration in establishing the phasing on this basis is the question of how representative a single date may be for the entire context in which it is found,

Table 11:3: Seventeen phases/sub-phases established in the basis of the absolute dating showing the total number of sherds per phase from Trenches F and Q. Rows highlighted in grey date to more than one phase.

Phase	*Date*	*Trench F Sherds*	*Trench Q Sherds*
1	Geological	0	0
2a	6th–3rd c. BC	0	0
2b	1st c. BC–1st c. AD onwards	0	0
3a	Late(?) 4th c.	191	0
3b	Late 4th/early 5th c.	0	0
3c	Late 4th–early/mid-5th c.	92	0
3d	2nd quarter 5th–6th c.	569	0
3e	Mid–late 6th c.	67	0
3f	Early–mid 7th c.	110	10
4	Mid-7th–early 8th c.	154	0
5a	Late 7th/early 8th–early 9th c.	2,373	189
5a-b	Late 7th–late 9th c.	1,822	368
5b	Late 8th–late 9th c.	581	2,295
5b-c	Late 8th–10th c.	4,030	757
5c	Late 9th–late 10th/early 11th c.	3,009	0
6a	Early/mid-11th–mid/late 13th c.	0	0
6b	Late 13th–early 15th c.	189	282
7a	Mid/late 15th–mid-17th c.	0	0
7a-b	Mid/late 15th–21st c.	1,485	0
7b	Mid-17th–21st c.	687	4,231
n/a	Other cross phase groups	4,083	5,748
Total		**19,442**	**13,880**

and what the likelihood may be of the sample age and deposition event being similar. The frequent occurrence of residual ceramic sherds in later deposits indicates that some redeposition did occur and this accords with the logic of a site used intensively over a long period with strong spatial constraints. At the same time, the vast majority of radiocarbon dates follow in a progressive sequence and there are only six instances from Trench F where samples are obviously redeposited.[67] A further important contribution of the ceramic study therefore, is to assess the degree of residuality through the sequence. By using absolute dating and the ceramic phase occurrence data in combination, it is possible first to establish the dating of the various components of the assemblage, and then to check the phase attribution of contexts where the resolution in the ceramic chronology may allow.

Based on the combined absolute dating evidence and the stratigraphic sequences, a phasing for individual contexts has been established which is subdivided into seventeen phases/sub-phases (Table 11:3). Of these, eleven have ceramic finds represented from the sequence in Trench F. From an overall assemblage of 19,442 sherds from Trench F, 8,022 (41.3%) can be assigned to an individual phase. A further 7,337 sherds (37.7%) can be assigned to a period spanning no more than two phases (specifically phases 5a-b, 5b-c and 7a-b). The remaining 21% of the assemblage belongs to contexts that are poorly resolved chronologically and are therefore more difficult to incorporate within the analysis. While Trench Q also produced a sizable ceramic assemblage, it is clear that the phasing of this material is much less successful. This may be partially due to the fact that large parts of Trench Q are relatively shallow and in many places cover relatively more disturbed topsoil deposits. Where there is deep stratigraphy, this is often confused by the disturbance caused by large deep pits dug down at a late date that were not always successfully picked up during the excavation. Of the 13,880 sherds represented from Trench Q, 41.4% cannot be assigned to a single phase (in addition to those from 5a-b and 5b-c) and a further 30.5% belong to phase 7b, which includes all the material from disturbed topsoil contexts potentially dated as late as the twenty-first century, but also including large volumes of earlier residual material.

General characteristics

The distribution of radiocarbon dates through the deep stratified sequence within Trench F, combined with the lack of any obvious signs of discontinuity within the stratigraphy, suggest that the fort was most likely occupied without break from at least the later fourth to the tenth or early eleventh century. The lack of radiocarbon dates falling within the eleventh and thirteenth centuries, and a certain discontinuity in the ceramics between phases 5c and 6b, indicates that the fort (or large parts thereof) may have been abandoned during this period.[68] Later deposits dated from the thirteenth or fourteenth century onwards appear to represent some levels of intermittent activity on a much reduced scale. During the main phase of occupation spanning c. 600–650 years, one of the most obvious changes in the pattern of ceramic deposition is an upsurge in the volume of material from the early eighth century onwards (Fig. 11:7). The same conclusion emerges irrespective of whether one measures the volume of ceramics via fragment count or aggregate weight and indeed the two indices mirror one another with barely any deviation (Fig. 11:8). This demonstrates that there is no inherent bias within the results created by the introduction of especially large vessels or vessels particularly prone to breakage within any particular period.

Various factors may account for this change in the volume of ceramic finds. The practical constraints of having to dig through several metres of deposits to reach the earliest layers of occupation mean that the exposure of the deepest material is naturally more limited. At the same time, enough areas of Trench F were excavated down to the natural bedrock to provide a good chance of recovering material from the earliest occupation horizon. The information one would really need to accurately assess the relative frequency of ceramic finds is the volume of soil associated with the different phases of site use. This information was not obtained as part of the excavation

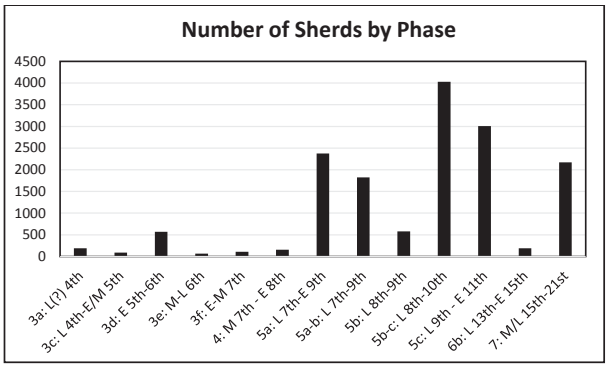


Fig. 11:7: Number of sherds by occupation phase within the Trench F sequence from Dariali Fort.

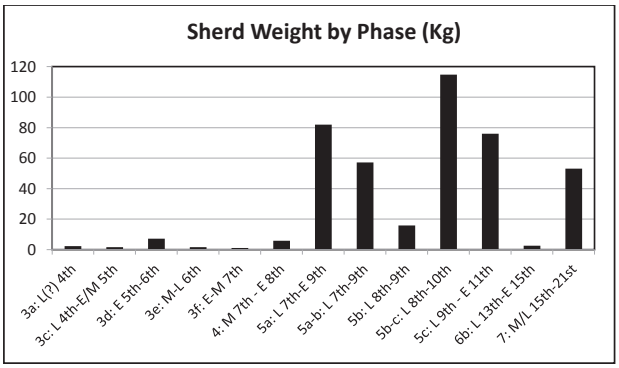


Fig. 11:8: Aggregate sherd weight in kilos by occupation phase within the Trench F sequence from Dariali Fort.

recording process and would be difficult to recover now due to the limited number of elevation points taken from the interfaces between contexts and the undulating nature of both the underlying bedrock and context surfaces. Even without this information, what is already clear is that there was a more limited accumulation associated with the earlier occupation of the site before the later seventh century. This may be associated with a second relevant factor that also affects the ceramic sample. The constraints imposed by prolonged occupation on top of a precipitous rocky outcrop, may have encouraged the clearing away of earlier structures and deposits, occasionally down to the bedrock. Given the fact that many of the most substantial walls appear to have been laid down in the late antique period and continued to be used right though the life of the site, this factor is perhaps less significant than may be supposed. At the same time, the evidence for residual pottery in later deposits indicates that reductive processes did play a part in the site formation and this is most likely to have occurred during episodes of building renewal or the reconfiguration of internal space, which is clearly evidenced in the structural modification that occurred across the site throughout its use. The best-preserved early deposits often appear to be those protected by their position within natural troughs within the underlying bedrock, where subsequent removal would be less likely to occur.

Changes in the relative volume of material deposited during different phases of site occupation, together with the effects of reductive processes may largely account for the differences in volume of ceramic finds and mean that this information cannot be considered as a reliable index of changes in activity intensity. What is perhaps more significant to note then is evidence from the ceramic finds that these differences may also be connected with more fundamental changes in the pattern of site use. One aspect that it is possible to consider is the issue of sherd brokenness. Less broken vessels consisting of smaller numbers of larger pieces often with a greater incidence of sherd joins are generally indicative of primary dump deposits where refuse material is discarded and rapidly accumulates. By contrast, small, more heavily fragmented sherds that rarely join and often show signs of abrasion and weathering are more frequently associated either with plough soil horizons or occupation surfaces where material is discarded through incidental loss and trodden into a slowly accumulating living surface such as a floor, street or external yard.[69] While specific information on sherd size has not been recorded, a close proxy for fragment size is fragment weight. Average sherd weight data (*i.e.* total weight divided by fragment count) across successive phases of site occupation show an obvious change from the mid-seventh century onwards (Fig. 11:9). In phase 3 (later fourth to mid-seventh century), the average sherd weight is mostly within the range of 10–15 g. From phase 4 (mid-seventh to early eighth century) the average sherd weight more than doubles and through the eighth to tenth

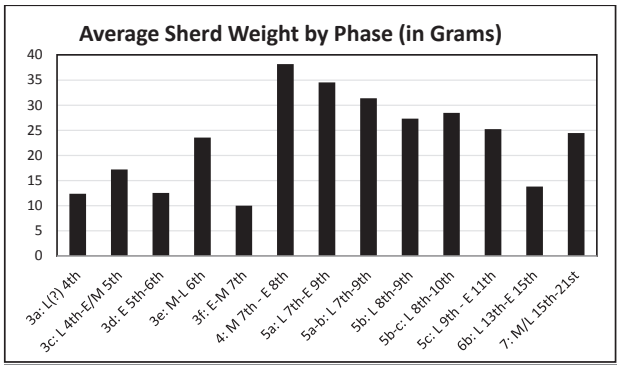


Fig. 11:9: Average sherd weight in grams per excavation phase within the Trench F sequence from Dariali Fort.

century occupation the average weight sits at a much higher level between 25–35 g. This dramatic change in fragmentation rates corresponds closely within the change already noted in the volume of discarded material and these facts appear to relate to a fundamental change in site use.

The late antique fort, which it has been postulated was conceived and constructed as part of an integrated system of regional military control under the direction of the Sasanian state, may well have witnessed a form of occupation that did not promote the build-up of substantial occupation remains within the rooms and internal areas of the fort. Military use of the site may have entailed limited domestic activity and the regular maintenance and cleaning out of the areas of active operation within the fort, especially close to the perimeter walls. Following the Islamic conquest, the political situation within the region was dramatically altered and while Dariali clearly continued to be occupied and used, its strategic territorial function may have changed at this time. Whatever the precise interpretation, it is clear that internal areas of the fort, the casemate rooms and outdoor areas inside the outer fort walls were filled up with thick levelling and dump deposits rich in the remains of domestic consumption: vast quantities of animal bones, cooking-pots, containers for liquids (probably wine) and glass drinking vessels. This material forms the vast bulk of the assemblage available for study and analysis.

Whatever the precise interpretation of these changes, the practical implications of this stark disparity in deposition intensity is that specific diagnostic features within the pottery assemblage (particular rim forms, rare types of material, certain types of decorative techniques, etc.) are statistically much more likely to be represented within the substantially larger post mid-seventh century assemblages and are comparatively much more difficult to identify within the finds from the early occupation phase. A further important factor to take into consideration, which affects all of the analysis, is the effects of residuality. The oldest types of ceramics represented within the assemblage are generally found through every subsequent period of occupation. This has caused substantial difficulties in developing a good understanding of the material. It also means

that there are real limitations that apply to the potential of the ceramic assemblage for an understanding of the chronology of the site. While the factors of residuality will be recognised in almost any excavation, the particular nature of the occupation at this site appears to make these factors especially acute. What we can clearly show is when particular varieties of material first appear within the site occupation sequence, identifying when they may have gone out of circulation is much more difficult. The whole issue of the ceramic chronology appears to be further complicated by the long-lived nature of many of the local ceramic industries. Accepting that there are these basic limitations, the ceramic chronology that emerges from this investigation also has a number of important strengths: the categories represented within the assemblage are generally rigorously defined and clearly differentiated; the dataset is substantial and therefore representative; and the absolute chronology is heavily populated and therefore relatively robust. These factors combined, mean that any conclusions drawn regarding the ceramic chronology have, in many cases, an exceptionally strong evidential basis.

11.3. Chronological development of the assemblage

11.3.1. Introduction

In general, the ceramic assemblage from Dariali is defined by narrow variation, mostly relatively crude production and extreme conservatism. A number of the main class categories represented within the assemblage continue in circulation right through the main occupation sequence from at least the late fourth to tenth/early eleventh centuries. That means that the same (or similar) raw material sources were being consistently utilised for ceramic production in Transcaucasia for long time-periods using the same basic techniques of fabric preparation, production and firing technology and in two cases we even see the replication of the same vessel form: a giant cooking vat probably imported from an area of Ossetia/Ingushetia (STECOV/CP1) and the *kvevri* wine storage jar form which we know have a long ancestry within the Georgian lowlands (HASOG/JR8) going back to at least the second century BC (see more below). At the same time, other categories undergo significant change during the long period of site occupation.

The other core characteristic of the Dariali pottery assemblage is that it is defined by a relatively narrow range of variation. Across the whole late antique/early medieval period, the assemblage can be subdivided into seven or eight major class categories together with some numerically more minor groups. The general characteristics of these groups are set out within the class catalogue below.[70] Here we will consider the wider issues regarding the dating, provenance, and distribution of the main class categories together with the phase distribution data and internal chronological evidence available from the deep sequence from Trench F (Tables 11:4–11:5). This can be used to refine the dating of the material and to examine the changing patterns of ceramic supply and consumption within the Dariali Gorge.

As previously noted, this study represents the first published quantitative study of medieval ceramics from Georgia and the Northern Caucasus. The seriated distribution of the various class categories across the phased sequence provides particularly informative evidence for the occurrence of these categories during the long occupation of Dariali Fort. The key characteristic of this information is the opportunity it provides not only to document the presence of individual varieties of ceramics at particular stages in the site occupation sequence, but also to map the changing frequency of each class category through time. This is typically represented by a bell curve distribution characterised by an initial phase with low levels of availability, rising to the peak level of occurrence, followed by a tailing off as a product first goes out of circulation and then slightly later, goes out of use[71]. As is typical, the declining occurrence of a class category is more difficult to map archaeologically because of the effects of residuality, which prolong its presence within the excavation sequence beyond the period of its actual use. The figures that can be most directly interpreted and which are most extensively discussed here are based simply on fragment count. Other metrics have been provided in the form of aggregate sherd weight and equivalent vessel estimates for rim portions (EVEs). The close correlation between sherd count and aggregate weight per phase (Figs 11:7–8) suggests that there is a consistent ratio between vessel size/weight and breakage patterns and that no period is characterised by especially large or heavy vessels. Rim EVEs have been shown to be the only statistically reliable method of sherd quantification[72] but calculations can only be generated on the basis of rim portions, which constitute a small proportion of the overall assemblage (5.8% for Trench F). This method does not appear to maximise the full potential of the available data[73]. For the purposes of the analysis, only those contexts dated to a single phase have been included apart from the following exceptions: phases 5a-b, 5b-c and 7a-b. There are a total of 4,083 sherds from contexts that are less closely dated from Trench F that cannot be readily utilised within the analysis. There is nothing to indicate that the range of ceramics represented amongst these less closely dated contexts are significantly different than those presented in the analyses.

Seven of the classes represented within the Trench F seriation, excluding the non-identified material, produced more than 400 sherds. These groups constitute the main common categories within the assemblage. Of these classes, three appear to be represented throughout the entire span of the main occupation (phases 3–5), though for each (CEMRIB, HASOG and STECOV), their occurrence levels fluctuate in ways that are potentially significant. The remaining common categories show significant diachronic patterning in their occurrence within

Table 11:4: Seriated ceramic assemblage from Trench F showing sherd counts per class per phase.

	3a: L 4th	*3c: L 4th-M 5th*	*3d: M 5th-6th*	*3e: M-L 6th*	*3f: E-M 7th*	*4: M 7th-E 8th*	*5a: L 7th-E 9th*	*5a-b: L 7th-9th*	*5b: L 8th-9th*	*5b-c: L 8th-10th/E 11th*	*5c: L 9th-10th/E 11th*	*6b: L 13th-E 15th*	*7: M 15th-21st*	*Totals*
DEGLIB	109	45	234	18	16	44	157	152	11	182	37	6	43	1054
CEMRIB	31	19	150	25	52	36	634	462	220	882	532	50	543	3,636
CW.N-ID	22	13	90	12	28	13	108	82	2	234	159	65	421	1,249
STECOV	21	6	18		2	5	237	253	60	430	196	4	30	1,262
COPOT	4	4	21	1			19	4	14	48	46	14	61	236
HASOG	3	1	38	6	9	16	374	235	62	753	476	28	701	2,702
REDFIN	1	2	10	2	2		3	3	1	7	5		27	63
GREBS		1	8		1	40	823	484	107	938	245	8	122	2,777
SMOG		1						1						2
HABROB				3										3
CORCOM							13	19		21	12	9	66	140
WHIM							3	1		1				5
PLAG							1	109	84	433	1,028	1	45	1,701
MONO.G							1		1	3	3		1	9
BLARIC								12	16	66	221	3	95	413
SPW.2								3	2	5	7		3	20
BROSH								1		25	38		2	66
GW.N-ID								1		1		1	2	5
SPW.1									1	1	2		3	7
CHIP											1		1	2
MONO.Y											1			1
GRAF													5	5
MONO.T													1	1
Totals	191	92	569	67	110	154	2,373	1,822	581	4,030	3,009	189	2,172	15,359

Table 11:5: Seriated ceramic assemblage from Trench F showing sherd count percentages for each class per phase. This and the previous table include only those contexts dated to a single phase with the exception of the cross-phase groups from 5a-b, 5b-c and 7a-b. (Continued)

	3a: L 4th	*3c: L 4th-M 5th*	*3d: M 5th-6th*	*3e: M-L 6th*	*3f: E-M 7th*	*4: M 7th-E 8th*	*5a: L 7th-E 9th*	*5a-b: L 7th-9th*	*5b: L 8th-9th*	*5b-c: L 8th-10th/E 11th*	*5c: L 9th-10th/E 11th*	*6b: L 13th-E 15th*	*7: M 15th-21st*	*Totals*
DEGLIB	57.1	48.9	41.1	26.9	14.5	28.6	6.62	8.34	1.89	4.52	1.23	3.17	1.98	1054
CEMRIB	16.2	20.7	26.4	37.3	47.3	23.4	26.7	25.4	37.9	21.9	17.7	26.5	25.0	3636
CW.N-ID	11.5	14.1	15.8	17.9	25.5	8.44	4.55	4.50	0.34	5.81	5.28	34.4	19.4	1249
STECOV	11.0	6.52	3.16		1.82	3.25	9.99	13.9	10.3	10.7	6.51	2.12	1.38	1262
COPOT	2.09	4.35	3.69	1.49			0.80	0.22	2.41	1.19	1.53	7.41	2.81	236
HASOG	1.57	1.09	6.68	8.96	8.18	10.4	15.8	12.9	10.7	18.7	15.8	14.8	32.3	2702
REDFIN	0.52	2.17	1.76	2.99	1.82		0.13	0.16	0.17	0.17	0.17		1.24	63
GREBS		1.09	1.41		0.91	26.0	34.7	26.6	18.4	23.3	8.14	4.23	5.62	2777

(Continued)

Table 11:5: (Continued)

	3a: L 4th	*3c: L 4th-M 5th*	*3d: M 5th-6th*	*3e: M-L 6th*	*3f: E-M 7th*	*4: M 7th-E 8th*	*5a: L 7th-E 9th*	*5a-b: L 7th-9th*	*5b: L 8th-9th*	*5b-c: L 8th-10th/E 11th*	*5c: L 9th-10th/E 11th*	*6b: L 13th-E 15th*	*7: M 15th-21st*	*Totals*
SMOG		1.09						0.05						2
HABROB				4.48										3
CORCOM							0.55	1.04		0.52	0.40	4.76	3.04	140
WHIM							0.13	0.05		0.02				5
PLAG							0.04	5.98	14.5	10.7	34.2	0.53	2.07	1701
MONO.G							0.04		0.17	0.07	0.10		0.05	9
BLARIC								0.66	2.75	1.64	7.34	1.59	4.37	413
SPW.2								0.16	0.34	0.12	0.23		0.14	20
BROSH								0.05		0.62	1.26		0.09	66
GW.N-ID								0.05		0.02		0.53	0.09	5
SPW.1									0.17	0.02	0.07		0.14	7
CHIP											0.03		0.05	2
MONO.Y											0.03			1
GRAF													0.23	5
MONO.T													0.05	1
Totals	191	92	569	67	110	154	2373	1822	581	4030	3009	189	2172	15359

the sequence. These four groups are all dark brown, black or grey reduced wares that appear to be imported from regions to the north. They include a general range of 'kitchen wares' (DEGLIB) and cooking pots (GREBS, PLAG, BLARIC). Other categories also form part of the assemblage of the predominantly reduced, coarse tempered cooking pots probably imported from regions to the north (STECOV and BROSH).

11.3.2. Long lived common categories

Cream Coloured Ribbed Ware (CEMRIB)

Of all the categories represented within the Dariali assemblage, the most obvious and easy to recognise is Cream Coloured Ribbed Ware (CEMRIB). In contrast with most other categories, this group has a relatively fine, light cream coloured calcareous fabric, regular wheel thrown walls, and standardised mass-produced vessel forms (Figs 11:10, 11:30.3–4, 11:31–33, 11:34.1–3, 11:42–43, 11:44.a-p, 11:45, 11:50.g). The exterior surfaces are almost invariably covered with fine horizontal ribbing marks that extend from the neck to the base. The vessels are mostly narrow necked pouring containers with a single handle and cleanly defined skeuomorphic features such as neck ribs and rim detailing. Some vessels have surface decoration mostly around the shoulder and this also follows standardised schemes. Numerous close parallels exist for the specific vessel forms and decoration types represented within the assemblage from Dariali from a number of sites across the territory of Eastern Georgia[74]. All evidence points to this general region as being the source of their manufacture. The incision of the Mtkvari River through a limestone substrate along much of its course may well provide the source for the distinctive cream coloured fabric. The established glazed pottery production industry of the ninth to thirteenth centuries in Tbilisi may have utilised a similar clay body.[75] It is not certain whether CEMRIB comes from a single centre of production supplying the wider region or whether there were multiple production centres following a similar technical and stylistic model using similar raw materials. The form and quality of CEMRIB vessels suggests that they were used for liquid pouring and serving purposes. It is likely that they would have been used for serving wine, though they could equally have been used to serve other beverages or water.

CEMRIB is well represented through every phase of occupation at Dariali Fort (Fig. 11:11) and makes up a sizable proportion of the assemblage (between 16–47%). Perhaps significantly, only a single CEMRIB vessel is illustrated amongst the second to fourth century (or perhaps slightly later?) ceramic assemblage from the settlement of Zilgi in Ossetia and here too it is identified as an import from Eastern Georgia.[76] The consistently high levels of this class at Dariali provide one of the clearest demonstrations of the uninterrupted and regular supply of commodities reaching the site from the south. The evidence from Zilgi indicates that this may be more an exception than the norm and could well be linked with the

specific status and function of Dariali Fort, not to mention its closer proximity to Eastern Georgia.

Within the long spread of occupation at Dariali, there are no obvious signs of any clearly recognisable changes in the basic characteristics of CEMRIB vessels. The nature of the fabric, firing and general potting tradition remains unchanged. From comparison with other published assemblages, it is clear that CEMRIB forms part of an even longer production tradition extending from at least the first century AD through to the high medieval period. For example, within the extensive cemetery site of Zhinvali, where 558 graves and their associated grave assemblages were excavated in the 1970s, over 150 complete or near complete closed vessel forms have been published mostly covering the period from the first to third centuries AD.[77] This assemblage, from a centre of consumption situated around 87 km overland travel to the south of Dariali, usefully defines a range of forms that are different from, and mostly earlier dated than the assemblage from Dariali. The forms are generally relatively squat, with wide bases and a short neck with one or two handles attached to the neck rib and shoulder.[78] Some also have distinctive protrusions on the exterior where the wall has been pushed out from the inside. The



F.036/350,1



F.063/550



F.036/517,1

Fig. 11:10: Restored complete/semi-complete CEMRIB vessels: 1 = Type JR1 (F.036/350.1); 2 = Decoration D3 (F.063/550.1, height 28cm); 3 = Type JR3 (F.036/517.1, height 13.5cm).

features of this assemblage are typical and widely represented amongst the contemporary material from across the region of Eastern Georgia. While the fabric and general style of this earlier tradition is similar to CEMRIB, the assemblage from Dariali clearly forms a later distinct iteration of the tradition. Starting from around the third or fourth century, the earlier assemblage was replaced by vessels with a taller profile, a long neck and sloping shoulder and the whole exterior covered with ribbing and only a single handle attached to one side, either directly to the rim or to the neck and shoulder. This later mode is the one represented exclusively at Dariali.

During the earliest occupation represented in the Trench F sequence, the proportion of CEMRIB in the assemblage is relatively low at just over 16%, but from the later fourth to the early to mid-seventh century its frequency climbs progressively and rapidly up to a peak level of over 47% (Fig. 11:11). The relatively small quantities of ceramics associated with this early occupation mean that chance factors have a greater potential to influence the results, though the strong patterning that is evident seems to add credibility to the result. Thereafter the frequency of CEMRIB drops to a lower fluctuating level of around 20–25% through the mid-seventh to ninth centuries. This is still a high proportion of between one quarter to one fifth of all vessels in the Dariali assemblage. The slight drop in frequency to a level of below 20% in phase 5c (late ninth to tenth century) may well mark the period of decline of this mode of production of CEMRIB vessels. Narrow necked, cream coloured ceramic pouring vessels continue to form an important component of the ceramic assemblage into the high medieval period, though eleventh to thirteenth assemblages from sites such as Dmanisi and Kutaisi again show important typological differences[79] and the tradition appears to enter a new distinct mode within this period. The relatively high frequency of CEMRIB through the latest stages of occupation in Trench F are unlikely to result from any new input of CEMRIB vessels within this period and simply correspond to the levels of residuality at this stage.

A sub-study conducted on the diagnostic CEMRIB sherds from Trench F at the post excavation stage

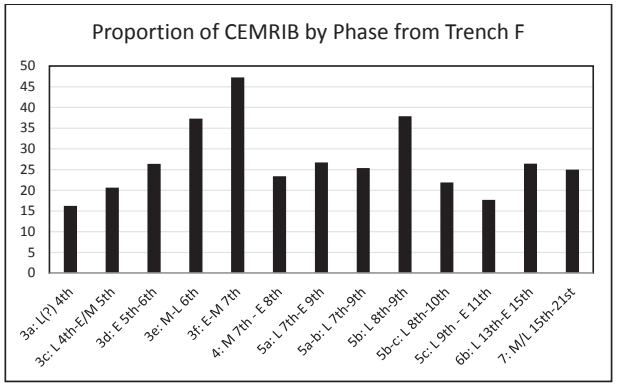


Fig. 11:11: CEMRIB sherds as a proportion of the pottery by phase from the Trench F sequence.

enables the material from this trench to be categorised in further detail, and this is of some value in tracking the development of specific features in the temporal development of the CEMRIB assemblage through what appears to be around 600–650 years of continual production (Table 11:6). The interpretation of the results is again made more difficult by the disparity in the available sample size for the earlier and later occupation of Dariali Fort and this is particularly pertinent in this case where the analysis is based on the examination of specific diagnostic features. As with all of the pottery, the vast majority of sherds are represented by non-diagnostic body fragments while diagnostic elements always form a small minority. The higher count values reflected from phase 5a onwards clearly correspond to the larger sample available from the later occupation of the site. Probably the most important factor to consider here then is simply the presence/absence associations rather than actual count values.

Taking into account the factors of variable sample size, several features are worth noting. Most of the rim forms represented within the CEMRIB assemblage do not appear to be good predictors for the period of occupation, perhaps with the exception of JR3, which is a distinctive category consisting of a squat handless jar with a flat-topped rim and a pointed lip (Fig. 11:10.3). All examples of this type occur within phase 5 dated between the later seventh to tenth/early eleventh century (Table 11:6). Trefoil mouthed jars occur within the same period though published examples indicate that this is a common and widespread type which is likely to have a longer chronology (Fig. 11:10.1). Similarly, the specific details regarding the position of neck ribs and the location of the handle attachment do not appear to be chronologically sensitive. A specific suggestion that vessels with the handle attached to the neck rib and shoulder should be dated to the early centuries AD[80] is not borne out in the results and the earliest examples of F3 occur only from Period 5a. This arrangement of the neck rib and handle is clearly associated with an earlier tradition of the first to third centuries AD, as outlined already in relation to the examples from Zhinvali, but here other factors are also present, for example the short neck and squat vessel form. The same attachment also occurs as part of the later tradition of CEMRIB as can be seen for example in vessels from Rustavi[81] and taken in isolation, F3 does not appear to be a good date indicator. What does appear to be significant is the phase occurrence data for specific decorative styles. Apart from some of the more generic styles such as wavy incised bands (D7) or wavy comb incised registers (D9), most of the decoration styles appear all together at same time in phase 5a. This includes certain distinctive modes of decoration including vessels with red paint (D1) and triangle incised registers (D4) or these two schemes combined (D3). Similarly, vessels with 'track' incised motifs appear in phase 5a and the fact that this motif is frequently associated with Type JR3, which appears in the

Table 11:6: Seriation showing the phased distribution of sherd count values for diagnostic CEMRIB elements from Trench F including vessel types, specific features such as the handle attachment position and decorative types.

	Code	Description	3a: L 4th	3c: L 4th-M 5th	3d: M 5th-6th	3e: M-L 6th	3f: E-M 7th	4: M 7th-E 8th	5a: L 7th-E 9th	5a-b: L 7th-9th	5b: L 8th-9th	5b-c: L 8th-10th/E 11th	5c: L 9th-10th/E 11th	6b: L 13th-E 15th	7: M 15th-21st
VESSEL TYPES	JR2	Off-set rim	1						5	1	2	4	7		2
	JR4	Rolled rim			1		1	3		5		8	1		1
	JR10	Clubbed rim			1				7	3					1
	JR1	Trefoil mouth							4	4		1	1	1	4
	JR3	Bevel topped rim							3	1		7			
	JR9	Bottle necks							1	1		1	4		
	OC1	Jar with internal base spikes										2			
FEATURES	F4	Handle attached to rim	1						3	5	1	1	2	1	2
	F1	Low neck rib				1			9	8	3	7	8		1
	F6	Narrow necked					2		4	3	1	2	2		11
	F2	Mid neck rib						2	6	2	1	4	1		4
	F3	Handle attached to rib							3	2		3			1
	F5	Handle attached to neck							1			1			1
DECORATION	D9	Comb incised registers			1				8	6		7	4		
	D7	Wavy incised				1		1	9	2	1	12			3
	D6	Track incised							5	2		4	3		2
	D1	Red paint							4	3	3	2	14		7
	D3	Triangle incised + red paint							3	1	1	1	6		3
	D8	Wavy comb incised							3	3	1	10	4		13
	D4	Triangle incised							2	2	7	5	4	1	5
	D5	Vertical incised							2	1		6	3		9
	D10	Wavy comb incised + red paint							1	2		1	1		
	Incised	Incised										3			1
	D2	Black paint										1			1
Total (including non-diagnostics)			31	19	150	25	52	36	634	462	220	882	532	50	543

same period, adds to the evidence for the chronology of this type. These elements appear to be clearly associated with the later seventh to ninth century occupation and can probably be regarded as reliable type-fossils for this period.

Hard Sandy Orange Grit Tempered Ware (HASOG)

A second long-lived class represented throughout the occupation sequence at Dariali is Hard Sandy Orange Grit Tempered Ware (HASOG). This pottery is also distinctive and easy to recognise. It has a dense mostly orange coloured fabric that can turn grey towards the core and occasionally also appears grey on the surface (Figs 11:12, 11:29.4, 11:46–50.a-f, 11:50.h-i). The fabric is always well fired and contains a profusion of fairly well sorted mixed grit inclusions. This same fabric group is associated with a wide range of different vessel types. Three are particularly common. The majority of HASOG sherds belong to closed vessels. Many of these, perhaps the majority, have interior surfaces that have been coated with a simple white slip. As the vessel interior would not have been visible, this must have some practical function, the nature of which has not been established. Smaller closed vessels (Type JR6) tend to have a pyriform body, a flat base and a simple everted neck and rim with a rounded or externally flattened lip (Fig. 11:12.1). Such vessels can probably be characterised as a form of general 'kitchen ware'. Very large vessels in the region of 80–100 cm high are wide at the shoulder or belly and narrow towards the neck and base (Type JR8). The base is raised on a flat



Fig. 11:12: Restored complete/semi-complete HASOG vessels: 1 = Type JR6 (F.063/531.8, height 19cm); 2 = Type BR2 (Q.020/132.1, height 11.5cm, width 29cm); 3 = Type JR8 (Q.031/193, height 82cm); 4 = Type JR8 (Q.148/891, height 91.5cm).

pedestal and the rim is reinforced with a heavy fold that is flattened on the top and either curved or flattened on the lower outer face (Fig. 11:12.3–4). This rim type has a long ancestry within the region of Georgia and is specifically associated with *kvevri* wine jars, which continue in use up to the present day (Fig. 11:13). *Kvevri* are typically found sunk into buildings below floor level with only the rim portion protruding (Fig. 11:14). The vessels are used for the primary wine fermentation process and later the wine is separated from the crushed fruit and moved into smaller vessels of the same form for storage and distribution. It is not clear if the examples represented archaeologically at Dariali were used exclusively for the same process, or if they may have been used to store other commodities too. The other well-represented form within the HASOG assemblage is a medium to large sized open bowl (Type BR2) with a robust flat pedestal base, similar to the *kvevri* base form, and a simple rounded or faced lip, sometimes with shallow notches along the top (Fig. 11:12.2). The same fabric is also associated with a diverse range of other forms including small open lamps with a long handle attached to one side, various jar and bowl forms and even building construction materials such as ceramic water pipes (Fig. 11:49.e–f).[82]



Fig. 11:13: Medieval kvevri from the monastery complex of Nekresi in Kakheti.



Fig. 11:14: Kvevri wine storage jars set into a floor of a wine cellar (Marani) at the recently restored monastery complex of Nekresi in Kakheti, various elements of which were built between the sixth and sixteenth century.

Several factors point to the likely source of origin for HASOG as being in the region to the south of Dariali in Eastern Georgia. Probably the most significant evidence comes in the form of the clear links between JR8 and the *kvevri* wine jars, both in terms of vessel typology and the visual appearance of the fabric. Further specific archaeological parallels have been noted from other relevant sources within the same area including surface finds from the citadel at Ujarma noted during a site visit in 2015 that include examples of JR8, finds from recent excavations at Nekresi in the Georgian National Museum that include similar long handled lamps[83] and from Urbnisi, where a single example of a trefoil mouthed jar is illustrated that appears to belong to the same class.[84] Other important evidence for the origin of the class comes in the form of a single fragmentary HASOG jar (Type JR6) from Trench F (F.165/1413) inscribed with Georgian *nuskhuri* script engraved onto the vessel handle before firing. The letters spell out *Gogi* a variant of the popular male name Giorgi. Both the name and the script indicate that the vessel was formed within the cultural territory of Georgia.[85]

In terms of the occurrence of HASOG through the Trench F sequence, the class is represented during every phase of occupation and shows a general trend of gradual but progressive increase in proportion through time (Fig. 11:15). Within this range there are two notable moments of change. The class is poorly represented during the earliest occupation, but from the mid-fifth or more especially the sixth century onwards, the frequency of HASOG rises and thereafter rarely extends far outside the range of 10–15%. Only amongst the most recent finds from phase 7 is the proportion much higher and this seems anomalous and cannot be readily explained. Perhaps the large orange fragments were preferentially selected from topsoil deposits that were often rapidly excavated and less carefully scanned for finds. Within the broad timespan encompassed by the occurrence of HASOG, the

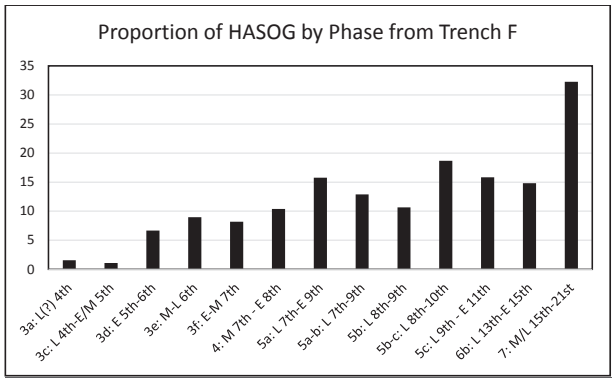


Fig. 11:15: HASOG sherds as a proportion of the pottery by phase from the Trench F sequence.

possibility remains that some subtle changes did occur in the appearance of the material. There is some indication that pieces with a particularly bright orange coloured fabric and scraped exterior surfaces are associated with later phases, but if this is the case, any such changes are difficult to recognise and would require a dedicated study focusing on this category in isolation in order to reliably distinguish such changes.

Shell Tempered Cooking Vats (STECOV)

At their peak, Shell Tempered Cooking Vats (STECOV) make up somewhere in the region of 10–14% of the ceramic assemblage from Trench F and are therefore a common component (Fig. 11:16). The overall sherd yield for STECOV is probably also influenced by the large size of the vessels involved and the friable nature of the fabric so the total number of vessels involved may well be lower than it is for most other categories. The class presents a number of distinctive and unusual characteristics and the presence of this category at Dariali provides important information regarding our interpretation of the site. Unlike

most other class groups that cover more diversified ceramic industries, STECOV is associated with only a single vessel type (CP1) displaying a uniform fabric not associated with any other category (Figs 11:28.3, 11:51). CP1 is a large closed cooking pot or cooking vat probably in the size range of around 50–80 cm tall with a flat base and a wide mouth with a sharply everted flange rim. The sides can be plain or have low raised cordons spaced at wide intervals. The rim has deep oblique lines along the lip in a style echoed amongst some of the other cooking pot categories such as GREBS and BROSH. This feature appears to be widely represented amongst contemporary assemblages from the Northern Caucasus. The fabric associated with STECOV is distinctive and readily recognisable. It has a low density, is porous and friable and the colour is generally light brown but ranges through orange to grey. Most importantly it contains abundant white shell inclusions that appear as frequent white flecks through the matrix and across the surface. Petrographic analysis of this fabric suggests that the shell is derived from fossil sources with a restricted geographic distribution covering an area of Ossetia and Ingushetia forming part of the Tergi basin to the north of Dariali Fort[86]. This almost certainly represents the point of origin for this class.

Apart from the shape of STECOV vessels, and the coarse nature of the fabric that indicate their likely function, many fragments have a thick carbonised residue adhering to the interior and fire blackened exterior surfaces demonstrating that they were used for cooking over an open fire. The capacity of the vessels suggests that they must have been used for mass catering purposes. This seems significant when we consider the organisation of life within the fort as it points strongly to a general practice of communal catering or perhaps episodic mass consumption. As we will see, any such practises are ones that appear to have enjoyed some longevity. If CP1 vessels are associated with specific forms of large-scale food consumption, as appears to be the case, then it stands to reason then that the find location for such vessels may also be of some importance. So far, no published parallels for this pottery have come to light apart from those associated with earlier excavations at Dariali Fort completed between 1988–1991[87]. Surprisingly given the date and location of Zilgi, there appear to be no examples of STECOV amongst the published ceramic finds. It is possible that the vessels were produced specifically for the type of organisational setting associated with Dariali Fort, and that these were different to those associated with an urban or domestic context. Further research on the material from contemporary settlements would be required to verify this point.

In terms of the occurrence of STECOV at Dariali Fort, the class is well represented from the earliest occupation suggesting that the chronology for this group probably extends back further than the later fourth century. The subsequent decline and later resurgence of STECOV during Period 5 (late seventh to tenth/early eleventh century) is

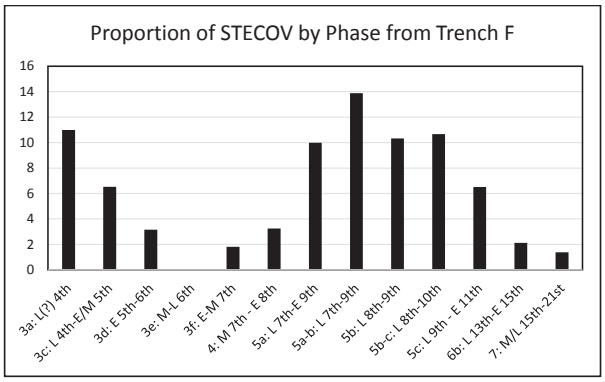


Fig. 11:16: STECOV sherds as a proportion of the pottery by phase from the Trench F sequence.

unusual. It seems inconceivable that the class dropped out of circulation and then reappeared again at a later date in the same form. A more probable scenario is that the vessels continued to be produced in the same manner throughout Periods 3–5 but that their supply to Dariali Fort was either interrupted or declined due to issues of changing demand or supply through the period from the c. mid-fifth to mid-seventh century. These possibilities are potentially important and will be returned to again below. As with the HASOG assemblage, there may be scope for a more detailed subdivision of this class with sherds from earlier periods showing some subtle differences to the material from later phases, but again it would only be possible to recognise such features if all the STECOV sherds were separated out from the rest of the assemblage and viewed together. The more obvious feature that can be observed is that the vessel form and the general appearance of the fabric remains the same throughout the occupation. The declining proportion of the class from phase 5c (late ninth to tenth/early eleventh century) probably marks the point at which this long-lived, specialised ceramic industry finally falls out of use.

11.3.3. Common categories with shorter temporal ranges

As noted in other landlocked areas of the late antique world governed by patterns of overland ceramic distribution – notably the Gorgan Plain – locally manufactured cooking pot classes often provide the most useful and sensitive chronological markers.[88] Perversely these same categories of often rather plain, crudely made vessels with drab colours generally receive the least attention within the extant archaeological literature and in many cases they are hardly illustrated and largely ignored. The same may be partially true in the region of the Southern Caucasus, though as we will see, issues of presence and availability are probably an important factor here too. One suspects that the chronological sensitivity of cooking pots may be due to a variety of factors, including the association with small scale localised production, which may be more

easily disrupted by changing political circumstances or localised economic changes. Changing culinary practices or ethnic traditions may also play a significant part in determining the forms and repertoire of cooking vessels in use.

In the case of Dariali, there are six main groups of dark grey, black or brown firing classes, four of which appear to have been used predominantly as cooking vessels (STECOV has already been discussed, there is also GREBS, PLAG, BLARIC and BROSH) and one which is a general 'kitchen ware' (DEGLIB). All of these groups appear to be derived from sources in the Northern Caucasus though for each the evidence associated with their provenance needs to be addressed specifically. All of these groups display clear differences in terms of fabric or stylistic characteristics, though distinguishing each group on the basis of the bulk of featureless body fragments can at times present a greater challenge and it is only through the course of the project that the lines of demarcation between these groups has gradually become clear.

Dense Grey Line Burnished Ware (DEGLIB)

In its most distinctive form, Dense Grey Line Burnished Ware (DEGLIB) can be clearly differentiated from all other groups, though in some cases there is a blurring of the distinction between non-diagnostic fragments of DEGLIB, GREBS and PLAG, which caused considerable confusion during the initial stages of the study. Now in the vast majority of cases the distinctions between these groups is obvious. DEGLIB has an extremely hard, well-sintered fabric with dark black surfaces marked with thin, mostly vertically oriented line burnishing and more subtle horizontal ribbing (Figs 11:27.1, 11:37–41). The fabric contains frequent coarse inclusions and these are typically somewhat different from GREBS with more rounded grits and less evidence of flat platelet inclusions, though in some cases both fabrics appear similar. Where diagnostic sherds are presented, the class displays a distinctive but fairly wide range of different vessel forms including flared rimmed jars with a simple pointed or rounded lip (JR5), large storage jars with several raised ridges around the shoulder and a sharply everted rim with squared faces, and open bowls often with a slightly inverted pointed lip (BR1). Both bowls and jars are sometimes found with a fairly wide, open spout.

An identical range of vessel forms with a corresponding description occur as the predominant class within the large domestic assemblage from Zilgi, an urban-scale site situated 25 km NNW of Vladikavkaz in Ossetia. The occupation of Zilgi is dated on the basis of certain diagnostic imported finds to between the second to fourth centuries AD.[89] Excavations undertaken there between 1985 and 1990 revealed convincing evidence for the local production of DEGLIB at the site including 'piles of ceramic waste, pits full of slag and the remains of kilns'.[90] Significantly, the range of DEGLIB vessel forms represented at Dariali appears to be narrower than that from Zilgi, while conversely all major types from Dariali are paralleled at the latter site, and for each of these, the authors specifically mention the fact that these are types that were widely exported to the steppe region.[91] The authors of the Zilgi study are able to trace the distribution of the distinctive assemblage DEGLIB vessels across a well-defined area encompassing settled farming sites spread through the Central Northern Caucasus. Beyond this area, exports regularly occur within 'Late Sarmatian culture' burials 'from the lower reaches of the Don, and the Volga areas as far as the south-east regions around the Aral Sea.'[92] The finds from Dariali indicate that the export was not only to the lower Tergi basin and the wider steppe region, but also into the uplands as well. In Dariali, DEGLIB is one of the major categories of pottery represented through all of the earliest occupation layers, particular from deposits dated between the later fourth to mid-seventh centuries (Fig. 11:17). During the earliest occupation of the site, particularly during the fourth and fifth centuries, DEGLIB constitutes by far the most common category of ceramics within the assemblage making up between around 50–60% of all ceramic finds. Thereafter the pattern is of gradual decline and the class appears to drop out of circulation sometime during the seventh century. Later finds are probably all residual. The dating of Zilgi should perhaps be revised upwards slightly in light of the absolute chronology available from Dariali, though the absence of earlier levels from the fort mean that we cannot rule out the possibility of this class extending back earlier in time. Few parallels for this class can be identified within the territory of Georgia and the distribution of this class appears to have been restricted mostly to the Northern Caucasus.

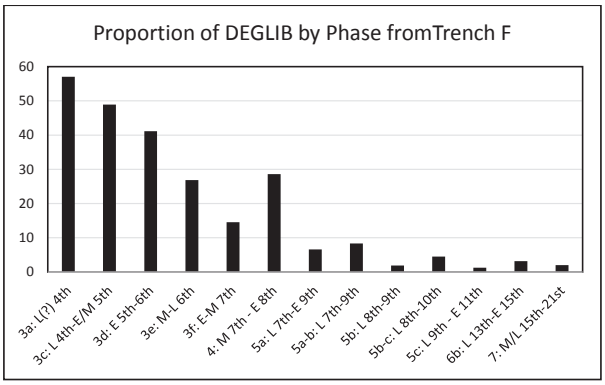


Fig. 11:17: DEGLIB sherds as a proportion of the pottery by phase from the Trench F sequence.

Grey/Black Burnished Stone Tempered Cooking Pots (GREBS)

One of the particularly well-represented classes within the Dariali assemblage is Grey/Black Burnished Stone



Fig. 11:18: Restored complete/semi-complete GREBS vessels: 1 = Type CP3 (F.065/524, height 38cm); 2 = Type CP3 (F.170/1457, height 25.5cm); 3 = Type CP3 (F.097/796.1, height 14.5cm); 4 = Type CP2b (Q.160/1034, height 24cm); 5 = Type CP2b (Q.113/710, 18.5cm); 6 = Type OC2 (Q.027/170, height 4cm).

Tempered Cooking Pots (GREBS). This group is characterised by the ubiquitous presence of grey platelet inclusions and rather variable grey to black coloured surfaces generally marked with continuous irregular burnishing (Figs 11:18, 11:27.3–4, 11:52–55). The vessels have relatively thin walls and a heavy brittle quality. The surfaces and profiles are somewhat irregular and it appears that most if not all the vessels were handmade. The forms are reasonably standardised and consist predominantly of cooking pots with a flat base, a simple everted 'S' profile rim, and a single rounded strap handle attached to the rim and shoulder (CP2a). A common variation on the same form has regular notches along the rim and down the handle edges (CP2b, Fig. 11:18.4–5). Both types frequently have carbonised residues on the interior and fire blackened exteriors and were evidently used for cooking

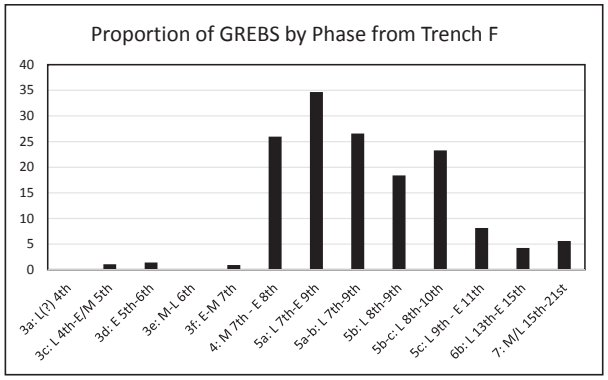


Fig. 11:19: GREBS sherds as a proportion of the pottery by phase from the Trench F sequence.

on an open fire. The size of the vessels indicates the preparation of food for several individuals rather than an especially large group, as is the case with STECOV. The same forms were replicated in a range of sizes. Another common form consists of a vessel with a taller profile and a narrower gently flared neck and a single handle attached to the rim and shoulder (CP3, Fig. 11:18.1–3). These vessels display less obvious signs of fire blackening and they may have been used for storing and serving liquids and should therefore not be categorised as cooking pots. They were, however, produced using the same fabric and all other characteristics are the same. Also common are small open lamps with a simple lip spout (OC2, Fig. 11:18.6) and slightly larger open forms which may have been used as cooking bowls.

At times the distinction between the GREBS and DEGLIB is difficult to maintain and there is some potential overlap between the two groups. A similar handmade cooking pot form may be part of the DEGLIB repertoire, albeit not as one of the more common elements and this probably accounts for the low-level presence of GREBS recorded through most of Period 3 in the Dariali sequence (Fig. 11:19). Also important to note is the presence of cooking pot vessels within the c. second to fourth century assemblage from Zilgi with close typological parallels to GREBS forms (CP2a-b), indicating the extension of this tradition further back in time.[93] In general, however, the chronology of GREBS and DEGLIB is mostly different. The former are specifically associated with the period from the c. mid-seventh to mid-ninth century, where they account for a large portion of the ceramic assemblage from this phase (around 20–35%). Only in phase 4 (mid-late seventh century) do we find substantial quantities of DEGLIB and GREBS occurring together and this may represent a useful marker for occupation within this specific horizon. By the late ninth century (phase 5c) the proportion of GREBS drops off dramatically and it seems likely that production ceased around this time.

The provenance of GREBS cannot be definitively established. Petrographic analysis indicates that the coarse inclusions match those of the solid geology of the Dariali Gorge.[94] As discussed earlier, this is likely to apply not only to the area that is immediately local to the fort, but also to fluvial sediments that washed out of the gorge and settled within the slower moving water course to the north of Dariali within the Tergi basin. The fact that similar cooking pots occur within the assemblage of pottery manufactured at Zilgi in Ossetia (see above) is probably significant even if this material is predominantly earlier. It is also important to note that few parallels can be observed from contemporary early medieval assemblages within the territory of Georgia. This may indicate that there is limited circulation of this class to the south, though it could equally be related to less attention being given to coarse undecorated pottery within the available publications. Certain exceptions do occur and vessels with a matching description and clear typological association are present within some assemblages from the south including Urbnisi[95] and amongst a few of the funerary assemblages from Zhinvali.[96] More generally, features such as the dark reduced fabric and notches along the rim edge link this pottery with the cooking pot traditions of the Northern Caucasus[97] and this appears to be the likely sources for these products.

Plain Grey Cooking Pots (PLAG)

Two cooking classes appear late within the Dariali sequence: Plain Grey Cooking Pots (PLAG) and Black Ribbed Cooking Pots (BLARIC). Of the two, PLAG is the more difficult to distinguish and often appears similar to GREBS. It is not clear whether PLAG represents the transformation of the same ceramic industry with a continuity in the location of production, or if it arises from a separate production source. Certainly, the fabric, inclusions and general production and firing technology of the two classes is similar and as a result it is much easier to recognise the differences between the two groups on the basis of diagnostic sherds than it is from featureless pieces. However, there are some consistent differences. PLAG typically has plain brown/grey coloured surfaces with no evidence of surface burnishing (Figs 11:20, 11:28.1, 11:56–60). It has slightly thicker walls and a harder quality than GREBS and is frequently fired to dark brown rather than grey/black, particularly through the core. The vessels mostly appear to be wheel made though this is not always obvious as the surfaces are somewhat irregular. The main vessel types include a cooking pot with a beaded lip (CP5) or a lip that comes to a point (CP6), both of which have crossed incisions running around the lip exterior. The vessels have a single handle attached to one side and this mostly appears to be situated lower down than with GREBS with the attachment to the neck and shoulder. Handles also appear to



Fig. 11:20: Restored complete/semi-complete PLAG vessels: 1 = non-common form (F.098/881.1 diameter 10cm); 2 = lamp (F.053/415.1, diameter 10cm). Note that neither of these examples represent the most common or typical forms.

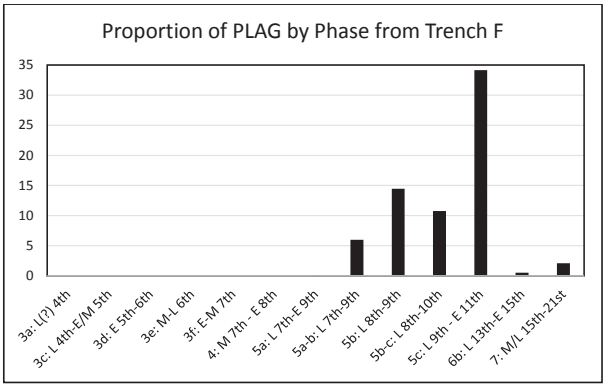


Fig. 11:21: PLAG sherds as a proportion of the pottery by phase from the Trench F sequence.

have a more rounded rather than lenticular cross section profile. A range of other less common forms are also associated with the class.

The earliest examples of PLAG within the Dariali assemblage occur from phase 5b (Fig. 11:21) potentially dated from the late eighth century onwards, though it appears more likely that the class is dated from the ninth century onwards. At first the quantity of PLAG within the assemblage is matched by that of GREBS, but during the late ninth and tenth centuries this new cooking pot class eclipses the older tradition as the latter drops out of use. The apparent abandonment of Dariali Fort between the eleventh and thirteenth centuries means that we cannot ascertain how far into this period this industry extends, but the fact that over one third of the assemblage consists of PLAG during phase 5c suggests that its decline will not have been immediate. No parallels for this class have been identified elsewhere; however, the overall similarity between PLAG and GREBS and the general style of the cooking pots suggest that they are likely to originate from a related source and, as discussed above, this is most likely to lie within the Central Northern Caucasus.

Black Ribbed Cooking Pots (BLARIC)

Another class, which appears to coexist both chronologically and functionally with PLAG is Black Ribbed Cooking Pots (BLARIC). This group is relatively easy to distinguish from the other coarse tempered, reduced grey/brown/black cooking pots classes. BLARIC has thin brittle walls, dark black coloured exterior surfaces and most distinctively is covered over the exterior with fine horizontal ribbing extending from the rim to the base (Figs 11:28.2, 11:61.a-p). The vessels mostly appear to be wheel made though this is not always obvious as the surfaces are somewhat irregular. The rim type most frequently associated with this class is also distinctive. It has a sinuous 'S'-shaped profile with a slight indentation in the internal lip (CP7), possibly to hold in place a separate lid. In fact, both PLAG and BLARIC forms have a well-developed angle within the internal lip, if not an actual recess, and it may be postulated that many of the coarse tempered cooking-pot lids encountered within the assemblage are associated with these classes. The fact that lids were separately formed, have different surface finishes and may even contain a different mix of coarse inclusions makes it difficult to match the cooking pot lids with a specific class.

The earliest examples of BLARIC occur within Period 5b (late eighth to ninth century), though at first the quantities represented are minimal (Table 11:5). It is really in the period from the late ninth to tenth/early eleventh centuries (phase 5c) that this becomes a common category making up over 7% of the assemblage. Even at this time, however, BLARIC is never heavily represented to the same extent as PLAG. Given that the two classes appear to be functionally equivalent, it may be either that BLARIC vessels were used for some more specialised food preparation process, or that the source of these products was more remote. Few parallels have been identified for BLARIC. One closely comparable vessel appears on display in Sighnaghi Museum from the excavation of the ninth to

eleventh century monastery at Gareji Mravalmta, Kvabebi on the southern border of Kakheti. In general, however, the general style of production, appearance of the fabric and similarity to the dark black/grey/brown cooking pots discussed above, suggests that this is another product imported from the Central Northern Caucasus.

11.3.4. Infrequent class groups and non-identified material

The remaining identified classes within the assemblage are all represented as rare components and never make up more than 5% of the material in any given period. Mostly their frequency is considerably less. Rare categories often comprise those groups derived from remote sources with greater potential value or may belong to groups with specialised functions. They have the potential to provide important information regarding the wider orbit of exchange and communication and at times offer further insights into the chronology of the site. Three of the groups add to the array of reduced wares originating in the Central Northern Caucasus (BROSH, CORCOM and SMOG).

Brown Shell Tempered Cooking Pots (BROSH)

One group that is never especially common though potentially significant is Brown Shell Tempered Cooking Pots (BROSH). The class was only recognised as a separate category late on within the study and so far only the sherds from Trench F have been separately recorded. Those pieces represented from other trenches will have been placed within the broader Non-Identified Cooking Pot category (COPOT). The pottery is actually fairly distinctive. The fabric is relatively hard, it contains frequent shell and coarse grit inclusions, and is fired to a variable brown/grey often with fire blackened exterior surfaces (Figs 11:29.1, 11:61.q-u). The vessels appear to be medium sized cooking pots with everted rim forms often with oblique notches along the outer lip. Most distinctively the exterior surfaces are covered with irregular ribbing or combing. The chronology of the class within the Dariali assemblage appears to match that of PLAG and BLARIC. The earliest examples occur in phase 5b (late eighth to ninth century), though most examples occur within the levels dated to the late ninth to tenth/early eleventh centuries (phase 5c) (Table 11:5). This category of cooking pot closely corresponds to a well-known group generally dated to the eighth to tenth centuries that has a wide distribution in the north.[98] The clearest marker for this group is a cooking pot with 'internal handle ears', which has not yet been identified at Dariali, however in other respects the visual and typological association is close.[99] These cooking pots, which are generally regarded as being synonymous with the Saltavo-Mayask culture, occur across a huge swath of territory covering the Central Northern Caucasus and north and west from there into the Kuban, Lower and Middle Don, Crimea, Volga and Lower Danube areas. The finds from Dariali extend the distribution of this group somewhat to the south and provide further important evidence of cultural contacts rooted in the area of the Northern Caucasus. They also provide important evidence for the provenance of certain features such as the oblique rim notches and general form and firing technology of the cooking pots represented in associated with other classes such as GREBS, STECOV, PLAG and BLARIC, some of which have less secure parallels in the available published literature. The relatively small quantities of BROSH in the Dariali assemblage may be an indication that the source for this class was more remote than some of the other better represented cooking pot classes of the same period (*i.e.* PLAG and BLARIC).

Smooth Grey Ware (SMOG)

A rare component of the assemblage, but one that appears to be associated specifically with the early occupation of the Dariali Fort, is Smooth Grey Ware (SMOG). There are only two sherds belonging to this class represented within the Trench F sequence and only one of these is in a primary context from phase 3c (late fourth to mid-fifth century). A small number of additional pieces were recovered from Trench Q. The pottery is probably quite closely related to DEGLIB but in contrast with that group, it has a much finer quality fabric and displays a different range of vessel forms. It has a very fine, compact, dense grey fabric with highly burnished exterior surfaces (Fig. 11:27.2). In this respect, and also certain aspects of the vessel morphology, the class bears some resemblance to the Late Bronze and Iron Age burnished grey wares from North-west Iran and Azerbaijan but that dating would be anomalous within the context of occupation of Dariali Fort. Actually, there are a number of close parallels for this class from early medieval contexts. As there are few sherds represented, we have an incomplete understanding of the vessel forms represented. From what one can ascertain, the sherds belong to relatively small drinking vessels with complex handles, a rounded body and a closed neck. Typical characteristics include a carefully modelled handle with two loops separated by a central bridge and some vessels that have a raised boss on the side marked with a rouletted design consisting of concentric wavy rings with further rouletted bands around the neck. Other handle forms are also represented including some with a stylised zoomorphic element projecting from the top. Closely corresponding pottery has been identified from a number of sites including an example from one of the late sixth to early eighth century burials excavated nearby at Gveleti[100] and from Zilgi in Ossetia where it is specifically associated with the late terminal occupation of that site.[101] Pottery that is not identical, but similar in general morphology and design, and probably part of the same production complex, occurs frequently as part of the late antique to early medieval (seventh century and earlier)

funerary assemblages from the extensive Klin Yar cemetery near Kisovodsk in Stavropol in the Central Northern Caucasus[102] and also again in large number from Mokraya Balka a further 200 km to the north-east.[103] An example from an unspecific site in the Northern Caucasus with what appears to be the same handle form and appearance as the examples from Dariali is presented as a typical example of the early medieval Soltovo-Mayask complex.[104] While not especially frequent, SMOG appears to represent a local fineware of the Central Northern Caucasus mostly reserved for funerary contexts. The occurrence of small numbers of finds from a settlement site this far to the south is of interest. It also provides a further important chronological and cultural association between the early occupation of Dariali Fort and the grave assemblages unearthed a few kilometres to the south at Gveleti where the same pottery occurs.

Coarse Combed Ware (CORCOM)

The final category of coarse reduced pottery is Coarse Combed Ware (CORCOM). This group is less clearly defined than most other classes and the possibility remains that it encompasses more than one category, or particular types of products that fall within the scope of one of the previously defined industries. There in fact appears to be some typological overlap between some CORCOM products and those associated with PLAG, especially in connection with cooking pots that have an extended neck flange (CP8). At the same time there are repeated finds of CORCOM that display reasonably coherent characteristics. The vessels have thick walls, they are roughly hand formed, relatively low-fired and contain large angular stone inclusions (Figs 11:28.4, 11:62.a-i). Most examples are marked on their exterior surfaces with irregular multidirectional combing. The colour of the pottery varies from dull orange to grey. The coarse friable quality of the fabric gives CORCOM the appearance of a cooking pot class, but the general absence of carbonised residues and limited evidence for exterior fire blackening suggests that they may have served some other function such as storage containers. The chronological distribution of the class within the Dariali sequence adds to the element of uncertainty over the definition of this class (Table 11:5). CORCOM occurs as a low proportion of the assemblage through phase 5, meaning that its first appearance could be as early as the late seventh century but potentially as late as the ninth. The frequency of CORCOM then rises appreciably after the eleventh to thirteenth century hiatus in occupation and is well represented from the late thirteenth or fourteenth century onwards. It is not clear if production continued throughout this period or if other factors contribute to the concentration of the class within the uppermost deposits. The source of origin for CORCOM is also not clear. The association between this class and PLAG and the irregular combing provide potential links with other categories that appear to have their origin within the Central Northern Caucasus.

Fine Red Burnished Ware (REDFIN)

A distinct albeit rare component of the assemblage consists of hard, well levigated bright orange or red coloured ceramics with burnished exterior surfaces. Fine Burnished Red Ware (REDFIN) can be polished across the entire surface or have more elaborate line burnishing forming simple motifs (Figs 11:30.1, 11:44.t-y). There are few diagnostic sherds within the assemblage but from both the forms represented and the surface treatment, the class appears to cover quite a varied set of material and this may account for what is otherwise a difficult to explain chronological distribution. REDFIN sherds occur as a low proportion of the assemblage but in almost every occupation phase. Only in phase 3 (late fourth to mid-seventh century), does the proportion of the class rise to a slightly higher level close to or just over 2%. It is possible that this represents the main phase of currency for the class and that later examples are all residual, but if this is the case, one might expect the material to largely disappear at some later stage within the sequence. Another possibility is that the class, as it has been defined, encompasses more than one industry but with similar reoccurring characteristics. The fine nature of the fabric and the lack of coarse inclusions means that the fabric is not especially distinctive. Where there are diagnostic sherds associated with this class, the most frequently reoccurring form is a narrow-necked bottle with a flared rim. Close parallels for this form appear to be fairly frequent in Eastern Georgia for example from Urbnisi[105] and Lochini[106] with the dating given for these examples being within the fourth and fifth centuries.[107] This fits with the occurrence data for this class from the Trench F sequence at Dariali Fort. One suspects that these vessels may be more frequently associated with funerary contexts and their scarcity reflects usage levels within a domestic setting. It is likely that this pottery was manufactured and imported from the region of Eastern Georgia.

Other unglazed classes (HABROB, WHIM)

The two remaining unglazed classes from the Trench F sequence are represented by only a few sherds each. Hard Brown Burnished Ware (HABROB) is a class about which little is known. Three non-diagnostic sherds occur within a single context (F.129) associated with phase 3e (mid- to late sixth century). A greater number of sherds occur within different contexts from Trench Q also from the top of Dariali Fort. The pottery appears to belong to large handled jar forms and has a distinctive bright orange coloured fabric, orange-brown coloured surfaces and relatively thin, slightly irregular walls (Fig. 11:29.3). There are no known parallels for this class. It is possible that HABROB represents a specific type fossil for the sixth century but more information is required to reach a better understanding of

the full appearance, provenance and dating of this group. The other category of ceramics represented by only a few sherds is White Moulded Ware (WHIM). In total six sherds are associated with this category and all of them come from Trench F. This pottery has a finely levigated cream coloured fabric and elaborate moulded decoration on the exterior (Figs 11:34.4, 11:62.j-k). The sherds belong to closed, section moulded pouring vessels. The pottery clearly corresponds to the widespread tradition of moulded wares manufactured in different centres across the Middle East through an extended period from around the eighth to thirteenth centuries.[108] Examples similar to those from Dariali Fort occur further east within the medieval assemblage from the excavations in Derbent in Dagestan on the Caspian Sea coast. It is possible that this pottery was imported from North-east Iran or Azerbaijan, though it may also have been manufactured more locally within the Eastern Georgian lowlands under Middle Eastern influence. The five examples from the phased sequence in Trench F occur within phase 5a-b potentially dated to any time from the late seventh to ninth century. It is likely that the class belongs to the eighth or ninth century.

Glazed pottery

In total 50 fragments of glazed pottery occur within the Trench F assemblage. These occur relatively late within the sequence and are, therefore, a useful marker of the end stage of the main occupation. Glazed pottery in general appears to be the most widely illustrated and extensively discussed in the available publications of medieval ceramics from Eastern Georgia, yet at Dariali at least, they constitute a small proportion of the overall assemblage. Throughout phase 5 (late seventh to tenth century) and the later occupation of the site, the frequency of glazed pottery fluctuates between 0.04–0.74% of the assemblage though generally the level sits at around 0.5%. Within this assemblage there is a wide degree of technical and stylistic diversity and some evidence for temporal change. No glazed pottery occurs in association with phase 3 or 4 (late fourth to late seventh century). The earliest material occurs in phase 5a (late seventh to early ninth century). Unfortunately, due to the issues surrounding the phasing and dating of the large phase 5 deposits, there is a loss of chronological resolution compared with the earlier phases and therefore it is difficult to precisely date the occurrence of the different glazed pottery classes. On the basis of the site dating it is not possible to rule out the possibility of glazed pottery appearing as early as the late seventh or eighth centuries, though equally there could be nothing earlier than the ninth century and this fits more closely with the general understanding of the dating of glazed pottery in Georgia, which developed under Middle Eastern influence from the ninth century.[109] The main groups associated with this initial phase are monochrome green glazed ware (MONO.G) (Figs 11:36.1, 11:63.a-b) and slip painted ware. The latter generally has a light ground with fairly crude patters outlined in dark brown and in-filled or over painted with green and yellow. One group has a light cream coloured fabric (SPW.1) and another an orange coloured fabric (SPW.2) but in other respects they are stylistically similar and there is no obvious chronological difference between the two (Figs 11:35.1–2, 11:63.g-m). Probably they reflect two different production sources for products produced within the same stylistic tradition. Slightly later in phase 5c (late ninth to tenth/early eleventh century) the assemblage is augmented by the addition of small dishes with a monochrome yellow glaze (MONO.Y) (Figs 11:36.3, 11:63.d-f) and elaborate straight sided dishes with chip carved decoration and a monochrome green glaze (CHIP) (Figs 11:36.2, 11:63.c). An element of the glazed assemblage that appears to come in later than the other groups is sgraffiato. This has a brick-red coloured body and often a simple monochrome turquoise glaze (GRAF), though polychrome versions are represented too (Figs 11:35.3–4). Some monochrome turquoise pottery also appears to be a late addition (MONO.T) (Fig. 11:36.4). Within the Trench F sequence, these groups occur close to the surface in post fifteenth century contexts, though it is likely that their dating is earlier and they are residual within this phase.

Non-identified pottery

A certain proportion of the pottery in the assemblage could not be assigned to any particular class. This material has been separated into three categories: coarse tempered pottery often with evidence of fire blackening associated with non-identified cooking pots (COPOT), non-identified glazed pottery (GW.N-ID) and other non-identified coarse wares (CW.N-ID). The last category is by far the most numerous. Had time permitted towards the end of the project to recheck all of the non-identified material, it is likely that the overall proportion could be further reduced, particularly as by this stage the greatest degree of familiarity with the local pottery assemblage had been established. At the same time, there is no structured correlation between the year when the finds were recorded and the proportion

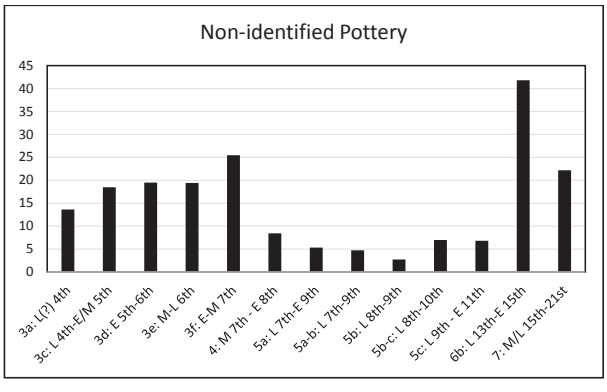


Fig. 11:22: Non-identified sherds (COPOT, CW.N-ID, GW.N-ID) as a proportion of the pottery by phase from the Trench F sequence.



Fig. 11:23: Restored complete/semi-complete CW.N-ID vessels: 1 = F.027/292.1 (height 35cm); 2 = F.125/1063.1 (height 5cm); 3 = F.066/729.1 (height 3.8cm); 4 = F.125/1098.1 (height 4.3cm); 5 = F.Unstratified/1721 (diameter 18cm).

of the material that could be successfully identified and it appears that other factors affect this variable as well. This becomes especially evident when the proportion of non-identified material is examined by excavation phase (Figs 11:22–11:23). There is a clear drop off in the incidence in the proportion of non-identified pottery through the main part of the occupation sequence, namely Periods 4 and 5 (mid-seventh to tenth century), which are also the periods most heavily populated by ceramic finds. In periods that are less well represented in terms of the overall volume of finds, particularly Periods 3, 6 and 7 at the start and end of the sequence, the proportion is far higher. These differences appear to be linked simply with the factor of knowledge and familiarity. Those periods less well represented are also by extension less fully understood in terms of the full range of ceramic products in circulation within the confines of this study. This may have some bearing on the interpretation of the results. Periods 4 and 5 produced ample material for study, and the relatively high proportion of successfully identified material further reinforces the representation of finds for these periods. Further study is required targeting the early phase of occupation on Dariali Fort or of sites occupied into later periods in order to build up a more complete understanding of the full ceramic repertoire. This is particularly true for much of the eleventh, twelfth and thirteenth centuries when there appears (at least within the areas excavated) to be a hiatus in occupation on Dariali Fort.[110] So far, the only information available for these periods comes from the publication of other sites within the region and to some extent the assemblage from Gveleti Fort.[111]

11.4. Other changes in assemblage composition

The main factor that has been considered up to this point is the chronological distribution and occurrence of ceramic class categories. As outlined above, ceramic classes represent sets of products associated on the basis of similar general characteristics which indicate that they originate from the same production centre or multiple closely associated sources and that production took place at a particular defined moment in time. A production centre may have been responsible for the output of a single specific vessel type, as is the case with STECOV cooking pots (CP1), or more commonly would have produced a variety of products to serve various functional needs. Certain other variables within the ceramic assemblage are worth considering too. Vessel forms combined with various other physical attributes such as the quality of the fabric – whether it is able to withstand thermal shock, etc. – are closely associated with the aspect of vessel function. Establishing precisely how vessels were used without the benefit of other observational information is often difficult or impossible and is likely to be further complicated by the fact that function could be adaptive and variable. What is clear is that form and function are closely linked and changes in the repertoire of forms may provide significant insights into the structure and organisation of common domestic activities and other routine practices.

An attempt to recover different types of information on vessel forms has been implemented and with different objectives. The main constraint, which is universal in dealing with ceramics from occupation and refuse deposits, is the accurate reconstruction of form on the basis of fragmentary material. An added constraint here is a lack of familiarity with the repertoire of vessel forms in use and the degree to which these were standardised. Once these factors are established, the possibility increases to link fragments of vessels to examples of known whole profiles. Accepting these limitations, two strategies have been adopted. The first is to record specific recognisable elements of vessel forms, for example a particular rim shape. This information has been recorded in the manner of a formal type series with individual type codes for each element. This information may be of particular value both for establishing precise formal parallels between the ceramics of Dariali and other sites, and for reconstructing aspects of the ceramic chronology. Vessel types are also connected in every case with a specific vessel form and are therefore also of some value in considering aspects of functional attribution. Unfortunately, elements that can be formally recognised in this manner, such as rim sherds, form a small minority of the assemblage and therefore the data available for type occurrence is thinly populated compared with characteristics such as class attribution which can be applied universally across the whole assemblage.

A second perhaps more immediately usable strategy for recording vessel function has been to assign sherds to one of several broadly defined vessel categories (jars, bowls, cooking pots, storage jars, lamps, etc). These can be defined in a variety of ways. Cooking pots are perhaps the most readily identifiable category and the only group that can be reliably recorded across the whole assemblage. The fragments are porous and coarse tempered and often have fire blackened surfaces. Even small non-diagnostic fragments can generally be successfully identified. Other vessel forms are defined on the basis of sherd shape and curvature and in some case surface treatment. For all of the other groups the most reliable attributions can be established from diagnostic fragments. For non-diagnostic sherds the recognition of form is more problematic. Storage jars may to some extent be defined by relative sherd thickness. Fragments of around 10 mm or more thickness have been assigned to this category. Fragments of lamps can also mostly be recognised because of the standardised forms in use and the small size of the vessels. Some cooking bowls do appear to share similar attributes but are defined where the vessel size is larger (*i.e.* rim diameters over 15 cm). For a number of classes there is only one vessel form represented and all sherds can

be assigned to that category (for example STECOV = cooking pots and CEMRIB = jars). Jars and bowls are defined essentially as closed and open forms. Bowls can sometimes be recognised from non-diagnostic sherds because of the curvature of the fragments or from the presence on an internal surface finish. Mostly though they can only be recognised from rim fragments and they are undoubtedly underrepresented in the recording. Jars represent the default form which most fragments have been assigned to.

The distribution of these form groups across the phased sequence from Trench F reveals a further significant shift in the pattern of ceramic usage through time (Table 11:7). This is particularly evident when comparing the most common form groups: jars and cooking pots (Fig. 11:24). The early part of the occupation sequence, especially phase 3 (late fourth to mid-seventh century), is dominated by closed kitchen-ware vessels (*i.e.* unglazed pottery used for general utilitarian purposes but not for direct cooking). Through this early phase, cooking pots show a pattern of continual pronounced decline from 20% of the assemblage in phase 3a (mid-late fourth century) down to 2.7% in phase 3f (early to mid-seventh century). It should be noted, however, that the sample of material that can be securely assigned to sub-phases 3e and 3f is small and confined to the outdoor area, north-east of wall F.013, serving as a walkway at the time where little or no cooking may have taken place.[112] From phase 4 there is again an upsurge in the proportion of cooking pots and throughout phase 5 they constitute a high proportion of the assemblage between 40–60%. This wider change represents a profound transformation in the use of ceramics at Dariali Fort. The point of transition from a jar-dominated assemblage to one in which the portion of jars and cooking pots was roughly balanced, is again located within the seventh century, a time when other significant changes in the pattern of site use occurred. The early occupation, which appears to be characterised by defences that were actively maintained and cleared of rubbish, also does not appear to have had such an obvious domestic focus. Roughly half of the cooking pots from this phase are giant cooking vats (STECOV), which appear to have been used for mass catering purposes. Later in phases 4 and 5 with the surging volumes of cooking pottery there is also a far greater preponderance of smaller cooking vessels suitable for catering for a household unit. Within the same timespan a small number of cooking pot lids occur within the phase sequence from Trench F. These are mostly fairly crudely formed flat disc shaped objects with a thumb-pull in the centre. Some examples are plain, but many are decorated with simple repeated stamped dots or rings or have incised decoration. The shape of the thumb pull also varies. Because cooking pot lids were formed separately from the vessels, were not decorated in the same manner and may even contain different proportions of coarse inclusions to the vessel clay, it hard to be certain which specific class or classes the lids are associated with. The incidence of lids shows no obvious patterning or change of popularity through phases 4 and 5. They do, however, represent a potentially important change in cooking practices, either demonstrating a greater demand for the conservation of fuel and heat, or potentially the preparation of different ingredients or the application of new culinary practices.

Table 11:7: Vessel forms as a proportion of the assemblage by phase from Trench F with sherd count totals in the bottom row.

	3a: L 4th	*3c: L 4th-M 5th*	*3d: M 5th-6th*	*3e: M-L 6th*	*3f: E-M 7th*	*4: M 7th-E 8th*	*5a: L 7th-E 9th*	*5a-b: L 7th-9th*	*5b: L 8th-9th*	*5b-c: L 8th-10th/E 11th*	*5c: L 9th-10th/E 11th*	*6b: L 13th-E 15th*	*7: M 15th-21st*
Jar	80.1	87.0	91.7	98.5	96.4	68.2	53.2	50.5	50.6	53.3	39.7	82.5	79.5
Cooking pot	19.3	12.0	7.7	1.5	2.7	27.9	45.0	46.9	48.2	45.6	59.0	15.3	15.3
Cooking bowl	0.5						0.5	0.5		0.4	0.3		0.1
Bowl	0.5	1.1	0.4		0.9	2.6	1.1	1.1	0.5	0.6	0.7	0.5	1.5
Storage jar			0.2			0.6	0.1	1.2	0.2	0.2	0.2	1.6	3.6
Lamp						0.6	0.5	0.2	0.2	0.3	0.2		
Beaker									0.2		0.1		
Bottle									0.2				
Box											0.1		
Totals	191	92	569	67	110	154	2372	1822	581	4030	3009	189	2172

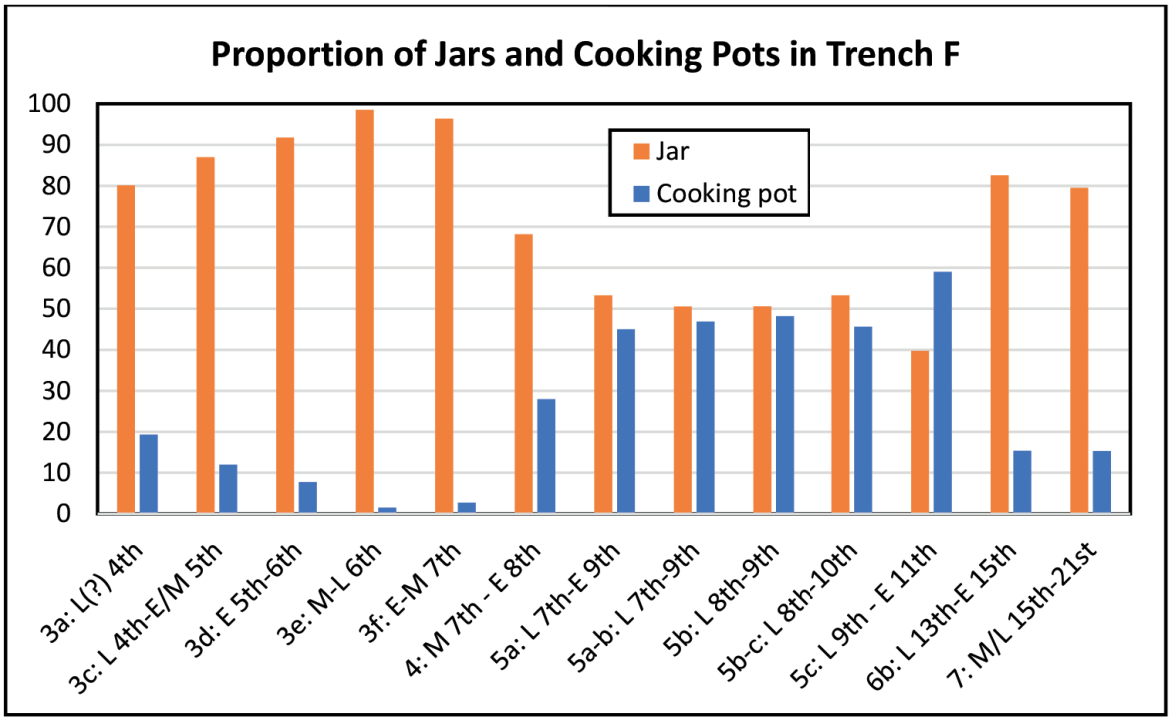


Fig. 11:24: Comparison of jars and cooking pots as a portion of the assemblage by phase from Trench F.

11.5. Other assemblages

The remaining ceramic assemblages from the excavations around Dariali and Gveleti Forts and cemeteries are presented and summarised below. The main ceramic chronology for the area has been established on the basis of the detailed analysis of the deep continuous sequence from Trench F as outlined above. All of the other excavated assemblages are smaller in scale and can be most readily interpreted in relation to the Trench F sequence.

11.5.1. Dariali Fort

11.5.1.1. Trench L

Trench L is a small 1 × 1 m square test pit excavated on a rocky promontory with remains of a surrounding fortification wall to the south of the main Dariali Fort complex. The excavation hit solid bedrock a short depth below the surface. Just three ceramic sherds were recovered from the excavation and all are from L.002, a short distance below the surface and above a layer dated by C14 to the mid-tenth to early eleventh century (AD 943–1020 at 77.2% confidence).[113] The fragments all belong to cooking pots; two are sherds of BLARIC and the other is GREBS. The former appears consistent with the C14 dating evidence and indicates occupation potentially as early as the late eighth century, but more likely from sometime after the late ninth century. Both classes provide a clear link between the use of the Trench L area and the main part of Dariali Fort, albeit towards the end of the main occupation horizon.

11.5.1.2. Trench O

A small test trench covering 2.25 m^2 was opened in the centre of Dariali Fort within a deep square depression with retaining stone walls on each side. The excavation hit bedrock almost immediately below the surface and therefore produced few finds.[114] Just one ceramic sherd was recovered. This belongs to a non-identified coarse ware jar. It does not compare with any of the categories represented through the main sequence of occupation on the fort and there is the possibility that it belongs to a less well-defined period of later occupation.

11.5.1.3. Trench Q

A second large ceramic assemblage (together with that from Trench F) was recovered from Trench Q, which covers a sizable area of 204.5 m^2 from the top of Dariali Fort towards the north-western end of the promontory and from an area just inside the main perimeter wall, which now mostly appears to have collapsed down the steep slope to the north.[115] For reasons set out above,[116] the phasing of the material from Trench Q was far less successful than for Trench F. A large proportion of the material comes from contexts that cannot be assigned to a single phase or belongs to disturbed contexts assigned to phase 7b which potentially date as late as the twenty-first century. Only 20% of the ceramic finds can be securely attributed to a single phase pre-dating the fifteenth century. As a result, far less detailed attention is given to the

Table 11:8: Seriated ceramic assemblage from Trench Q showing sherd counts per class per phase.

Class	*3: :M 4th-M 7th*	*4-5a: M 7th-E 9th*	*5a: L 7th-E 9th*	*5a-b: L 7th-9th*	*5b: L 8th-9th*	*5b-c: L 8th-10th/E 11th*	*6b-7b: L 13th-21st*
HASOG	115	8	69	47	405	130	1,258
CEMRIB	11	5	14	57	445	155	957
CW.N-ID	9		2	6	37	5	505
PLAG	5		24		13	1	161
DEGLIB	4	18	3	136	291	220	431
GREBS	2	1	53	44	432	144	538
COPOT	1	2	2	18	100	17	325
STECOV		3	21	40	477	84	969
HABROB		1			44		
BLARIC			1	1	2		111
CORCOM				16	48	1	264
GRAF				1			1
GW.N-ID				1			2
MONO.Y				1			2
MONO.T					1		1
REDFIN							14
SPW.2							3
SMOG							1
SPW.1							1
Totals	147	38	189	368	2,295	757	5,544

Table 11:9: Seriated ceramic assemblage from Trench Q showing sherd count percentages for each class per phase. This and the previous table include only those contexts dated to a single phase or to two contiguous phases. (Continued)

Class	*3: M 4th-M 7th*	*4-5a: M 7th-E 9th*	*5a: L 7th-E 9th*	*5a-b: L 7th-9th*	*5b: L 8th-9th*	*5b-c: L 8th-10th/E 11th*	*6b-7b: L 13th-21st*
HASOG	78.2	21.1	36.5	12.8	17.7	17.2	22.7
CEMRIB	7.5	13.2	7.4	15.5	19.4	20.5	17.3
CW.N-ID	6.1		1.1	1.6	1.6	0.7	9.1
PLAG	3.4		12.7		0.6	0.1	2.9
DEGLIB	2.7	47.4	1.6	37.0	12.7	29.1	7.8
GREBS	1.4	2.6	28.0	12.0	18.8	19.0	9.7
COPOT	0.7	5.3	1.1	4.9	4.4	2.3	5.9
STECOV		7.9	11.19	10.9	20.8	11.1	17.5
HABROB		2.6			1.9		
BLARIC			0.5	0.3	0.1		2.0

(Continued)

Table 11:9: Seriated ceramic assemblage from Trench Q showing sherd count percentages for each class per phase. This and the previous table include only those contexts dated to a single phase or to two contiguous phases. (Continued)

Class	3: M 4th-M 7th	4-5a: M 7th-E 9th	5a: L 7th-E 9th	5a-b: L 7th-9th	5b: L 8th-9th	5b-c: L 8th-10th/E 11th	6b-7b: L 13th-21st
CORCOM				4.4	2.1	0.1	4.8
GRAF				0.3			0.02
GW.N-ID				0.3			0.04
MONO.Y				0.3			0.04
MONO.T					0.04		0.02
REDFIN							0.3
SPW.2							0.1
SMOG							0.02
SPW.1							0.02
Totals	147	38	189	368	2,295	757	5,544

ceramic finds from Trench Q than has been afforded to the sequence from Trench F, despite the sizable quantity of the finds assemblage (Tables 11:8–11:9).

The occurrence and distribution of the ceramic finds from Trench Q, from those contexts that can be more closely phased and dated, contain a number of features, some of which roughly conform with the outline provided from the analysis of Trench F (Tables 11:4 and 11:5). There are also various differences and anomalies that need to be explained. The proportion of CEMRIB within the assemblage is generally slightly lower, but still falls within a range between 7–21%, so represents a common category. There are lower levels in phase 3, which match at least the earliest part of the sequence from Trench F, but there is no noticeable decline after the tenth century, indicating high levels of residuality in the later contexts. In contrast, HASOG is consistently represented in higher proportions from Trench Q. The contrast between the two sequences is particularly apparent in phase 3. This may point towards significant functional differences between the two areas of the site with a greater focus on storage and kitchen activity within Trench Q compared with more consumption-oriented activity in Trench F. Unlike Trench F, STECOV cooking vats are absent from phase 3 contexts in Trench Q, though like the other trench, we see a rising proportion of this pottery in phase 5, particular in phase 5b where there is an especially heavy concentration, again perhaps pointing to a focus in food preparation activity within this area. The high proportion of DEGLIB associated with phase 5 contexts provides the most important indication for a strong degree of residuality through almost all of the sequence, though the same is less clearly reflected in the occurrence of GREBS cooking pots which peak at a similar level in the same phase (phase 5a) across both trenches. The most concerning find includes five fragments of PLAG from Q.137, which belongs to phase 3. This is clearly too early for this class. Either the fragments have been misidentified, or there is some other problem with the definition of this context. Glazed ceramics are significantly absent from phase 5a, placing their introduction later than the early ninth century. The only notable anomaly for the minor categories is a fragment of Sgraffiato (GRAF) from Q.120. This category probably dates somewhat later to the tenth to thirteenth centuries. A modern pit (Q.009) reached down to the top of wall Q.120, and a modern gun cartridge was found on top of the wall. It seems likely that the bulk of the pottery within the pit was redeposited during pit-digging rather than being from the core of the earlier wall (datable to the late eighth or ninth century/ phase 5b, based on stratigraphy).

11.5.2. Dariali lower plateau

11.5.2.1. Trench E

Trench E is a shallow excavation originally covering a 15 × 15 m area, of which (including a small extension), only a little over 130 m^2 were excavated. The trench was opened on the lower plateau to the south of Dariali Fort, designed to investigate a number of cist burials identified in the area from surface remains. Six graves were identified and these formed the main focus of the investigation. A total of 379 ceramic sherds were recovered during the course of the clearing work around the graves. These are mostly small fragments (average 7.1 grams) and are noticeably rounded and worn. The majority of them could not be identified. Identifiable pieces include HASOG, CEMRIB and PLAG,

Table 11:10: Seriated ceramic assemblage from Trench M showing the total number of sherds by class and context, contexts ordered according to stratigraphic position within the sequence.

Class	*M.010*	*M.005*	*M.008*	*M.003*	*M.002*	*M.001*
CW.N-ID	3	6	13	126	34	53
CEMRIB	1	5	47	371	145	106
DEGLIB	1	14	2	8		
HASOG		2	12	83	35	42
STECOV		1	22	59	3	1
GREBS		1	11	9	5	2
COPOT			1	5	5	
GRAF				2	1	1
PLAG				4		
GW.N-ID						1
Totals	5	29	108	667	228	206

all categories associated with the main occupation of Dariali Fort. The pottery finds from Trench E appear to be unrelated to the burials and are simply part of the surrounding soil horizon. The material may have been further fragmented through the action of gardening or ploughing.[117]

11.5.2.2. Trench G

A second (10 × 10 m) area was investigated within the cemetery on the lower plateau to the south of Dariali Fort in Trench G. This is located further to the south of Trench E. The topsoil from this area had already been removed in advance of planned construction work and the partially disturbed remains of c. 28 cist burials were identified within the square, plus a further unlined grave (G3). Seven of these were investigated in detail. Four small fragments of pottery were recovered from deposits surrounding the graves. These appear to be unrelated to the burials and are simply part of the surrounding soil horizon. Three are unidentified coarse wares. One appears to be a small fragment of DEGLIB, a class associated with the late antique occupation of Dariali Fort. The small size of the sherds (average 4.05 grams) is consistent with the pottery recovered elsewhere in the topsoil deposits of the southern terrace area (see Trenches E and M).[118]

11.5.2.3. Trench M

Trench M is a long slot trench extended in various places and eventually encompassing an area of 36 m^2. It is located on the plateau to the south of Dariali Fort near the base of the main rock outcrop occupied by the fort and not far from the area of the medieval cemetery (Trenches E, G, and AB). Excavation was extended to a maximum depth of 2.45 m below the surface. (Natural ground was reached at a depth of 2.05 m.) Few structural remains were identified and no burials were found, but the trench produced a sizable accumulation of pottery (1,243 sherds in total). The pottery

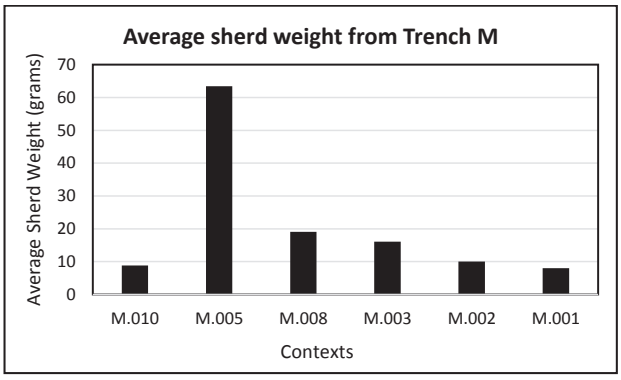


Fig. 11:25: Average sherd weight in grams per context from Trench M.

finds display a logical phase distribution with deposition occurring over an extended period (Table 11:10). The deepest deposits (M.010 and M.005) contain a high proportion of DEGLIB and low levels of GREBS suggesting that these levels are contemporary with phase 3 occupation on the fort (late fourth to mid-seventh century). The rising proportion of CEMRIB (43.5%) and GREBS (10.2%) and the absence of other late markers in the layer above (M.008), together with the drop off in DEGLIB, indicates a later development probably equivalent to phase 4 or 5a (mid-seventh to early ninth century). One aspect that is unusual about the assemblage from M.008 is the high proportion of STECOV cooking pots. At 20.4% the proportion is far higher than from the period of contemporary occupation in Trench F from Dariali Fort. It may be a that a single vessel was broken within the area and that this has contributed to the high frequency on a localised scale. Alternatively, the concentration may relate to activities taking place within the vicinity of Trench M during this period. The layers above M.008, which include M.003–001, clearly relate to a later stage of development. All contain

Table 11:11: Seriated ceramic assemblage from Trench P showing the total number of sherds by class and context.

Class	*P.012*	*P.009*	*P.008*	*P.007*	*P.006*	*P.005*	*P.004*	*P.003*	*P.002*	*P.001*
GREBS	1		2	1			1	4		
COPOT		2	1	3						
CW.N-ID			3		2		2	1	10	
CEMRIB			1		5		12	64	9	
HASOG					1	5	3	12	1	
DEGLIB					1		1			
STECOV								4	2	
GRAF									3	
GW.N-ID										1
Totals	1	2	7	4	9	5	19	85	25	1

fragments of distinctive turquoise blue sgraffiato, which date to the period from the tenth to thirteenth centuries.[119] Changes in the average sherd weight by context indicate the presence of a primary dump deposit in M.005 with a rapid fall off in sherd size thereafter potentially related to a ploughed or heavily worked upper soil horizon more consistent with the ceramic finds from elsewhere on the southern plateau (Fig. 11:25).[120]

11.5.2.4. Trench P

A 3 × 2 m trench was excavated on the lower plateau to the south of Dariali Fort at the foot of the rock outcrop upon which a tower sits (explored via Trench L). Within the trench, a 1 × 1 m sondage was excavated down to a sterile, probably natural, horizon 2.70 m below the surface.[121] The trench produced a modest sized assemblage comprising 158 sherds (Table 11:11). Most of the pottery finds were concentrated towards the surface in P.003 and this context contains most of the components typically associated with the main occupation of Dariali Fort including CEMRIB, HASOG and GREBS probably pointing towards an eighth to tenth century dating for this deposit. The layer above (P.002) contains fragments of monochrome turquoise sgraffiato similar to the material encountered nearby in Trench M and this indicates some levels of activity in the high medieval period perhaps somewhere between the tenth to thirteenth century. The deeper layers produced sparse ceramic finds and although this includes a few sherds of DEGLIB there is nothing to clearly indicate occupation earlier than Period 5 (late seventh to tenth century).

11.5.2.5. Trench X

A deep trench covering 40 m^2 was excavated against the western cliff face at the base of the rock outcrop below Dariali Fort. Excavation continued to a depth of over six metres below the surface but did not reach the natural soil.[122] Large quantities of ceramics were recovered from the deposits (1,697 sherds totalling 480 kg). The trench was located with the aim of potentially recovering early dated material that may have been cleared from the top of the fort during construction and tipped down the side. Despite reaching a substantial depth, material from the deepest layers still appears to contain ceramics associated with the late stages of the main fort occupation dated from the late ninth or tenth centuries. Identifiable components of the assemblage from the deepest context (X.006) include the late cooking pot classes BROSH and PLAG together with one fragment of brown, green and yellow slip painted ware (SPW.1) of the same style encountered in certain late contexts from Dariali Fort. Similar elements occur throughout the deposits above.

11.5.2.6. Trench AB

A further excavation within the medieval cemetery on the southern lower terrace area to the south of Dariali Fort was completed towards the end of the project in Trench AB. The area opened is situated to the north of Trench E and covers a total of 6.55 m^2. Five cist burials were identified containing child burials.[123] A few heavily fragmented pieces of pottery were recovered from within the vicinity of the burials. These appear to be unrelated to the burials

Table 11:12: Seriated ceramic assemblage from Trench C showing sherd counts per class per context.

Class	*C.004*	*C.002*	*C.001*
CW.N-ID	2		8
SPORG	1		6
HASOG		1	8
GW.N-ID		1	
CORCOM			4
BLARIC			1
CEMRIB			1
COPOT			1
Totals	3	2	29

Table 11:13: Seriated ceramic assemblage from Trench D showing sherd counts per class per context and phase.

Phase	*3 = 4th-7th*	*5-6 = 7th-15th*	*6 = 11th-15th*										*6-7 = 11th-21st*		*7 = 15th-21st*	
Context	*D.039*	*D.037*	*D.035*	*D.024*	*D.023*	*D.012*	*D.036*	*D.027*	*D.026*	*D.008*	*D.010*	*D.004*	*D.005*	*D.003*	*D.001*	*Totals*
BLARIC	1		4	2	1		1	2		1	4			2		18
CORCOM		1	2				1							1		5
RIBPUR			2				1	1		1			12	4	1	22
CEMRIB			1					1	1				2			5
HASOG			1			1			1	2			3	3	4	15
CW.N-ID								3				1			2	6
SPORG													6	5	3	14
Totals	1	1	10	2	1	1	3	7	2	4	4	1	23	15	10	85

themselves and are simply part of the surrounding soil horizon. The assemblage consists mostly of non-identified coarse ware fragments but includes a few recognisable elements from the Dariali Fort occupation including DEGLIB, HASOG and STECOV as well as one diagnostic fragment of a monochrome turquoise glazed bowl, which appears to be stylistically related to the sgraffiato tradition of the tenth to thirteenth centuries. The assemblage includes elements that appear to span the whole of the occupation sequence associated with Dariali Fort. The glazed pottery also corresponds with a later phase of activity also represented nearby in Trenches M and P.

11.5.3. Gveleti Fort

11.5.3.1. Trench C

Trench C is somewhat irregular covering a 15 m^2 area in the lower fort at Gveleti. The trench encompasses a cell-like structure formed from a curving double-faced dry-stone wall that abuts the main outer fort wall running along the cliff edge.[124] Trench C produced a relatively small ceramic assemblage (34 sherds in total). The range of material represented is similar to that from the larger assemblage from Trench D and most of the comments made in relation to the significance of the Trench D assemblage apply equally in the case of Trench C (see below). Classes that are familiar from the Dariali Fort sequence include HASOG, CORCOM, BLARIC and CEMRIB (Table 11:12). One class that is not represented at Dariali Fort, which appears to be specifically associated with a late phase of occupation in Trench D, is SPORG. This class is represented from the deepest context within Trench C (C.004) but most finds are concentrated within the topsoil.

11.5.3.2. Trench D

Trench D is situated 17 m north-west downslope from Trench C within the lower fort at Gveleti. The excavation covers an area of 6.75 m^2 and was dug down through a stone collapse layer and less stony dark occupation deposits with some pitting.[125] The trench produced the largest ceramic assemblage for any of the trenches from Gveleti Fort (85 sherds in total) and the analysis of the phased distribution of this material provides certain important information concerning a longer-term ceramic chronology for the area (Table 11:13). The vast majority of the ceramic finds (98%) come from layers attributed to the eleventh centuries and later. This is significant, particularly as the eleventh to twelfth century period appears to be one that witnessed a break of activity further north at Dariali Fort. Consequently, the ceramics of this period remain poorly understood within the context of this project and further research is required to develop this aspect of the ceramic sequence for the Dariali Gorge. A number of classes familiar from the Dariali Fort sequence appear to continue in circulation into phase 6 (eleventh to fifteenth century) in Trench D including BLARIC, HASOG and CEMRIB. Importantly BLARIC and CEMRIB are not represented within the topsoil deposit (D.001), indicating that there may be relatively little disturbance within the uppermost layer. One new addition within phase 6 is a class of purplish-orange coloured handmade jars with fine shallow incised ribbing covering the exterior and smoothed interior and exterior surfaces (RIBPUR). This class is not represented in any of the contexts from Dariali Fort. Potentially RIBPUR represents a useful marker for the post tenth century occupation within the area, though the class is also not represented in any of the other trenches

from Gveleti Fort indicating that it may not be widespread. A second class that is not represented at Dariali Fort, and which therefore appears to post-date the main occupation at that site, consists of a hard, handmade, orange or grey coloured pottery with smoky grey clouding across the surface (SPORG). This class occurs high up within the sequence within Trench D from D.005 and later layers placing it somewhere within the period from the eleventh to the twenty-first century.

11.5.3.3. Trench N

Trench N is situated to the south of Trench C within the area of the lower fort at Gveleti. It covers a total of 16.5 m^2.[126] Only 12 sherds were recovered from the excavation. These are all non-identified coarse wares. None of the categories compare well with those identified from Dariali Fort. The most likely explanation is that the pottery post-dates the well represented horizon that has been established there, covering the fourth to tenth centuries. Indeed, a radiocarbon sample from near the bedrock provides a likely fifteenth to seventeenth century *terminus post quem* for much or all of the activity within this trench.

11.5.3.4. Trench U

Trench U is one of three small excavations opened in an area on the approach to the upper fort at Gveleti. This is the southernmost area covering a total of 2.7 m^2. Excavation continued down for 1.17 m below the surface and did not reach the natural soil. In total 32 sherds were recovered from the trench.[127] Almost all of these are orange coloured non-identified coarse ware jar fragments. The fact that there is little notable comparison with the pottery from Dariali Fort suggests that the occupation in the area of Trench U primarily post-dates that represented at Dariali Fort. The only identifiable pieces within the assemblage include one fragment of HASOG from U.004 and one diagnostic BLARIC cooking pot rim sherd Type CP7 from U.005. The latter type is mostly associated with late ninth to tenth century occupation at Dariali Fort though the dating of the occupation could be any time later than this. HASOG cannot be closely dated and is of less value for dating purposes.

11.5.3.5. Trench V

Trench V is the northernmost area opened in a series of three excavations placed on the approach to the upper fort at Gveleti. The excavation covered a total of 2 m^2 and reached a maximum depth of 1.27 m below the modern surface.[128] Some structural remains were encountered. Only 12 sherds were recovered from the excavation. These are all non-identified coarse wares similar to those from the adjacent Trenches U and W. Most of the fragments are orange coloured non-identified coarse ware jars together with a few darker, coarse tempered cooking pots. None of these fragments compare well with the material from the Dariali Fort occupation sequence suggesting that occupation in the area of Trench V primarily post-dates that of Dariali Fort. One fragment of HASOG was identified from V.002 but this class has little value for dating purposes.

11.5.3.6. Trench W

Trench W is located between Trenches U and V and forms one of three small excavations placed on the approach to the upper fort at Gveleti. The excavation covered a total of 2 m^2 and revealed an area of stone paving and dry-stone walls.[129] The bedrock was reached at around 0.75 m below the surface. In total 20 sherds were recovered from the excavation. These are all non-identified coarse wares similar to those from the adjacent excavations in Trenches U and V. The assemblage is dominated by coarse orange coloured jars. None compare with the assemblage from Dariali Fort suggesting later occupation in this area.

11.5.4. Gveleti Cemetery

11.5.4.1. Trench A

Trench A is one of the large slot trenches opened close to the area of the Gveleti Cemetery, located with the aim of identifying further components of the early medieval burial site that was excavated by Mindorashvili in 1991 in advance of the construction of a gas pipeline. The trench covered an area of 50 m^2 but as with the other excavations in this area, was unsuccessful in locating further remains of the cemetery. The deposits removed were largely sterile but did contain four fragments of medieval pottery. Three of these belong to the class CEMRIB, which is well represented at Dariali Fort and also compares closely with pottery recovered from the original grave assemblages.[130] One sherd is distinctive and belongs to a body fragment with continuous registers of fine wavy comb incised decoration (A.001.2.2). In general, CEMRIB cannot be closely dated as it occurs throughout the main occupation of Dariali Fort though the industry appears to fall into decline from around the late ninth century. Pieces with comb-incised decoration may be a relatively late innovation and first appear from phase 5a at Dariali Fort dated from the late seventh to early ninth century. The fourth fragment in the assemblage is a non-identified coarse ware. The ceramic finds come from A.001 and A.003 the latter of which extends to a maximum depth of 0.50 m below the surface.[131]

11.5.4.2. Trench K

Trench K consists of two long slot trenches set at right angles to one another and covering a total area of 41 m^2. The trench was set out with the aim of discovering further components of the early medieval cemetery excavated by Mindorashvili in 1991. The trench was excavated to a maximum depth of 1.40 m below the surface but as with the other exploratory trenches near Gveleti Cemetery, no further graves were discovered.[132] A small selection of mostly non-diagnostic and non-identified coarse wares were recovered. Most of the coarse wares appear to be

different to those represented higher up in Gveleti Fort in Trenches C and D or those from the main sequence at Dariali Fort suggesting that the material from Trench K is predominantly later in date. Recognisable elements from a period contemporary with the occupation of Dariali Fort include fragments of CEMRIB, a class also represented amongst the original grave assemblages (see Trench A above). There is also one sherd with a compact orange fabric covered on the interior with a dull red glaze. This appears to be relatively modern, perhaps as recent as the eighteenth or nineteenth century.

11.5.4.3. Trench R

Trench R consists of a small 6 m^2 test pit excavated close to the area of the early medieval cemetery explored by Mindorashvili in 1991. The trench was excavated to a maximum depth of 1.10 m below the surface but did not contain any graves.[133] A small assemblage of pottery was recovered comprising just three sherds in total. Two compare well with material from the main occupation of Dariali Fort (CEMRIB and HASOG), though these classes are represented through the whole of the main occupation sequence (fourth to tenth or early eleventh centuries). The occurrence of CEMRIB is significant as it corresponds with the pottery recovered from the original burials in Gveleti Cemetery (see Trench A above).[134] The third sherd is a possible PLAG cooking pot base, which may suggest somewhat later occupation in this area, *i.e.* ninth or tenth/early eleventh century.

11.5.4.4. Trench S

Trench S consists of a small 3 m^2 test pit excavated in the vicinity of the early medieval cemetery recorded by Mindorashvili in 1991. The trench was excavated to a maximum depth of 0.50 m below the surface without encountering any graves.[135] A small assemblage of pottery was recovered comprising just three sherds. One base sherd can certainly be identified as CEMRIB and a neck fragment with a raised ridge appears to be the same class. CEMRIB is represented amongst the original grave assemblages (see Trench A above) and also through the whole of the main Dariali Fort occupation sequence (fourth to tenth century) so cannot be closely dated. The fragments at least indicate contemporaneity of occupation between Dariali Fort and Gveleti. The third fragment is a hard, dark, rather abraded sherd that could be DEGLIB though this identification is not certain. DEGLIB is the main type fossil for the late antique occupation of Dariali Fort (*i.e.* c. fourth to seventh century) and would also correspond with the date of the excavated burials from Gveleti Cemetery.

11.5.4.5. Trench T

Trench T consists of a large test trench covering an area of 60 m^2 situated to the north of Trenches R and S, adjacent to the area of the early medieval cemetery recorded by Mindorashvili in 1991. The trench was excavated to a maximum depth of 3.65 m below the surface, but failed to reveal any graves.[136] A number of pottery fragments were recovered and these include plenty of good comparisons with the assemblage from Dariali Fort including HASOG and CEMRIB including one fragment with incised triangle decoration in-filled with red paint. The occurrence of CEMRIB from both sites indicates at least partial contemporaneity and again provides a clear connection within the original grave assemblages (as Trench A above). The assemblage also contains one fragment of BLARIC, a type of cooking pot that appears late within the sequence at Dariali Fort from the late ninth to tenth century and later. This, together with the fragment of PLAG from Trench R, indicates that there was some level of continued activity within the area of Gveleti Cemetery well beyond the date of the original burials.

11.6. Discussion

Four seasons of excavation in the Dariali Gorge have produced a large pottery assemblage spanning the early to high medieval periods. At two sites in particular, Dariali Fort and Gveleti Fort, the ceramic finds are associated with long stratified sequences that can be relatively closely dated via the absolute chronology derived from a large number of radiocarbon dates. At Dariali Fort there is evidence of continual occupation spanning a period of c. 600–650 years from the late fourth to tenth or early eleventh centuries. This extended sequence is especially helpful for examining long term changes in the supply, consumption and use of ceramic vessels in this high upland environment.

The geography of the Dariali Gorge and the specific historical and political context of the sites involved is of key importance in our interpretation of the material. The gorge itself is a short, steeply dropping valley facing, and always most easily accessible from the north. A precipitous ravine and bottleneck within the gorge provides a particularly effective natural point of control and this was the focus for an intense military presence and build-up of infrastructure over a protracted period. The Dariali Gorge represents one of the main north-south communication routes through the formidable natural barrier formed by the Caucasian Mountain chain. The supply of ceramic products appears to largely reflect this dynamic. Although it is difficult to entirely rule out the possibility of localised ceramic production within the gorge itself, the available archaeological evidence for wider ceramic parallels within the region, in some cases direct evidence for the provenance of production, and basic environmental factors, all point to the sources of ceramic supply as being outside the gorge. The sources of these products lie either to the south in the Eastern Georgian lowlands or to the north within the orbit of the Central Northern Caucasus. These factors are fundamentally determined by the geography of the region that places a heavy constraint on east-west transport and communication, but which facilitate movement to the north or the south.

The available textual evidence, derived mostly from a remote Classical tradition, provides important evidence for the historical and political context for the defence of the Dariali Gorge. Substantial resources were invested, presumably by the Sasanian state or its regional representatives, in maintaining control of the pass against the threat of invasion from the Central Asian steppe. This reach of power far beyond the zone of regular Sasanian territorial control, and the importance of the strategic success of their intervention, was of a magnitude sufficient to attract repeated attention in western Classical sources.[137] At times the upkeep of the defences even merited direct support in the form of tributary payments from the Eastern Roman Empire.[138] Such payments must be seen within the context of the ongoing power struggle between the two great powers of Late Antiquity: the Sasanian and Eastern Roman Empires. In later periods, the Dariali Pass continued to function as a point of strategic control on the edge of the Islamic Empire and between the key political players across the Northern and Southern Caucasus. This represents the broad context in which ceramic distribution pattern must be understood: a valley most readily accessible from the north, mostly controlled politically from the south and often with the involvement of high-level state interests and investment operating from afar. What the textual evidence does not show so clearly is how the dynamics of community interaction were structured and organised within the gorge across one of the most famous frontiers of the ancient world. The available archaeological evidence helps to fill this lacuna.

A particularly significant aspect of the available ceramic finds data from Dariali is the information provided on long-term changes in the relative proportion of imports brought up over the high pass at Gudauri from the protected territory to the south, or from what have been widely characterised as 'hostile' lands beyond the frontier to the north. One of the most important findings of the ceramic study – which has a strong bearing on our interpretation of the function of the site and the operation of border defences within this period – is the fact that throughout the occupation, a substantial proportion of the ceramics in regular use were brought there from sources located within the Tergi basin to the north (Fig. 11:26). Here it is perhaps worth emphasising the fact that ceramic supply in and of itself is not the issue of utmost concern. Ceramics were primarily (or exclusively[139]) a low value staple commodity used for general utilitarian purposes and it is unlikely that it would have been economically viable to conduct a trade of ceramic vessels in their own right. The importance of the material is its ubiquity, archaeological visibility and its inherent potential to determine factors of provenance and date, often on the basis of straightforward visual characteristics alone. Ceramics leave a clearly traceable, and in this case measurable imprint in the archaeological record of a wider system of goods distribution and commodity exchange.[140] The movement of ceramics would have been intimately bound up with a more extensive package of activities involving the distribution of foodstuffs and other basic commodities essential to the provisioning of the garrison and the wider community living within the uplands of the Dariali Gorge.

The available ceramic evidence indicates that a substantial component of the vessels in regular use were drawn from the fringes of the Central Asian steppe to the

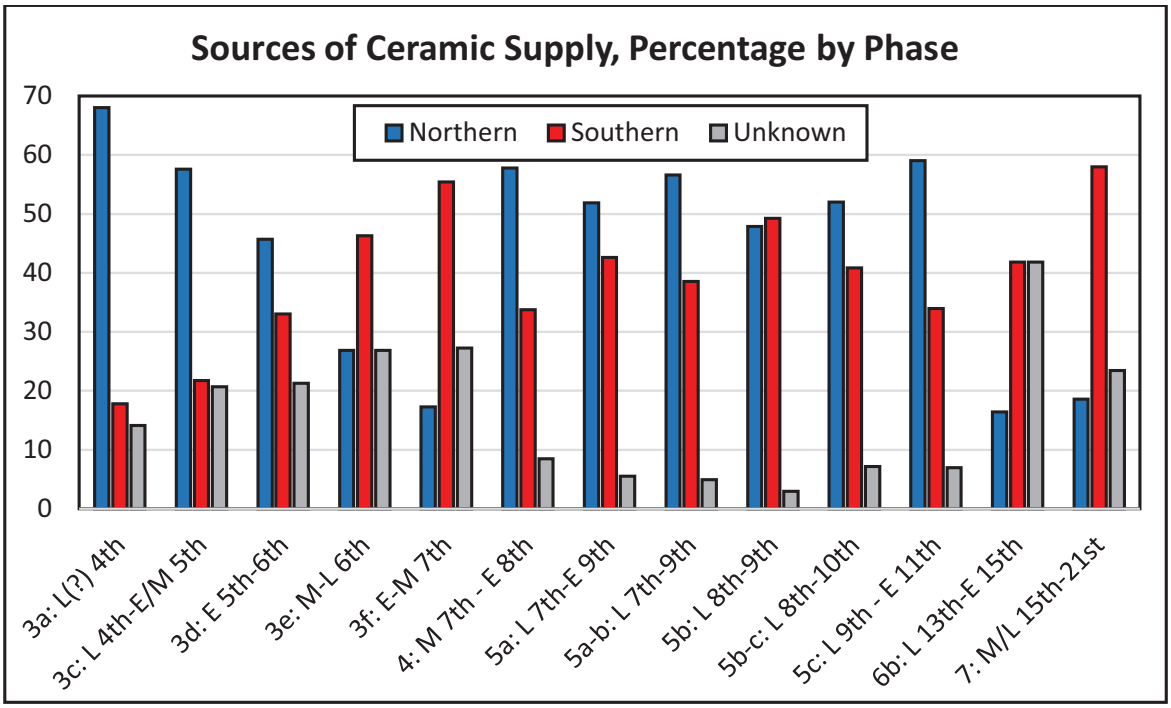


Fig. 11:26: Sources of ceramic supply by phase from the Trench F sequence showing the relative proportion of northern and southern products and those of unknown source.

north. This indicates a level of ecological embeddedness and permeability in the frontier that clearly transcended the projection of political power and fixity that one could potentially infer from the available textual evidence or the monumentality of the military infrastructure revealed within the gorge. Conversely the regular presence of ceramic imports from the south demonstrates that supply lines remained open and that despite the added costs implicit in bringing heavy supplies up over the high pass, this route also remained economically viable, even for low-value/high bulk commodities such as ceramics. No doubt in times of trouble, exclusive provisioning from within the controlled territory to the south remained a viable option, but this was not the preferred strategy. Despite the efforts made to erect a formidable defensive system within the gorge and the investment made by remote powers to cut off this route from the threat of armed incursion, this did not preclude the continuation of a well-established pattern of life within the foothills and highland valleys of the region. Subsistence would have been governed by the seasonal availability of pasture and transhumant movement of livestock together with parts of the community and supplementary provisioning of essential commodities from the lowlands. Under regular conditions, the garrison of the fort remained highly dependent upon the resources provided by a community that preserved – and indeed relied upon its ability to pass freely across the political frontier. As such, Dariali should perhaps be seen not so much as a barrier, but as a point of control within a wide network of interventions established within the frontier regions of the Sasanian Empire.[141]

Against the backdrop of a persistent reliance on lines of provisioning extending beyond the frontier to the north, the situation in the Dariali Gorge was not static. Over the long-term trajectory, significant fluctuations occurred in the sources of supply of ceramic products. Between the late fourth to mid-seventh century, a dramatic shift occurred with progressively declining quantities of ceramics supplied from the north from levels of 68% in the earliest phase down to just 17% in the first half of the seventh century (Fig. 11:26). In the same period, ceramic products from the south undergo a similarly dramatic shift from a low of 18% in the earliest occupation up to 55% by the end of this phase. Between the mid-sixth to mid-seventh century in particular, the assemblage appears to be heavily dominated by products from the south. These results could be further tested and refined via future research, but at least on the basis of the information available here, the trends revealed appear highly significant. During the height of Sasanian power in Iberia, and a period characterised by large-scale investment in territorial consolidation along the northern frontiers of the Sasanian Empire,[142] the ceramic record from Dariali bears the imprint of what appears to be a profound transformation of the regular pattern of life within the gorge and the ability of a politically imposed power structure to turn the tide against the strong ecological forces that governed the movement of people and the basic organisation of life within the region. Just as modern political disputes have contributed heavily to the decline of traditional farming practices in the area,[143] the late Sasanian period appears to be characterised by a substantial remodelling of supply networks. What happened with the collapse of the Sasanian state during the seventh century appears to be equally if not more dramatic. Ceramic supply within the Dariali Gorge rapidly reverted to one involving much reduced transport costs but also dependent on free movement across the frontier and heavy dependency on produce from areas that could not be controlled militarily from the south. Comparing the first and second halves of the seventh century, and at a time when there appear to be other significant changes occurring in the use of the fort (see above), the proportion of northern imports undergoes a dramatic and substantial shift from a low of 17% back up to a level of between around 50–60% where it remains through the next three-and-a-half centuries.

Ceramic finds data, and in particular the quantified analysis of long-term changes in ceramic usage patterns, provide a crucial resource for historical interpretation that have so far hardly been examined except in limited areas of Western Europe.[144] There are clear methodological challenges to the application of such techniques within the context of the late antique and medieval world within other parts of Europe or the Middle East. Foremost amongst these is the huge expenditure of time and resources required to establish the basic building blocks of a robust ceramic study: namely the classification and recording of ceramic assemblages, the establishment of a ceramic chronology and the contextualisation of material within a regional context. The study of the early medieval ceramic sequence from Dariali provides a body of basic 'ground work' and this will hopefully be of some value to regional studies of related sets of material particularly within the area of Eastern Georgia and the Central Northern Caucasus. Beyond that, this work hopefully also helps to establish an essential methodology, one that can potentially be replicated for any time period or location. The study serves to demonstrate the value of such an approach to the process of historical interpretation. The reward for this endeavour is great. It opens up a new vista with which to probe our understanding of the direct impact of historical processes in an actualised dimension at a local scale. Via that process it is possible challenge our understanding and preconceptions related to processes of provisioning, resource supply, human movement and the life of a community living in and around one of the most famously contested frontier regions of the ancient world. The ceramic sequence from the Dariali Gorge reveals a picture involving certain elements of long-term continuity and conservatism of local tradition and practice, and at the same time complex processes of change and interplay that help to reveal the tensions between local community interests and those imposed by remote powers.

11.7. Class catalogue (Table 11:14)

Table 11:14: Ceramic classes represented within the Dariali excavations arranged in alphabetical order. Numbers correspond to the class listing order within the catalogue.

No	*Code*	*Name*	*Occurs in Trenches*
4	BLARIC	Black Ribbed Cooking Pots	C, D, F, L, Q, T, U, X
8	BROSH[1]	Brown Shell Tempered Cooking Pots	F, X
10	CEMRIB	Cream Coloured Ribbed Ware	A, C, D, E, F, K, M, P, Q, R, S, T, X, AB
21	CHIP	Chip Carved Ware with Monochrome Green Glaze	F
9	COPOT	Non-Identified Cooking Pots	C, F, M, Q, U, V, AB
6	CORCOM	Coarse Combed Ware	C, D, F, Q, X
17	CW.N-ID	Non-Identified Coarse Ware	A, C, D, E, F, G, K, M, N, O, P, Q, S, T, U, V, W, X, AB
1	DEGLIB	Dense Grey Line Burnished Ware	F, G, M, P, Q, X, AB
20	GRAF	Sgraffiato	F, M, P, Q, X, AB
3	GREBS	Grey/Black Stone Tempered Cooking Pots	F, L, M, P, Q, X
12	HABROB	Hard Brown Burnished Ware	F, Q
11	HASOG	Hard Sandy Orange Grit Tempered Ware	C, D, E, F, M, P, Q, R, T, U, V, X, AB
22	MONO.G	Monochrome Green Glazed Ware	F, Q
24	MONO.T	Monochrome Turquoise Glazed Ware	F, Q
23	MONO.Y	Monochrome Yellow Glazed Ware	F, Q
25	N-ID.GW	Non-Identified Glazed Ware	C, F, K, M, P, Q, X
5	PLAG	Plain Grey Cooking Pots	E, F, M, Q, R, X
15	REDFIN	Fine Red Burnished Ware	F, Q, X
14	RIBPUR	Ribbed Purple Ware	D
2	SMOG	Smooth Grey Ware	F, Q
13	SPORG	Spalled Orange/Grey Ware	C, D
18	SPW.1	Slip Painted Ware (Cream Coloured Fabric)	F, Q
19	SPW.2	Slip Painted Ware (Orange Coloured Fabric)	F, Q, X
7	STECOV	Shell Tempered Cooking Vats	F, M, P, Q, X, AB
16	WHIM	Moulded White Ware	F

[1] Only partially recorded in 2017 while checking contexts from Trench F postdating phase 4 and some contexts from Trench X. Previously recorded as non-identified cooking pots (*i.e.* COPOT).

1. Class Code: DEGLIB

Name: Dense Grey Line Burnished Ware
Types: JR5, BR1, BR4
Illustrations: Figs 11:27.1, 11:37–41
Characteristics: Dense, grey wheel-made pottery with frequent coarse mineral inclusions, dark self-slipped surfaces and on many pieces, distinctive vertical line burnishing sometimes combined with wavy comb-incised decoration.
Vessel Forms: Fairly wide range of vessel forms including most frequently jars with a flared mouth and a simple rounded or slightly pointed lip (JR5). Also some large storage jar vessels with thick walls and a squared everted rim often with raised ridges around the shoulder. Such vessels appear to be associated with a distinct handle form placed around mid-way down the body and consisting of a short wide strap. Some jar forms have a wide, open spout for pouring. Open vessel forms include bowls with a slightly inward curved rim and a pointed lip (BR1).
Decoration: Surfaces appear to be self-slipped, dark grey or black on the exterior and often more brownish-grey on the interior. Exterior surfaces typically have well-spaced vertical line burnishing or a more haphazard form of continuous vertical line burnishing or surface polish. Some vessels are also comb incised.
Integrity: Coherent well-defined class with a range of distinctive characteristics that can be recognised most obviously in the form of diagnostic sherds or those with line burnishing, but can also be identified from featureless body sherds. At times the class can be difficult to differentiate from GREBS and the difference was not immediately

recognised when the study began, but on the whole the difference between the two groups is clear.
Characteristics: Dense compact fabric with rather mottled and variable colours through the core though the predominant tones are dark brown to dark grey sometimes turning dark orange towards the inner margin. The fabric contains frequent coarse inclusions, including well-rounded dark stone grits and frequent flecks of a light-coloured stone inclusions.
Specifications: Dense fabric with a compact, slightly laminar structure, a rough feel and an irregular fracture
Dating: Fourth century (or earlier) to mid-seventh century.

Colour		
Colour	Dark throughout	Lighter inner margin
Core	2.5YR 3/2	2.5YR 3/2
Margin	2.5YR 3/1	2.5YR 5/4
Surface	Gley 1 3/N	Gley 1 3/N

Inclusions		
Colour	Dark grey	Buff
Size	≤0.5 mm	≤0.3 mm
Shape	Well rounded	Sub-angular
Freq.	1–2%	7–10%
Sorting	Good	Good
ID	Water worn sandy grit	Limestone?

2. Class Code: SMOG

Name: Smooth Grey Ware
Types: None
Illustrations: Fig. 11:27.2
Characteristics: Well made, wheel thrown vessels with a compact, dense grey coloured fabric and highly burnished exterior surfaces. Some pieces have delicate rouletted wavy bands around the shoulder and one example has an applied rosette marked with concentric rouletted decoration. Vessel forms appear to be distinctive though the assemblage for this class is small and only a few diagnostic elements are represented.
Vessel Forms: Straight necked globular jars with elaborate handle forms including one with a vertically aligned lug handle with double grip loops and other strap handles that are round or square in section. One heavily simplified zoomorphic handle form.
Decoration: Even vertical burnishing covering the whole of the exterior surface with rouletted decoration consisting of wavy horizontal bands and one example with a slightly protruding circular panel formed from concentric rings of wavy bands with a nipple in the middle.
Integrity: Distinctive class with coherent characteristics but only represented by a small number of pieces within the larger assemblage.
Fabric: Dense grey coloured fabric turning slightly lighter grey towards the margins. The fabric contains fairly frequent small black grit inclusions. The structure is fine and grainy.
Specifications: Dense fabric with a compact structure, a rough feel and a fine irregular fracture
Dating: Fifth to sixth century

Colour	
Colour	Grey
Core	Gley 1 4/N
Margin	Gley 1 6/N
Surface	"

Inclusions	
Colour	Grey
Size	<1 mm
Shape	Sub-rounded
Freq.	1–2%
Sorting	Good
ID	Stone grits

3. Class Code: GREBS

Name: Grey/Black Burnished Stone Tempered Cooking Pots
Types: CP2a, CP2b, CP3, BR3, OC2
Illustrations: Figs 11:18, 11:27.3–4, 11:52–55
Characteristics: Coarse handmade cooking pots with a brittle fabric that varies in colour from black to grey occasionally turning to orange often with zonal changes in colour across the surface. The fabric contains abundant coarse inclusions consisting mostly of flat platelets that show up as silvery grey shale flakes when present on the surface. Vessels include wide mouthed cooking pots, jars, open lamps and cooking bowls, lids and rare straight-sided square vessels. Where surfaces are well-preserved they are generally burnished.
Vessel Forms: Vessels include wide mouthed cooking pots often with a single strap handle and taller narrow necked forms. The class also includes some small open spouted forms, small examples of which may have been used as lamps while larger versions may have served as cooking bowls.
Decoration: Where exterior surfaces are well-preserved they show a distinct, slightly irregular linear burnishing but are otherwise generally plain. One wide mouthed cooking pot type is distinguished by the

presence of shallow notches along the rim and handle edges (CP2b).
Integrity: Coherent well-defined class with distinctive characteristics though there is some variation in terms of hardness and the nature and frequency of coarse inclusions. The class is similar in a number of respects to BLARIC. The main distinguishing characteristic is that the former has rilling on the exterior and more sandy inclusions, while GREBS is generally plain and burnished and always contains platelet inclusions. At times the class can also be difficult to distinguish from DEGLIB and PLAG.
Fabric: Coarse brittle fabric with a soft feel and extensive colour variation from black, grey through to dull orange often with changes across the surface or through the core. Inclusions consist largely of flat silver grey platelets.
Specifications: High specific density with a slightly porous structure, a harsh feel and a hackly fracture.
Dating: Mid-seventh to mid-ninth century.

Colour		
Colour	Grey	Orange
Core	Gley 1 3/N	5YR 5/6
Margin	Gley 1 4/N	"
Surface	"	"

Inclusions	
Colour	Grey
Size	<4 mm
Shape	Platelets
Freq.	10%
Sorting	Poor
ID	Shale

4. Class Code: BLARIC

Name: Black Ribbed Cooking Pots
Types: CP7
Illustrations: Figs 11:28.2, 11:61.a–p
Characteristics: Coarse, grit tempered, handmade cooking pots with a brittle, low fired fabric. Exterior surfaces are mostly fire blackened grey sometimes with patches of orange buff. Interior surfaces can be orange or grey. Vessels are globular and flat-bottomed with fine horizontal ribbing covering the whole exterior from the base upwards. The walls are typically thin and of even thickness.
Vessel Forms: Low, wide, flat-bottomed globular cooking-pots with an everted rim and a slight internal notch (CP7).
Decoration: Exterior surfaces covered with fine horizontal incised ribbing.
Integrity: Coherent well-defined class that displays consistent features in terms of colour, firing and surface treatment. The class is most similar to, and can be confused with, GREBS. The main distinguishing features include the external ribbing, the thin even walls and the specific rim form where the rim portion is present.
Fabric: Coarsely tempered, soft, friable fabric fired to grey or orange with variation through the core. The fabric contains well-sorted, rounded quartz inclusions and poorly-sorted, sub-angular grey stone grits.
Specifications: Average density with a porous structure, a rough feel and a hackly fracture.
Dating: Ninth to tenth century (and possibly later).

Colour		
Colour	Grey	Orange
Core	Gley 5/10Y	2.5YR 5/6
Margin	10R 4/3	"
Surface	10R 2.5/1	2.5YR 4/3

Inclusions		
Colour	Opaque white	Grey
Size	<0.5 mm	<1 mm
Shape	Rounded	Sub-angular
Freq.	10%	
Sorting	Good	Poor
ID	Quartz	Stone grit

5. Class Code: PLAG

Name: Plain Grey Cooking Pots
Types: CP4, CP5, CP6, CP8
Illustrations: Figs 11:20, 11:28.1, 11:56–60
Characteristics: Plain brownish grey to black coloured cooking pots with a soft brittle quality and abundant coarse inclusions. Vessels appear to be wheel made though this is not always obvious as the surfaces are somewhat irregular. The class appears similar at times to GREBS and can be difficult to distinguish. The main differences include a distinct set of vessel forms, slightly thicker walls that are often brown rather than grey through the core and surfaces that are mostly plain rather than smooth and burnished.
Vessel Forms: Flat bottomed cooking pots typically with a rolled rim (CP5) or an everted rim that comes to a point (CP6) both with cross mark incisions along the rim exterior. Vessels with an elongated flange and rusticated surfaces (CP8) often have a coarser fabric and the type appears to cross over into the CORCOM class providing a significant point of linkage between these categories. Vessels often have wide strap handles attached at the shoulder rather than the rim as is the case with GREBS. A number of rather roughly formed thick lid forms are

associated with this class. These have a central thumb pull and can be plain or decorated. There are also a few square sided vessels.
Decoration: CP4, CP5 and CP6 typically have cross mark incisions along the outer rim edge with the rest of the body left plain. CP8 forms often have roughly combed rusticated surfaces, again providing a point of association with CORCOM. Lids and square sided vessels are often decorated with simple incised or impressed decoration. One repeated motif is a series of irregularly placed impressed circles.
Integrity: Diagnostic fragments are clearly distinct from other cooking pot classes but featureless body sherds are more difficult to separate, particularly from GREBS. Both classes contain similar coarse inclusions and it appears that they may have utilised a similar clay source and are part of a broadly related production tradition. At the same time there are enough distinguishing features to demonstrate that PLAG is a distinct category. There are also a number of areas of strong overlap between PLAG and CORCOM and they often occur together in the same contexts. It appears that CORCOM may simply be a coarser version of the same class.
Fabric: Coarse brittle fabric generally fired to a brownish-grey through the core turning to darker grey on the surfaces. The fabric contains abundant rounded and sub-angular stone grit inclusions dominated by grey shale, but also including quartz and dark volcanic material. Flecks of gold mica are evident on the surfaces.
Specifications: High density with a porous structure, a harsh feel and hackly fracture.
Dating: Ninth to tenth century (and possibly later).

Colour	
Colour	Grey
Core	2.5YR 5/1
Margin	"
Surface	2.5YR 3/1

Inclusions	
Colour	Grey, opaque white, black
Size	1–3 mm
Shape	Rounded or sub-angular
Freq.	10–15%
Sorting	Fair
ID	Shale, quartz, volcanic

6. Class Code: CORCOM

Name: Coarse Combed Ware
Types: None
Illustrations: Figs 11:28.4, 11:62.a–i
Characteristics: Large, thick-walled, handmade vessels with abundant coarse grit temper and distinctive intersecting straight comb-incised marks covering the exterior.
Vessel Forms: Large thick-walled vessels possibly used as cooking pots, though the general absence of fire blackening may indicate they functioned instead as storage jars. One diagnostic rim sherd from Trench D belongs to a large, wide mouthed vat.
Decoration: Straight broad toothed comb incised lines intersecting at different angles. The incised lines may be a form of decoration or simply rustication to aid vessel handling or some other functional consideration.
Integrity: Somewhat varied class that may belong to a number of different production traditions or may simply be a coarser tempered version of PLAG.
Fabric: Extremely coarse, somewhat porous and brittle fabric containing large poorly sorted stony grits. Generally fired to buff-orange or grey darkening towards the core.
Specifications: High specific density with a porous structure, a harsh feel and a hackly fracture.
Dating: Ninth to thirteenth century.

Colour	
Colour	Buff
Core	Gley 1 5/10Y
Margin	"
Surface	2.5YR 6/6

Inclusions		
Colour	Grey	Opaque white
Size	<9 mm	<1 mm
Shape	Rounded, elongated	Rounded
Freq.	20%	Occasional
Sorting	Very poor	Good
ID	Stony grit	Quartz

7. Class Code: STECOV

Name: Shell Tempered Cooking Vats
Types: CP1
Illustrations: Figs 11:28.3, 11:51
Characteristics: Compact but fairly brittle buff to grey coloured pottery with profuse mixed sandy inclusions generally including distinct white flecks of shell visible through the matrix and on the vessel surface. The shell may have been crushed and added as a temper or occur naturally within the clay source. Vessels are handmade with slightly uneven walls. All sherds belong to a single vessel type which is a large, wide-mouthed jar or vat with clear traces of fire blackening or carbonised residue on

the interior indicating their use as large capacity cooking vessels.
Vessel Forms: Large cooking vats with a wide mouth, a sharply everted and folded rim and a simple flat base.
Decoration: Largely plain apart from the rims which have deep oblique impressions along the outer face. The vessels can also have several plain horizontal ridges at intervals down the sides.
Integrity: Coherent well-defined class that displays consistent features in terms of colour, inclusions and vessel forms. In some pieces the shell inclusions appear less apparent on the surface but they are always present through the core.
Fabric: Compact but fairly brittle buff to grey coloured fabric containing abundant crushed white shell inclusions and some stone grits. The shell inclusions generally appear as small curved fragments in section and their original form is difficult to discern, though they appear mostly likely to derive from some form of bivalve.
Specifications: High specific density with a granular structure, a harsh feel and a hackly fracture.
Dating: Mid-fourth century (or earlier) to tenth century.

Colour		
Colour	Brown	Grey core
Core	2.5YR 5/1	Gley 1 4/N
Margin	2.5YR 5/4	"
Surface	2.5YR 5/8	Gley 1 5/10Y

Inclusions	
Colour	White
Size	<1 mm
Shape	Laminar flakes
Freq.	Angular
Sorting	10–15%
ID	Shell

8. Class Code: BROSH

Name: Brown Shell Tempered Cooking Pots
Types: None
Illustrations: Figs 11:29.1, 11:61.q–u
Characteristics: Brittle, slightly porous dull brown to grey coloured cooking pots often with fire blackened surfaces. The fabric contains frequent coarse inclusions consisting of white flecks of shell. The vessel forms appear to be flat bottomed cooking pots with a wide mouth and an everted rim often with oblique notches along the lip. Exterior surfaces are marked with irregular horizontal combing.
Vessel Forms: Flat bottomed cooking pots with a wide mouth and an everted rim.
Decoration: Exterior surfaces are generally marked with irregular horizontal ribbing covering the whole surface extending from the shoulder to the base. Rims often have a folded lip marked with regularly spaced, deep oblique notches.
Integrity: Consistent and readily recognisable class.
Fabric: Brittle, slightly porous reduced grey or reddish brown coloured fabric with a harsh feel and an irregular slightly laminar fracture. The fabric contains frequent shell inclusions that appear as white flecks on the surface and through the core. Other than the shell there do not appear to be any other coarse inclusions.
Specifications: High density with a slightly porous structure, a harsh feel and a hackly fracture.
Dating: Ninth to tenth century (and possibly later).

Colour		
Colour	Grey	Brown
Core	10YR 4/1	5YR 5/6
Margin	"	"
Surface	"	"

Inclusions	
Colour	White
Size	<3 mm
Shape	Angular
Freq.	5–7%
Sorting	Poor
ID	Shell

9. Class Code: COPOT

Name: None Identified Cooking Pots
Illustrations: Fig. 11:61: s–v
Characteristics: Mixed non-identified category generally with a porous fabric, abundant coarse inclusions and fire blackened surfaces.

10. Class Code: CEMRIB

Name: Cream Coloured Ribbed Ware
Types: JR1–4, 9–10, OC1, F1–6, D1–10
Illustrations: Figs 11:10, 11:30.3–4, 11:31–33, 11:34.1–3, 11:42–43, 11:44.a–p, 11:45, 11:50.g
Characteristics: Distinctive, relatively fine, cream coloured pottery. Vessels are invariably closed mouthed jars of medium size with a flat base mostly with an elongated neck and single handle attached to one side. They are wheel-thrown and manufactured from a fine cream coloured calcareous clay with few visible coarse inclusions. Exterior surfaces are generally covered with

fine ribbing marks extending from the rim or the bottom of the neck down to the base. Some vessels have incised, combed or painted decoration concentrated mostly around the neck and shoulder region and the decorative schemes are mostly standardised and often occur in association with specific vessel forms. The vessels appear to be skeuomorphs of vessel forms.

Vessel Forms: Generally medium sized jars with a wide flat base, a rounded barrel or pyriform body shape and a constricted neck. Most vessels have a single handle attached at the rim and shoulder or neck and shoulder. The placement of the handle is typologically, and possibly also chronologically, significant. Handles have a simple rounded strap form or in the case of smaller vessels the handles can be flattened or rounded. Rims are generally everted and cleanly finished with standardised lip forms. Some vessels have a raised rib around the neck. This can be free or attached to the alignment of the handle connection. The specific characteristics of the jar rim types and other typological features and how they relate to individual decorative schemes are set out in the CEMRIB typology below.

Jar Rim Types

JR1 – Trefoil mouthed jar. Vessels with a flared necked and a folded trefoil mouth and a simple rounded lip. The form consistently has a single handle attached to the rim and shoulder (F4) on the opposing side to the spout. Where a neck rib is present it is situated low down towards the shoulder (F1). Most examples are plain but one example has wavy comb incised decoration (D8: F.070/694). The same vessel type is also represented in association with HASOG but example with this class lack a neck rib.

JR2 – Off-set jar rim. Jar with a relatively narrow neck with a flared rim and a slight recess in the outer lip forming a narrow collar around the top. Vessels consistently have a single handle attached to the rim and shoulder (F4) and most have a rib situated low down on the neck (J1). The rim type is also associated with a distinct form with a continuous sloping neck and shoulder and a pyriform body with registers of wavy comb incised decoration (D9/10: F.037/497.1; F.070/628.1) and no neck rib. Other associated decorative schemes include incised triangle (D4: F.027/723.6; F.114/112.1) and single incised wavy bands (D7: F.070/593.1; F.077/663.3) though most vessels appear to be plain.

JR3 – Bevel topped rim. Squat handless form with a short neck, a relatively wide mouth and a distinctive flat-topped rim with a pointed outer lip. A number of examples have a band of incised decoration consisting of vertical lines framed by straight horizontal bands above and below (D6: F.022/227.33; F.036/517.1; F.070/564.1). This is placed around the base of the neck or lower down around the body. Other examples have a single incised wavy band (D7: F.027/280.4; F.027/723.8; F.063/550.9.10; Q.020/127.4), while further examples appear to be plain.

JR4 – Rolled and fattened rim. Relatively wide necked jars with a flared mouth with the lip rolled over and smoothed to form a fattened beaded lip. Most examples have a single rib situated around the mid-neck portion with the handle attached to the neck and shoulder (F2/3: F.035/251.11, F.035/251.30; F.065/558.1; F.088/990.1; F.094/902; Q.020/127.5). Vessels mostly have plain surfaces. One example has a band of vertical incised lines below the neck (D5: F.065/558.1).

JR9 – Narrow bottle necks. Slightly varied assortment of narrow necked vessels including examples with a simple rounded lip, a rolled beaded lip and a slight off-set collar. Body sherds associated with this vessel form are F6. It is not clear what decorative forms are associated with this type, but neck portions sometimes have multiple ridges.

JR10 – Clubbed rim. Relatively wide necked jars with a flared mouth and the lip founded over externally and smoothed with a double recess in the top lip and outer rim face forming a more complex clubbed rim form. Most examples have a single rib situated around the mid-neck portion with the handle attached to the neck and shoulder (F2/3: F.077/663; F.077/678.6; F.113/1002.1; Q.056/388.1). Vessels mostly have plain surfaces though one example has a single band of wavy incised decoration (D7: F.077/663).

OC1 – Jar base with internal spikes. Jar base with c. 20 × 550 mm spikes attached internally. The function of this feature is not clear but the same type also occurs in association with HASOG.

Features

F1 – Single rib around the base of the neck. Single pointed rib situated low down on the neck towards the shoulder. Appears to be associated with relatively narrow necked forms where the handle is attached to the rim and shoulder, especially trefoil mouthed jars (JR1) and jars with an off-set rim (JR2) and with decorated examples with incised triangles (D4: F.114/1121.1), with incised triangles with red paint (D3: F.001/426; F.063/550), narrow necked forms with a single incised wavy line (D7: F.035/374; F.063/550.6; F.070/564; F.092/1263; F.125/1102; F.129/1201), or with wavy comb incised decoration (D8: F.036/329; F.070/593.1; F.070/694). There are also numerous examples lacking decoration.

F2 – Single rib around the mid-neck region. Single pointed rib situated mid-way up the neck. This feature appears to be associated mostly with relatively wide necked forms where the handle is attached to the neck and shoulder (F3). F2 and F3 are therefore essentially the same category though the handle attachment portion is not represented and F2 examples relate to sherds with only the neck rib present. See F3 for associated types and decoration.

F3 – Handle attached to the neck rib and shoulder. Relatively wide mouthed forms with a single pointed rib situated mid-way up the neck with the handle attached to

the rib and shoulder. F3 is closely associated with F2 (see comments above). Diagnostic examples are associated with beaded rim forms (JR4: F.035/251.11 and 30; F.065/558.1; F.088/990.1; Q.020/127.5), clubbed rimmed jars (JR10: F.077/663; F.077/678.6; F.113/1002.1; Q.056/388.1; Q.074/637.1) and with various decorative schemes including vertical incised lines (D5: F.065/558.1; F.070/564), 'track' motifs (D6: F.070/593) and single incised wavy bands (D7: F.017/117.1; F.052/403; F.077/663; F.088/811; F.063/550; F.150/1321).

F4 – Handle attached to the rim and shoulder. This form appears to be associated with relatively narrow necked forms, particularly trefoil mouthed jars (JR1: all examples with handles) and jars with an off-set rim (JR2: all examples with handles). Where these types have a neck rib it appears low down towards the shoulder so F1 and F4 frequently occur in association. The rim to shoulder attachment is also associated with pyriform vessels with an off-set rim and registers of wavy comb incised decoration (D9 and D10).

F5 – Handle attached to the neck and shoulder but with no neck rib. The upper handle attachment is to the shoulder but with no associated neck rib. There are not many examples of this feature and limited associated typological information.

F6 – Narrow necked vessels. Vessels with a tall narrow neck and a flared rim. Some examples have multiple neck ribs. This is a slightly subjectively defined category as the neck profile and diameter is not always clearly defined when represented in fragmentary pieces and there is also a somewhat arbitrary distinction between these and other standard forms. There is some information to suggest that this may be a chronologically distinct group, hence the attempt to record this feature. Rim forms associated with this category are JR9.

Decoration: Most vessels have closely spaced, shallow horizontal ribbing extending from the neck to the base. The neck section mostly appears to have been left plain. Some vessels also have incised or painted decoration around the neck and shoulder region. These take various forms that are categorised below.

D1 – Red painted decoration. The paint is often not well-preserved but appears to consist of zones around the shoulder blocked out in red, red dots and other simple lines. There is not much typological information associated with this group but the fragments appear to belong to relatively small jar forms. Some have recessed bands around the exterior.

D2 – Black painted decoration. Only two sherds represented. One handle sherd with a wavy 'snake' line down the front (F.006/46.23) and another body sherd has horizontal bands and vertically aligned elements (F.112/959).

D3 – Red paint and triangle incised. The shoulder region of the vessel is decorated with neatly incised triangles or more complex curvilinear elements with zones in-filed with red paint. There is not much typological information associated with this group, but one well-preserved vessel has a relatively narrow neck and a neck rib low down towards the shoulder (F1: F.063/550) indicating that the handle attachment would have been to the rim.

D4 – Triangle incised. Stylistically similar to D3 but lacking red painted elements. The pottery is decorated on the shoulder region with neatly defined triangle motifs often framed by straight horizontal bands above and below. One example (F.022/208.69) has the triangle in-filled with hatched incisions and another (F.121/1060) has a band of vertical incised lines below as in D5. There is not much typological information associated with this group but a single example has a well-defined neck with neck rib low down towards the shoulder (F1) and an off-set rim (JR2) and a handle attached to the rim and shoulder (F4) (F.114/1121.1).

D5 – Vertical incised lines. Short or long, vertically oriented, radial incised lines as a single band around the shoulder. In one case (F.046/504) this is combined with a second register of vertical incised lines framed by horizontal bands as in D6. In general, D5 and D6 appear to be closely related stylistically. Typologically D5 occurs in association with relatively wide necked jar forms and where diagnostic elements are present (F.065/558.1) they include a rolled rimmed jar (JR4) with a ridge situated around the mid-neck portion (F2). The location of the handle attachment on this piece is not clear but it was probably to the neck ridge and shoulder (F3).

D6 – 'Track' motif incised. Short vertical incised lines framed between straight horizontal bands above and below placed as a single register around the base of the neck or lower down around the shoulder. In one example (F.046/504) the decoration is combined with D5. Typologically this distinctive decorative form appears to be frequently associated with handless jars (JR3: F.022/227.33; F.036/517.1; F.070/564.1). At least one example is also associated with a relatively wide necked jar with a rib around the mid-neck portion and handle attached to the neck and shoulder (F3: F.070/593).

D7 – Incised wavy line. Single band of wavy incised decoration around the base of the neck. The incised lines can be sinuous and wavy or sharply angled with a 'saw tooth' form. The decoration occurs in association with relatively wide necked vessels with a rib around the mid portion of the neck with the handle attached to the neck and shoulder (F2/3). A single diagnostic example is associated with a club form (JR10: F.077/663) and other examples with squat handless jars (JR3: F.027/280.4; F.027/723.8; F.063/550.9; F.063/550.10; Q.020/127.4). A second associated form consists of a narrow-necked vessel with the neck rib low down towards the shoulder (F1). The associated rim form and handle attachment arrangement for this vessel form are not known.

D8 – Wavy comb incised. Decoration consists of broad registers of fine wavy comb incised decoration covering the lower neck to shoulder region. The comb marks can be sinuous or sharply drawn with pointed terminals. The decorative style, particularly with sinuous combing is closely related to D9 and some of the fragments, though certainly not all, may actually belong to the same group. One diagnostic example is associated with a trefoil mouthed jar (JR1: F.070/694) with a rib low around the neck (F1) and the handle attached to the rim and shoulder (F4). The other fragments appear to be associated with varied vessel forms.

D9 – Wavy comb incised with straight bands. Decoration consists of wavy comb incised registers framed by regularly spaced straight horizontal incised bands covering and shoulder region from the base of the neck. The comb incisions are always of the sinuous type. The style is closely related to D8 but in the case of this group, the decoration consistently occurs in connection with a single vessel form, which has a continuous sloping profile between the neck and the shoulder, a pyriform body and no neck rib. The handle is attached to the rim and shoulder and in the most intact examples the rim form is off set (JR2: F.037/497.1; F.070/628.1).

D10 – Wavy comb incised with straight bands and red paint. Identical characteristics to D9 accept with the addition of red paint. This seems to be used to trace along the straight horizontal bands, to fill in whole registers or be applied as a wavy band over the incised decoration.

Integrity: Coherent well-defined class that displays consistent features in terms of fabric, form and surface treatment.

Fabric: Fine, compact, consistently oxidised cream or light orange coloured fabric with only occasional small visible inclusions and minor voids.

Specifications: Average density with a compact structure, a smooth feel and a clean fracture.

Dating: Fourth to tenth century.

Colour		
Colour	Cream	Orange
Core	7.5YR 7/6	7.5YR 6/6
Margin	"	"
Surface	"	"

11. Class Code: HASOG

Name: Hard Sandy Orange Grit Tempered Ware

Types: JR6, JR8, BR2, OC1

Illustrations: Figs 11:12, 11:29.4, 11:46–50.a-f, 11:50.h-i

Characteristics: Hard, fairly coarse, orange or grey coloured pottery with numerous well sorted sandy grit inclusions and often with distinct small circular voids in the surface. Surfaces are mostly plain though can be smoothed or have fine incised ribbing. Many pieces have a distinct white coating covering the interior. Vessels include a wide variety of different forms. The pottery includes a mixture of wheel and handmade material but generally with an even wall thickness and symmetrical forms. Rotational wipe marks on some vessels indicate the use of a turning device as part of the forming process.

Vessel Forms: The most common types appear to be a narrow-necked jar with a simple everted rim. A variety of other mostly closed jar forms are also associated with the class including some with handles and some large storage jar vessels with an externally fattened and flat-topped rim and a narrow base. Also included within the class are a variety of open forms, including a straight sided bowl with a slightly squared rim and a heavy pedestal base and some handled lamps

Decoration: Mostly plain though some sherds have horizontal ribbing and other occasional elements of decoration.

Integrity: Fairly coherent class though it encompasses some variation in terms of hardness, colour and frequency of coarse inclusions.

Fabric: Hard, fairly coarse fabric containing frequent mixed sandy grit inclusions consisting of well-sorted grains of quartz, stony grits and often opaque white flecks that show up distinctly on the surface. The fabric ranges widely in colour from orange through to brownish-grey, often with orange sherds turning to grey within the core, while grey sherds tend to lighten towards the margins.

Specifications: Average density with a compact structure, a rough feel and an irregular fracture.

Dating: Mid-fifth century to modern.

Colour		
Colour	Orange	Grey core
Core	2.5YR 5/1	Gley 1 4/N
Margin	2.5YR 5/4	"
Surface	2.5YR 5/8	Gley 1 5/10Y

Inclusions	
Colour	Mixed
Size	<1 mm
Shape	Sub-rounded
Freq.	5–10%
Sorting	Good
ID	Quartz, stone, lime?

12. Class Code: HABROB

Name: Hard Brown Burnished Ware
Types: None
Illustrations: Fig. 11:29.3
Characteristics: Large handled jars with relatively thin, slightly irregular walls, a bright orange coloured fabric and orange-brown coloured surfaces. The surfaces have heavy, irregular vertical burnishing marks covering the whole exterior and some light horizontally aligned marks around the neck portion. The fabric has a hard clinky quality with a blocky fracture and frequent sub-angular grey and while stone grit inclusions.
Vessel Forms: Medium to large sized jars with a slightly flattened strap handle. No rim portions represented so the overall profile remains unknown.
Decoration: Exterior surfaces are covered with strong, irregular vertical burnishing marks and occasional horizontal grooves. Otherwise vessel surfaces are plain.
Integrity: The class is most similar in appearance to HASOG but displays its own distinctive characteristics which should enable consistent differentiation. There are only a few pieces represented within the assemblage so the full range of variability is unknown.
Fabric: Hard, clinky, bright orange coloured fabric with an irregular blocky fracture and frequent sub-angular or rounded grey, white or semi-translucent stone grit inclusions.
Specifications: Dense fabric with a compact structure, a rough feel and an irregular fracture.
Dating: Mid- to late sixth century.

Colour	
Colour	Orange
Core	2.5YR 5/8
Margin	2.5YR 6/8
Surface	2.5YR 5/2

Inclusions	
Colour	White/grey
Size	<2 mm
Shape	Sub-angular
Freq.	3–5%
Sorting	Fair
ID	Quartz and other stone grits

13. Class Code: SPORG

Name: Spalled Orange/Grey Ware
Types: None
Illustrations: Fig. 11:30.2
Characteristics: Hard, 'clinky', handmade orange of grey pottery often turning from orange on the surface to grey within the core and with smoky grey clouding across the surface. Interior and exterior surfaces are plain and smoothed, typically with wide shallow spalling voids on the interior.
Vessel Forms: Flat bottomed jars. No rim sherds are represented within the assemblage so the whole profile is unknown.
Decoration: Mostly plain, one possibly atypical sherd with broad wavy incised decoration on neck.
Integrity: Coherent well-defined class that displays consistent features in terms of colour and fabric quality.
Characteristics: Hard, compact fabric containing occasional large grey stone inclusions that cause spalling on the interior surfaces. The fabric can be well oxidised orange or more often variable in colour through the core.
Specifications: High specific density with a compact structure, a gritty feel and an uneven sub-conchoidal fracture.
Dating: Eleventh century or later.

Colour		
Colour	Orange	Grey core
Core	2.5YR 5/8	2.5YR 5/1
Margin	"	2.5YR 5/3
Surface	2.5YR 6/6	2.5YR 5/6

Inclusions	
Colour	Grey
Size	<4 mm
Shape	Sub-rounded
Freq.	Occasional
Sorting	Poor
ID	Lime?

14. Class Code: RIBPUR

Name: Ribbed Purple Ware
Types: None
Illustrations: Fig. 11:29.2
Characteristics: Purplish-orange coloured handmade jars with fine shallow incised ribbing covering the exterior. Interior and exterior surfaces are smoothed and consistently display flecks of gold coloured mica.
Vessel Forms: Globular jars. No rim sherds are represented within the assemblage so the whole profile is unknown.
Decoration: Exterior surfaces covered with fine horizontal incised ribbing that stops some way before the base.
Integrity: Coherent well-defined class that displays consistent features in terms of colour, surface treatment and inclusions.
Fabric: Compact orange fabric with consistent colour through the core. Contains occasional large quartz and other mixed stone grits and frequent very fine inclusions.

Specifications: Average density with a compact structure, a rough feel and an irregular fracture.
Dating: Eleventh century or later.

Colour	
Colour	Orange
Core	2.5YR 5/8
Margin	"
Surface	"

15. Class Code: REDFIN

Name: Fine Red Burnished Ware
Types: None
Illustrations: Figs 11:30.1, 11:44.t–y
Characteristics: Hard, fine reddish-orange coloured pottery. Vessels are handmade, mostly closed jar forms with relatively thin walls. Where surfaces are well-preserved, they are mostly burnished, some with more irregular linear marks and others with a particularly distinctive form of fine line-burnishing.
Vessel Forms: Almost all closed jar forms with flat bases. Some handled vessels.
Decoration: Either plain, horizontally or vertically burnished or decorated with fine line burnishing. Some vessels also have incised decoration of impressed dots.
Integrity: Some potential overlap with HASOG and fairly broad variation within the class in terms of colour and nature of coarse inclusions. A relatively generic and ill-defined class.
Fabric: Hard, reddish-orange coloured fabric sometimes turning to grey within the core. The matrix has a fine structure with numerous fine mixed grit inclusions that often include well sorted lime, grey grit and quartz.
Specifications: Average density with a compact structure, a gritty feel and a fine irregular fracture.
Dating: Predominantly late fourth to mid-seventh century.

Colour		
Colour	Orange	Grey Core
Core	2.5YR 6/8	Gley 1 4/N
Margin	"	Gley 1 5/10Y
Surface	2.5YR 6/6	2.5YR 5/6

Inclusions	
Colour	Mixed
Size	<0.4 mm
Shape	Sub-angular
Freq.	5–10%
Sorting	Good
ID	Sandy grit

16. Class Code: WHIM

Name: White Moulded Ware
Types: None
Illustrations: Figs 11:34.4, 11:62.j–k
Characteristics: Section moulded vessels with elaborate raised ornamentation on the exterior. Vessels have a fine, slightly chalky cream coloured fabric and join marks between the sections. Vessels appear to be closed globular jars.
Vessel Forms: Closed globular jars.
Dating: Eighth to ninth century.

17. Class Code: CW.N-ID

Name: Non-Identified Coarse Ware
Illustrations: Figs 11:23, 11:62.l–o
Characteristics: Mixed non-identified coarse wares. These are more common towards the beginning and end of the main Dariali cultural sequence where the repertoire of ceramics in circulation is not so well understood.

18. Class Code: SPW.1

Name: Slip Painted Ware (Cream Coloured Fabric)
Types: None
Illustrations: Figs 11:35.1, 11:63.g–i
Characteristics: Slip painted and glazed wheel made bowls with a dense fairly coarse buff to light pink coloured fabric with occasional coarse inclusions and some voids. The vessels have thick turned bases with a concave centre and on larger bowls, a slightly developed foot. Exteriors are mostly unglazed with tooling marks present especially around the base. The glaze is mostly poorly preserved but is decorated with brown geometric patterns in filled with zones of yellow and green.
Vessel Forms: Open bowls.
Parallels and dating: Ninth to early eleventh century.

19. Class Code: SPW.2

Name: Slip Painted Ware (Orange Coloured Fabric)
Types: None
Illustrations: Figs 11:35.2, 11:63.j–m
Characteristics: Slip painted and glazed wheel made bowls with a dense fairly coarse reddish-orange coloured fabric with occasional coarse inclusions and some voids. The vessels have thick turned bases with a concave centre and on larger bowls, a slightly developed foot. Exteriors are mostly unglazed with tooling marks present especially around the base. The glaze is mostly poorly preserved but is typically decorated with fairly crude geometric patterns in filled with zones of yellow and green.
Vessel Forms: Open bowls.
Parallels and dating: Ninth to early eleventh century.

20. Class Code: GRAF

Name: Sgraffiato
Types: None
Illustrations: Fig. 11:35.3–4
Characteristics: Wheel made bowls with a white slip, incised decoration and a clear or coloured glaze. Most pieces are relatively poorly preserved and, with a larger assemblage, further stylistic variations could probably be differentiated. Most pieces have a monochrome turquoise coloured glaze with simple thick lines (1 to 1.5 mm) sgraffiato (GRAF.T). The assemblage also includes monochrome green sgraffiato and one pieces with a clear glaze and a green and white colour scheme with a clear brown coloured glaze on the exterior (GRAF). Some pieces are included that have a heavily degraded glaze and no traces of sgraffiato, but which have features in common with the other pieces such as the brown glazed exterior. The fabric in all pieces is moderately compact and reddish orange.
Vessel Forms: Open bowls.
Parallels and dating: Tenth to thirteenth century.

21. Class Code: CHIP

Name: Chip Carved Ware with Monochrome Green Glaze
Types: None
Illustrations: Figs 11:36.2, 11:63.c
Characteristics: Only two fragments represented. Both have a pale buff coloured fabric with deep 'chip carved' decoration on the exterior consisting of panel registers with triangular segments and strips carved out and removed. The surfaces are covered on the exterior with a monochrome green coloured glaze. Both vessels are small bowls or dishes with a flat base and fairly straight slightly everted sides. The concept of the decoration technique and the glazing link these pieces to the general sgraffiato tradition though obviously the technique itself is different.
Vessel Forms: Small straight sided bowls.
Parallels and dating: Tenth to thirteenth century.

22. Class Code: MONO.G

Name: Monochrome Green Glazed Ware
Types: None
Illustrations: Figs 11:36.1, 11:63.a–b
Characteristics: Monochrome green glazed vessels with a compact slightly coarse pinkish-orange coloured fabric. The glaze generally covers both the interior and exterior and is mostly fairly poorly preserved. Vessels include mostly closed jar forms as well as straight sided vessels and open bowls.
Vessel Forms: Open bowls, straight sided bowls and closed vessels.
Parallels and dating: Ninth to fourteenth century.

23. Class Code: MONO.Y

Name: Monochrome Yellow Glazed Ware
Types: None
Illustrations: Figs 11:36.3, 11:63.d–f
Characteristics: Fairly uniform small glazed bowls with either a pinkish-orange or buff coloured fabric. The vessels are small bowls with rounded sides and a simple string cut base. Interior surfaces are covered with a monochrome brownish-yellow coloured glaze and appear to have no slip.
Vessel Forms: Small bowls with rounded sides and a flat base.
Parallels and dating: Ninth to fourteenth century.

24. Class Code: MONO.T

Name: Monochrome Turquoise Glazed Ware
Types: None
Illustrations: Fig. 11:36.4
Characteristics: Wheel made, monochrome turquoise glazed pottery. The assemblage consists of small fragmentary pieces. All have a slightly porous pale buff or cream coloured fabric and a bright turquoise coloured glaze covering both the interior and exterior surfaces. Vessels appear to include both closed and open vessels.
Vessel Forms: Jars and bowls.
Parallels and dating: Tenth to thirteenth century.

25. Class Code: GW.N-ID

Name: Non-Identified Glazed Ware
Characteristics: Mixed non-identified glazed wares or glazed pottery that is too degraded to assign to any specific class.

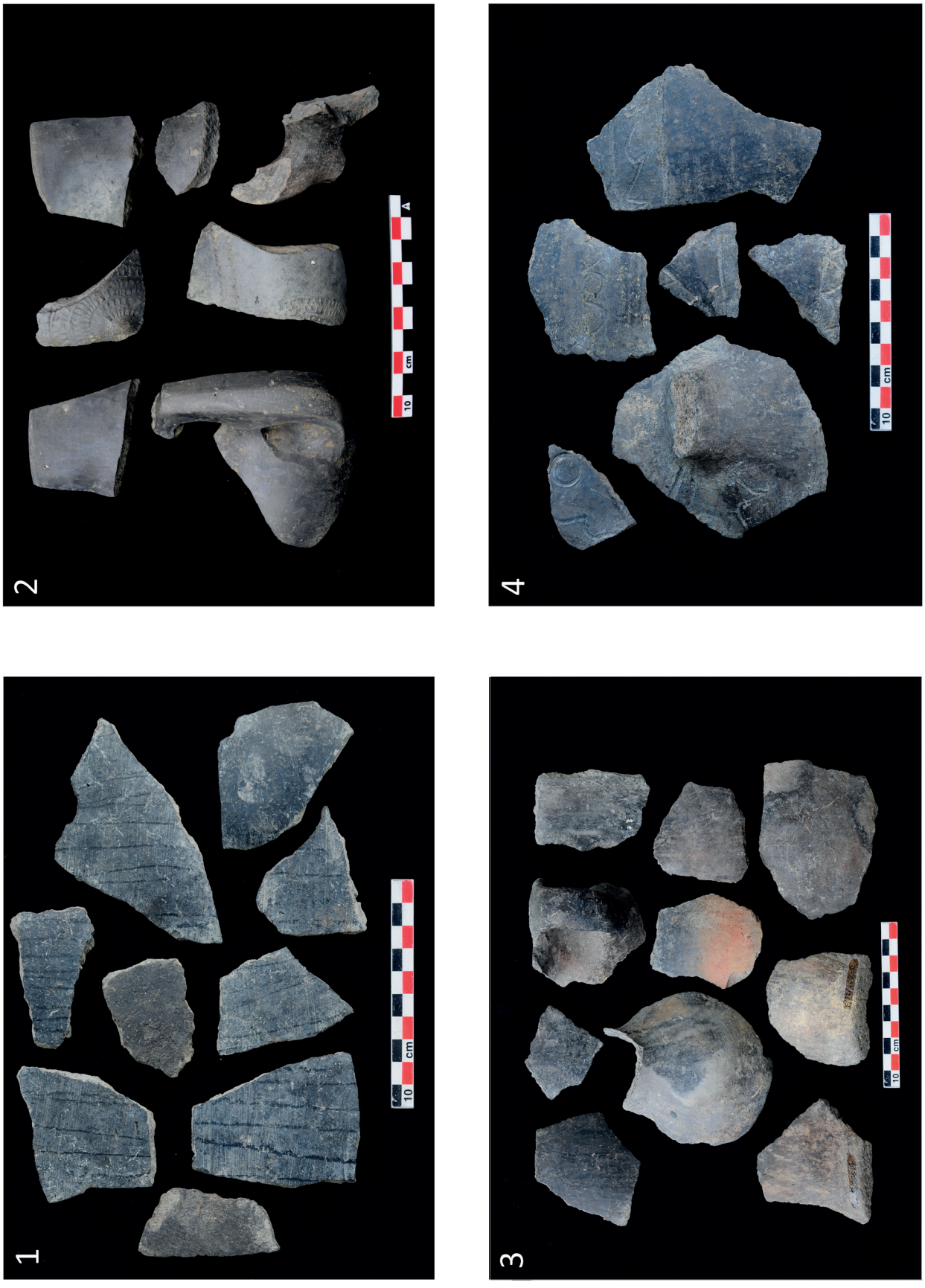


Fig. 11:27: Ceramic class groups 1 = DEGLIB; 2 = SMOG; 3 = GREBS; 4 = GREBS (incised decorated).

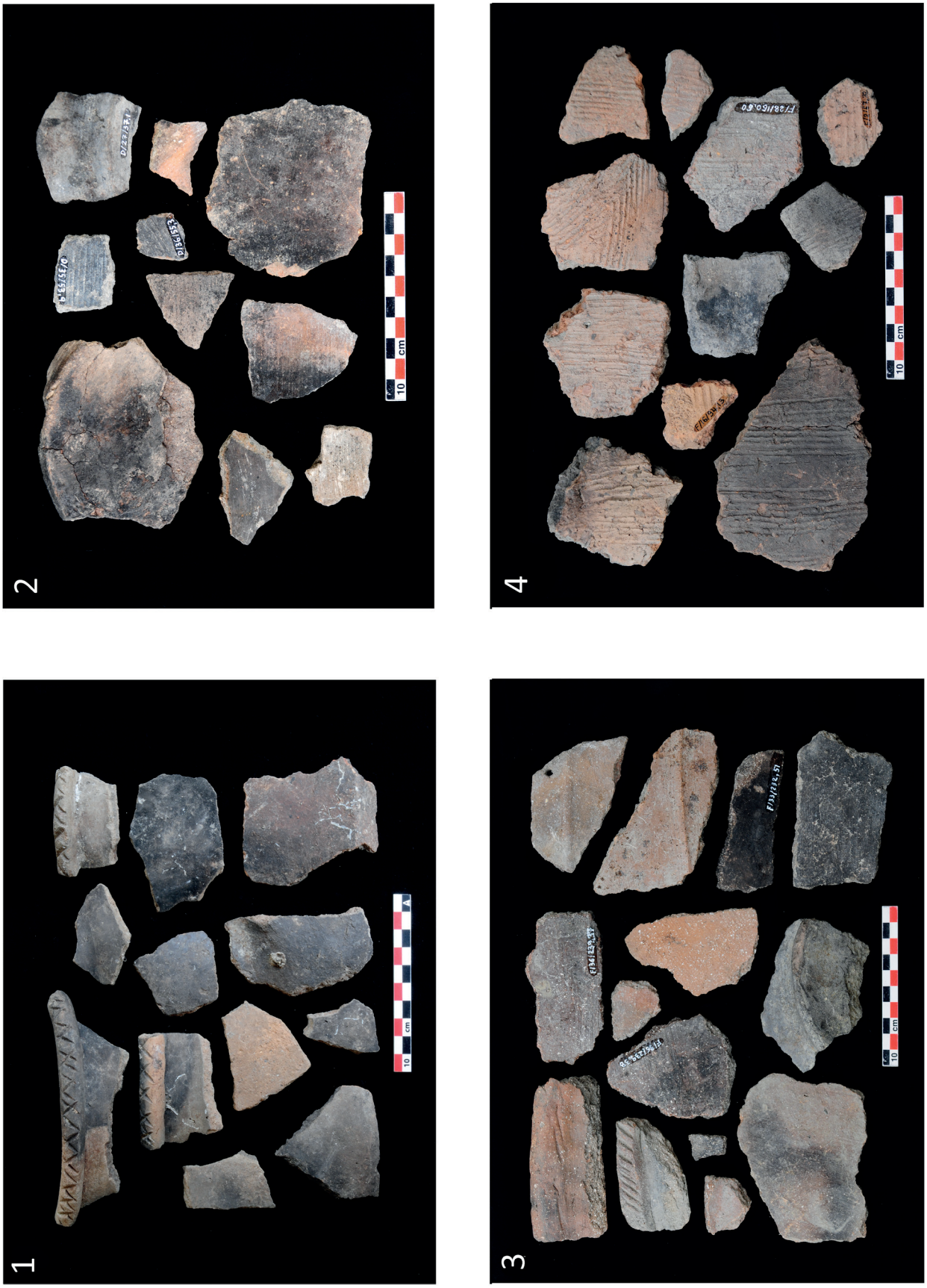


Fig. 11:28: Ceramic class groups 1 = PLAG; 2 = BLARIC; 3 = STEVOV; 4 = CORCOM.

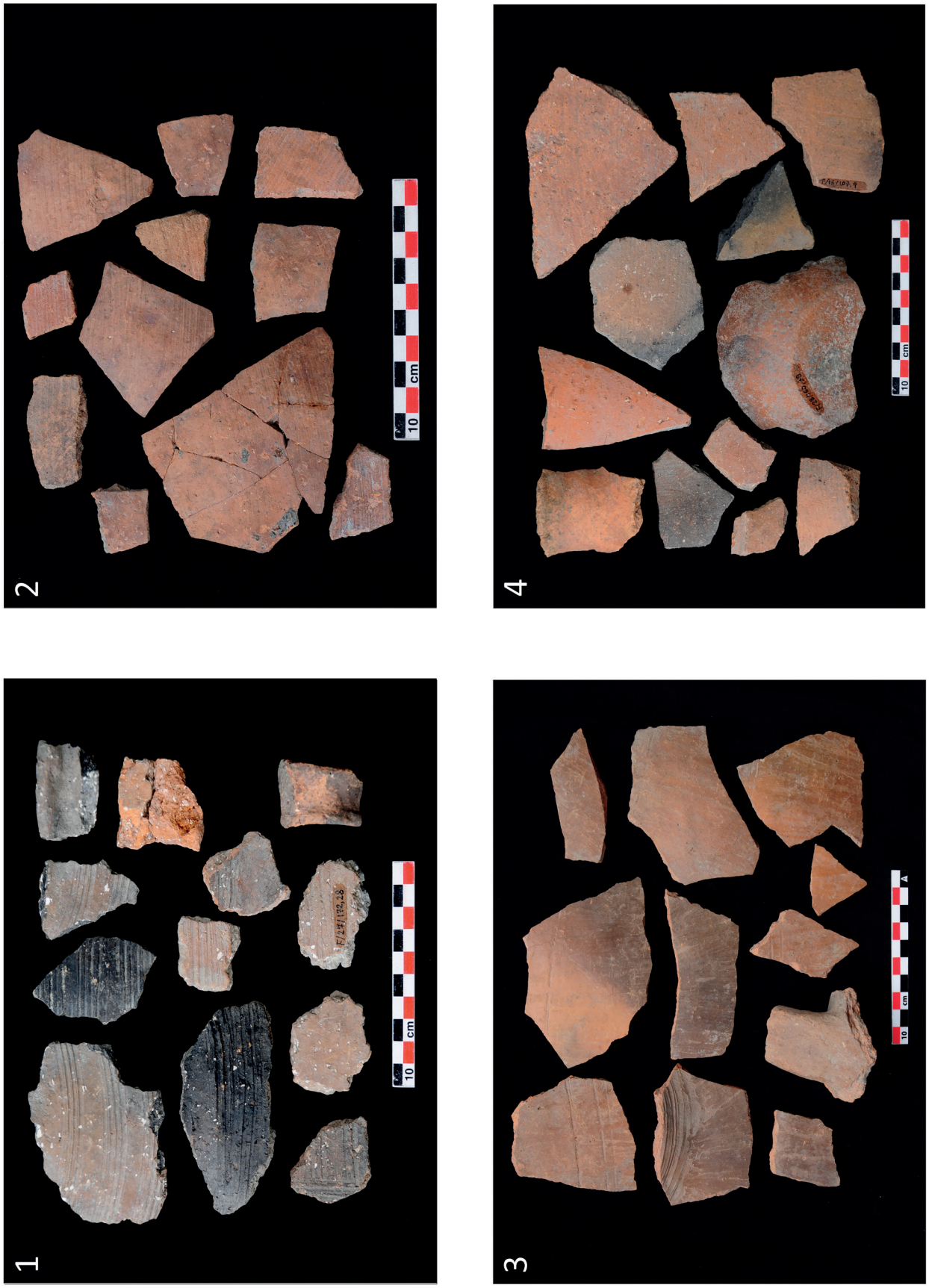


Fig. 11:29: Ceramic class groups 1 = BROSH; 2 = RIBPUR; 3 = HABROB; 4 = HASOG.

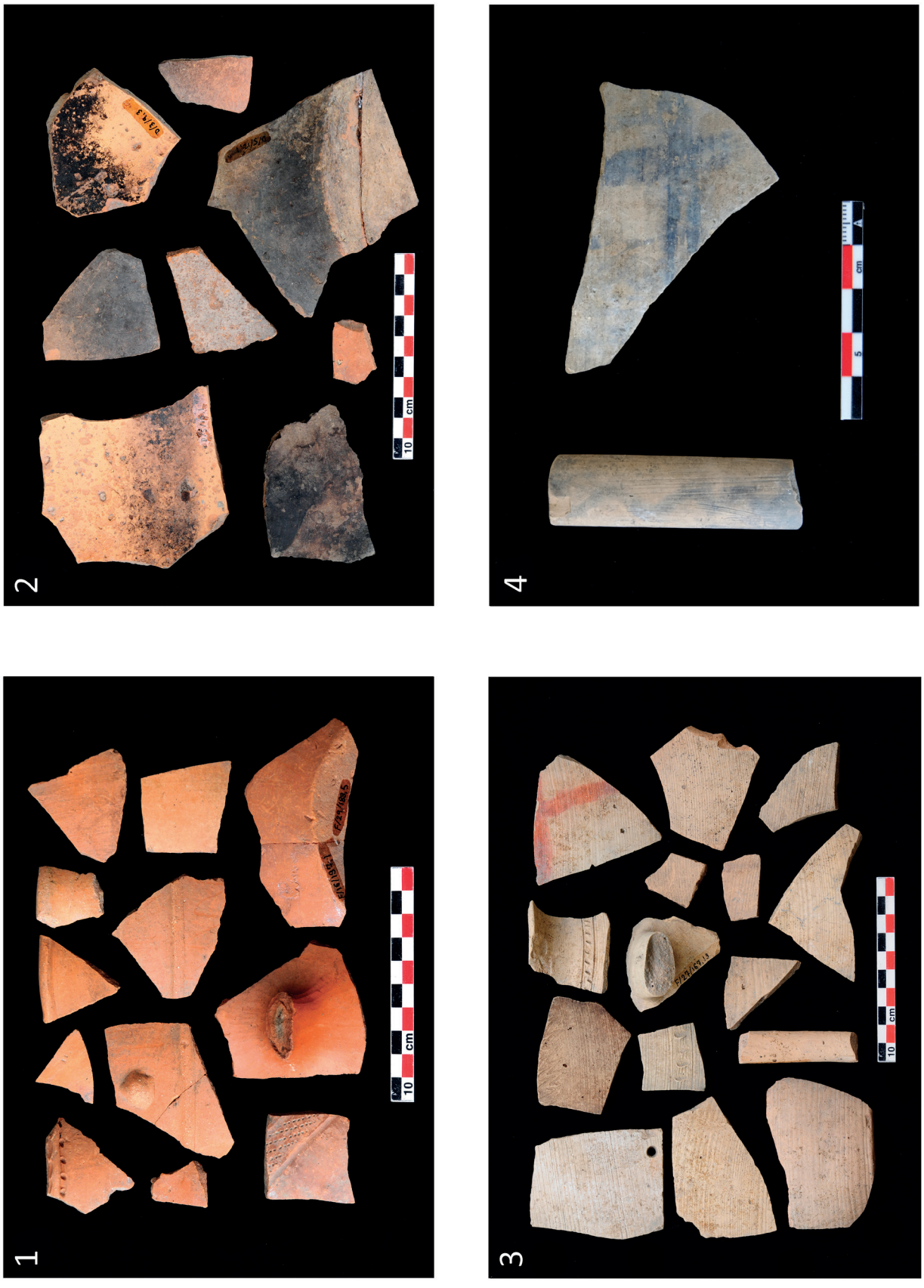


Fig. 11:30: Ceramic class groups 1 = REDFIN; 2 = SPORG; 3 = CEMRIB; 4 = CEMRIB (D2).

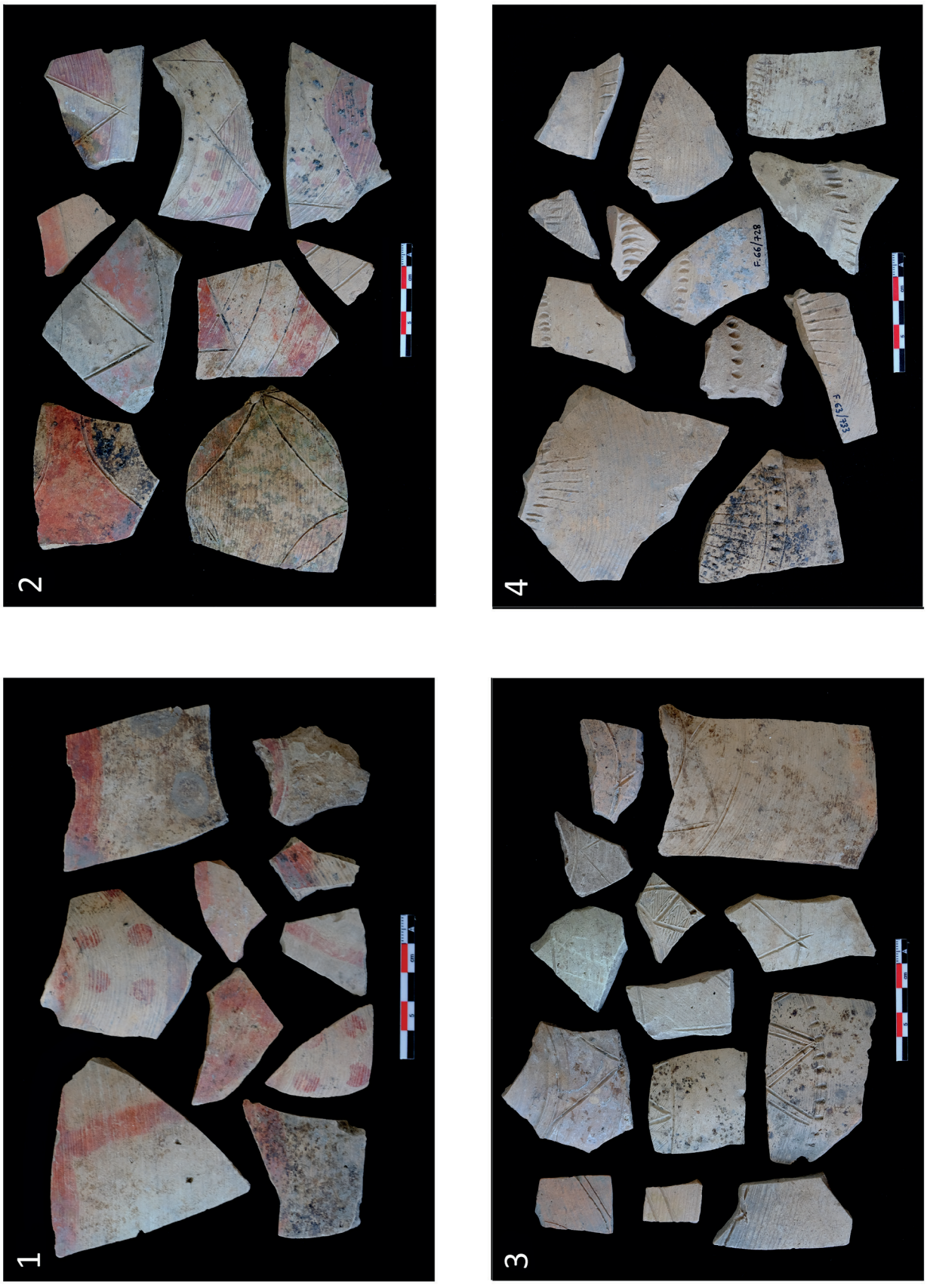


Fig. 11:31: Ceramic class groups 1 = CEMRIB (D1); 2 = CEMRIB (D3); 3 = CEMRIB (D4); 4 = CEMRIB (D5).

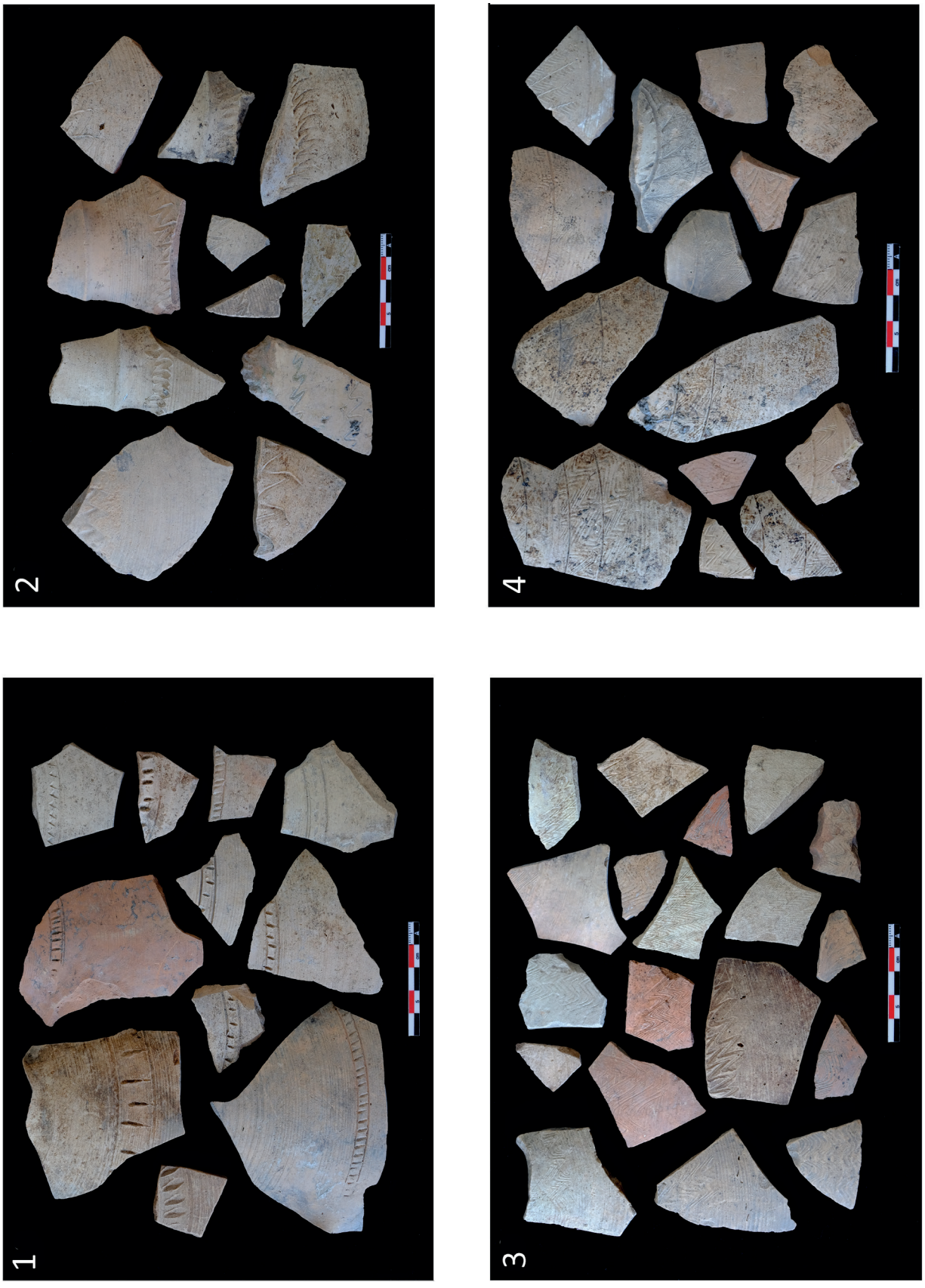


Fig. 11:32: Ceramic class groups 1 = CEMRIB (D6); 2 = CEMRIB (D7); 3 = CEMRIB (D8); 4 = CEMRIB (D9).



Fig. 11:33: Ceramic class groups 1 = CEMRIB (D10); 2 = CEMRIB (Incised); 3 = CEMRIB (Repair holes); 4 = CEMRIB (F1).

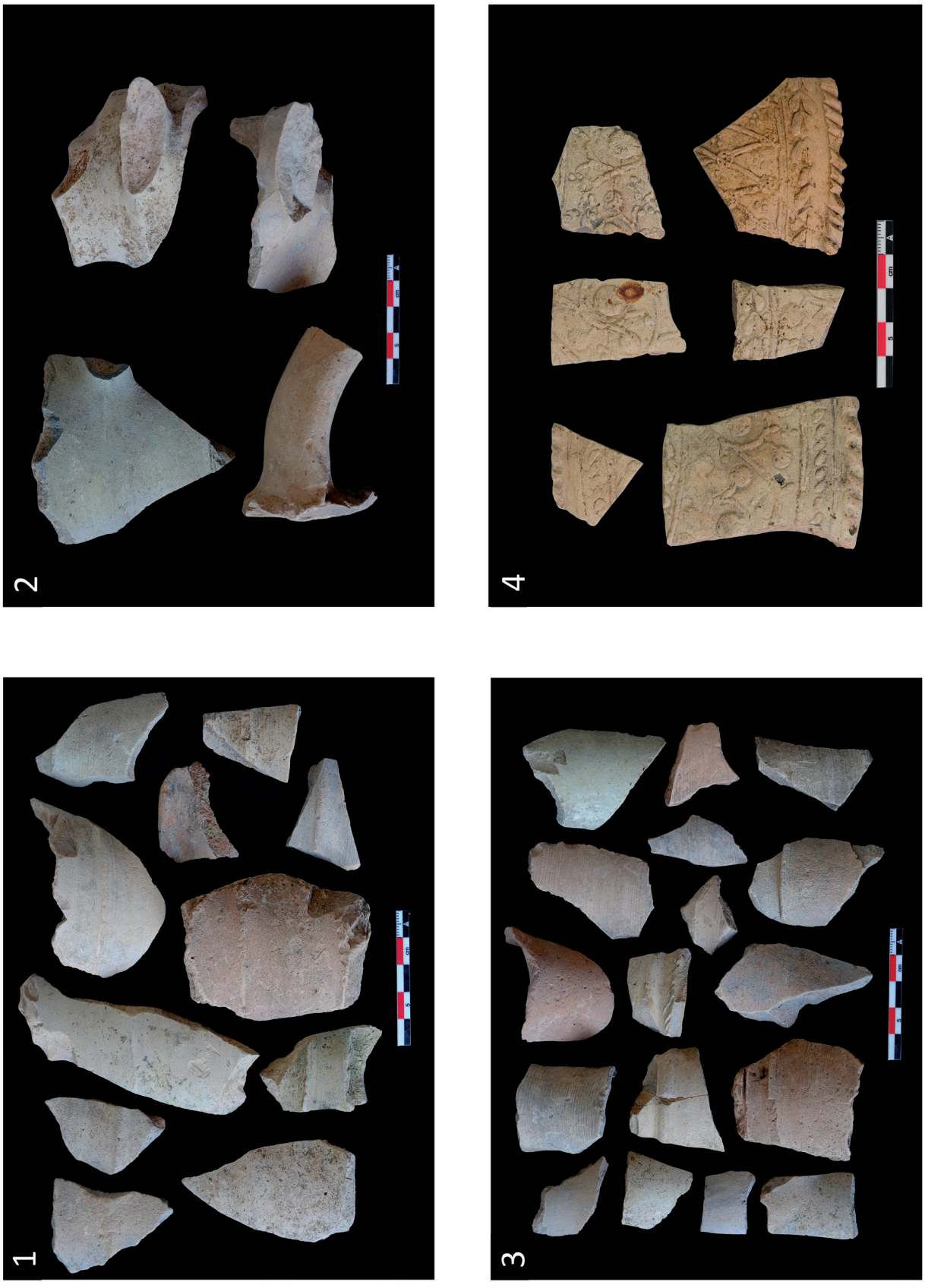


Fig. 11:34: Ceramic class groups 1 = CEMRIB (F2); 2 = CEMRIB (F3); 3 = CEMRIB (F6); 4 = WHIM.

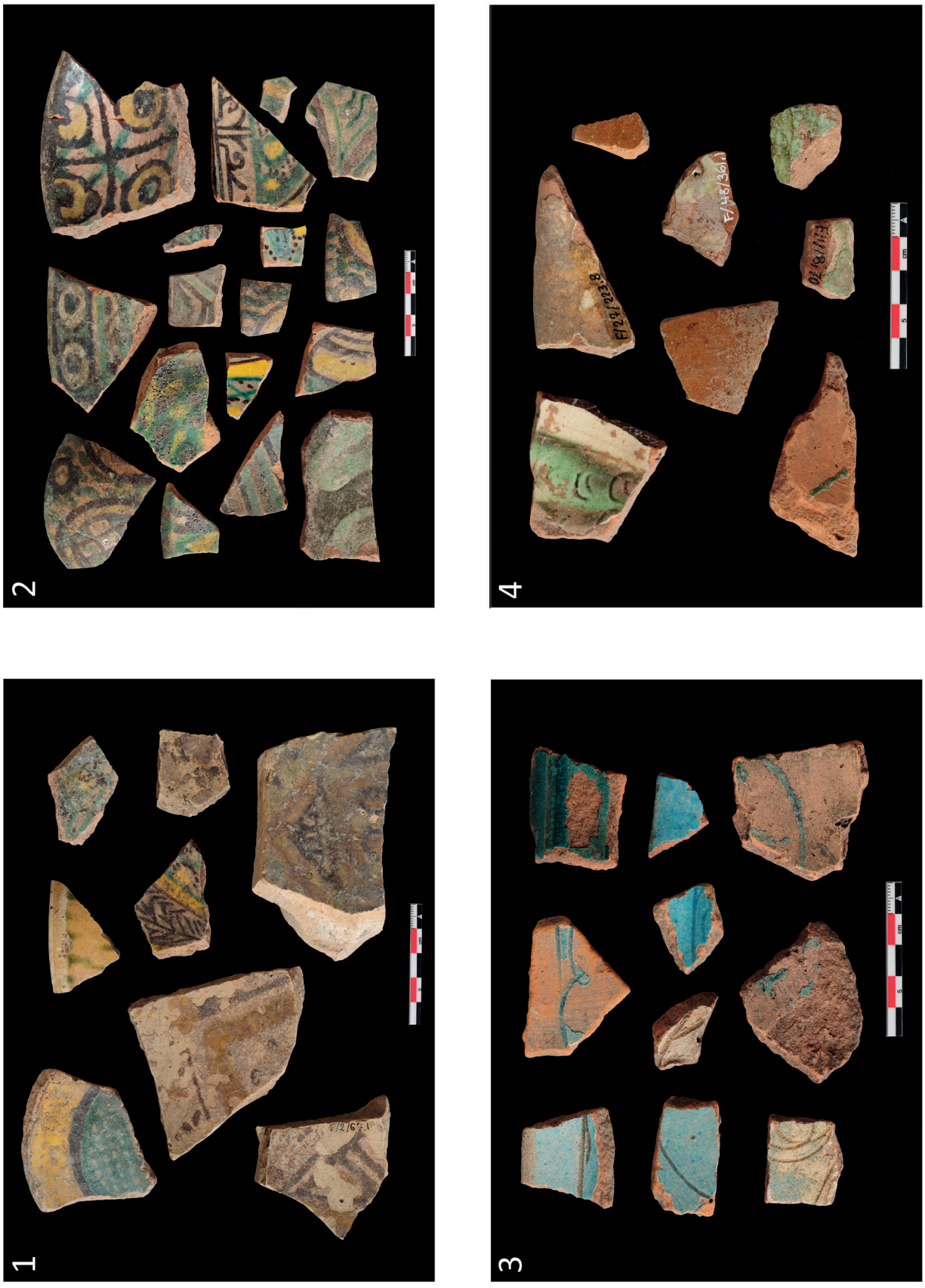


Fig. 11.35: Ceramic class groups 1 = SPW.1; 2 = SPW.2; 3 = GRAF (monochrome turquoise); 4 = GRAF (polychrome or green).

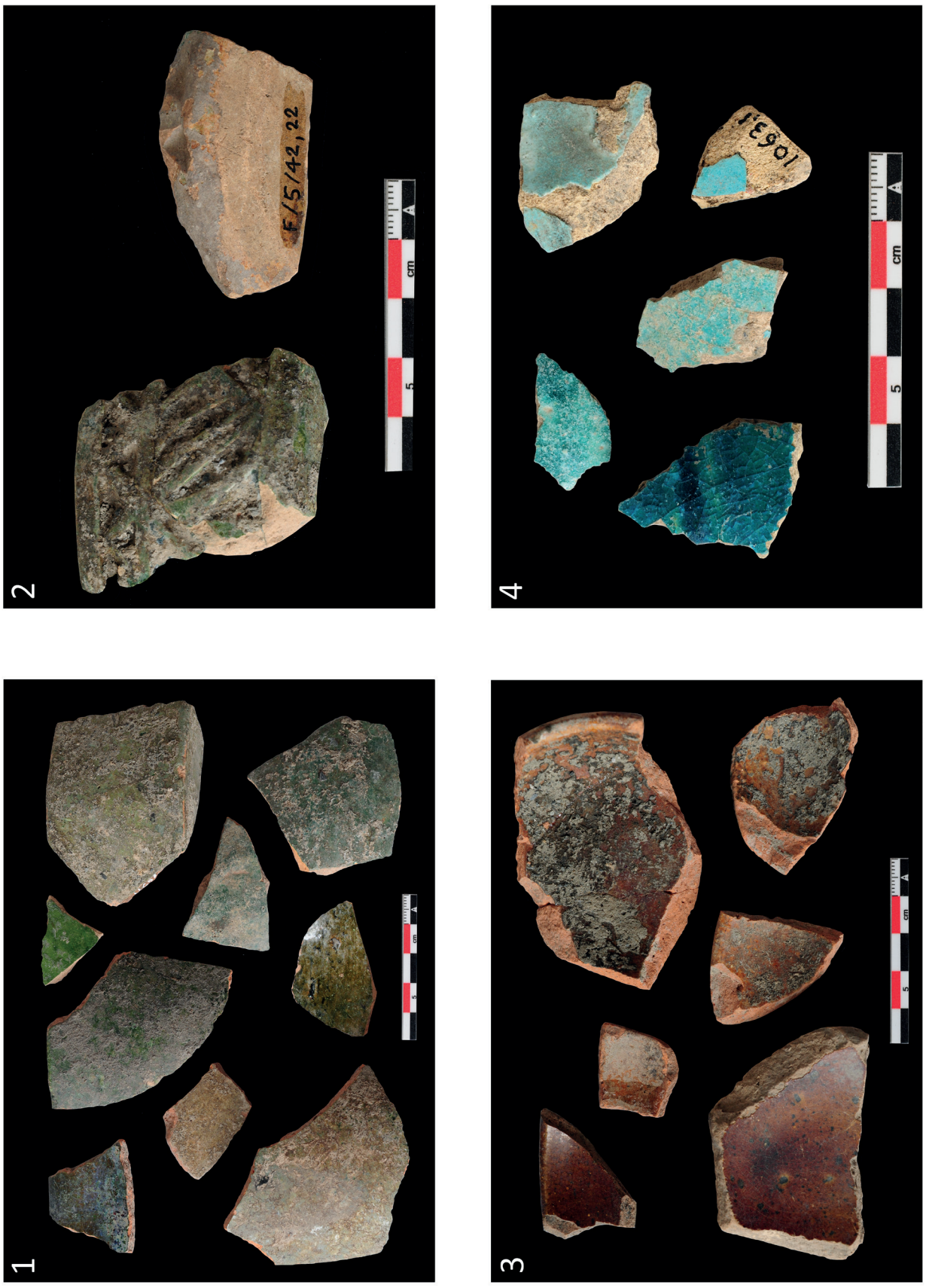


Fig. 11:36: Ceramic class groups 1 = MONO.G; 2 = CHIP; 3 = MONO.Y; 4 = MONO.

11.8. Vessel types

Type	*Category*	*Class*	*Form*	*Illustration*	*Average Rim Diameter*
JR1	Jar	CEMRIB	Trefoil jar mouth with a simple rounded lip	Figs 11:10.1, 11:42.a-b	9.1
JR2	Jar	CEMRIB	Off-set jar rim with a slight notch in the outer lip	Fig. 11:42.c–q	9.5
JR3	Jar	CEMRIB	Handless jar with a flat-topped rim with a pointed outer lip	Figs 11:10.3, 11:43.a-i	10.3
JR4	Jar	CEMRIB	Rolled and fattened jar rim	Fig. 11:43.j–p	11.1
JR5	Jar	DEGLIB	Simple flared jar rim with a rounded lip	Figs 11:37.a–s, 11:38.a-n	14.3
JR6	Jar	HASOG	Simple flared jar rim with a rounded or triangular section lip	Figs 11:12.1, 11:47.a–t	12.5
JR7	Unattributed				
JR8	Storage jar	HASOG	Heavy flat toped storage jar rim with a projecting flange coming to a point along the outer lip	Figs 11:12.3–4, 11:48.a–p	21.9
JR9	Jar	CEMRIB	Narrow bottle necks with varied lip types	Fig. 11:44.a–e	5.3
JR10	Jar	CEMRIB	Clubbed jar rim	Fig. 11:43.q–v	13.2
BR1	Bowl	DEGLIB	Open bowl with a simple rounded and slightly upward turned lip	Fig. 11:40.a–e	29.0
BR2	Bowl	HASOG	Open bowl with fairly straight side and a squared off lip sometimes with incised radial notches along the top	Figs 11:12.2, 11:46.a–e	33.1
BR3	Bowl	GREBS	Straight sided open bowl with a flattened lip with radial incisions along the top	None	26.3
BR4	Bowl	DEGLIB	Closed bowl with upright sides and a simple rounded lip	Fig. 11:41.a–i	21.0
CP1	Cooking pot	STECOV	Massive closed cooking pot with a sharply everted and folded flange rim with vertical notches along the outer lip	Fig. 11:51.a–i	31.7
CP2a	Cooking pot	GREBS	Wide mouthed cooking pot with a rolled rim and a plain rounded lip	Fig. 11:52.a–m	13.9
CP2b	Cooking pot	GREBS	Wide mouthed cooking pot with an everted rim and vertical notches along the rim lip and handle edges	Figs 11:18.4–5, 11:53.a–q	15.4
CP3	Cooking pot	GREBS	Narrow mouthed jar or cooking pot with a flared neck and rim and a simple rounded lip	Figs 11:18.1–3, 11:54.a–i	11.4
CP4	Cooking pot	PLAG	Closed cooking pot with a slightly fattened rim and a raised carination below the lip, incised cross marks along the lip	Fig. 58.a–e	23.7
CP5	Cooking pot	PLAG	Closed cooking pot with a rolled fattened lip with incised cross marks along the rim exterior	Fig. 11:56.a–g	16.4
CP6	Cooking pot	PLAG	Closed cooking pot with a flared rim that comes to a slightly squared point, incised cross marks along the rim exterior	Fig. 11:56.h–s	15.4
CP7	Cooking pot	BLARIC	Closed cooking pot with a flared rim with a slight recess along the inner lip	Fig. 11:61.a–i	13.8
CP8	Cooking pot	PLAG, CORCOM	Closed wide mouthed cooking pot with a long, straight, slightly flared neck	Figs 11:57.a–o, 11:62.a–c	16.6
OC1	Jar	HASOG, CEMRIB	Jar base with spikes attached to the base interior	Fig. 11:50.g–i	n/a
OC2	Lamp	GREBS	Small flat-bottomed dish lamp with a simple pulled spout on one side	Figs 11:18.6, 11:55.a–o	12.8

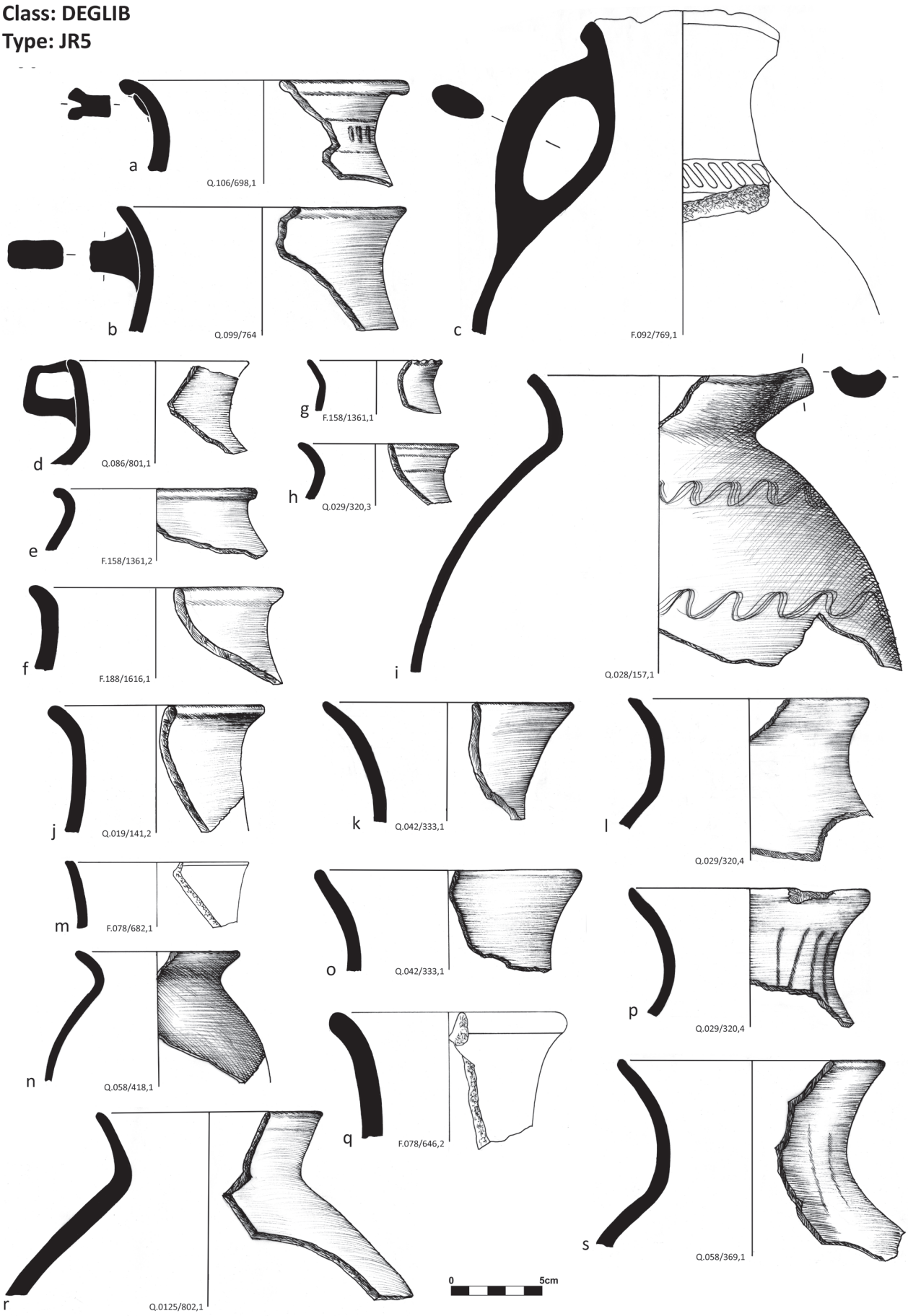


Fig. 11:37: DEGLIB Jars, a–s = Type JR5, scale 1:3.

Class: DEGLIB
Type: JR5

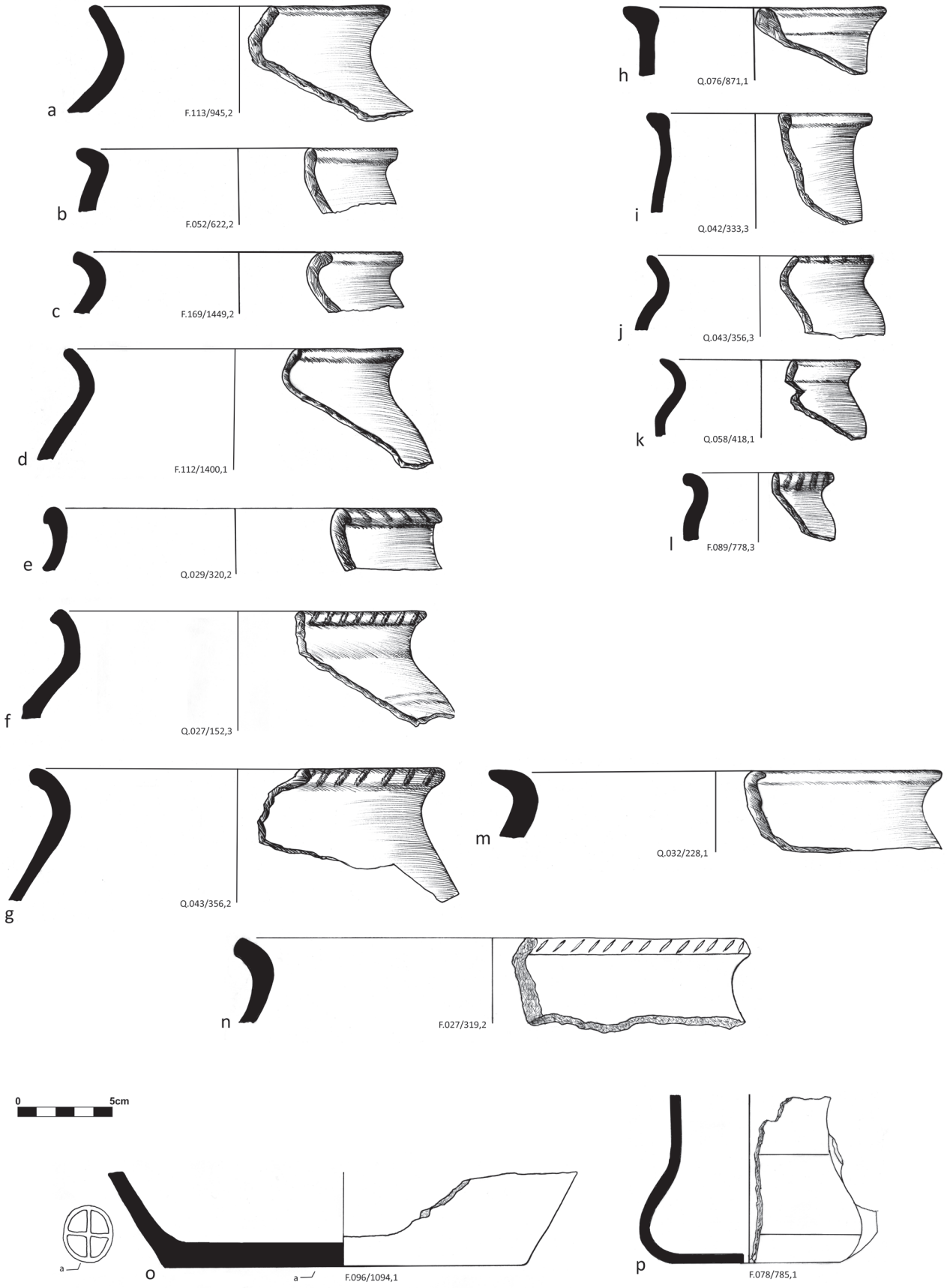


Fig. 11:38: DEGLIB Jars, a–n = Type JR5; o-p = bases, scale 1:3.

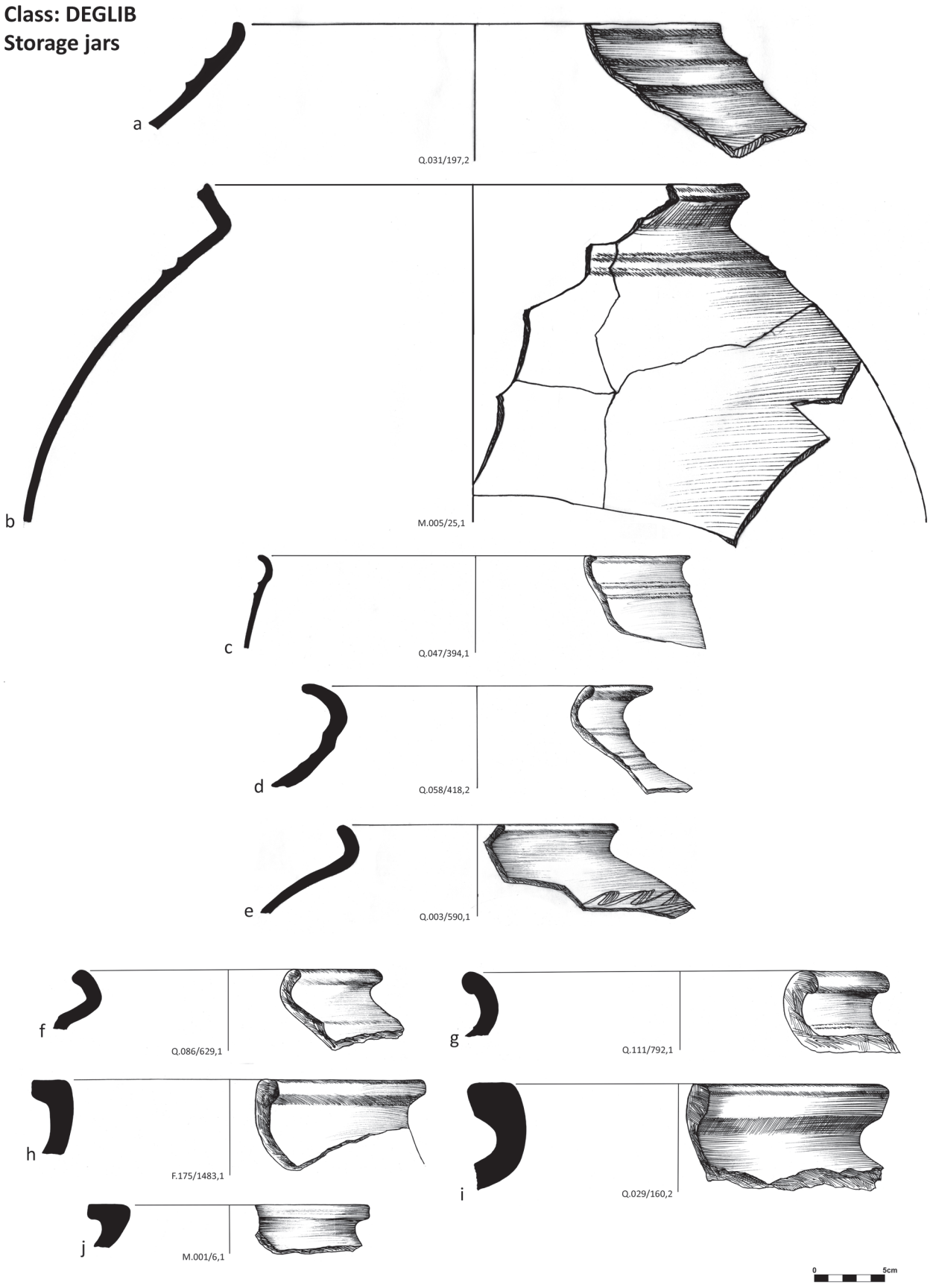


Fig. 11:39: DEGLIB Storage jars, scale 1:4.

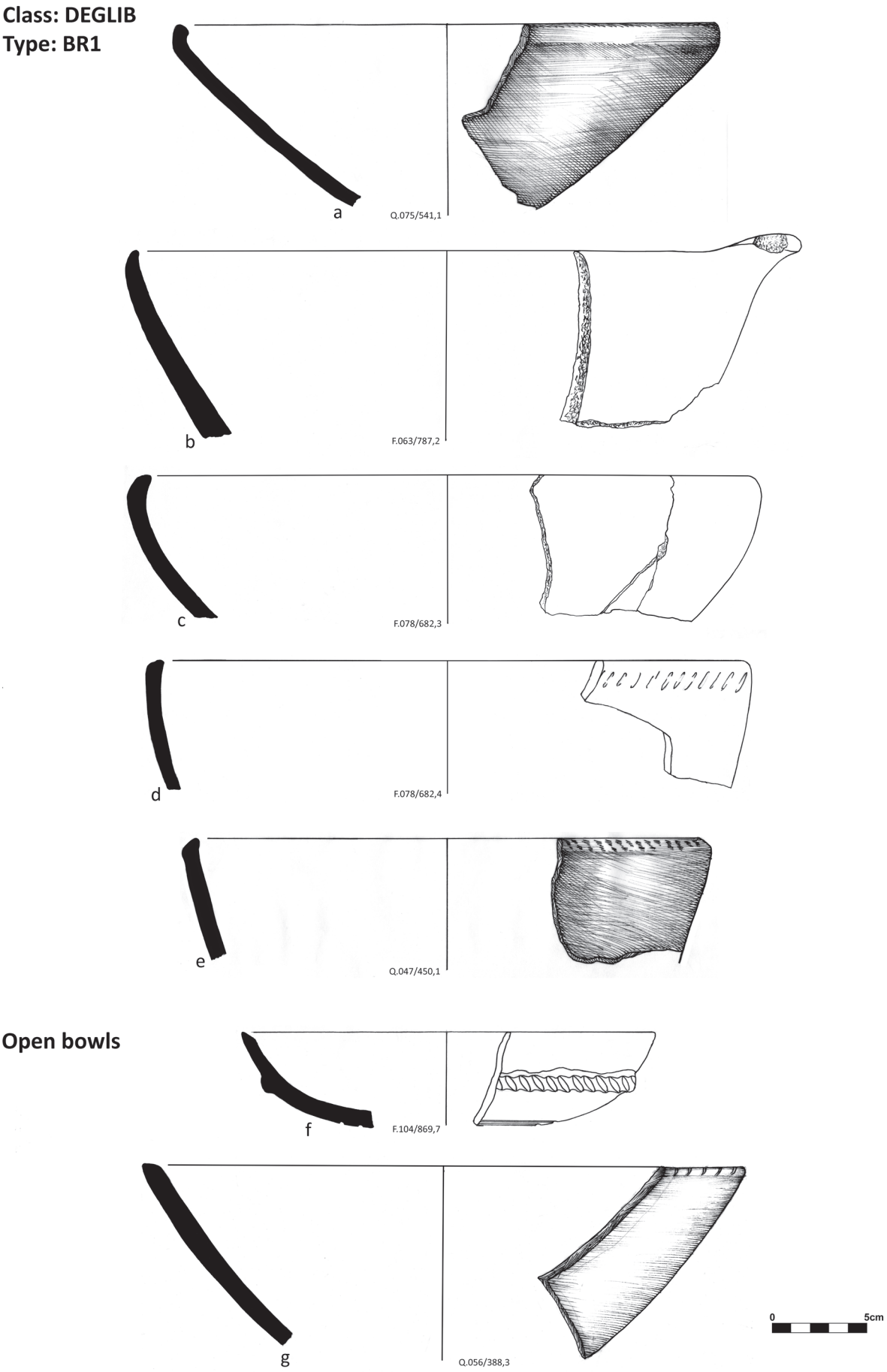


Fig. 11:40: DEGLIB Open bowls, a–e = Type BR1; f-g = other open bowls, scale 1:3.

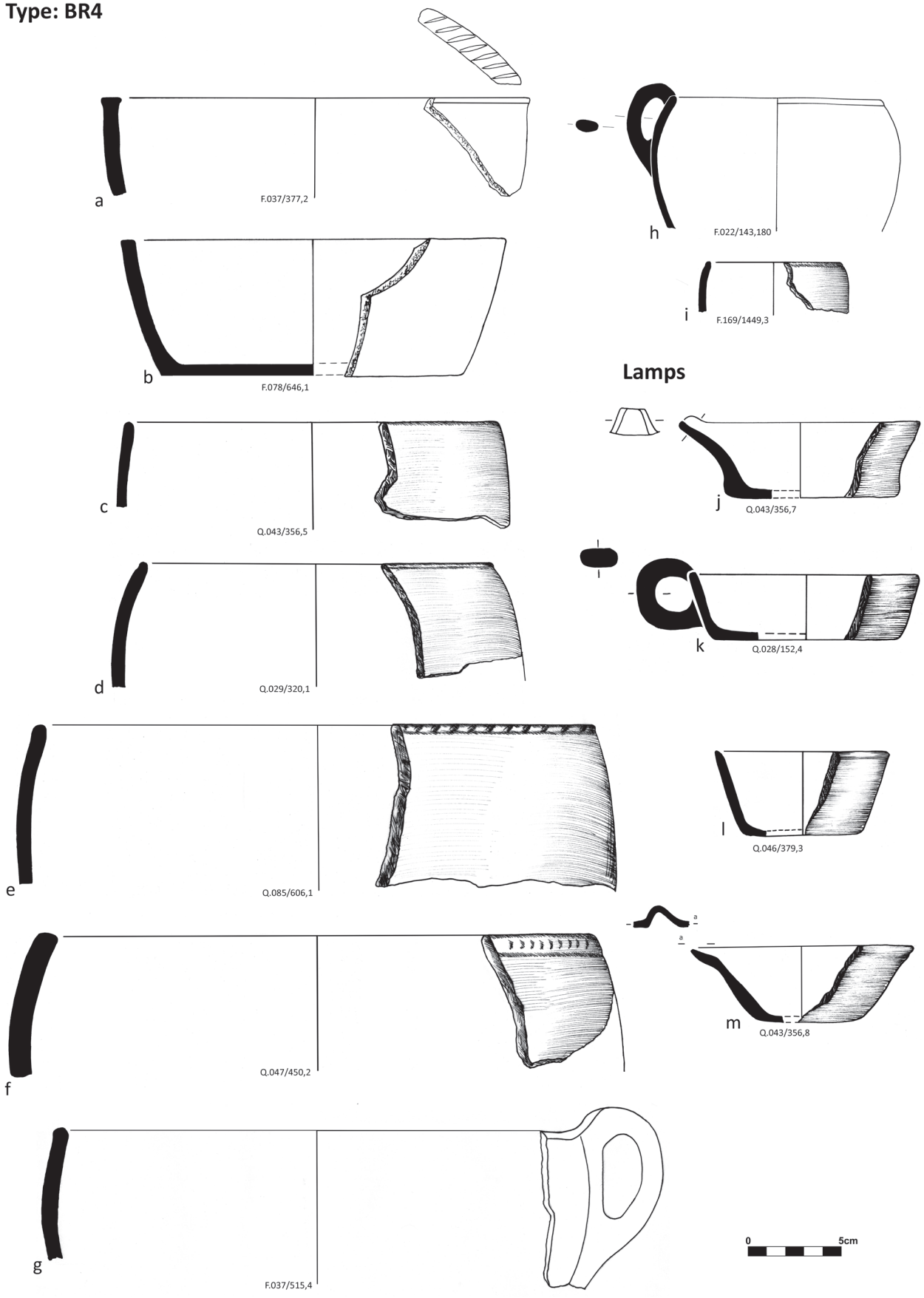


Fig. 11:41: DEGLIB Closed bowls, a–i = Type BR4; j-m = lamps, scale 1:3.

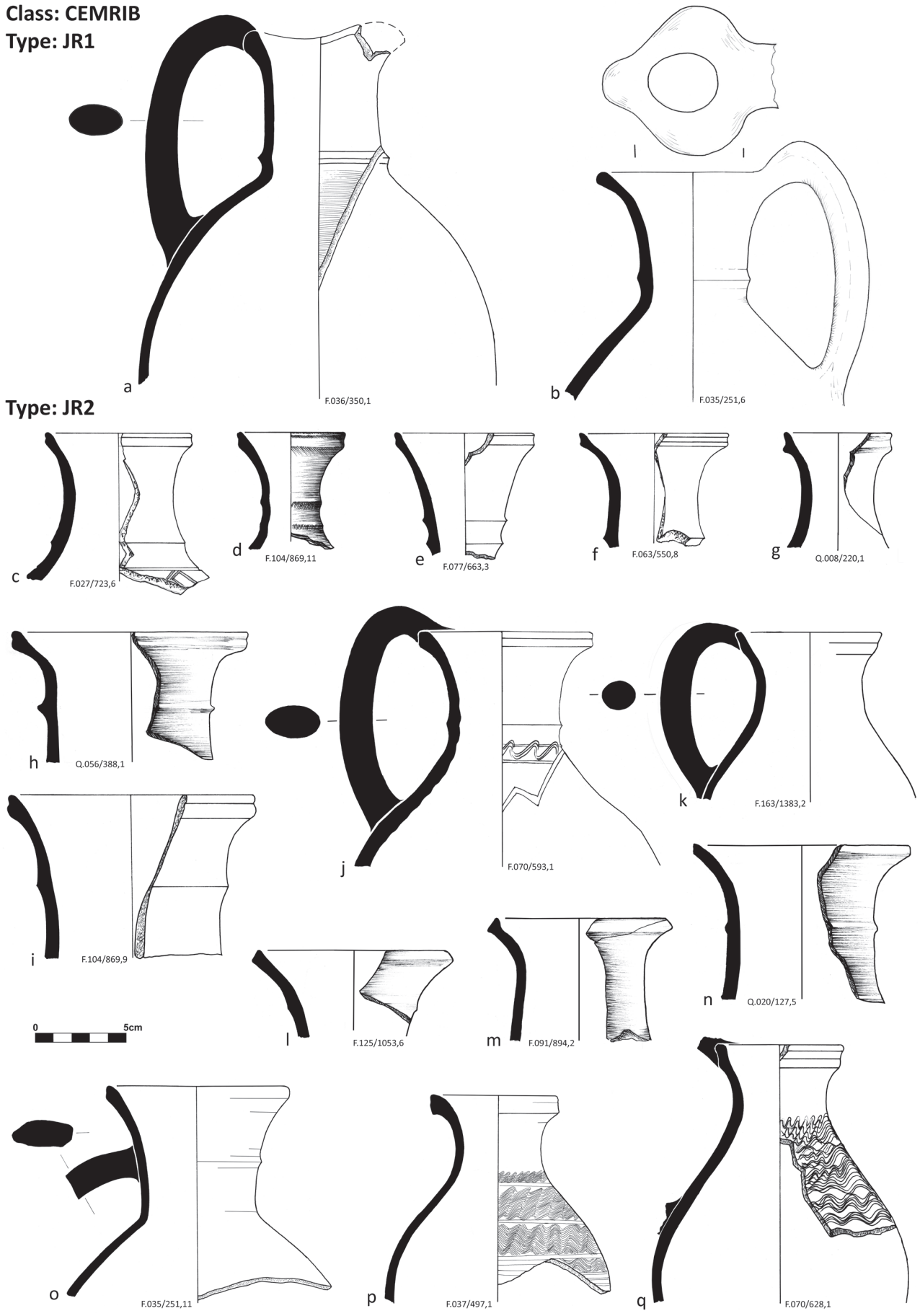
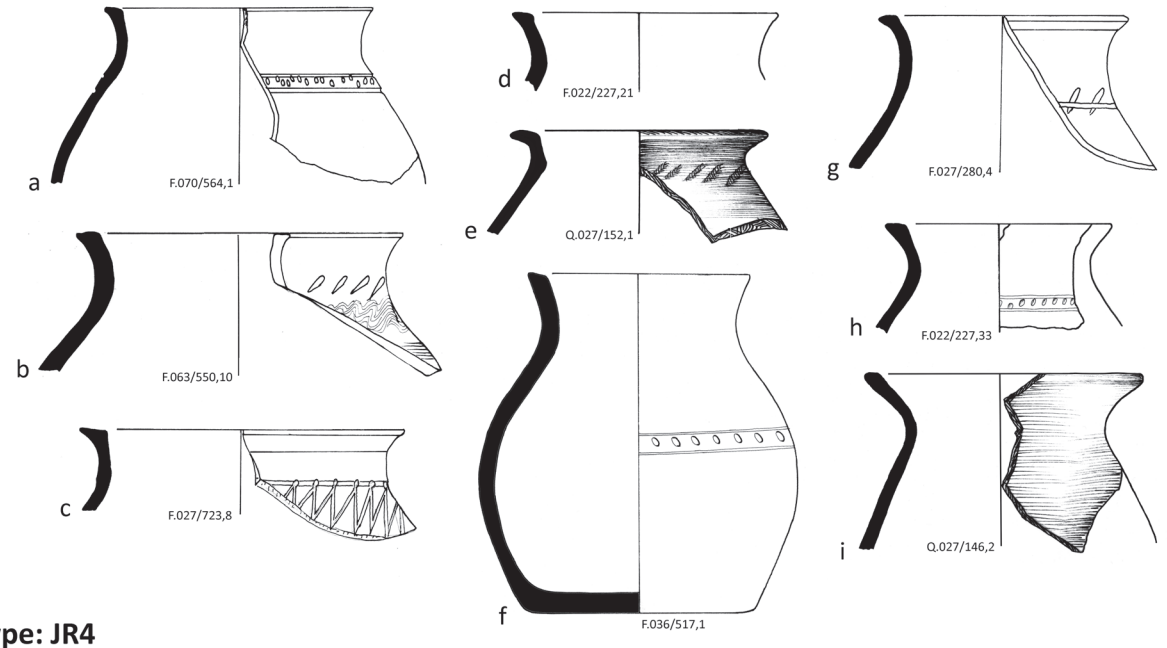


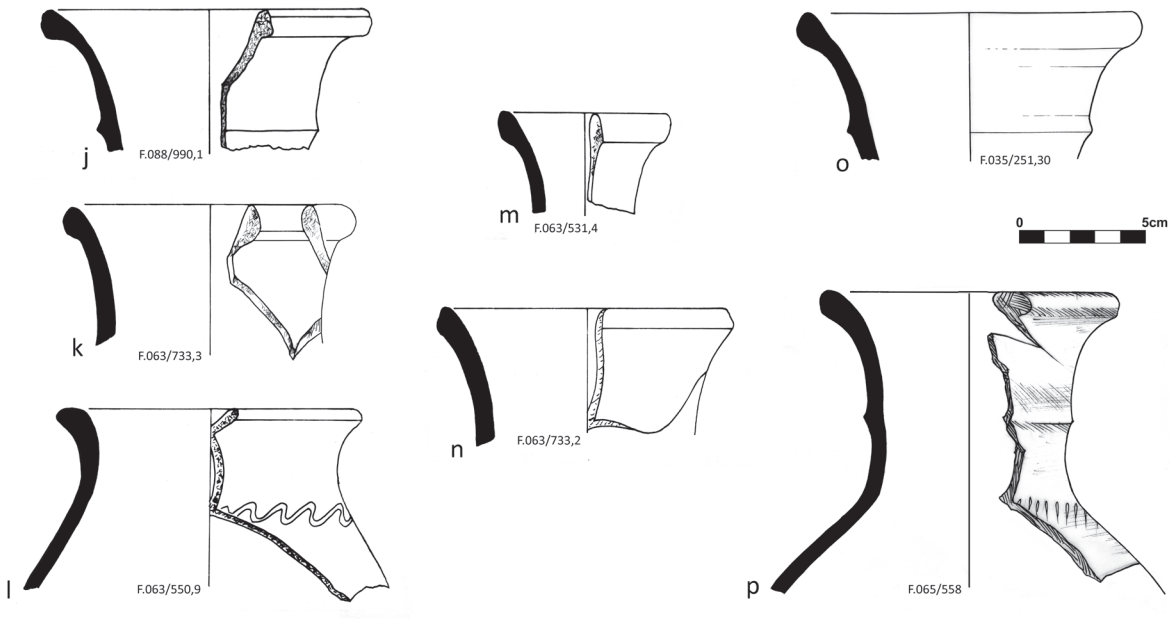
Fig. 11:42: CEMRIB Jars, a–b = Type JR1; c-9 = Type JR2, scale 1:3.

Class: CEMRIB

Type: JR3



Type: JR4



Type: JR10

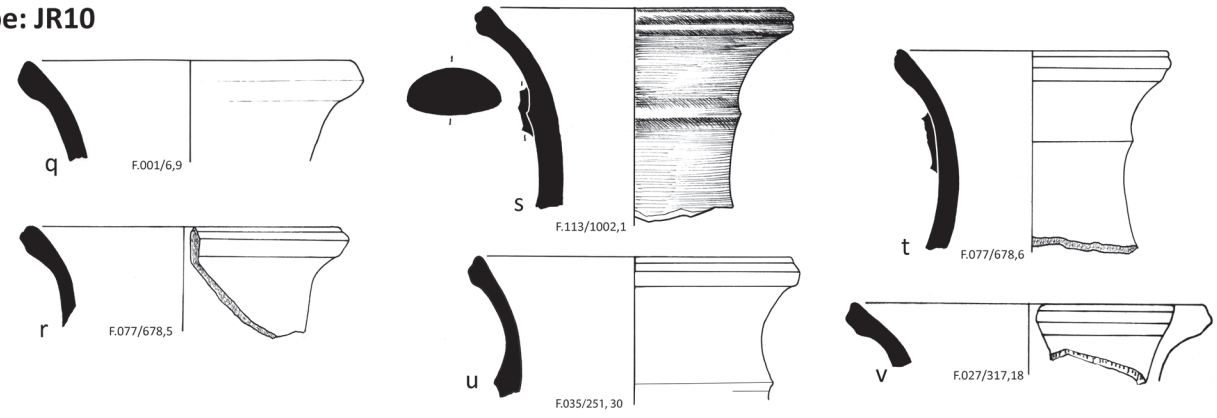


Fig. 11:43: CEMRIB Jars, a–i = Type JR3; j–p = Type JR4; q–v = Type JR10, scale 1:3.

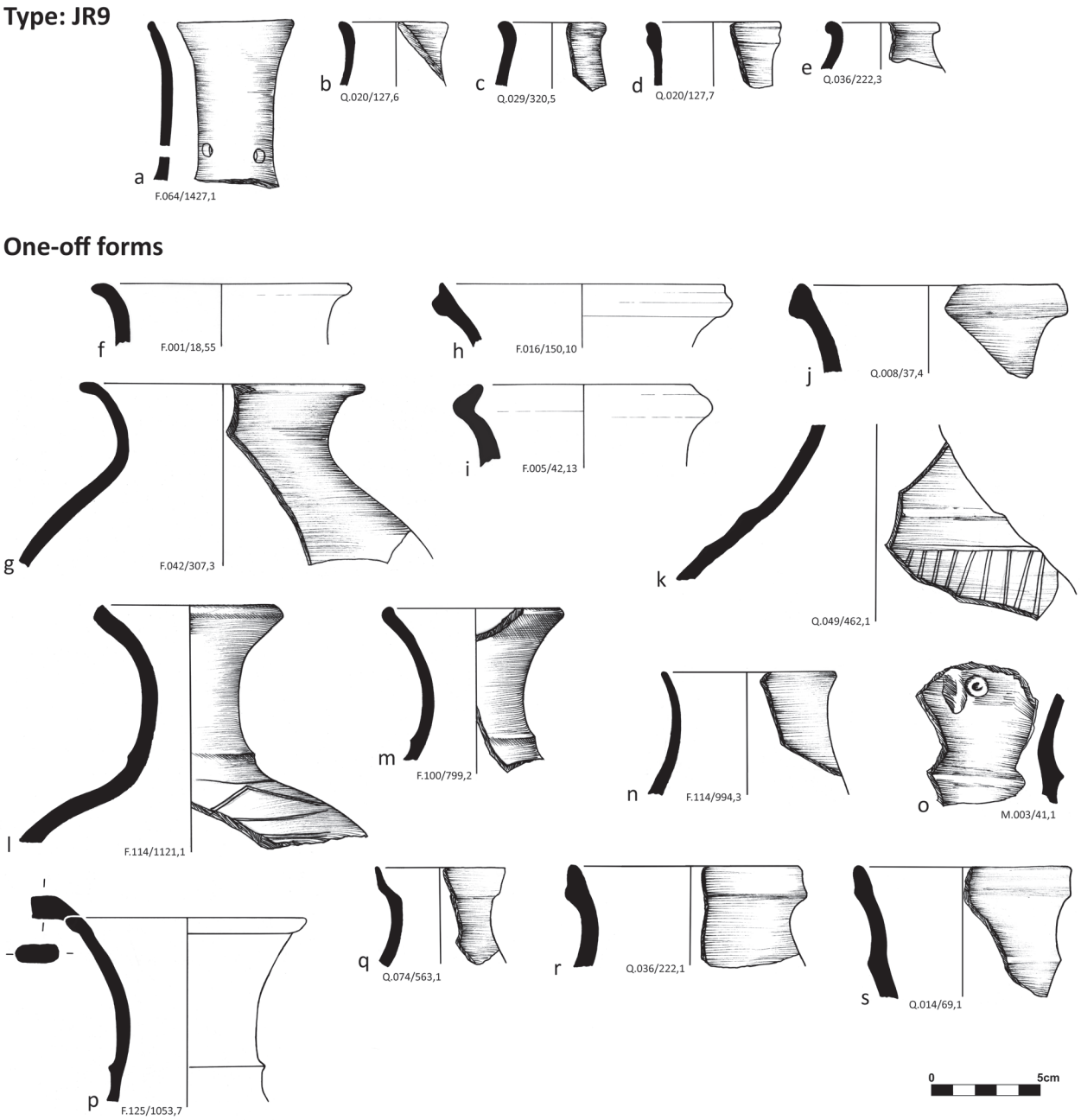


Fig. 11:44: CEMRIB Jars, a–e = Type JR9; f–s = one-off forms; t–v = REDFIN, scale 1:3.

Class: CEMRIB
Handles and bases

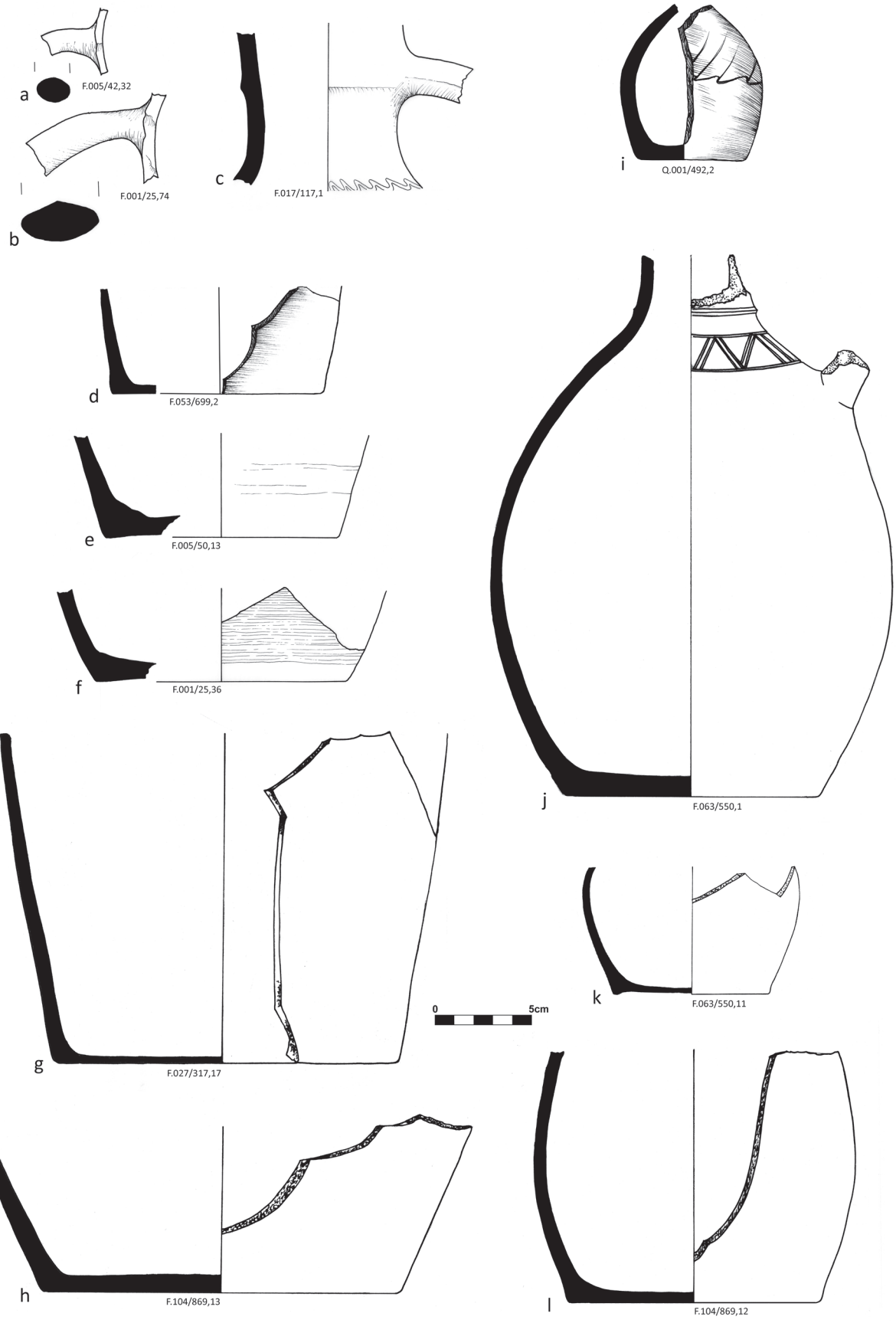


Fig. 11:45: CEMRIB Jars, a–b = handles; c–l = bases, scale 1:3.

Class: HASOG
Type: BR2

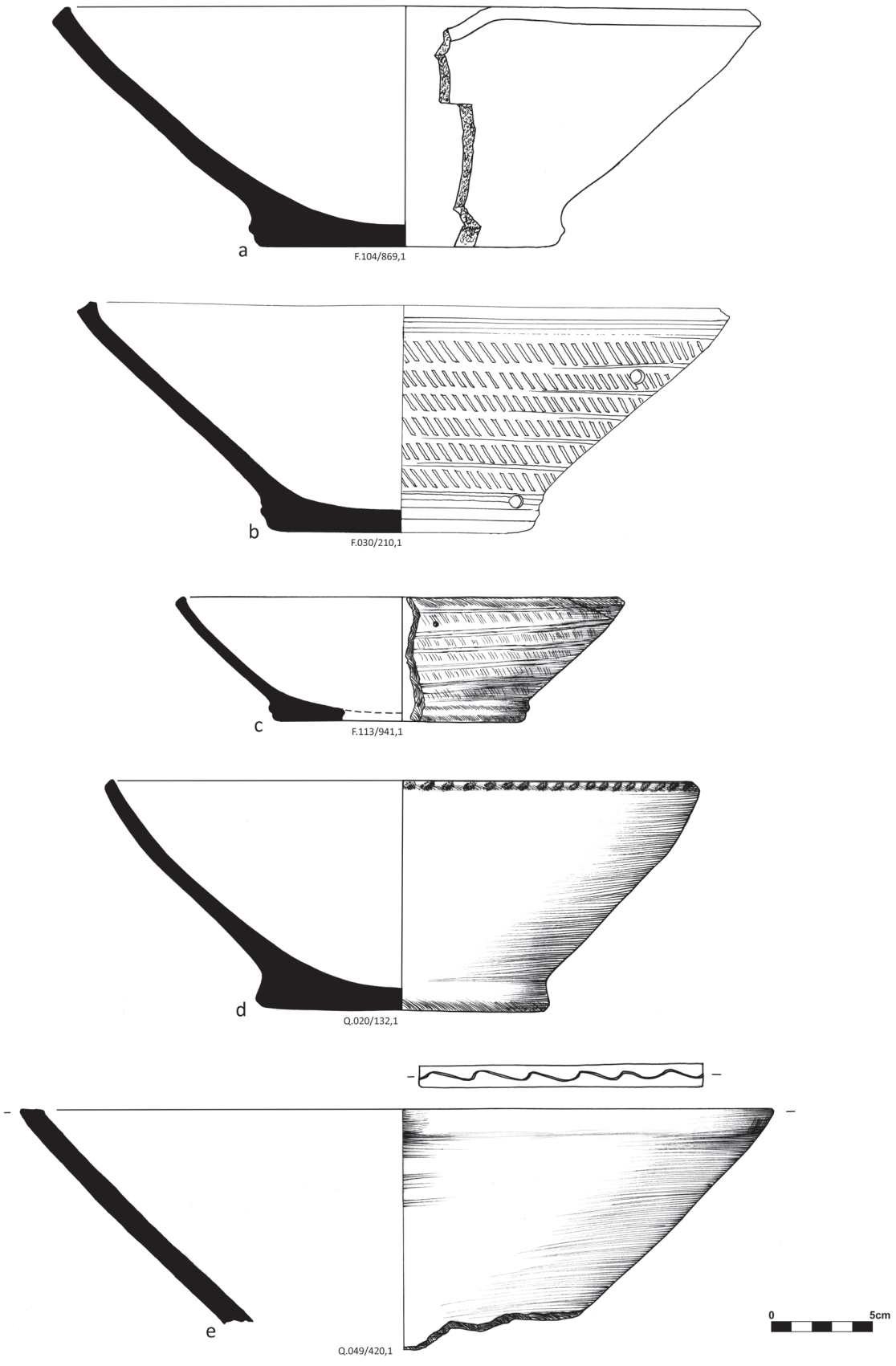


Fig. 11:46: HASOG open bowls, a–e = Type BR2, scale 1:3.

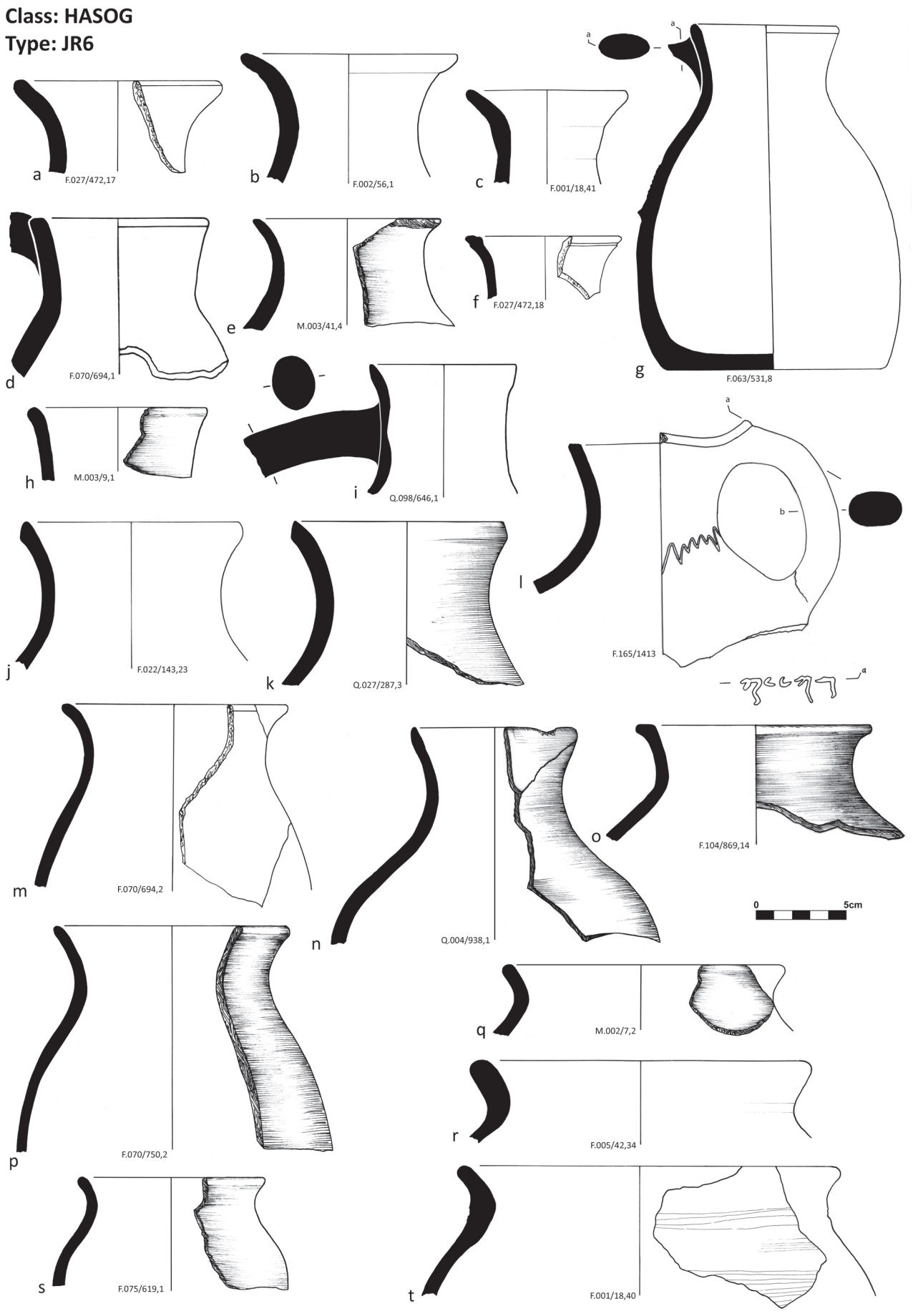


Fig. 11:47: HASOG Jars, a–t = Type JR6, scale 1:3.

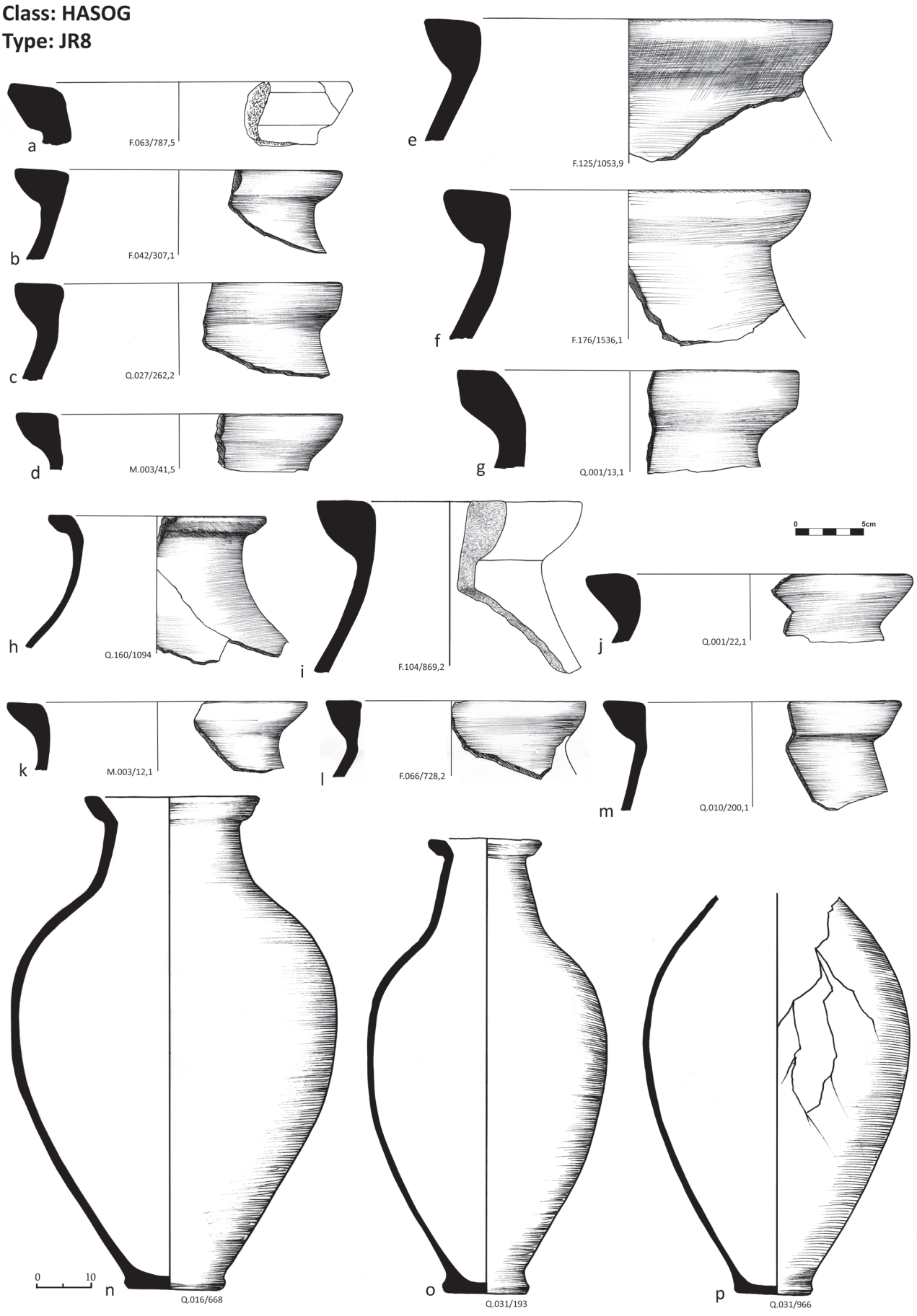


Fig. 11:48: HASOG Storage jars, a–m = Type JR8, scale 1:4; n–p = Type JR8, scale 1:10.

Class: HASOG
Other forms

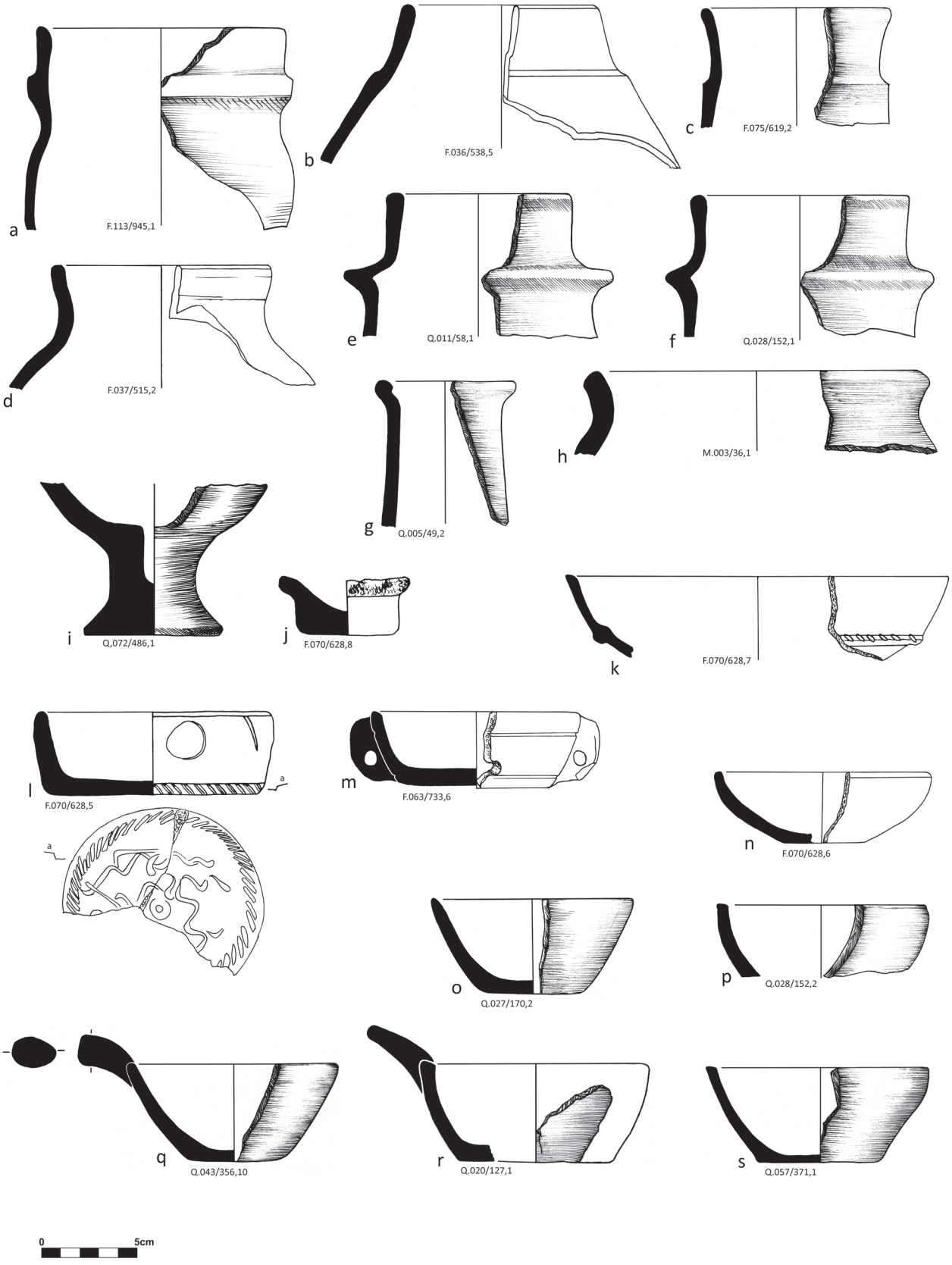
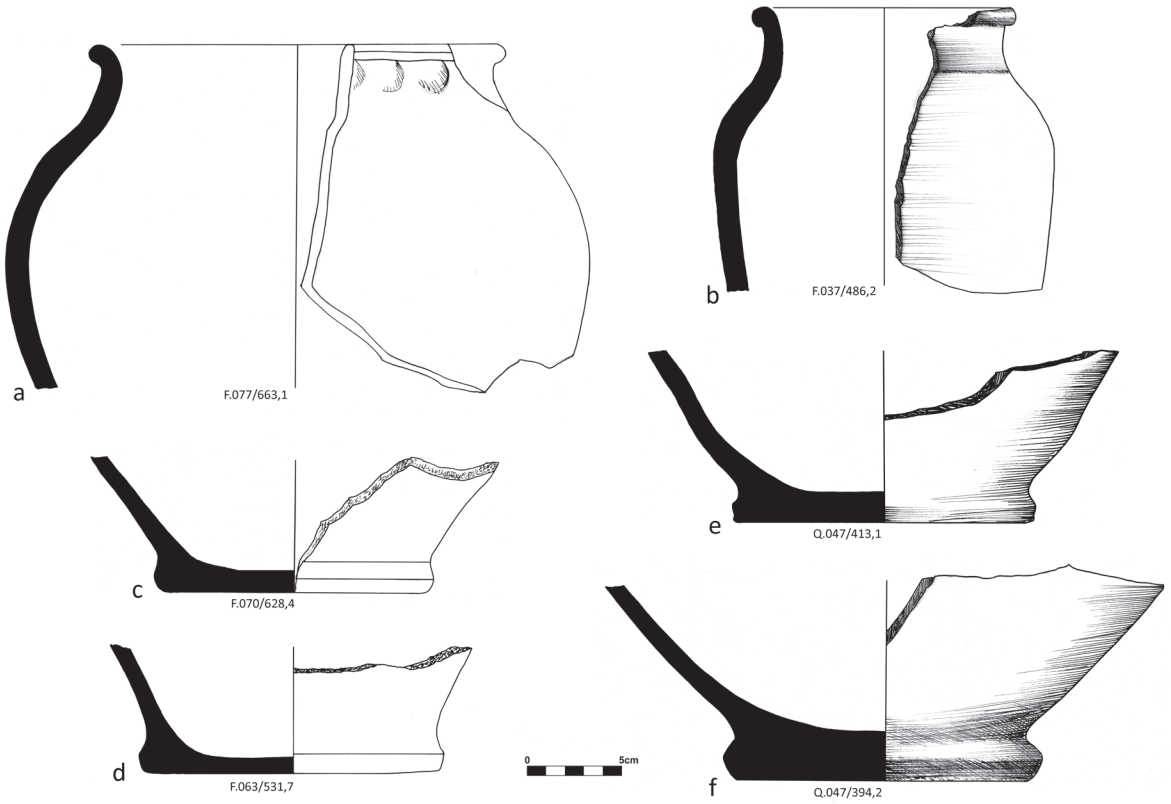


Fig. 11:49: HASOG Various forms, a–d, g–h = jars; e–f = water pipes; i–j = bases; k = bowl; l–m straight sided dishes; n–s =small bowls or lamps, scale 1:3.

Class: HASOG



Class: CEMRIB & HASOG
Type: OC1

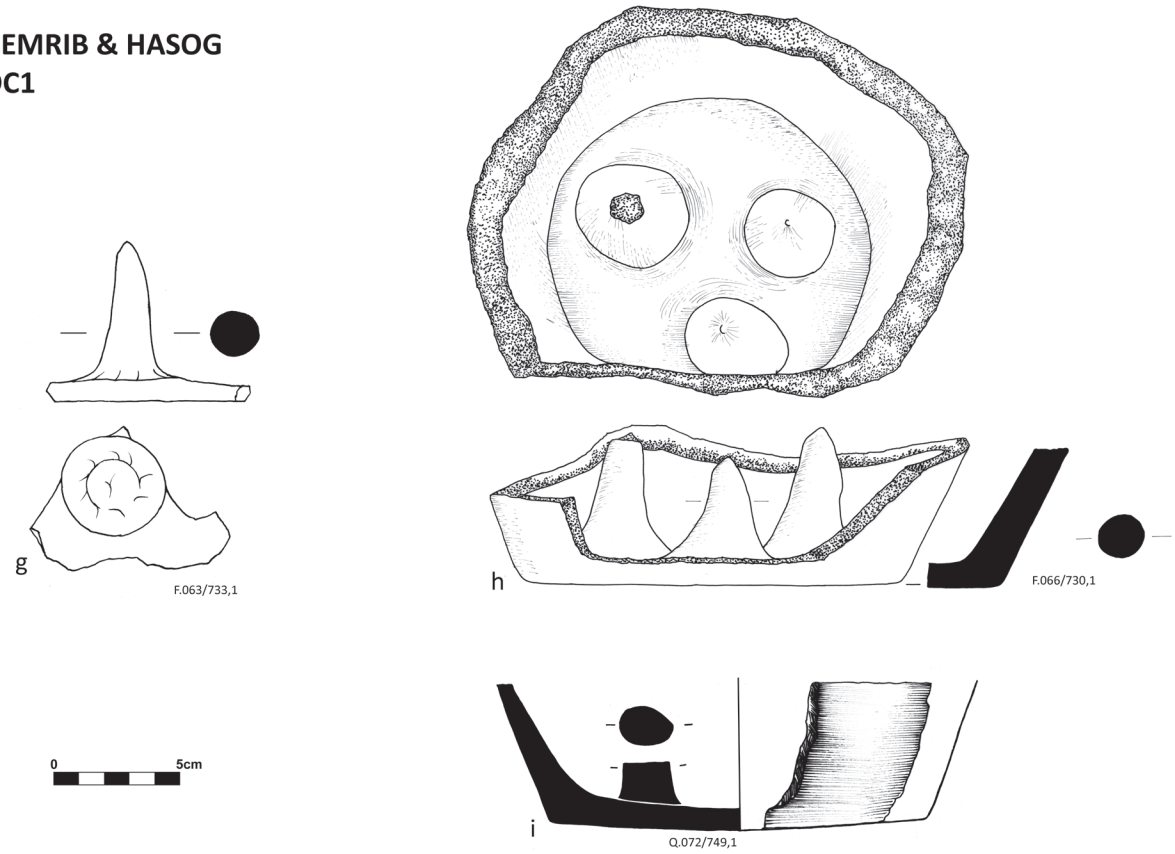


Fig. 11:50: HASOG Various forms, a–b = jars; c–f = jar bases, scale 1:4; g = CEMRIB Type OC1; h–I = HASOG Type OC1, scale 1:3.

Class: STECOV
Type: CP1

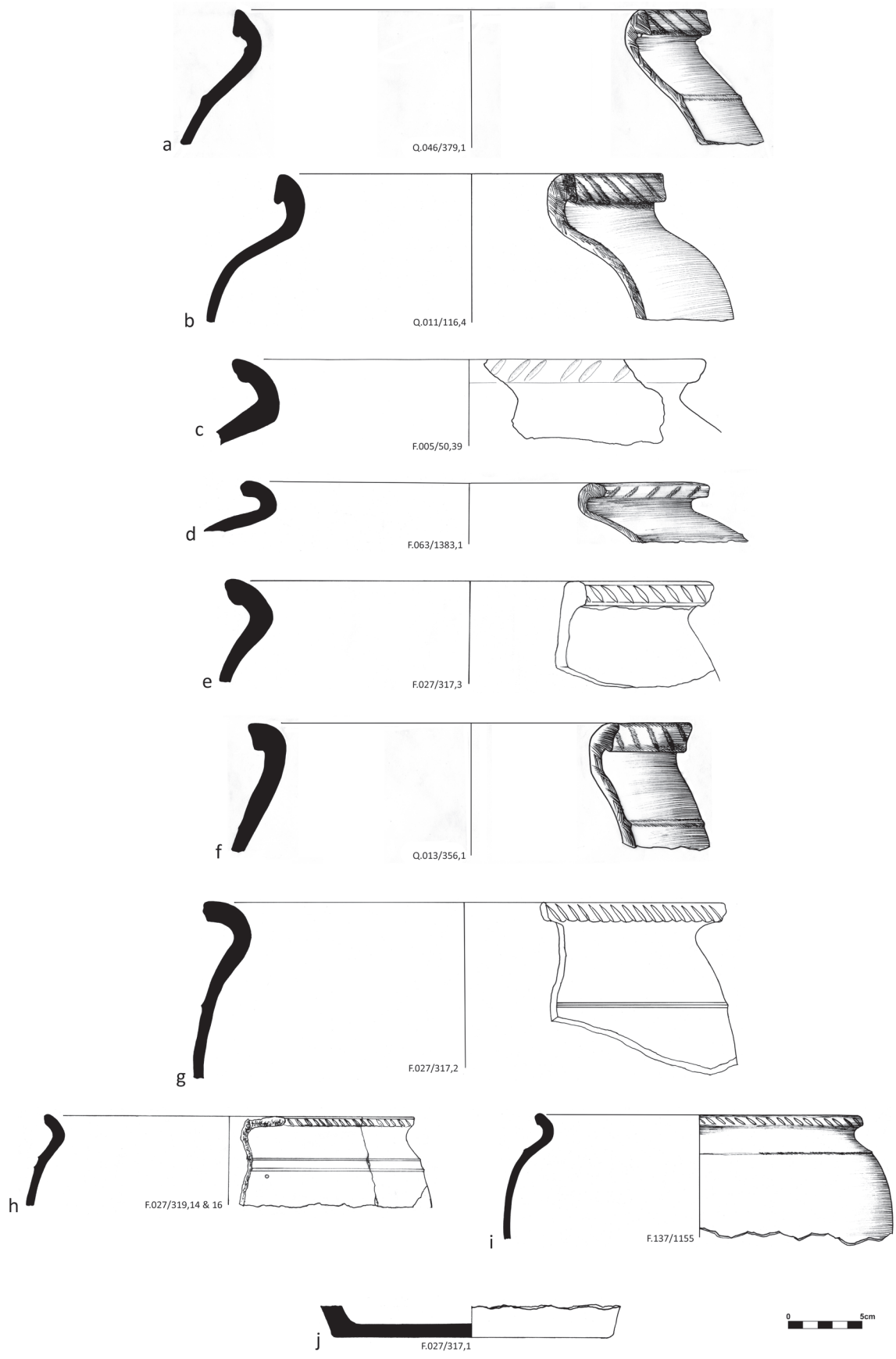


Fig. 11:51: STECOV Cooking pots, a–j = Type CP1, scale 1:4.

Class: GREBS
Type: CP2a

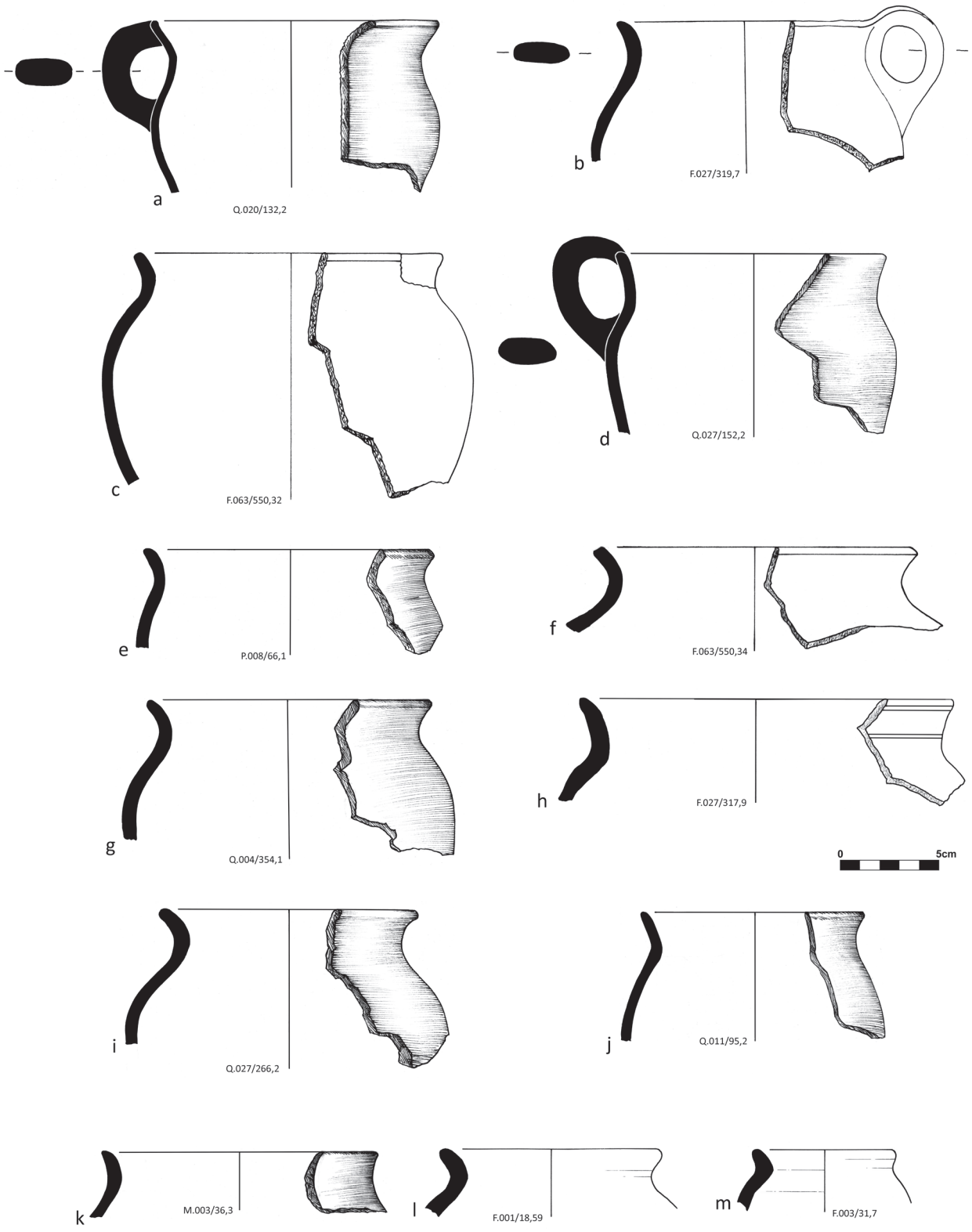


Fig. 11:52: GREBS Cooking pots, a–m = Type CP2a, scale 1:3.

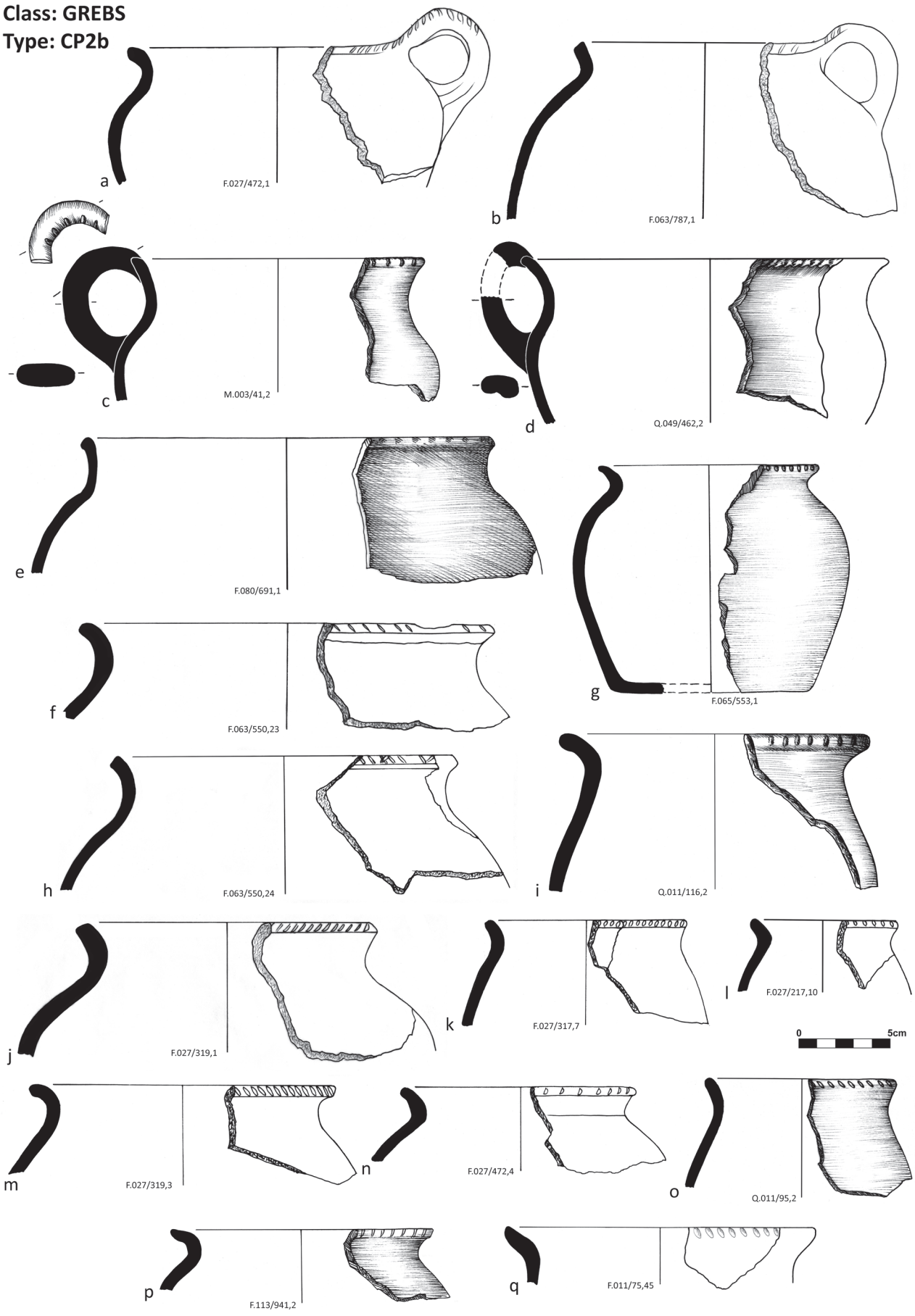


Fig. 11:53: GREBS Cooking pots, a–q = Type CP2b, scale 1:3.

Class: GREBS
Type: CP3

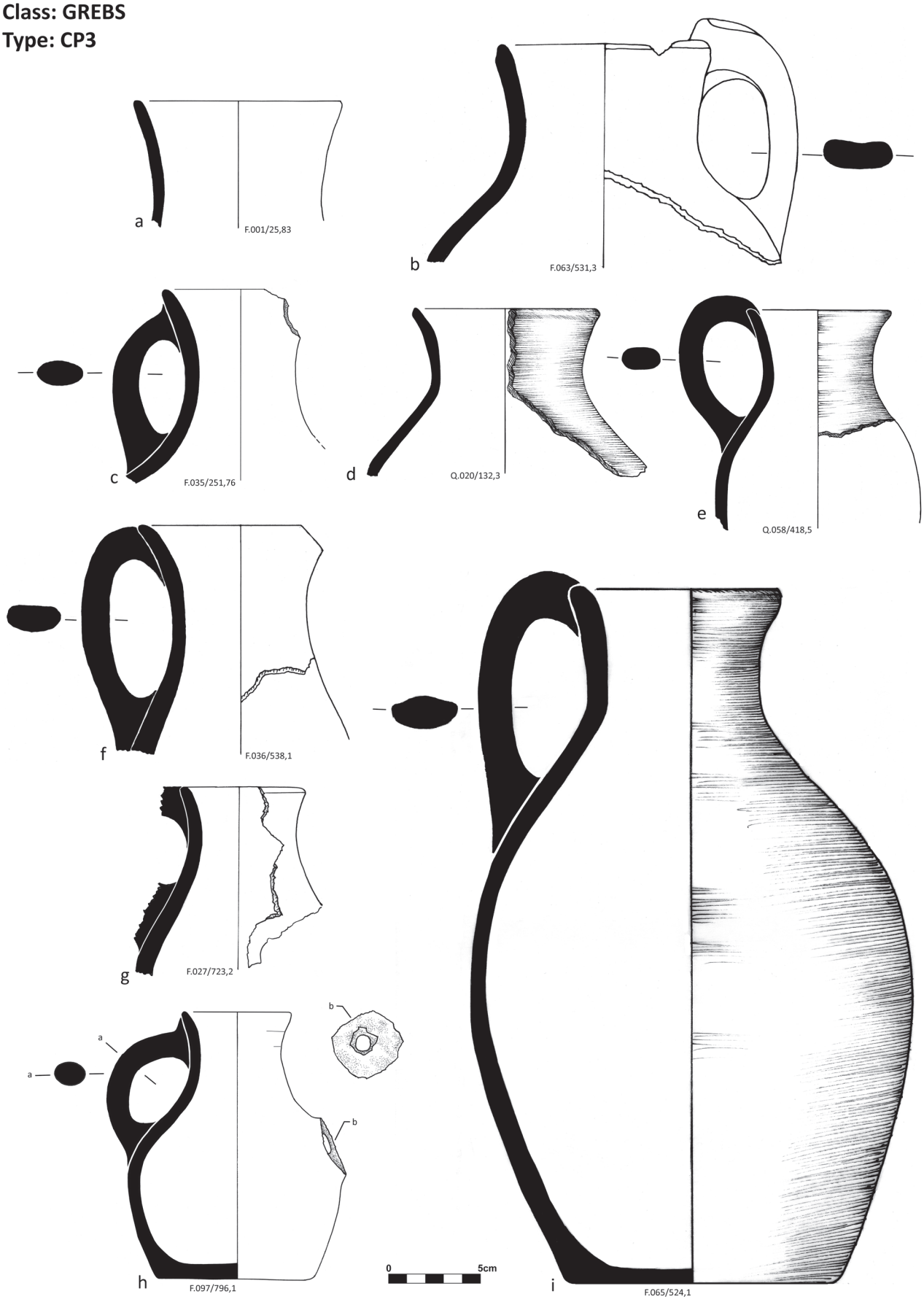
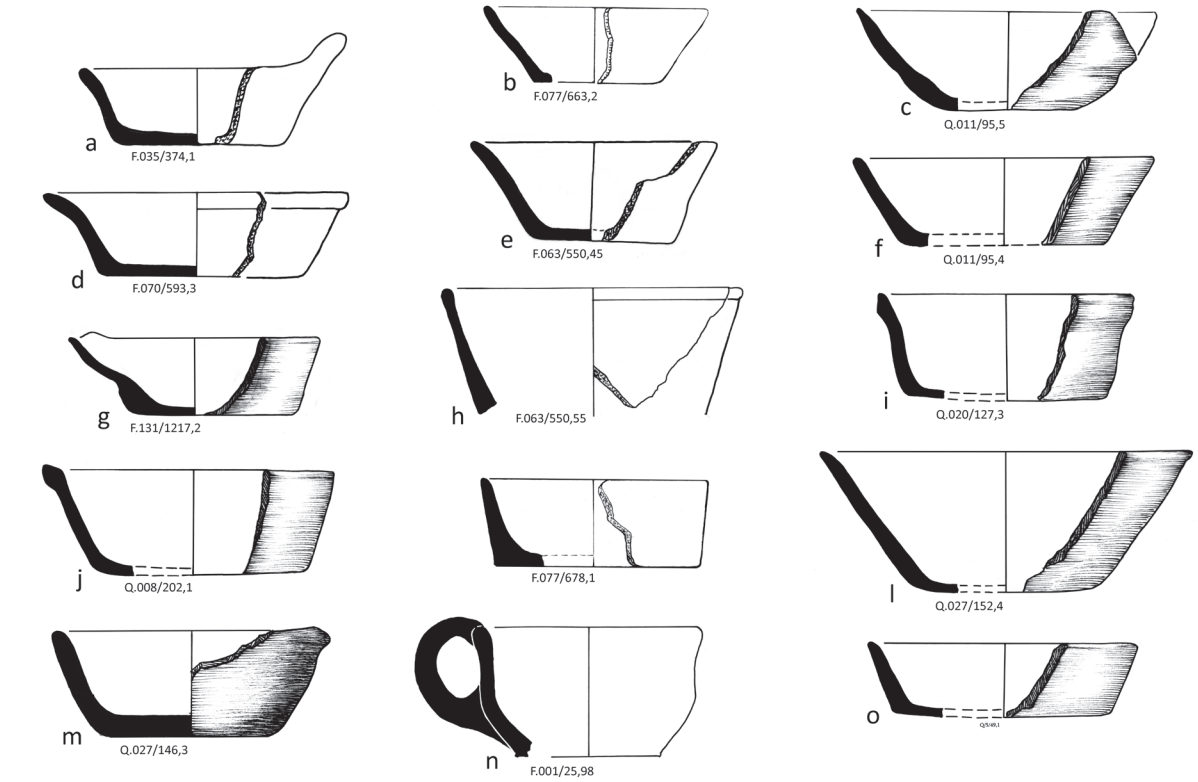


Fig. 11:54: GREBS Jars, a–i = Type CP3, scale 1:3.

Class: GREBS
Type: OC2



Cooking Bowls

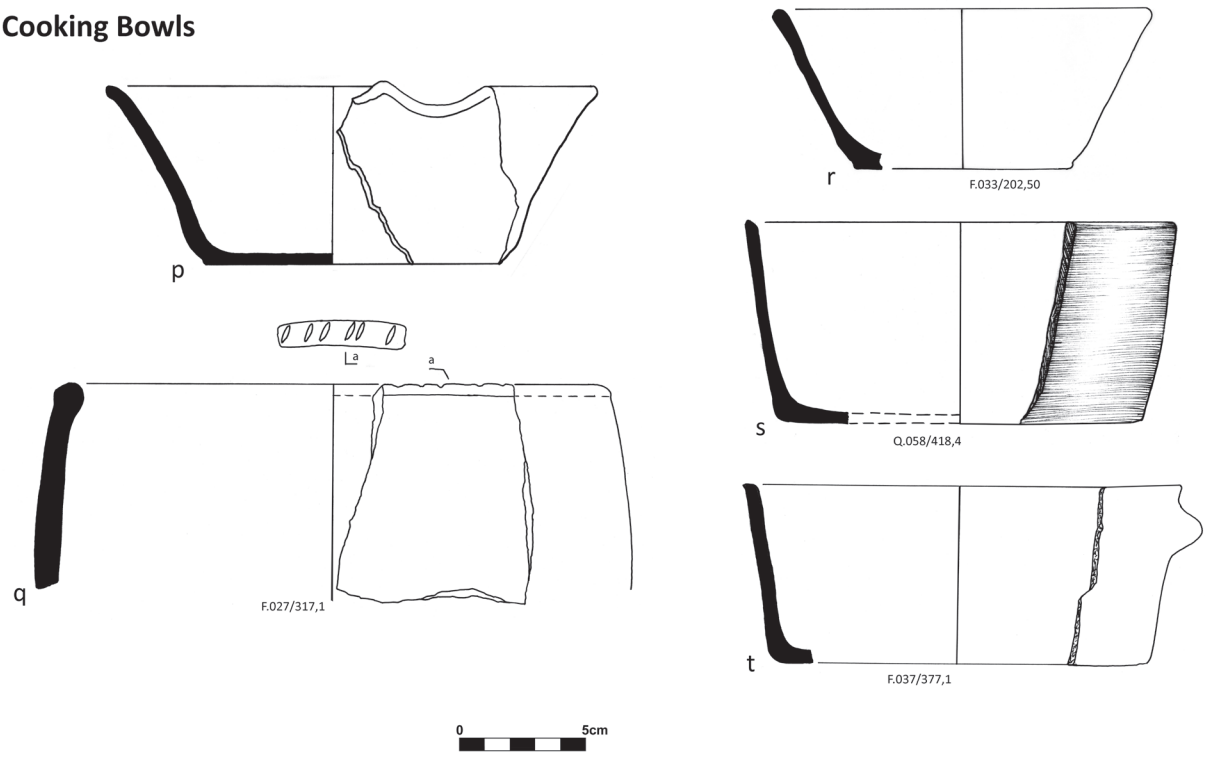
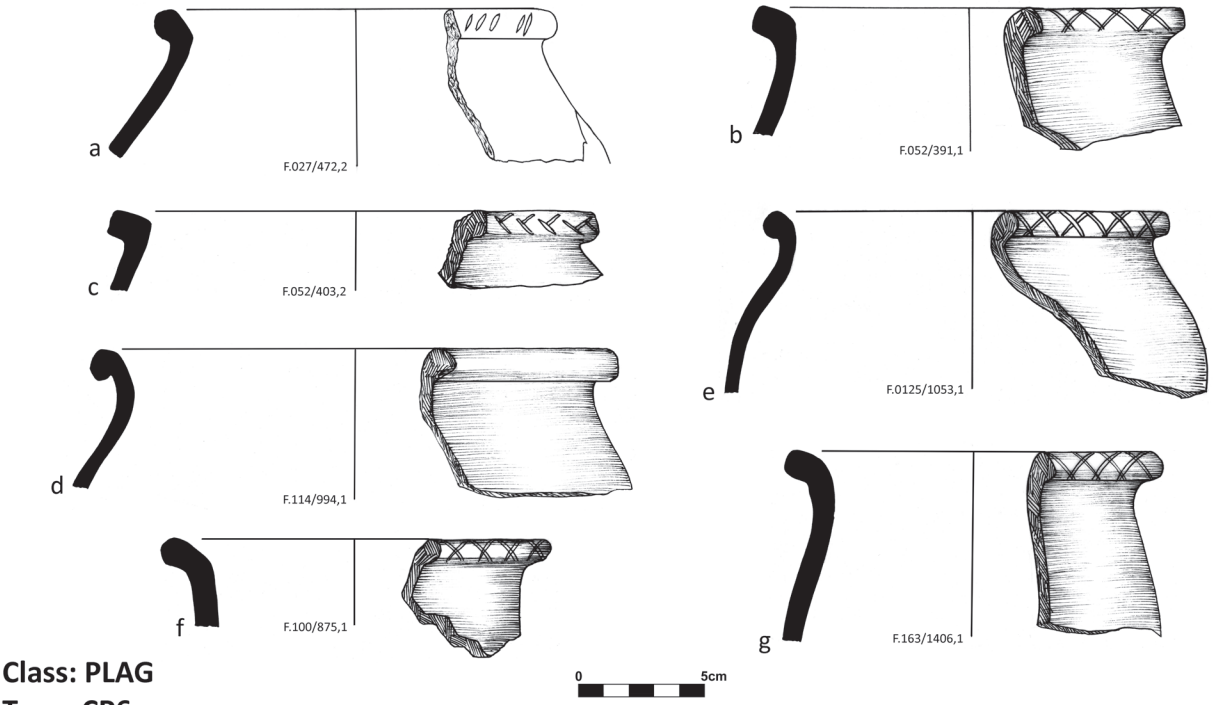


Fig. 11:55: GREBS Open vessels, a–o = Type OC2 (lamps of small bowls); p–t = cooking bowls, scale 1:3.

Class: PLAG
Type: CP5



Class: PLAG
Type: CP6

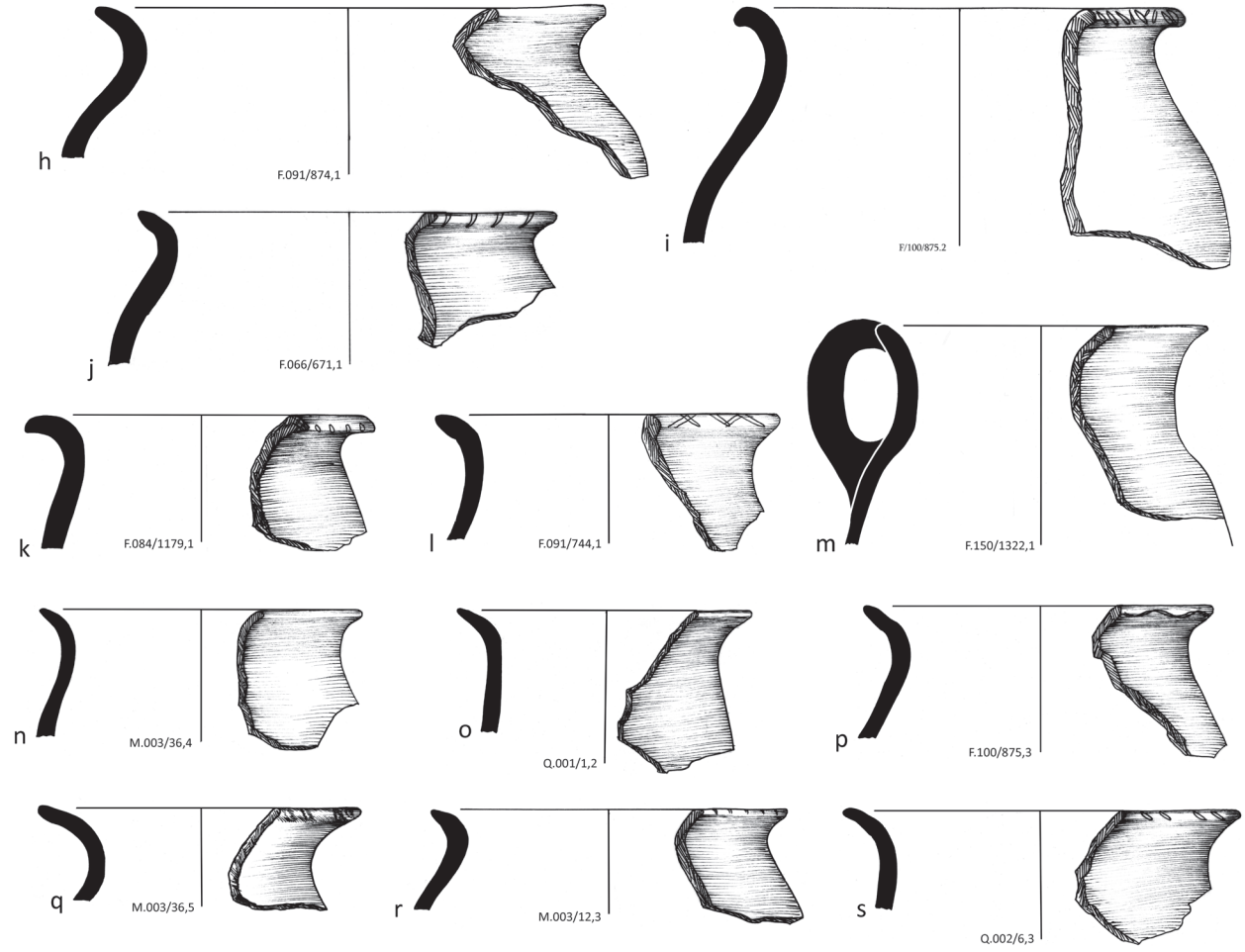


Fig. 11:56: PLAG Cooking pots, a–g = Type CP5; h–s = Type CP6, scale 1:3.

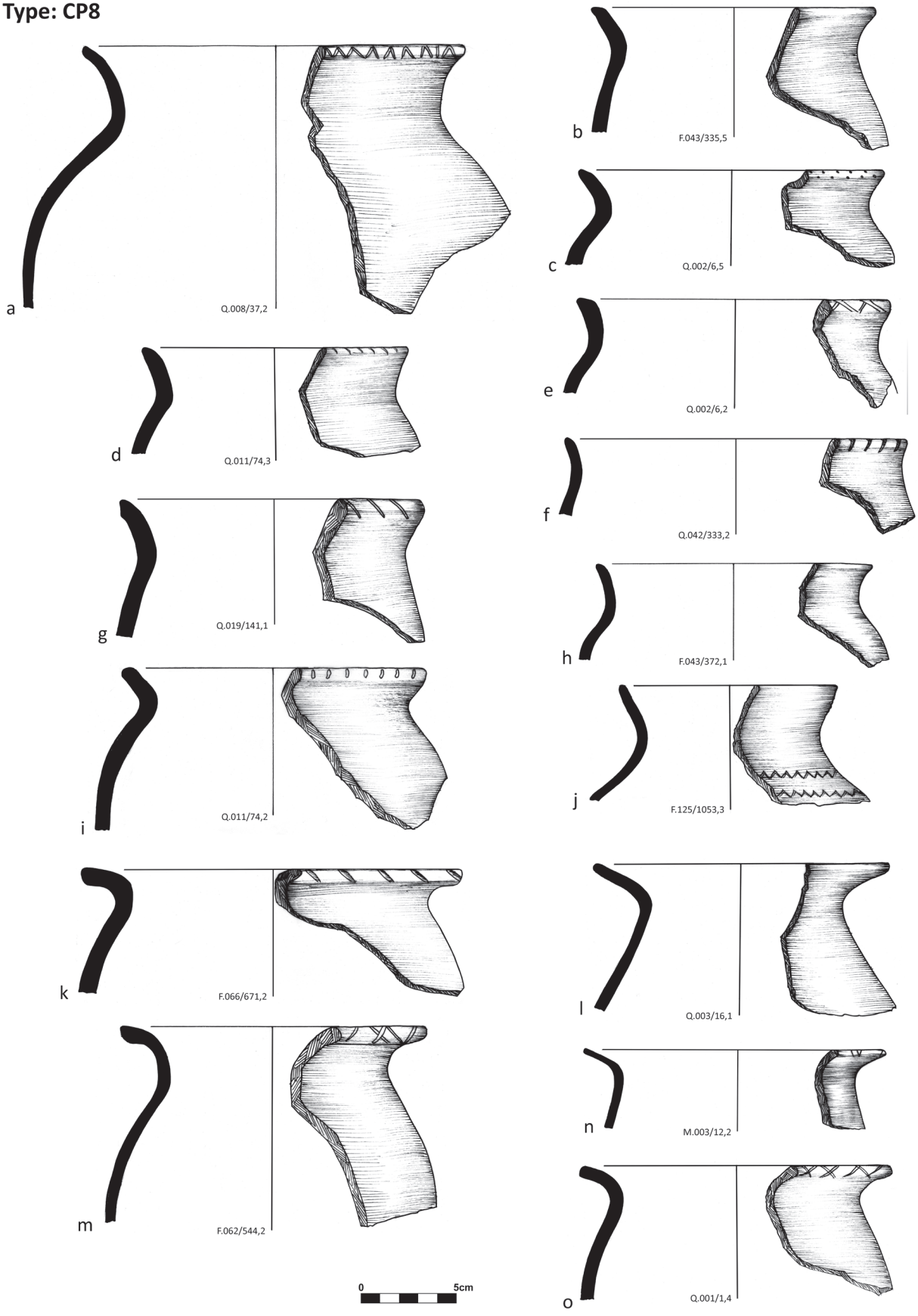


Fig. 11:57: PLAG Cooking pots, a–o = Type CP8, scale 1:3.

Class: PLAG
Type: CP4

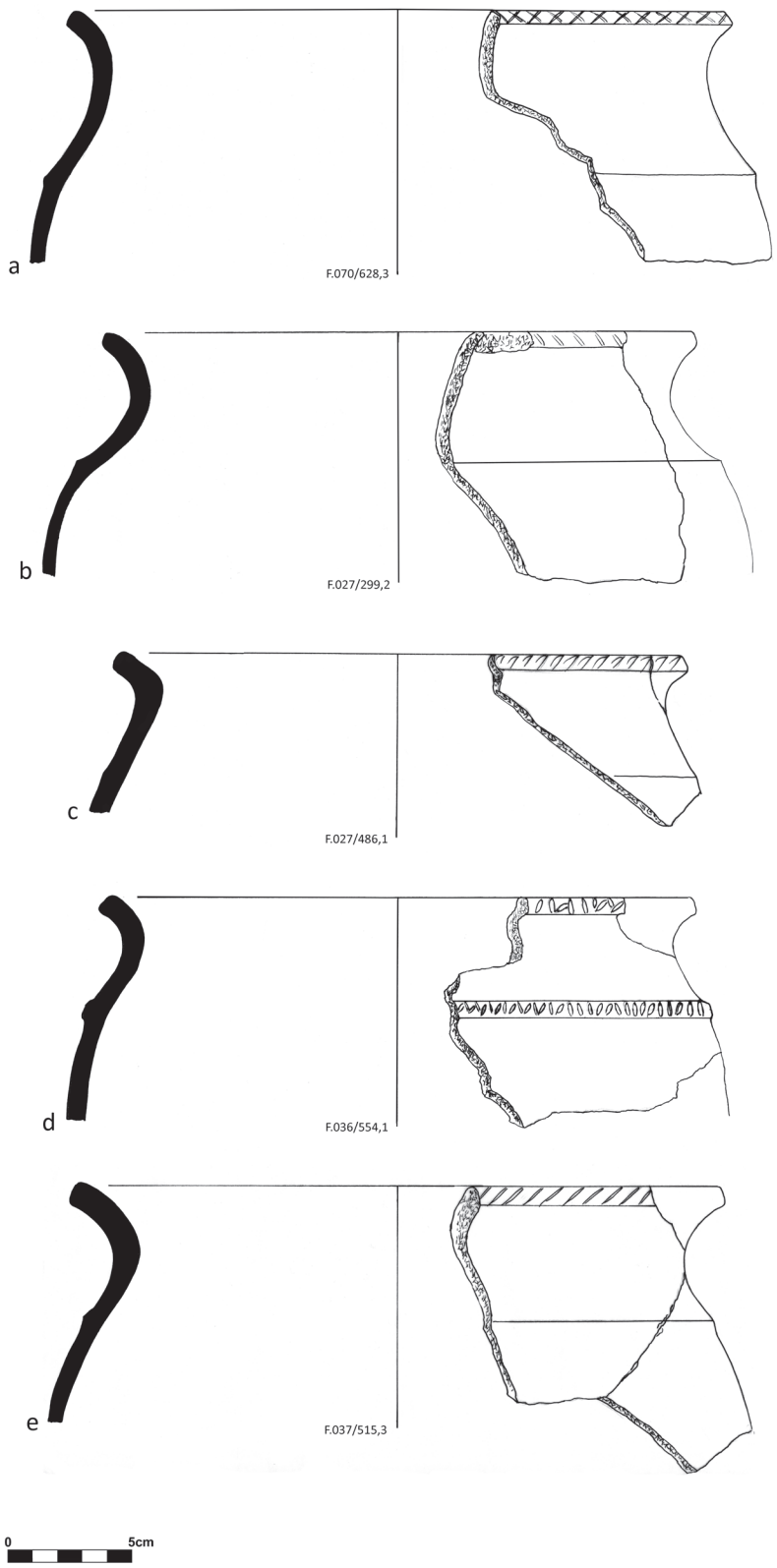


Fig. 11:58: PLAG Cooking pots, a–e = Type CP4, scale 1:3.

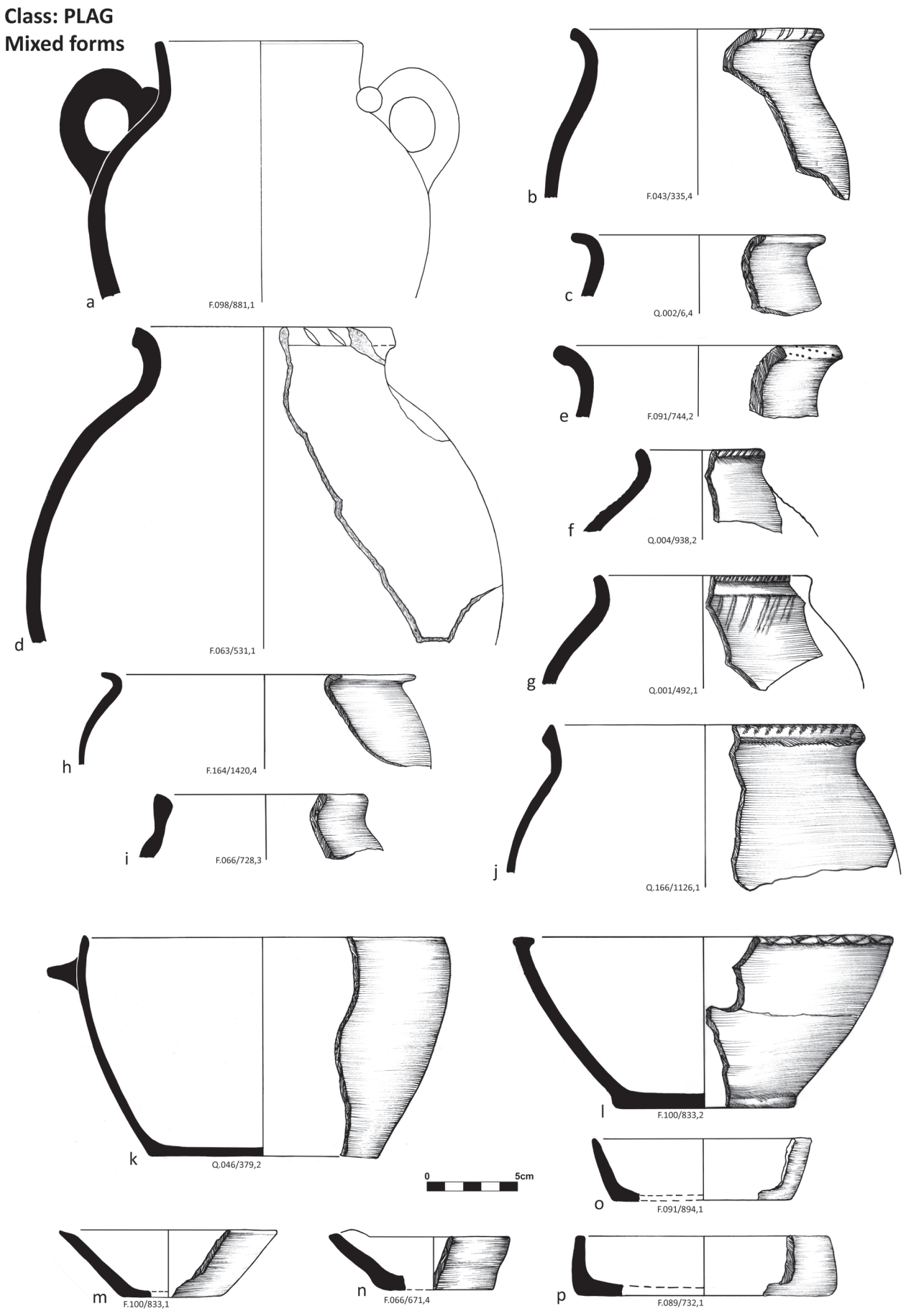
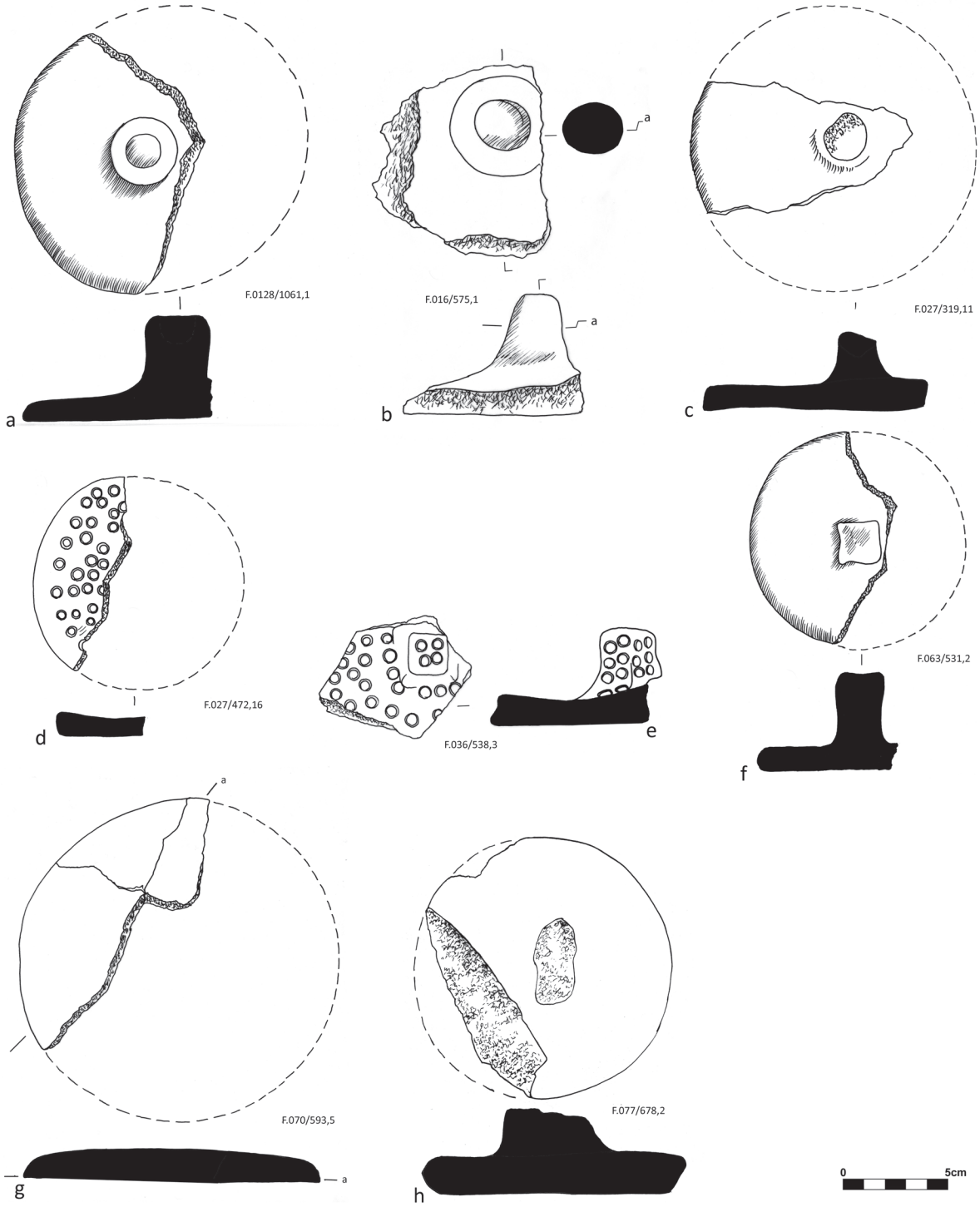


Fig. 11:59: PLAG Mixed forms, a–j = Cooking pots; k–l = Bowls; m–o = Small bowls or lamps, scale 1:3.

Class: PLAG
Cooking pot lids



Square straight sided vessels

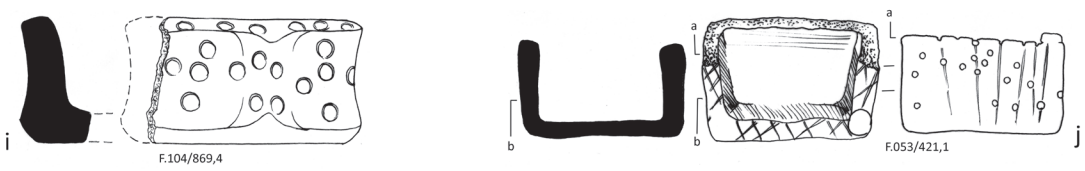


Fig. 11:60: PLAG, a–h = Cooking pot lids; i–j = Square straight sided vessels, scale 1:3.

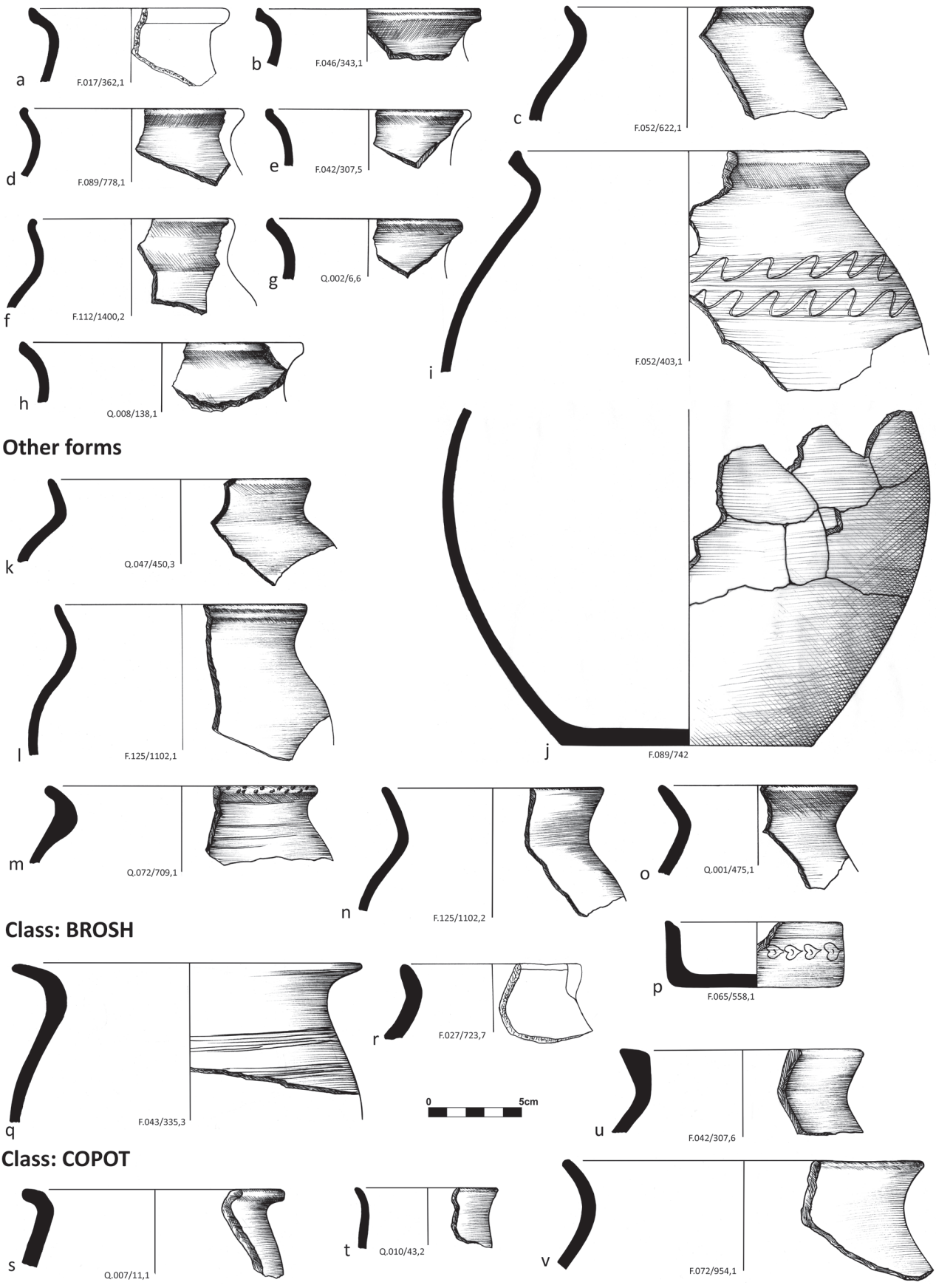


Fig. 11:61: Cooking pots, a–i = BLARIC Type CP7; j = BLARIC base; k–o = BLARIC cooking pots rims; p = BLARIC small bowl or lamp; q–u = BROSH cooking pots; s–v = COPOT non-identified cooking pots, scale 1:3.

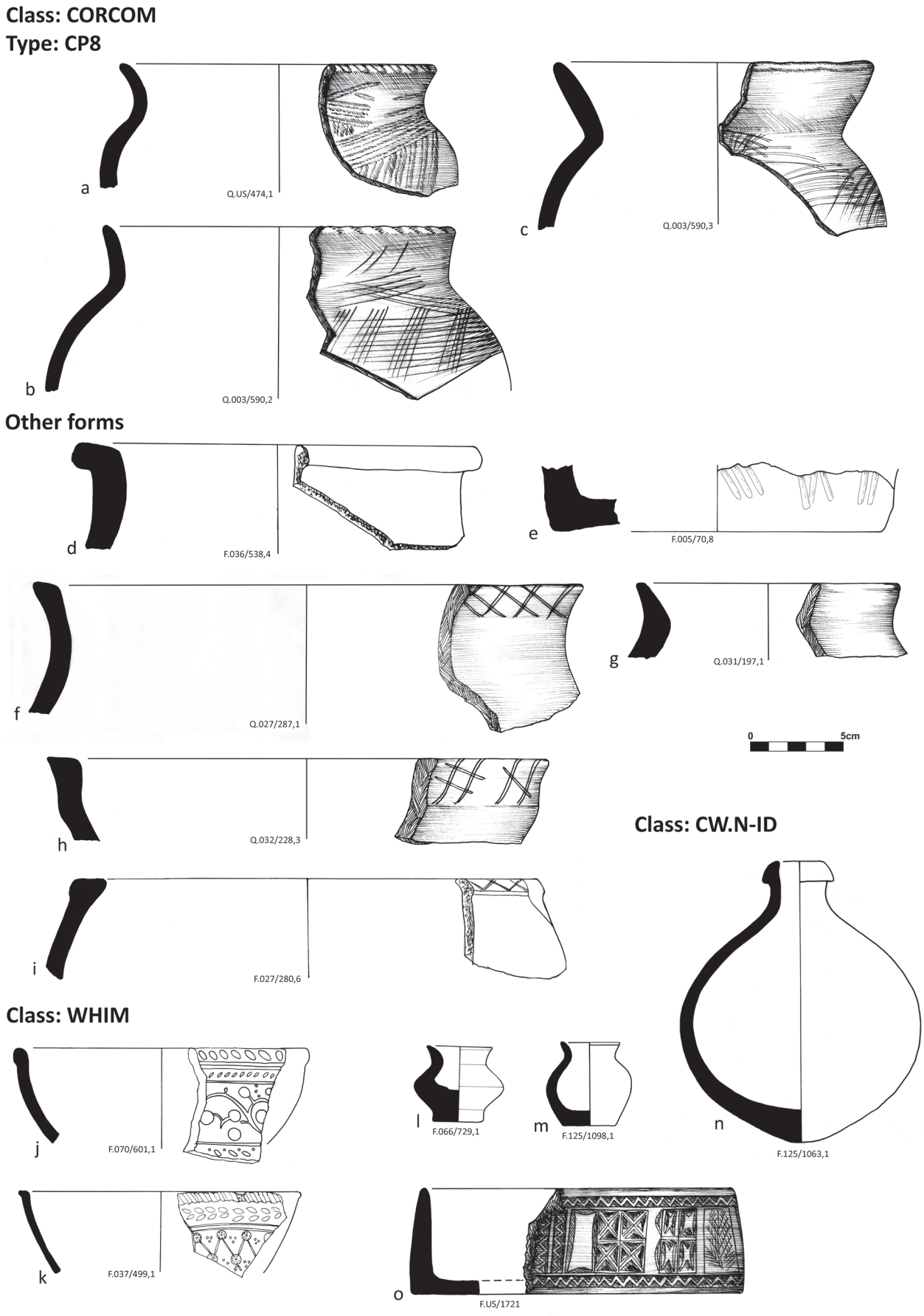


Fig. 11:62: Various groups, a–c = CORCOM Type CP8; d–I = CORCOM large vessels; j–k = WHIM moulded bowls; l–o = CW.N-ID non-identified unglazed pottery.

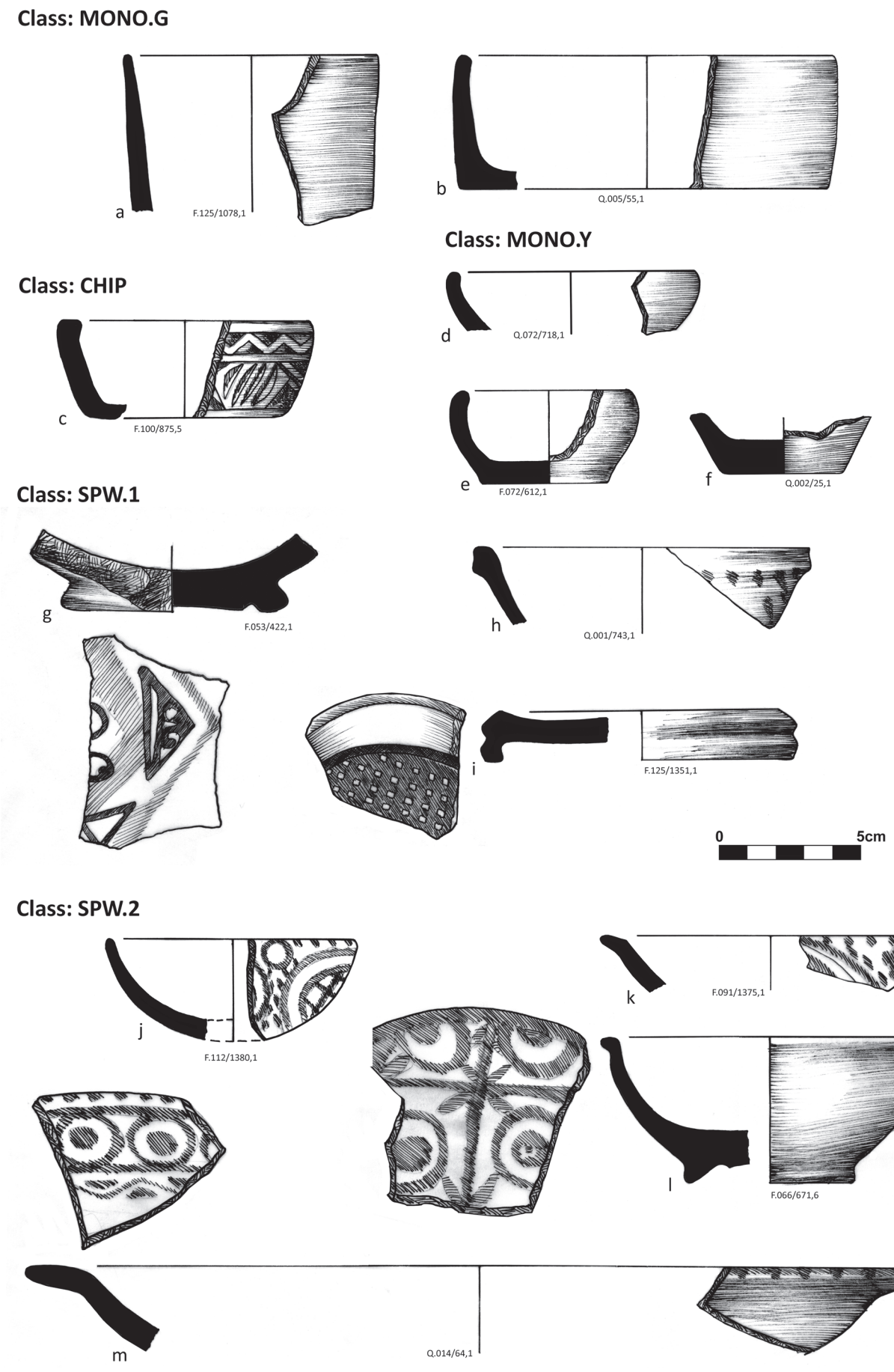


Fig. 11:63: Glazed pottery, a–b = MONO.G; c = CHIP; d–f = MONO.Y; g–i = SPW.1; j–m = SPW.2, scale 1:2.

11.9. Petrographic analysis and raw material provenance

Enrica Bonato and Seth M.N. Priestman

A sample of 15 sherds from the Dariali Fort assemblage were examined via thin-section petrographic analysis in order to provide further information on the potential sources and provenance of selected categories and some additional factors such as firing temperature or raw material treatment processes (Table 11:15). Petrography of archaeological ceramics consists of the description, classification and interpretation of the coarse inclusions in ceramic pastes or fabric, adopting techniques derived from geology to describe rocks and minerals.[145] The primary research tool is the petrographic or polarising microscope. In thin section (at a thickness of 0.03 mm) minerals in the ceramic sample under the microscope become translucent and may be identified on the basis of their different optical properties.[146] Work was undertaken by Enrica Bonato using facilities accessed within the Imaging and Analysis Centre of the Core Research Laboratories at the Natural History Museum in London. The samples selected include three each from the five main class or fabric groups represented within the Dariali Fort assemblage: DEGLIB, GREBS, STECOV, CEMRIB and HASOG. It should be noted that the samples selected for analysis are not intended to cover the different phases of site use. They simply represent typical examples of the major class categories. The macroscopic inspection and recording indicates that each class group is a homogenous category and therefore the results of the samples analysed should apply to the class group as a whole. For the chronology of each class group and the occurrence of these groups within the stratified excavation sequences, see the commentary above. The petrographic analysis shows a perfect matching with the fabric groups previously determined via macroscopic examination.

HASOG (Fabric 1)

From Fabric Group 1 three samples were selected (F.035/331, F.033/289, F.033/202.7) (Fig. 11:64). These samples present a homogeneous and optically inactive groundmass. Pores are present with frequency of 2–3% with vesicle and vugh shapes. The inclusions present a sub-angular to sub-rounded shape and they mainly consist of: quartz, amphibole, calcite, epidote volcanic rocks fragments (basalt), calcite rich rock fragments, and greywacke fragments.

CEMRIB (Fabric 2)

Fabric Group 2 is represented by three samples (F.037/262.71, F.035/331, F.033/289) (Fig. 11:64). These present a homogeneous and optically inactive groundmass. The ceramic fabric is characterised by a calcareous clay and the presence of very fine and rounded inclusions which suggests the clay underwent a levigation process. The main inclusions can be defined as mudstone (?), volcanic rock fragments (basalt) and sand.

DEGLIB (Fabric 3)

Three samples from Fabric Group 3 were analysed (F.078/646.3, F.027/723, F.097/790) (Fig. 11:65). The groundmass is homogeneous and optically active. This fabric is characterised by the presence of plagioclase, quartz, amphibole, volcanic rock fragments (basalt), metamorphic rock fragments (phyllite) and arenite rock

Table 11:15: Samples selected for thin section analysis from the Dariali Fort assemblage.

Sample	*Find No*	*Class*	*Fabric*	*Fabric Description*
1	F.035/331	HASOG	1	Volcanic rocks
2	F.033/289	HASOG	1	Volcanic rocks
3	F.033/202.7	HASOG	1	Volcanic rocks
4	F.037/262.71	CEMRIB	2	Very fine quartz
5	F.035/331	CEMRIB	2	Very fine quartz
6	F.033/289	CEMRIB	2	Very fine quartz
7	F.078/646.3	DEGLIB	3	Shale and volcanic rocks
8	F.027/723	DEGLIB	3	Shale and volcanic rocks
9	F.097/790	DEGLIB	3	Shale and volcanic rocks
10	F.035/331	GREBS	4	Shale rich
11	F.070/750.1	GREBS	4	Shale rich
12	F.077/663	GREBS	4	Shale rich
13	F.035/331	STECOV	5	Shell rich
14	F.077/663	STECOV	5	Shell rich
15	F.033/289	STECOV	5	Shell rich

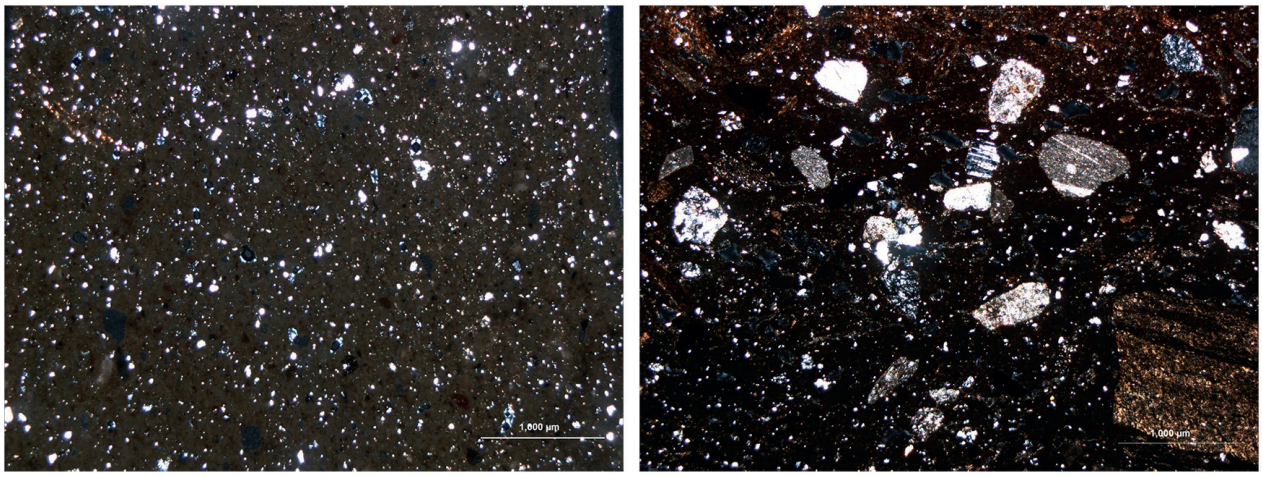


Fig. 11:64: Photomicrographs of (left) CEMRIB, Fab. 2 sample F.033/289 and (right) HASOG, Fab. 1 sample F.033/202.7 in crossed polars (XP), magnification: 16 X.

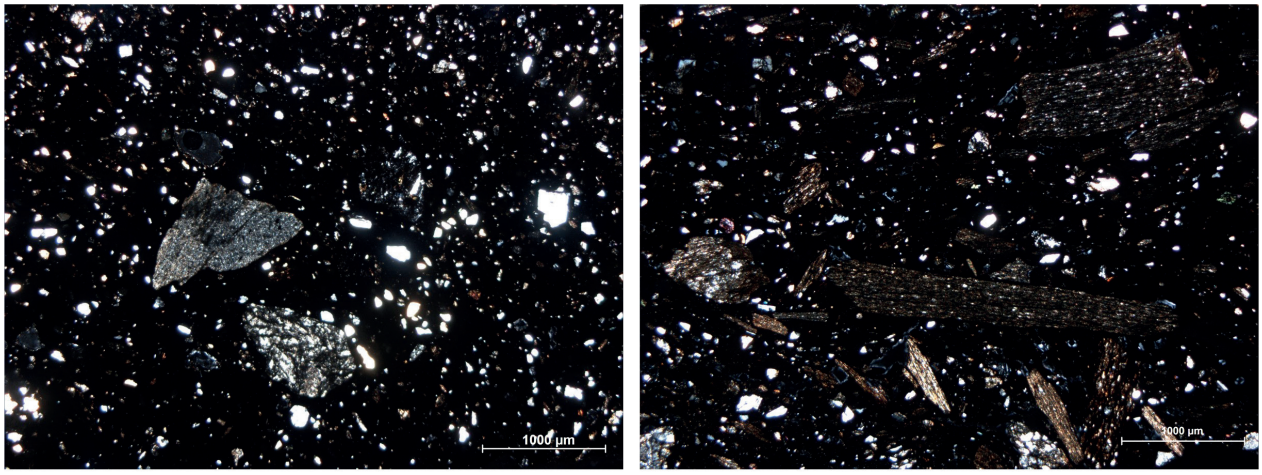


Fig. 11:65: Photomicrographs of (left) DEGLIB, Fab. 3 sample F.097/790 and (right) GREBS, Fab. 4 sample F.077/663 in crossed polars (XP), magnification: 16 X.

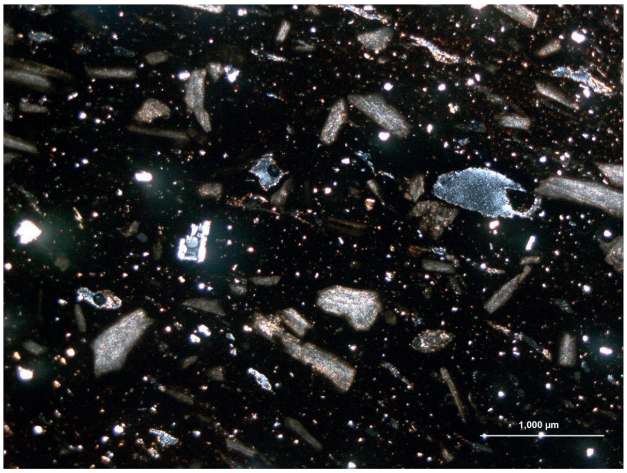


Fig. 11:66: Photomicrograph of STECOV, Fab. 5 sample F.077/663 in crossed polars (XP), magnification: 16 X.

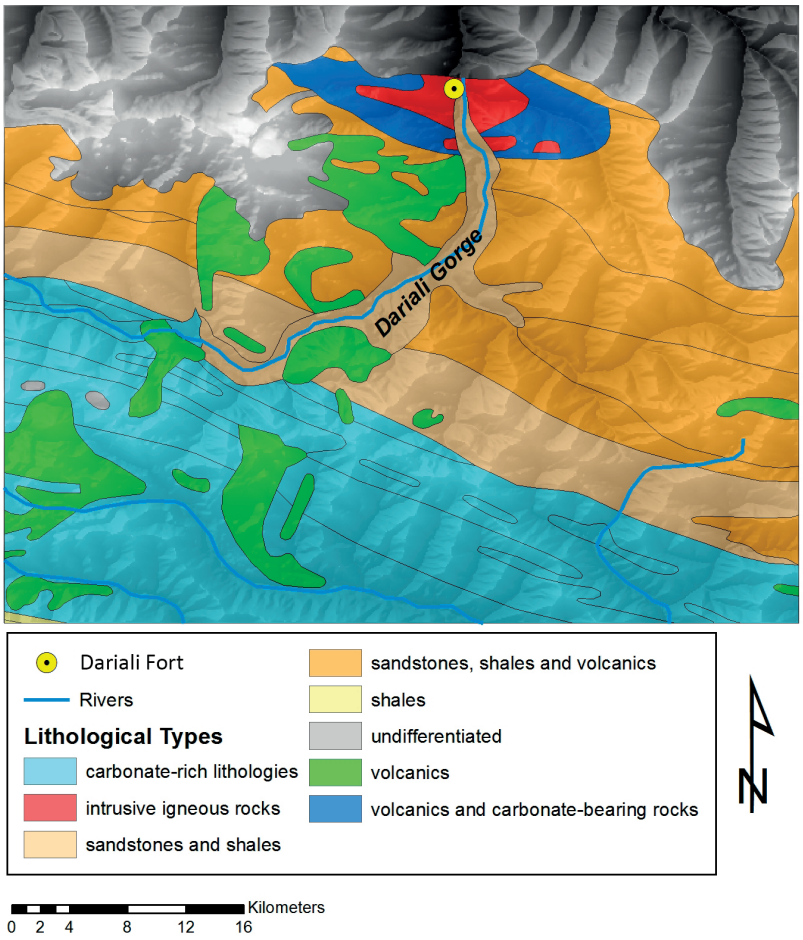


Fig. 11:67: Distribution of major mineralogical groups through the Dariali Gorge and surrounding area based on the GIS map sources held by the Natural History Museum in London.

fragment inclusions. Moreover, it can be observed that the presence of secondary calcite within the voids is as a result of post-depositional processes.

GREBS (Fabric 4)

From Fabric Group 4 three samples were chosen (F.035/331, F.070/750, F.077/663) (Fig. 11:65). This fabric is characterised by a homogeneous and optically inactive groundmass. The inclusions present a sub-rounded/sub-angular shape, which mainly consists of quartz, pyroxene, plagioclase, metamorphic (phyllite) and volcanic rock fragments (basalt). Metamorphic rock fragments are especially abundant.

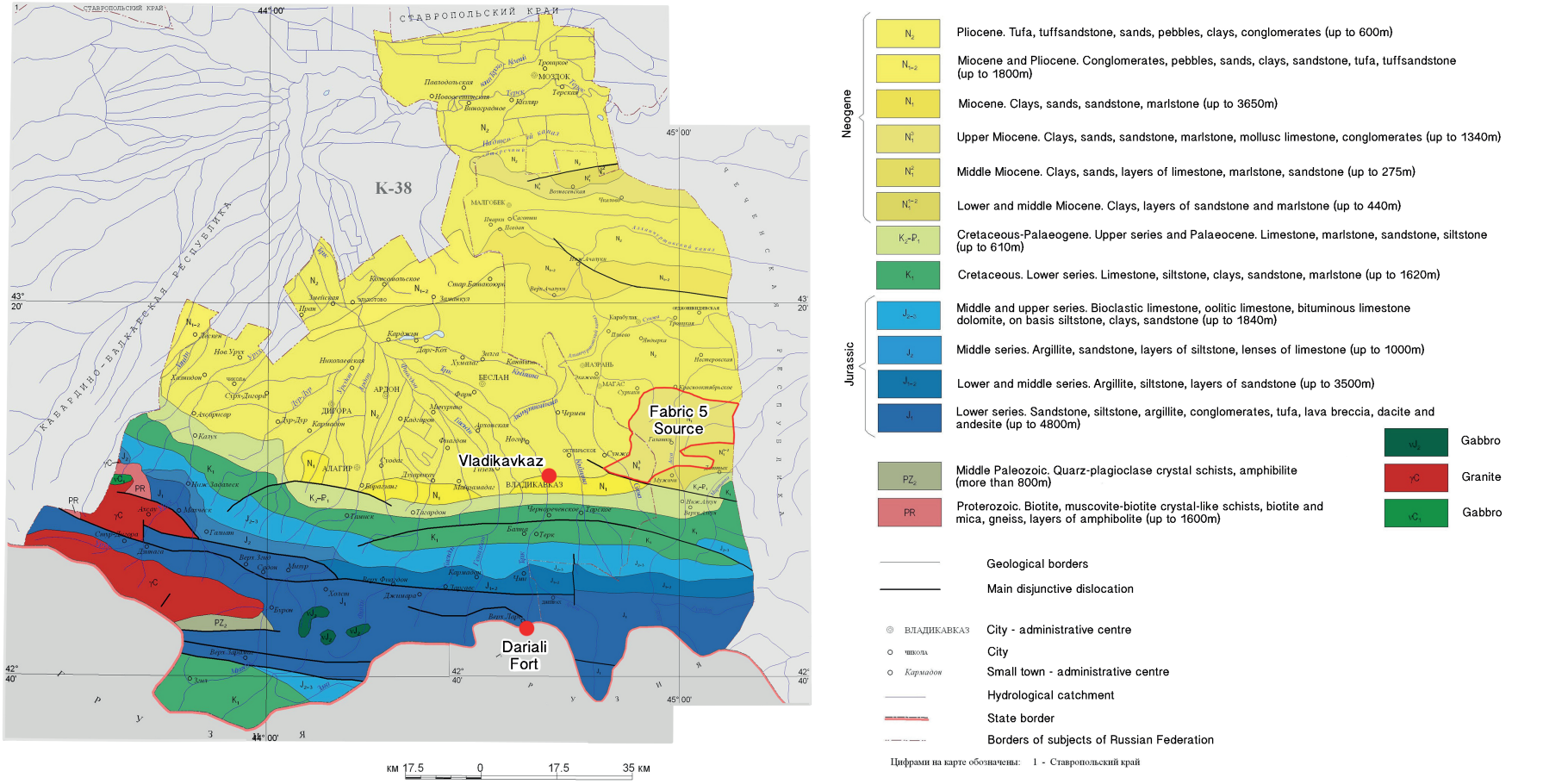
STECOV (Fabric 5)

From Fabric Group 5 three samples were chosen (F.035/331, F.077/663, F.033/289) (Fig. 11:66). This fabric is characterised by an optically inactive groundmass and abundant shell fragments, which could have been naturally occurring in the clay or intentionally added during the ceramic production. Some of the shells look like they were crushed and added to the ceramic paste. Other inclusions that are possible to recognise include plagioclase, quartz, epidote, amphibole, volcanic rock and greywacke fragments. Moreover, it is noticeable that the presence of secondary calcite within the voids is as a result of post-depositional processes.

Discussion

Most of the fabric groups present an optically inactive groundmass, which suggest that the ceramic was fired at a temperature close to 800°C. This assumption could be questioned for the fabric tempered with shell (Fabric 5) in as much as the shell still presents some typical optical properties like birifrangence, but these aspects need to be further investigated with more detailed analysis of the shell fragments.

In order to determine the potential provenance of the different fabric groups, the coarse inclusions identified within the samples have been compared with the known mineralogical distribution in Georgia and the Northern Caucasus. A variety of different sources have been consulted to check this mineralogical distribution including the Soviet era Northern Caucasian Federal District geological maps for the Republics of Ingushetiya and Ossetia/Alania[147] and a GIS dataset source maintained for in-house research within the Natural History Museum in London. Using these different sources of information,



УСЛОВНЫЕ ОБОЗНАЧЕНИЯ

Neogene

- N_2 — Pliocene. Tufa, tuffsandstone, sands, pebbles, clays, conglomerates (up to 600m)
- N_{1-2} — Miocene and Pliocene. Conglomerates, pebbles, sands, clays, sandstone, tufa, tuffsandstone (up to 1800m)
- N_1 — Miocene. Clays, sands, sandstone, marlstone (up to 3650m)
- N_1^3 — Upper Miocene. Clays, sands, sandstone, marlstone, mollusc limestone, conglomerates (up to 1340m)
- N_1^2 — Middle Miocene. Clays, sands, layers of limestone, marlstone, sandstone (up to 275m)
- N_1^{1-2} — Lower and middle Miocene. Clays, layers of sandstone and marlstone (up to 440m)
- K_2-P_1 — Cretaceous-Palaeogene. Upper series and Palaeocene. Limestone, marlstone, sandstone, siltstone (up to 610m)
- K_1 — Cretaceous. Lower series. Limestone, siltstone, clays, sandstone, marlstone (up to 1620m)

Jurassic

- J_{2-3} — Middle and upper series. Bioclastic limestone, oolitic limestone, bituminous limestone dolomite, on basis siltstone, clays, sandstone (up to 1840m)
- J_2 — Middle series. Argillite, sandstone, layers of siltstone, lenses of limestone (up to 1000m)
- J_{1-2} — Lower and middle series. Argillite, siltstone, layers of sandstone (up to 3500m)
- J_1 — Lower series. Sandstone, siltstone, argillite, conglomerates, tufa, lava breccia, dacite and andesite (up to 4800m)

- PZ_2 — Middle Paleozoic. Quarz-plagioclase crystal schists, amphibilite (more than 800m)
- PR — Proterozoic. Biotite, muscovite-biotite crystal-like schists, biotite and mica, gneiss, layers of amphibolite (up to 1600m)

- $\nu\delta_3$ — Gabbro
- γC — Granite
- νC_1 — Gabbro

Geological borders

Main disjunctive dislocation

ВЛАДИКАВКАЗ — City - administrative centre

ЧИКОЛА — City

Кармадон — Small town - administrative centre

Hydrological catchment

State border

Borders of subjects of Russian Federation

Цифрами на карте обозначены: 1 - Ставропольский край

Fig. 11:68: Map showing the mineralogical distribution to the north of Dariali and the probable provenance of Fabric 5 within the upper Miocene clay and fossilised shell deposits to the NE of Vladikavkaz, based on the North Caucasian Federal District Geological Map sheets for the Republics of Ossetia – Alania and Ingushetia. (Many thanks to Lyudmila Shumilovskikh for translating the key on the right.)

it is possible to define the possible provenance of the raw materials employed in the production of these five classes.

Fabric Groups 1, 3 and 4 (that is HASOG, DEGLIB and GREBS) present common inclusions, despite the fact that there are differences in their abundance (Fig. 11:64 and Fig. 11:65). These inclusions are consistent with those represented close to the site of Dariali Fort within the Dariali Gorge (Fig. 11:67). Potentially therefore these ceramic categories could be locally manufactured. However, as discussed in an earlier section,[148] despite the presence of workable clay deposits within the Dariali Gorge, there is no evidence so far of their exploitation for pottery production. A more likely possibility is that sedimentary clays were laid down further down the valley where the Tergi opens out into a set of slow moving braided channels and lagoons where it issues from the gorge onto the open steppe around 31 km to the north of Dariali around the modern city of Vladikavkaz. Presumably the sedimentary clay deposits formed in this area are dominated by the same rock inclusions as those washed out from the gorge itself. At the same time there are other more compelling lines of evidence[149] that indicate that Fabric 1 (HASOG) originates further south within the territory of Eastern Georgia. Fabric 5 (STECOV) is especially distinctive (Fig. 11:66). It is characterised by the presence of abundant shell inclusions. These are consistent with fossil inclusions in the limestone formations of the central-southern part of the Republic of Ingushetia and the adjoining eastern portion of the Republic of Ossetia/Alania (geological formation: N^3_1) in an area just to the north-east of Vladikavkaz (Fig. 11:68). For Fabric 2 (CEMRIB), the provenance determination needs further research, but given the fact that this is a calcareous clay, it is clear that it is non-local and a source within the central lowlands of Georgia seems most likely.

11.10. Residue analysis of cooking pots by GCMS

Ben Stern and Seth M.N. Priestman

Two cooking pot samples were selected for residue analysis using Gas Chromatography-Mass Spectrometry in order to detect traces of preserved food lipids, which may provide an indication of the vessel function. Samples were selected that had well-preserved carbonised residues adhering to the internal surfaces indicating their use for cooking. These samples were separated out at the point of recovery during the excavation, wrapped in tin foil to avoid any potential contamination and submitted directly for analysis. The samples include one piece of STECOV (F.027/302) and one piece of GREBS (F.063/550) representing two of the main cooking pot categories within the assemblage. The limited pilot study reported here was undertaken in order to determine whether the preservation conditions for food residues appeared generally favourable, to assess whether further useful information could be provided from this analysis and to see if there were any discernible differences in the use of the two different cooking pot classes. While the results do enable the identification of a number of specific lipid classes, their general degradation and difficulty of linking them to particular food categories, did not provide enough information to warrant a larger sampling programme as originally intended.

Sample preparation

For each sample (F.027/302 and F.063/550) interior surface areas were selected due to the presence of visible deposits where organic residues could be more likely preserved. Over an area of approximately 1 × 1 cm each visible residue was removed and the underlying ceramic surface gently scraped with a solvent cleaned metal spatula. The resultant powders from the visible residue and ceramic were combined for each sherd (1.78 g from sample F.027/302 and 0.19 g from sample F.063/550).

These samples were extracted with three aliquots of ~2 ml DCM:MeOH (dichloromethane:methanol 2:1, v/v), with ultrasonication for 5 min. followed by centrifugation (5 min 2000 rpm). Excess BSTFA (*N,O*-bis(trimethylsilyl)trifluoroacetamide) with 1% TMCS (trimethylchlorosilane) was added to derivatise the sample which was warmed at 70°C for one hour. Excess derivatising agent was removed under a stream of nitrogen. The samples were diluted in DCM for analysis by GC-MS. A method blank was prepared and analysed alongside the four samples.

Instrumental (GC-MS)

Analysis was carried out by combined gas chromatography-mass spectrometry (GC-MS) using an Agilent 7890A Series GC connected to an 5975C Inert XL mass selective detector. The splitless injector and interface were maintained at 300°C and 340°C respectively. Helium was the carrier gas at constant flow. The temperature of the oven was programmed from 50°C (2 min) to 350°C (10 min) at 10°C/min. The GC was fitted with a 30 mx0.25 mm, 0.25 µm film thickness HP-5MS 5% Phenyl Methyl Siloxane phase fused silica column (Agilent J&W). The column was directly inserted into the ion source where electron impact (EI) spectra were obtained at 70 eV with full scan from *m/z* 50 to 800.

Results

The results are presented as chromatograms of the BSTFA derivatised solvent extracts. These show each separated component of the solvent extract as discrete peaks, the area under each peak being representative of the abundance.

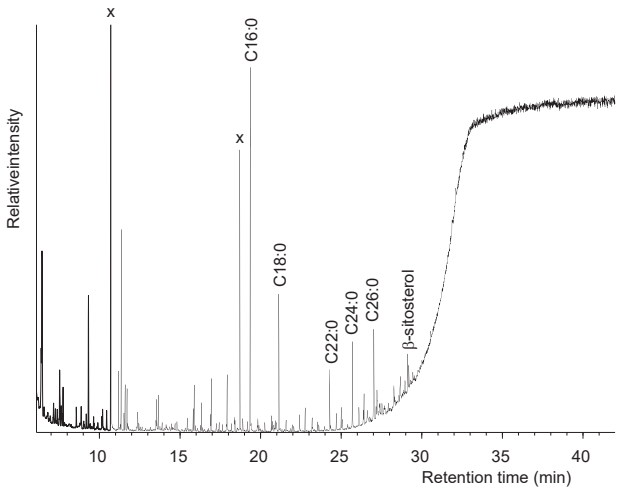


Fig. 11:69: Total ion chromatogram of the BSTFA derivatised solvent extract of sample F.027/302.

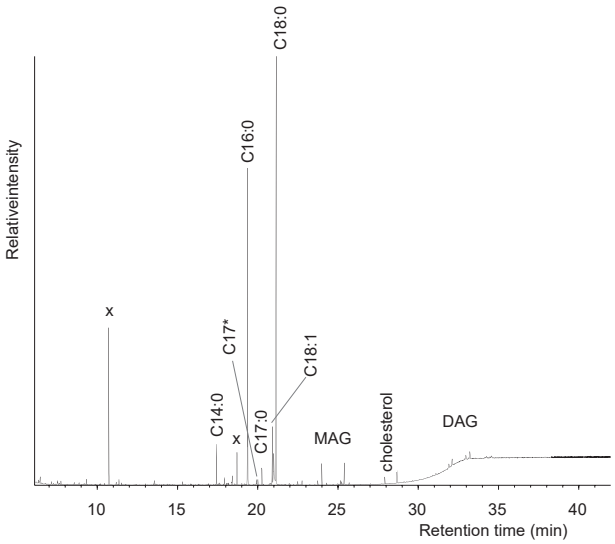


Fig. 11:70: Total ion chromatogram of the BSTFA derivatised solvent extract of sample F.063/550.

Interpretation

Analytical artefacts (labelled x) were present in both samples (Figs 11:69–11:70). These were identified as siloxane compounds from septa or column breakdown. They do not interfere with the indigenous lipids from the samples and can therefore be discounted. The raised baseline from 30–42 minutes is termed 'column bleed' a normal occurrence as part of analysis, this is only revealed here as the vertical scale has been enlarged for sample F.027/302.

Both samples contain a range of fatty acids (labelled as C with the carbon number and degree of unsaturation). These fatty acids occur in even carbon numbers (with the exception of C17 and C17* (two branched fatty acids). The odd and branched fatty acids are indicative of bacterial input, either in the original material or subsequent degradation. Both samples have high abundances of C16 and C18, which are commonly occurring fatty acids. Sample F.063/550 also has C18:1 (oleic acid, containing one double bond), the recovery of this is low, probably due to degradation of the original material. Sample F.027/302 has higher carbon numbered fatty acids (C22–26), these are likely to be from a plant input – this is confirmed by the presence of ß-sitosterol which originates from plants. Sample F.063/550 also contains mono- and di-acylglycerols (labelled MAG and DAG) these molecules and the fatty acids are likely degradation products of the original triacylglycerols, now lost. This sample also contains cholesterol, which is a marker for an animal input.

Summary

Indigenous lipids were extracted from both samples. However, the recovered lipids represent the degraded original contents. The surviving lipids represent a degraded oil (plant origin) or fat (animal origin). The potential of lipid survival in other samples is good. Though it must be remembered that usually 0.1 g of material would be extracted and the visible residues sampled here would usually represent the highest change of lipid survival. Analysis of the ceramic-bound lipids might yield better preserved lipids and compound specific analysis of the fatty acids might indicate the fat source (milk, adipose fat etc).

11.11. Context dating from ceramic finds

Phasing key

1 = natural; 2a = sixth–third c. BC; 2b = first c. BC/first c. AD onwards; 3a = late(?) fourth c.; 3b = late fourth/early fifth c.; 3c = late fourth–early/mid-fifth c.; 3d = second quarter fifth–sixth c.; 3e = mid-late sixth c.; 3f = early-mid seventh c.; 4 = mid-seventh–early eighth c.; 5a = late seventh–early ninth c. (prob. eighth–early ninth c.); 5b = late eighth–ninth c.; 5c = late ninth–tenth/early eleventh c.; 6a = eleventh–thirteenth c.; 6b = late thirteenth–early fifteenth c.; 7a = mid-fifteenth–mid-seventeenth c.; 7b = mid-seventeenth–twenty-first c. (Where no sub-phases are cited, a deposit could date to all possible sub-phases, *e.g.* 3 = 3a–f; 5–7 = 5a–7b. Phasing followed by narrower phasing with question mark signals the most likely date, *e.g.* 5b–6: 6b? = 5b–6b: 6b most likely. Phasing, based mainly on stratigraphy and scientific dating, relates to likely dates of deposits, disregarding any earlier redeposited material. Ceramic date by SP. Phasing by EWS *et al.* Significant differences between stratigraphic/scientific phasing and ceramic dates are discussed in the excavation report, excluding widespread cases of second-millennium deposits being full of redeposited first-millennium pottery.)

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
A.001	7b		50									50			2	Includes CEMRIB	10th c. or earlier
A.003	7		100												2	Includes CEMRIB	10th c. or earlier
C.001	7b		3.4	27.6			13.8		3.5		3.5	27.6	20.7	SPORG: 6	29	Includes BLARIC and SPORG	11th c. or later?
C.002	7b			50									50	GW.N-ID: 1	2	Includes glazed pottery	9th c. or later
C.004	7a											66.7	33.3	SPORG: 1	3	Includes SPORG and RIBPUR	11th c. or later?
D.001	7b			40								20	40	SPORG: 3; RIBPUR: 1	10	Includes SPORG and RIBPUR	11th c. or later?
D.003	6–7			20			6.7		13.3				60	SPORG: 5; RIBPUR: 4	15	Includes SPORG and RIBPUR	11th c. or later?
D.004	6–7											100			1	Very small sample, no clear markers	?
D.005	7a		8.7	13.0									78.3	RIBPUR: 12; SPORG: 6	23	Includes SPORG and RIBPUR	11th c. or later?
D.008	6			50					25				25	RIBPUR: 1	4	Includes RIBPUR	11th c. or later?
D.010	6								100						4	Only BLARIC	9th c. or later
D.012	6			100											1	Very small sample, no clear markers	?
D.023	6								100						1	Only BLARIC	9th c. or later
D.024	6								100						2	Only BLARIC	9th c. or later
D.026	6		50	50											2	Includes CEMRIB and no later markers	10th c. or earlier?
D.027	6		14.3						28.6			42.9	14.3	RIBPUR: 1	7	Includes RIBPUR	11th c. or later?
D.035	6		10	10			20		40				20	RIBPUR: 2	10	Includes RIBPUR	11th c. or later?
D.036	6						33.3		33.3				33.3	RIBPUR: 1	3	Includes RIBPUR	11th c. or later?
D.037	5–6						100								1	Only CORCOM	9th c. or later?
D.039	5–6a								100						1	Only BLARIC	9th c. or later
E.001	7b		0.5	5				5				89.6			220	Includes PLAG	9th c. or later
E.002	7b											100			7	No clear markers	?
E.003	7b											100			32	No clear markers	?
E.004	7b											100			27	No clear markers	?
E.005	7b											100			14	No clear markers	?
E.007	5											100			14	No clear markers	?
E.010	4–5a											100			2	No clear markers	?
E.013	5											100			1	No clear markers	?

Context	Phase	DEGLIB	CEMRIB	HASOG	STECOV	GREBS	COR-COM	PLAG	BLARIC	BROSH	COPOT	CW.N-ID	OTHERS	Others	Totals	Ceramics	Ceramic date
E.016	5											100			7	No clear markers	?
E.019	5											100			23	No clear markers	?
E.022	5											100			4	No clear markers	?
E.024	5–7											100			28	No clear markers	?
F.001	7b	0.4	33.3	39.7	1.3	4.9	2.8	0.4	0.6		1.2	13.4	1.9	GRAF: 2; GW.N-ID: 1; SPW.2: 3; REDFIN: 7	687	Includes BLARIC, PLAG & GRAF	11th–14th c.
F.002	7	8.3	23.8	21.8	1.0	7.3	1.9		1.9		8.7	23.3	1.9	MONO.G: 1; MONO.T: 1; SPW.1: 1; REDFIN: 1	206	Includes BLARIC + post 8th-c. glazed wares	9th–10th c.
F.003	7	1.2	17.4	31.3	1.6	5.9	3.0	1.6	6.1		3.9	27.2	0.9	GRAF: 2; REDFIN: 4	643	High proportion of BLARIC + GRAF	11th–14th c.
F.005	7	2.4	27.3	42.0	3.3	6.9	7.8		0.4		1.6	4.9	3.3	CHIP: 1; SPW.1: 2; REDFIN: 5	245	High proportion of PLAG + post 8th-c. glazed wares	9th–10th c.
F.006	7	3.4	22.4	29.3	1.7	20.7	8.6	1.7			3.4	8.6			58	Includes PLAG and high proportion of HASOG and CORCOM	11th–14th c.
F.008	6b–7		20	60					20						5	Very small sample, includes BLARIC	9th–10th c.
F.010	5c–6: 6b?			12.5					12.5			75.0			8	High proportion of BLARIC	9th–10th c.
F.011	5c–6	2.0	29.7	19.8	9.9	31.7			1.0		1.0	5.0			101	Includes BLARIC; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.
F.012	6b–7	4.1	18.9	20.5	3.3	23.8	4.9		4.1		0.8	18.0	1.6	REDFIN: 2	122	Includes BLARIC; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.
F.015	6b–7		31.8	22.7	18.2	4.5					4.5	13.6	4.5	WHIM: 1	22	Includes WHIM	post 7th c.
F.016	5c–6: 6b?	1.7	29.8	18.3	4.6	17.4	1.1	0.2	1.5		2.0	20.7	2.8	GW.N-ID: 1; REDFIN: 12	460	Includes BLARIC & PLAG; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.
F.017	6b–7	3.0	15.2	21.2	6.1	1.5	6.1	3.0	3.0		4.5	27.3	9.1	MONO.T: 1; REDFIN: 5	66	Includes PLAG & BLARIC + MO-NO.T	11th–14th c.
F.018	6b–7		100												2	Very small sample, no clear markers	?
F.020	6b	7.6	18.2	12.1	1.5	10.6	4.5		1.5			43.9			66	Includes BLARIC	9th–10th c.
F.022	5b–c	3.0	20.1	11.3	12.8	47.0	0.4	0.2			0.6	4.6	0.2	WHIM: 1	541	High proportion of GREBS + WHIM	mid-7th–9th c.

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
F.026	5c–6		24.2	27.3	18.2	27.3						3.0			33	High proportion of GREBS	mid-7th–9th c.
F.027	5c–6	2.7	25.1	10.3	18.3	31.9	0.3	1.6	0.2	0.2	1.2	7.9	0.4	GRAF: 2; GW.N-ID: 1; REDFIN: 2	1353	Includes BLARIC + GRAF & BROSH; high proportion of GREBS suggests context mixing or high residuality	11th–14th c.
F.028	6b–7	6.3	19.0	33.3	1.6	14.3	4.8		1.6		4.8	12.7	1.6	REDFIN: 1	63	Includes BLARIC	9th–10th c.
F.029	6b–7: 6b?	3.3	19.7	34.4		19.7	3.3		1.6			14.8	3.3	REDFIN: 2	61	Includes BLARIC; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.
F.030	5b–c			37.5	43.8	12.5						6.3			16	No obvious markers	?
F.032	5b–c		24.3	2.7	2.7	27.0		2.7	5.4		2.7	32.4			37	High proportion of BLARIC; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.
F.033	5b–c	1.8	41.1	10.9	9.3	24.5		3.9	0.3		0.3	5.9	2.1	GW.N-ID: 1; REDFIN: 7	387	Includes PLAG and BLARIC; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.
F.035	5a–b: 5b?	2.8	30.6	14.2	18.4	27.5					0.3	5.9	0.3	REDFIN: 1	353	High proportion of GREBS	mid-7th–9th c.
F.036	5a–b: 5b?	2.7	21.3	11.8	18.2	38.7	2.5	0.3			0.2	4.2			592	High proportion of GREBS	mid-7th–9th c.
F.037	5a–b: 5b?	3.6	32.0	13.3	16.1	30.4	0.5	0.5				2.8	0.8	SMOG: 1; WHIM: 1; REDFIN: 1	391	Includes PLAG	9th–10th c.
F.041	6b–7		12.3	22.8		1.8	7.0		1.8			54.4			57	Includes BLARIC	9th–10th c.
F.042	5c–6: 6b?	2.7	21.3	16.0	4.7	6.7	4.7		0.7		10.7	31.3	1.3	GRAF: 1; REDFIN: 1	150	Includes BLARIC + GRAF	11th–14th c.
F.043	5c	1.0	20.0	8.8	16.9	4.4		26.9	1.0	1.7	2.9	15.6	0.7	MONO.G: 1; SPW.2: 1; REDFIN: 1	409	High proportion of PLAG + BLARIC, BROSH & post 8th-c. glazed ware	9th–10th c.
F.044	6b–7		16.7	6.7	3.3						3.3	70.0			30	No DEGLIB	post 7th c.
F.046	5c–6: 6b?	1.3	28.6	6.4	3.1	33.2	0.3		1.5		6.4	18.6	0.5	REDFIN: 1; MONO.G: 1	388	Includes BLARIC + post 8th-c. glazed ware; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
F.048	7	1.3	25.0	32.5		1.3			6.3			22.5	11.3	GRAF: 1; GW.N-ID: 1; REDFIN: 7	80	High proportion of BLARIC + GRAF	11th–14th c.
F.049	7		25.5	36.4					9.1			27.3	1.8	REDFIN: 1	55	High proportion of BLARIC	9th–10th c.
F.052	7	3.1	20.1	8.2		2.6		16.0	18.6	1.0	1.5	27.8	1.0	REDFIN: 2	194	High proportion of PLAG & BLARIC + BROSH	9th–10th c.
F.053	5c	0.8	11.8	11.3	11.6	41.7		14.8	4.6	0.8	0.8	1.6	0.3	SPW.1: 1	372	High proportion of PLAG + BLARIC, BROSH & 10th–12th-c. glazed ware; high proportion of GREBS suggests context mixing or high residuality	10th–12th c.
F.056	6b	0.8	29.8	16.5	2.5	0.8	5.0	0.8	1.7		11.6	29.8	0.8	GW.N-ID: 1	121	Includes BLARIC + post 8th-c. glazed ware	9th–10th c.
F.057	5c		22.2		33.3			33.3				11.1			9	High proportion of PLAG	9th–10th c.
F.061	7								25		25	50			4	Very small sample, includes BLARIC	9th–10th c.
F.062	5c–7	2.1	20.4	12.7		2.8		1.4	7.7		11.3	41.5			142	High proportion of BLARIC + PLAG	9th–10th c.
F.063	5b–c	8.5	15.8	14.7	13.3	29.1	0.1	14.1		1.6		2.9			1342	High proportion of PLAG + BROSH; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.
F.065	5b–c	0.3	28.2	3.7	13.5	23.3		6.1	7.1		3.4	14.4			326	High proportion of PLAG and BLARIC; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.
F.066	5c	1.9	17.2	9.3	2.2	0.4		56.0	6.3	0.4		5.2	1.1	SPW.2: 1; REDFIN: 2	268	High proportion of PLAG + BLARIC, BROSH & post 8th-c. glazed ware	9th–10th c.
F.070	5a	5.7	19.8	17.9	11.4	38.9	0.2	0.1			0.2	5.4	0.4	WHIM: 3; REDFIN: 1	1084	High proportion of GREBS + WHIM	mid-7th–9th c.
F.071	5c–6								50			50			2	Very small sample, includes BLARIC	9th–10th c.
F.072	5c–6		20.8	4.1			0.3		2.8		57.4	14.2	0.5	MONO.Y: 1; SPW.2: 1	394	Includes BLARIC + post 8th-c. glazed ware	9th–10th c.
F.075	5c		18.5	45.9	2.2	2.2	0.7	19.3		0.7		10.4			135	High proportion of PLAG + BROSH	9th–10th c.
F.076	5c											100			2	Very small sample, no clear markers	?
F.077	5a	8.0	33.5	13.8	13.3	28.6					0.2	2.3	0.2	REDFIN: 1	427	High proportion of GREBS	mid-7th–9th c.

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
F.078	5a–b	73.3	4.3	1.7		6.0						14.7			116	High proportion of DEGLIB + some GREBS, no late markers	7th c.
F.079	5b–c		1.9	25.0		0.9	15.7		3.7	0.9	9.3	42.6			108	Includes BLARIC + BROSH	9th–10th c.
F.080	5b–c		34.8	21.7		26.1					4.3	13.0			23	High proportion of GREBS	mid-7th–9th c.
F.081	5a		7.1	67.9			21.4						3.6	REDFIN: 1	28	No obvious markers	?
F.084	5c–6		25					25			50				4	Very small sample, includes PLAG	9th–10th c.
F.085	5c		44.4						11.1		11.1	33.3			9	High proportion of BLARIC	9th–10th c.
F.086	5a										100				4	Very small sample, no clear markers	?
F.088	5b–c	5.9	44.7	9.5	11.1	12.3		10.3	0.8			4.7	0.8	MONO.G: 2	253	Includes BLARIC + post 8th-c. glazed ware	9th–10th c.
F.089	5c	1.3	6.6	15.7				39.7	28.8	3.5		4.4			229	High proportion of PLAG & BLARIC + BROSH	9th–10th c.
F.091	5c	0.2	13.9	42.5	1.4	0.2	0.2	26.1	7.6	0.2	3.0	3.9	0.7	SPW.1: 1; SPW.2: 2	433	High proportion of PLAG + BLARIC, BROSH & post 8th-c. glazed ware	9th–10th c.
F.092	5a	8.0	35.4	25.7	4.4	17.7						8.8			113	High proportion of GREBS	mid-7th–9th c.
F.094	4	5.6	61.1	5.6	5.6	16.7						5.6			18	High proportion of GREBS	mid-7th–9th c.
F.095	4	44.4	22.2			22.2						11.1			9	High proportion of DEGLIB & GREBS	7th c.
F.096	4	45.3	21.3	5.3	5.3	9.3						13.3			75	High proportion of DEGLIB + some GREBS	7th c.
F.097	4	9.6	13.5	21.2		53.8						1.9			52	High proportion of GREBS	mid-7th–9th c.
F.098	5c		12.2	2.4				75.6	5.7	3.3		0.8			123	High proportion of PLAG + BLARIC & BROSH	9th–10th c.
F.100	5c	0.3	21.7	6.8	0.3	0.3		62.1	3.1	3.4		0.6	1.4	CHIP: 1; MONO.Y: 1; SPW.2: 1; REDFIN: 2	351	High proportion of PLAG + BLARIC, BROSH & post 8th-c. glazed wares	9th–10th c.
F.102	5c	8.3	50.0	8.3	8.3	16.7					8.3				12	High proportion of GREBS	mid-7th–9th c.
F.104	5a	11.5	39.4	6.6	9.1	29.6					0.7	2.8	0.3	MONO.G: 1	287	Includes 10th–12th-c. glazed ware; high proportion of GREBS suggests context mixing or high residuality	10th–12th c.

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
F.106	5	17.2	34.5	10.3			6.9				20.7	10.3			29	High proportion of DEGLIB and no GREBS	4th–7th c.
F.109	3d	36.9	27.3	6.3	1.8	1.8					3.6	19.8	2.4	REDFIN: 8	333	High proportion of DEGLIB and no GREBS	4th–7th c.
F.112	5b–c	1.6	12.1	46.2	3.8	5.7	0.1	21.7	3.1	0.3	2.6	1.8	0.8	MONO.G: 1; SPW.1: 1; SPW.2: 4	733	High proportion of PLAG + BROSH & post 8th-c. glazed ware	9th–10th c.
F.113	5a	2.3	27.1	15.3	5.7	43.9					1.9	3.8			262	High proportion of GREBS	mid-7th–9th c.
F.114	5c	1.0	25.6	7.1	8.7	9.8		33.1	13.3		0.4	0.6	0.4	SPW.2: 2	481	High proportion of PLAG & BLARIC + post 8th-c. glazed ware	9th–10th c.
F.117	3d	34.6	38.5	7.7							3.8	11.5	3.8	REDFIN: 1	26	High proportion of DEGLIB and no GREBS	4th–7th c.
F.118	5a	7.6	31.2	7.0	4.5	35.7	3.2				3.2	7.6			157	High proportion of GREBS	mid-7th–9th c.
F.119	5c	14.0	11.6	4.7	41.9	16.3		7.0				4.7			43	Includes PLAG	9th–10th c.
F.120	5b–c	9.1	42.4	3.0	15.2	21.2		6.1	3.0						33	Includes BLARIC; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.
F.121	5c	4.5	13.6	36.4	4.5	31.8		4.5		4.5					22	High proportion of BROSH; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.
F.123	5b–c	16.7	12.5	33.3		4.2		4.2	20.8		4.2	4.2			24	High proportion of BLARIC + PLAG	9th–10th c.
F.124	3c		60									20	20	SMOG: 1	5	Includes SMOG probably indicative of 4th–5th-c. dating	4th–5th c.
F.125	5b	1.9	37.9	10.7	10.3	18.4		14.5	2.8		2.4	0.3	0.9	MONO.G: 1; SPW.1: 1; SPW.2: 2; REDFIN: 1	581	High proportion of PLAG + BLARIC & post 8th-c. glazed ware; high proportion of GREBS suggests context mixing or high residuality	9th–10th c.
F.126	3c	50.0									50.0				2	Very small sample, includes DEGLIB	4th–7th c.
F.127	3c		33.3								66.7				3	Very small sample, no clear markers	?
F.128	5c	3.7	33.3	29.6	7.4			22.2					3.7	MONO.G: 1	27	High proportion of PLAG + post 8th-c. glazed ware	9th–10th c.

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
F.129	3e	26.9	37.3	9.0							1.5	17.9	7.5	HABROB: 3; REDFIN: 2	67	High proportion of DEGLIB and no GREBS	4th–7th c.
F.130	3d–5b	5.3	60.5	2.6	2.6	11.8					9.2	7.9			76	No obvious markers	?
F.131	5a–b		48.3	17.2	5.2	1.7		22.4		1.7	1.7	1.7			58	High proportion of PLAG + BROSH	9th–10th c.
F.133	3d–5a	8.8	40.4	15.8	3.5	3.5					17.5	10.5			57	No obvious markers	?
F.134	3f	17.6	49.0	5.9		2.0						23.5	2.0	REDFIN: 1	51	High proportion of DEGLIB	4th–7th c.
F.137	3–5	8.2		0.3	89.4	2.0									293	Heavily dominated by STECOV, includes DEGLIB, could be pre-8th-c., nothing obviously late	?
F.138	3f	11.9	45.8	10.2	3.4							27.1	1.7	REDFIN: 1	59	DEGLIB well represented + no late markers	4th–7th c.
F.139	3d–5a											100			1	Very small sample, no clear markers	?
F.146	5c–6			33.3									66.7	GRAF: 1; GW.N-ID: 1	3	Very small sample, includes GRAF	11th–14th c.
F.148	3d	33.3	44.4	11.1							11.1				9	High proportion of DEGLIB and no GREBS	4th–7th c.
F.149	3c	56.4	25.6	2.6	7.7							7.7			39	High proportion of DEGLIB and no GREBS	4th–7th c.
F.150	5b–c		39.3	13.1	7.1	7.1		11.9	4.8		1.2	14.3	1.2	SPW.2: 1	84	High proportion of PLAG + BLARIC & post 8th-c. glazed ware	9th–10th c.
F.152	3c		100												1	Very small sample, no clear markers	?
F.153	3c					50					50				2	Very small sample, includes GREBS, most likely mid-7th–9th-c. but other dates cannot be excluded	?
F.154	3c											100			2	Very small sample, no clear markers	?
F.156	3c–d	29.6	22.2	7.4	11.1							29.6			27	High proportion of DEGLIB and no GREBS	4th–7th c.
F.157	5a–b	11.8	47.1	11.8		23.5						5.9			17	High proportion of GREBS	mid-7th–9th c.
F.158	3d	51.9	32.7	1.9								13.5			52	High proportion of DEGLIB and no GREBS	4th–7th c.

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
F.163	5b–c	8.1	31.7	15.4	22.8	13.8		7.3	0.8						123	Includes PLAG and BLARIC	9th–10th c.
F.164	5a–b	1.5	25.2	14.1	3.9	4.9		44.7	3.4				2.4	GW.N-ID: 1; SPW.2: 3; REDFIN: 1	206	High proportion of PLAG + BLARIC & post 8th-c. glazed ware	9th–10th c.
F.165	5a	9.1	9.1	27.3	27.3	27.3									11	High proportion of GREBS	mid-7th–9th c.
F.167	3d											100			3	Very small sample, no clear markers	?
F.169	3d–5b	26.4	18.9	20.8	1.9	20.8		3.8				7.5			53	High proportion of DEGLIB & GREBS but includes PLAG: mixed or late	?
F.170	5a–b	28.6	8.9	12.5	8.9	25.0	3.6				1.8	10.7			56	High proportion of DEGLIB & GREBS	7th c.
F.171	3d–5b	28.6		28.6	14.3	14.3						14.3			7	High proportion of DEGLIB + some GREBS	7th c.
F.172	3d–5b: 3d–f?	71.4			7.1	7.1					7.1	7.1			14	High proportion of DEGLIB + some GREBS	7th c.
F.175	3d	53.8	11.5		3.8	7.7					19.2	3.8			26	High proportion of DEGLIB + some GREBS	7th c.
F.176	5a–b	14.3	4.8	57.1					23.8						21	High proportion of BLARIC	9th–10th c.
F.177	3a	71.4	12.5		8.9							7.1			56	High proportion of DEGLIB and no GREBS	4th–7th c.
F.178	3c	60.5	21.1	5.3	10.5							1.3	1.3	REDFIN: 1	76	High proportion of DEGLIB and no GREBS	4th–7th c.
F.180	3c–d	81.8	18.2												11	High proportion of DEGLIB and no GREBS	4th–7th c.
F.181	3a	56.3	9.4		12.5						12.5	9.4			32	High proportion of DEGLIB and no GREBS	4th–7th c.
F.183	5a–b	33.3	22.2		11.1	33.3									9	High proportion of DEGLIB & GREBS	7th c.
F.184	3a	77.3	13.6		4.5							4.5			22	High proportion of DEGLIB and no GREBS	4th–7th c.
F.185	5c–6: 5c?	7.7	7.7	38.5					15.4		7.7	23.1			13	High proportion of BLARIC	9th–10th c.

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
F.186	5c–6: 5c?		20.8	4.2		8.3						66.7			24	No DEGLIB	Post 7th c.
F.187	5a–b		50	50											2	Very small sample, no clear markers	?
F.188	3a	61.2	16.3	2.0	6.1							12.2	2.0	REDFIN: 1	49	High proportion of DEGLIB and no GREBS	4th–7th c.
F.189	5a–b		100												1	Very small sample, no clear markers	?
F.190	3b–d	100													4	Very small sample, includes DEGLIB	4th–7th c.
F.191	3c	57.9	10.5		7.9							18.4	5.3	REDFIN: 2	38	High proportion of DEGLIB and no GREBS	4th–7th c.
F.192	3a	12.5	31.3	6.3	25.0							25.0			32	DEGLIB well represented + no late markers	4th–7th c.
F.196	5c	7.1	20.2	13.1	1.2	3.6	11.9		1.2		16.7	23.8	1.2	MONO.G: 1	84	Includes BLARIC + post 8th-c. glazed ware	9th–10th c.
F.199	5		27.3	13.6			18.2				13.6	27.3			22	No DEGLIB	post 7th c.
F.200	3d–5: 3d–e?	42.9			14.3						7.1	35.7			14	High proportion of DEGLIB and no GREBS	4th–7th c.
F.201	5			100											1	Very small sample, no clear markers	?
F.204	3d	14.3	42.9	14.3							28.6				7	Includes DEGLIB + no late markers	4th–7th c.
F.206	3d	30		60								10			10	High proportion of DEGLIB and no GREBS	4th–7th c.
G.002	5b–c											100			1	No clear markers	?
G.013	5c	100													1	Only DEGLIB	4th c. or later
G.020	5c											100			1	No clear markers	?
G.026	5a–b											100			1	No clear markers	?
K.002	7b		66.7									33.3			3	Includes CEMRIB and no late markers	10th c. or earlier?
K.005	3–7											100			5	No clear markers	?
K.006	7												100	GW.N-ID: 1	1	Only glazed pottery	9th c. or later
L.002	5c–6: 5c?					14.3			85.7						7	Includes BLARIC	9th c. or later
M.001	7b		51.5	20.4	0.5	1.0						25.7	1.0	GRAF: 1; GW.N-ID: 133	206	Includes GRAF	11th c. or later

Context	Phase	DEGLIB	CEMRIB	HASOG	STECOV	GREBS	COR-COM	PLAG	BLARIC	BROSH	COPOT	CW.N-ID	OTHERS	Others	Totals	Ceramics	Ceramic date
M.002	5b–7		63.6	15.4	1.3	2.2					2.2	14.9	0.4	GRAF: 1	228	Includes GRAF	11th c. or later
M.003	5a–6	1.2	55.6	12.4	8.9	1.4		0.6			0.8	18.9	0.3	GRAF: 2	667	Includes GRAF	11th c. or later
M.005	3d–5	48.3	17.2	6.9	3.5	3.5						20.7			29	High proportion of DEGLIB	4th–7th c.
M.008	5a–b	1.9	43.5	11.1	20.4	10.2					0.9	12.0			108	High proportion of GREBS	mid-7th–9th c.
M.010	2b–3e	20	20									60			5	Includes DEGLIB and no late markers	4th–7th c.
N.001	7b										16.7	83.3			6	No clear markers	?
N.004	7a											100			6	No clear markers	?
O.002	7b											100			1	No clear markers	?
P.001	7b												100	GW.N-ID: 1	1	Only glazed pottery	9th c. or later
P.002	5b–7		36	4	8							40	12	GRAF: 3	25	Includes GRAF	11th c. or later
P.003	5b–6: 5b?		75.3	14.1	4.7	4.7						1.2			85	Includes GREBS and no early or late markers	mid-7th–9th c.
P.004	5a–b	5.3	63.2	15.8		5.3						10.5			19	Similar to P.003 but with DEGLIB	mid-7th–9th c.?
P.005	5a–b			100											5	No clear markers	?
P.006	5a–b	11.1	55.6	11.1								22.2			9	Similar to P.003 but with DEGLIB	mid-7th–9th c.?
P.007	5a–b					25					75				4	Includes GREBS	mid-7th–9th c.
P.008	3–5b		14.3			28.6					14.3	42.9			7	Includes GREBS	mid-7th–9th c.
P.009	2a										100				2	No clear markers	?
P.012	2–5b					100									1	Includes GREBS	mid-7th–9th c.
Q.001	7b	3.1	23.4	34.9	1.1	0.7	4.7	7.2	2.0		5.3	17.1	0.6	GW.N-ID: 1; REDFIN: 2; SPW.1: 1; SPW.2: 2	972	Includes PLAG, BLARIC + SPW.1–2	9th–10th c.
Q.002	7b	1.3	18.4	27.7	0.6		5.9	1.3	0.3		18.4	25.2	0.9	GRAF: 1; MONO.Y: 1; REDFIN: 1	321	Includes GRAF	11th c. or later
Q.003	7b	9.5	6.0	21.1		0.4	28.9	7.3	7.3		9.5	9.9			232	Includes PLAG + BLARIC	9th–10th c.
Q.004	5b	14.6	14.6	23.6	10.9	12.7	1.8	18.2	1.8			1.8			55	High proportion of PLAG + BLARIC	9th–10th c.
Q.005	5c–6	4.9	17.4	29.9	1.7	16.0	1.7	0.7	0.7		20.5	5.9	0.7	MONO.G: 1; MONO.T: 1	288	Includes PLAG, BLARIC + MONO.T	9th–10th c.
Q.006	5–7: 5?	2.2	8.9	37.8	2.2		2.2				20	22.2	4.4	REDFIN: 2	45	Includes REDFIN + no late markers	mid-7th–9th c.?
Q.007	5b–7	7.2	16.8	36.5	1.2	2.4	3.0		0.6		16.8	15.6			167	Includes BLARIC	9th–10th c.

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
Q.008	7b	2.6	16.0	25.8	15.5	19.0	3.3	0.2	0.5		5.4	10.8	0.9	GW.N–ID: 1; REDFIN: 3	426	Includes PLAG, BLARIC + glazed	9th–10th c.
Q.010	7b	1.73	26.6	31.5	2.1	9.3	0.4	0.4	0.4		23.5	4.2			289	Includes PLAG + BLARIC	9th–10th c.
Q.011	7b	3.5	13.6	19.1	33.9	20.9	2.3	0.3	0.7		3.0	2.8	0.1	REDFIN: 1	1480	Includes PLAG + BLARIC	9th–10th c.
Q.012	5a–b	4.1	16.3	16.3		12.2	4.1		2.1		34.7	8.2	2.1	MONO.Y: 1	49	Includes MONO.Y	9th–10th c.
Q.013	5b–6		40	20		40									10	High proportion of GREBS	mid-7th–9th c.
Q.014	5b–6: 6b?	3.4	50.4	12.6		10.1	0.8		2.5		14.3	4.2	1.7	SPW.2: 2	119	Includes SPW.2	9th–10th c.
Q.015	5b–6		40	40		20									5	High proportion of GREBS	mid-7th–9th c.
Q.016	5b–c			57.1				14.3				28.6			7	High proportion of PLAG	9th–10th c.
Q.019	5–7	57.1	5.7	17.1				2.9				17.1			35	Includes PLAG	9th–10th c.
Q.020	5b–7	1.2	21.8	15.1	31.2	24.1	2.1				1.5	3.0			843	High proportion of GREBS	mid-7th–9th c.
Q.027	5b	2.4	21.8	16.4	27.4	24.6	2.4	0.1			2.9	2.0	0.1	MONO.Y: 1	1274	Includes PLAG, MONO.Y	9th–10th c.
Q.028	5b–6	27.6	19	17.2	21.2	9.3	1.8				1.4	2.5			279	High proportion of DEGLIB + GREBS	7th c.
Q.029	5a–b	43.2	14.2	11.5	13.2	12.5	4.1				0.3	0.7	0.3	GW.N-ID: 1	296	Includes glazed pottery	9th c. or later
Q.031	3d–5b	27.5	31.0	26.1	7.8	5.3	1.1					1.1	0.4	SMOG: 1	284	High proportion of DEGLIB + GREBS	7th c.
Q.032	3–5b	45.7	19.3	14.3	5.5	12.3	0.5				0.9	0.7	0.9	SMOG: 4	440	High proportion of DEGLIB + GREBS	7th c.
Q.033	3–5b		5.3	84.2		5.3						5.3			19	Plenty GREBS, no late markers	mid-7th–9th c.
Q.036	7b	14.4	48.9	18.5	10.7	5.6	0.4				1.1	0.4			270	Plenty GREBS, no late markers	mid-7th–9th c.
Q.037	7b	0.9	34.6	29.1	12.7	2.7	7.3		0.9		5.5	6.4			110	Includes BLARIC	9th–10th c.
Q.038	5b–6	14.3	32.1	17.9	7.1	25					3.6				28	High proportion of GREBS	mid-7th–9th c.
Q.039	5b–7	23.1	38.5	20.5	7.7	2.6	2.6				2.6	2.6			39	High proportion of DEGLIB + GREBS	7th c.
Q.042	5b	19.2	31.1	18.5	13.9	8.0	2.0	0.7			6.6				151	Includes PLAG	9th–10th c.
Q.043	5b	26.8	17.2	12.8	36.8	6	0.4								250	High proportion of DEGLIB + GREBS	7th c.

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
Q.045	4–5a	47.4	13.2	21.1	7.9	2.6					5.3		2.6	HABROB: 1	38	High proportion of DEGLIB + GREBS	7th c.
Q.046	7b	25.3	21.2	31.3	9.1	6.1	2.0	1.0			2.0	2.0			99	Includes PLAG	9th–10th c.
Q.047	5b	23.7	13.0	18.9	3.55	21.9			0.6		10.7	2.4	5.3	HABROB: 9	169	Includes BLARIC	9th–10th c.
Q.049	3f–5b	21.6	12.2	33.8	4.1	9.5					14.9	2.7	1.4	HABROB: 1	74	High proportion of DEGLIB + GREBS	7th c.
Q.050	5b		11.8	11.8		29.4	17.7				17.6	11.8			17	High proportion of GREBS	mid-7th–9th c.
Q.052	5b		58.3	41.7											12	No clear markers	?
Q.054	3–7b		10.5	36.8	10.5	31.6					10.5				19	High proportion of GREBS	mid-7th–9th c.
Q.056	5b–7	18.2	24.7	31.2	6.5	7.8	10.4					1.3			77	Plenty GREBS, no late markers	mid-7th–9th c.
Q.057	5b		66.7	33.3											3	Very small sample, includes CEMRIB	10th c. or earlier?
Q.058	5b	36.1	12.0	20.9	0.6	21.5	6.3					1.9	0.6	HABROB: 1	158	High proportion of DEGLIB + GREBS	7th c.
Q.060	3f		60	20		10					10				10	Plenty GREBS, no late markers	mid-7th–9th c.
Q.062	5b	23.9	7.6	14.1		1.1					16.3		36.96	HABROB: 34	92	High proportion of DEGLIB + GREBS	7th c.
Q.063	5b	15.6		65.6		12.5					6.3				32	Plenty GREBS, no late markers	mid-7th–9th c.
Q.064	5b	17.2	24.1	13.8							44.8				29	Plenty DEGLIB, no late markers	4th–7th c.
Q.065	5b	77.8	3.7	18.5											27	High proportion of DEGLIB	4th–7th c.
Q.070	7b		26.7	63.3				10							30	Includes PLAG	9th–10th c.
Q.071	5c–7	2.9	11.4	42.9	14.3		22.9		5.7						35	Includes BLARIC	9th–10th c.
Q.072	5b–6b	10.3	17.8	26.9	1.2	4.7	8.3	16.6	5.9		0.4	5.9	2.0	MONO.Y: 1; REDFIN: 3; SMOG: 1	253	High proportion of PLAG + MONO.Y	9th–10th c.
Q.073	5a–7	2.8	8.3	16.7	2.8	69.4									36	High proportion of GREBS	mid-7th–9th c.
Q.074	5b–c	28.5	22.3	14.5	12.9	19.9					1.9				642	High proportion of DEGLIB + GREBS	7th c.
Q.075	5b–7	33.2	24.9	15.5	1.1	11.6	2.8		0.6		0.6	10.0			181	Includes BLARIC	9th–10th c.
Q.076	5b–6b	12.2	3.2	7.9	57.6	3.0	1.9		3.4		4.1	6.9			535	Includes BLARIC	9th–10th c.
Q.079	3c–5	33.3		44.4							11.1	11.1			9	High proportion of DEGLIB	4th–7th c.

Context	Phase	DEGLIB	CEMRIB	HASOG	STECOV	GREBS	COR-COM	PLAG	BLARIC	BROSH	COPOT	CW.N-ID	OTHERS	Others	Totals	Ceramics	Ceramic date
Q.080	5b–c						33.3				66.7				3	Very small sample, no clear markers	?
Q.081	3c–d											100			1	Very small sample, no clear markers	?
Q.082	5b–6		40	20		20	20								5	High proportion of GREBS	mid-7th–9th c.
Q.084	3c–6	16.7	33.3	16.7							16.7	16.7			6	Plenty DEGLIB, no late markers	4th–7th c.
Q.085	5b–c	4.0	7.9	6.6	42.1	39.5									76	High proportion of GREBS	mid-7th–9th c.
Q.086	5b–c	61.1	14.8	3.7		18.5						1.9			54	High proportion of DEGLIB + GREBS	7th c.
Q.088	5b–c	1.2	13.4	7.	48.8	20.7					6.1	2.4			82	High proportion of GREBS	mid-7th–9th c.
Q.089	5b–6b	52.6	10.3	7.2	3.1	11.3					2.1	13.4			97	High proportion of DEGLIB + GREBS	7th c.
Q.090	3–5	11.4	13.6	25.8	1.6	8.3	3.0		0.8		16.7	18.9			132	Includes BLARIC	9th–10th c.
Q.091	5b–c	13.6	36.4	9.1	13.6	27.3									22	High proportion of GREBS	mid-7th–9th c.
Q.092	5b–c	5.9			58.8	23.5					11.8				17	High proportion of GREBS	mid-7th–9th c.
Q.093	5b–c		1.9	9.4	58.5	20.8						9.4			53	High proportion of GREBS	mid-7th–9th c.
Q.094	5b–c		8.3	8.3	58.3	16.7					8.3				12	Plenty GREBS, no late markers	mid-7th–9th c.
Q.095	5b	40		60											5	High proportion of DEGLIB	4th–7th c.
Q.098	5b–6	34.6	7.7	23.1							3.9	30.8			26	High proportion of DEGLIB	4th–7th c.
Q.099	5b–6	50.9	7.0	12.1	1.7	8.6					11.2	8.6			116	High proportion of DEGLIB + GREBS	7th c.
Q.103	3c–6		56.3	6.3		6.3						31.3			16	Plenty GREBS, no late markers	mid-7th–9th c.
Q.106	5b–6	42.7	10.3	6.0	1.7						23.1	16.2			117	High proportion of DEGLIB	4th–7th c.
Q.107	5b–6			100											1	Very small sample, no clear markers	?
Q.108	5a–b	100													1	Very small sample, only DEGLIB	4th–7th c.?
Q.110	3–5b	83.3		16.7											6	High proportion of DEGLIB	4th–7th c.
Q.111	5b–6b	20.7	10.3	17.2		9.2	8.1		3.5		8.1	18.2	4.6	REDFIN: 4	87	Includes BLARIC	9th–10th c.
Q.113	5b–c	4.9	7.3	68.3		12.2					2.4	4.9			41	Plenty GREBS, no late markers	mid-7th–9th c.
Q.114	5b–7	29.0	19.4	16.1	8.1	9.7	3.2	3.2			1.6	9.7			62	Includes PLAG	9th–10th c.
Q.115	7b	13.3	33.3	20	3.3	16.7	3.3				6.7	3.3			30	Plenty GREBS, no late markers	mid-7th–9th c.

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
Q.116	5–6	40	5				5				10	40			20	High proportion of DEGLIB	4th–7th c.
Q.117	5–6	26.3	5.3	10.5		7.9					2.6	47.3			38	High proportion of DEGLIB + GREBS	7th c.
Q.120	5b	22.7	31.8	22.7	4.6	4.6	9.1						4.6	GRAF: 1	22	includes GRAF	11th c. or later
Q.121	5b–6		36.8	26.3		21.1					15.8				19	High proportion of GREBS	mid-7th–9th c.
Q.122	5b–6b	20	8.9	13.3	6.7	24.4	5.6		3.3		4.4	13.3			90	Includes BLARIC	9th–10th c.
Q.123	5b–6	3.2	32.3	6.5	3.2	45.2					3.2	3.2	3.2	SPW.2: 1	31	Includes SPW.2	9th c. or later
Q.124	5b–c		20		20	20					40				5	High proportion of GREBS	mid-7th–9th c.
Q.125	3–5b	42.3	15.4	7.7		11.6					7.7	15.4			26	High proportion of DEGLIB + GREBS	7th c.
Q.126	5b–6	3.7	22.2	51.9	11.1	11.1									27	Plenty GREBS, no late markers	mid-7th–9th c.
Q.127	5b–6		22.2	66.7		11.1									9	Plenty GREBS, no late markers	mid-7th–9th c.
Q.128	5–7	14.3	28.6	14.3								42.9			7	Plenty DEGLIB, no late markers	4th–7th c.
Q.129	7b		50	50											2	Very small sample, includes CEMRIB	10th or earlier?
Q.130	7b	27.3	21.2	24.2	3.0	6.1					9.1	9.1			33	High proportion of DEGLIB + GREBS	7th c.
Q.131	3–5b	12.5	6.3		6.3						31.3	43.8			16	Plenty DEGLIB, no late markers	4th–7th c.
Q.132	3–5b	40		30		30									10	High proportion of DEGLIB + GREBS	7th c.
Q.134	3–6		20	8	44	28									25	High proportion of GREBS	mid-7th–9th c.
Q.135	5: 5a–b?	50	16.7	5.6	16.7	11.1									18	High proportion of DEGLIB + GREBS	7th c.
Q.136	5b–6	9.7	25.8				6.5	38.7	6.5			12.9			31	High proportion of PLAG + BLARIC	9th–10th c.
Q.137	3a–e	0.8		93.3		0.8		4.2				0.8			120	Includes PLAG	9th–10th c.
Q.138	2–5	18.2	45.5	27.3								9.1			11	Plenty DEGLIB, no late markers	4th–7th c.
Q.139	5b–6b	11.5	12.2	13.7	1.4	7.9	2.9	13.0	14.3		2.9	18.7	1.4	MONO.G: 1; SPW.2: 1	139	Includes PLAG, BLARIC + glazed	9th–10th c.
Q.141	5–7		31.8	17.2	6.6	4.0		8.0	3.3		16.6	12.6			151	Includes PLAG + BLARIC	9th–10th c.
Q.142	3c–6	2.5	40	15	5	27.5					10				40	High proportion of GREBS	mid-7th–9th c.
Q.147	3c–5a	0.6	5.7	80.6		5.1	0.6	0.6	5.7			1.1			175	Includes PLAG + BLARIC	9th–10th c.

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
Q.148	5b		11.1	33.3	11.1	22.2		5.6			11.1	5.6			18	Includes PLAG	9th–10th c.
Q.151	5–7		11.8	47.1				20.6	2.9			17.7			34	High proportion of PLAG + BLARIC	9th–10th c.
Q.154	5b	100													5	Only DEGLIB but small sample	4th–7th c.?
Q.155	3–5a			71.4		14.3		14.3							7	High proportion of PLAG	9th–10th c.
Q.156	5b	100													2	Very small sample, only DEGLIB	4th–7th c.?
Q.157	5a		6.6	30.8	12.1	25.3		23.1	1.1		1.1				91	High proportion of PLAG + BLARIC	9th–10th c.
Q.158	5b–6b	28.4	6.0	1.5	10.5	11.9	28.4				7.5	6.0			67	High proportion of DEGLIB + GREBS	7th c.
Q.159	5b–6b	35			5	5	30				10	15			20	High proportion of DEGLIB + GREBS	7th c.
Q.160	5a			94.6		2.7					2.7				37	No clear markers	?
Q.161	5b–6			100											1	Very small sample, no clear markers	?
Q.162	3c–f: 3c–d?	18.8	31.3	6.3								43.8			16	Plenty DEGLIB, no late markers	4th–7th c.
Q.164	5b–6b	88.5	3.9		3.9								3.9	MONO.T: 1	26	Includes MONO.T	9th c. or later
Q.165	4–5a	16.7	33.3	11.1	11.1	16.7						11.1			18	Plenty GREBS, no late markers	mid-7th–9th c.
Q.166	4–5a		4.7	9.3	18.6	60.5		7.0							43	Includes PLAG	9th–10th c.
Q.172	3–5a											100			1	Very small sample, no clear markers	?
Q.173	5b			100											1	Very small sample, no clear markers	?
Q.US	7b						100								1	Very small sample, no clear markers	?
R.003	3e–7		33.3	33.3				33.3							3	Includes PLAG	9th c. or later
S.002	3e–7		66.7									33.3			3	Includes CEMRIB and no late markers	mid-7th–9th c.?
T.001	7b		40									60			5	Includes CEMRIB and no late markers	mid-7th–9th c.?
T.002	7b		50	25					25						4	Includes BLARIC	9th c. or later
U.002	6b–7											100			7	No clear markers	11th c. or later?
U.003	6b–7											100			12	No clear markers	11th c. or later?
U.004	6b–7			25								75			8	No clear markers	11th c. or later?
U.005	6b								20		40	40			5	Includes BLARIC	9th c. or later

Context	*Phase*	*DEGLIB*	*CEMRIB*	*HASOG*	*STECOV*	*GREBS*	*COR-COM*	*PLAG*	*BLARIC*	*BROSH*	*COPOT*	*CW.N-ID*	*OTHERS*	*Others*	*Totals*	*Ceramics*	*Ceramic date*
V.002	6–7			25								75			4	No clear markers	11th c. or later?
V.003	6–7											100			1	No clear markers	11th c. or later?
V.004	6–7										80	20			5	No clear markers	11th c. or later?
V.005	6–7											100			1	No clear markers	11th c. or later?
V.006	6–7											100			1	No clear markers	11th c. or later?
W.001	7b											100			6	No clear markers	11th c. or later?
W.002	6b–7											100			14	No clear markers	11th c. or later?
X.001	7b											100			104	No clear markers	?
X.002	7b											98.1	1.9	GW.N-ID: 2	107	Includes glazed pottery	9th c. or later
X.003	5b–7											98.5	1.5	GW.N-ID: 3	197	Includes glazed pottery	9th c. or later
X.004	5b–7	1.3	23.6	9.8	1.2	2.8	0.2	1.9	0.9	0.5		56.3	1.7	GW.N-ID: 9; REDFIN: 2; GRAF: 1; HABROB: 1; SPW.2: 1	849	Includes GRAF and other glazed wares	11th c. or later
X.005	5b–7		2.1	2.1				0.7				94.5	0.7	GW.N-ID: 1	145	Includes PLAG and glazed	9th c. or later
X.006	5	1.0	5.2	10.3		4.1	6.2	6.2		1.0		63.9	2.1	GW.N-ID: 2	97	Includes PLAG, BROSH and glazed	9th c. or later
AB.001	7b											80	20	GRAF: 1	5	Includes GRAF	11th c. or later
AB.002	5c–7	8.3		8.3	8.3						33.3	41.7			12	No clear markers	?
AB.003	5c–7											100			1	No clear markers	?
AB.004	5c											100			7	No clear markers	?
AB.006	5c	12.5										87.5			8	No clear markers	?
AB.008	5c										14.3	85.7			7	No clear markers	?
AB.010	5c											100			6	No clear markers	?
AB.012	5c	7.7	7.7									84.6			13	No clear markers	?
AB.014	5c	33.3	16.7									50			6	No clear markers	?
Totals	n/a	3115	8134	6532	4113	5450	603	2011	646	74	1352	4547	326		36903		

Notes

1 Braund 1994, 45, 64.
2 Braund 2000.
3 See chapter 25.5; cf. Sauer *et al*. 2015.
4 Arzhantseva 2002a; see also chapters 15.2.5 and 25.5.3.
5 The chronology widely employed in Georgian archaeological and historical literature generally skips over the concept of 'Late Antiquity', focusing instead on the early adoption of Christianity as the state religion in the AD 320s or 330s (Rapp 2014, 3–4). The Georgian chronology therefore runs roughly as follows: Hellenistic (mid-fourth to early first century BC); Roman (early first century BC to early fourth century AD); early medieval (early fourth to tenth century); high medieval (eleventh to thirteenth century); late medieval (fourteenth to eighteenth century); modern (nineteenth century onwards). In this section a mixture of the Georgian and more widely applied Near Eastern terminology is employed depending on the context of the discussion. See chapters 1.2 and 11.11 on the chronological terms used.
6 See chapters 2.2, 3.2 and 25.3.
7 Colvin *et al.* 2014, 5–8.
8 Adamia *et al*. 2011, 489.
9 See chapter 10.
10 Dr Davit Mindorashvili and Koba Koberidze, pers. comm. 2017.
11 Rice 1987, 37.
12 See chapter 9.1.
13 See chapters 2–3.
14 See chapter 4.3.
15 See chapter 4.1.
16 See chapter 7.
17 See chapters 5.2, 5.1 and 4.2.
18 See chapter 6.
19 See chapters 9.2, 10.4.2 and 10.7, DPS-5.
20 Mindorashvili 2005, 19–101, 176–77, 202–04, 211–20, pls VI-XV.
21 See chapter 9.1.
22 See chapter 8.
23 Kartlis Tskhovreba/Life of Kartli = trans. Thomson 1996; cf. Rapp 2014.
24 Lomtatidze 1955; Apakidze 1978; Apakidze *et al*. 1986.
25 Grdzelishili and T'q'eshelashvili 1961; Mindorashvili 2009.
26 Ch'ilashvili 1958; Lomtatidze and Ivashenk'o 1988; Chik'oidze 1998; Japaridze 2005; Pachikashvili 2014.
27 Japaridze 1969a; 1969b; Kakhiani *et al*. 2012.
28 Ch'ilashvili 1964; Saginashvili 1970.
29 Ramishvili 1982; 1983; Chikhladze 2015.
30 Gamkrelidze and Vickers 2010.
31 Ch'ilashvili 2000; Simonia *et al.* 2009.
32 Bakht'adze *et al.* 2010; Bakht'adze 2012; Bakht'adze 2014; Bakht'adze *et al.* 2015.
33 I am grateful to Nodar Bakht'adzeh and Jimsher Chkhvimiani who have both been generous in offering me hospitality at the Georgian National Museum and discussing the results of their work at Nekresi and other sites.
34 Berik'ashvili 2016a; 2016b.
35 David Berik'ashvili and the rest of the Samshvilde team have been very generous in showing me their work and the site on a memorable visit in winter 2016 and for inviting me back in the summer of the same year to participate in the excavations for a short time. Their holistic and systematic approach to the site is exemplary and will certainly yield important results.
36 Grant and Russel 2007; Everill 2014.
37 Colvin *et al.* 2014, 10.
38 Albegova 2010; Albegova and Vereshinskiĭ-Babaĭlov 2010.
39 Dzattiaty 2014a; Dzattiaty and Uspensky 2016.
40 Arzhantseva *et al.* 2000.
41 Korobov 2012, 44; Korobov and Borisov 2013. See also Korobov 2014; 2017a; 2017b.
42 Malashev 2000.
43 Malashev 2001.
44 I am very grateful to Professor Dmitry Korobov and Dr Anastasia Chizhova for their help in directing me towards certain aspects of the recent Northern Caucasian medieval archaeological literature and for discussions concerning the relevant ceramic material.
45 Japaridze 1950; Mits'ishvili 1979; Ch'ilashvili 1990, 74–75, pls 1, 5–6; Bakht'adze 2013, 12, pls 93–117.
46 Maisuradze 1953; Japaridze 1956; Mits'ishvili 1969; 1976; Bakht'adze 2013.
47 *E.g.* Watson 2004.
48 Arzhantseva *et al.* 2000.
49 *E.g.* Ch'ilashvili 1964, fig. 30; Chikhladze 2015, figs LXXII-LXXIX.
50 For a more extensive discussion of the same issue but within the area of the Persian Gulf and western Indian Ocean, see Priestman 2013a.
51 Timby *et al.* 2014, 55–71.
52 I am extremely grateful for the important expert advice given on the identification, dating and origin of particular categories of ceramics from Dariali during the course of the study by Koba Koberidze, Dr Davit Mindorashvili and Rusudan Rusishvili. Lana Chologauri, Ana Gabunia, Ketevan Gotsiridze and Davit Naskidashvili provided important help with accessing and interpreting relevant published sources.
53 See chapters 2–9.
54 The processing of the large pottery assemblage from Dariali would not have been possible without the help and efforts of the whole project team in recovering the material and completing its initial recording as part of the excavation. During the processing and study of the material important contributions have been made by the finds team, especially Fiona Mowat and Rosalind MacDonald and, at times, by Tika Bulashvili, Anahita Mittertrainer and Tornike Naneishvili.
55 See in particular Kennet 2004; Priestman 2005, 47–52; 2013a, 63–84; 2013b; Carter *et al.* 2006.
56 See chapter 11.7.
57 Orton *et al.* 1993, fig. A.5.
58 Orton *et al.* 1993, fig. A.6.
59 Matthew *et al.* 1991, 216–63.
60 Munsell 1994.
61 See chapter 11.3.2.
62 Most of the illustrations were undertaken by Emzar Lomtadze. I am extremely grateful to him for the extensive and excellent work he has done producing the pottery illustrations and also to Levan Llosa for his help with the digitisation of the drawings.

63 Ceramic conservation was undertaken by Nino Kamkamidze. I am much indebted to her for undertaking such excellent and skilful work which has made a significant contribution in helping to visualise the ceramic forms within what is otherwise an almost exclusively fragmentary assemblage.
64 See chapter 11.7.
65 See chapter 11.7.
66 See chapter 11.11.
67 See chapter 2.4.5.
68 See also chapter 25.6.
69 Crummy and Terry 1979, 53; Orton *et al.* 1993, 214–15; Simpson 2008, 69.
70 See chapter 11.7.
71 Crummy and Terry 1979, 50, fig. 21.
72 Orton 1993. It should be noted that relevant metrics have been recorded for EVEs calculations but have not been included in the current analyses.
73 Priestman 2009.
74 See for example closely comparable vessels from: Urbnisi (Ch'ilashvili 1964, fig. 44, pls XXII.1–4, XXIII.1–2, XXX.1, XXI.1, XL.1–2); Uplistsikhe (Mindorashvili 2008, pl. VII.1–4); Zhinvali (Chikhladze 2015, pls XIX.314, XLV.103–04, LXV.285, LXIX.291); Pshav Khevsureti cemetery (Rcheulishvili 2013, pl. IV.88); Lochini (Abramishvili and Ch'ilashvili 1962, fig. 3); Rustavi (P'ach'ikashvili 2014, pls 106, 108–09, 111–12); Nekresi (Bakht'adze 2014, fig. 4); Cheremi (Mamaiashvili 2004, pls XI.95, XX, LI.1–7, LIX.3–5, LX.3, LX.5).
75 Mits'ishvili 1979.
76 Arzhantseva *et al.* 2000, 242, fig. 18.2.
77 Chikhladze 2015.
78 Chikhladze 2015, pls I.192, II.130, III.276, III.279, IV.290, etc.
79 Chkhvimiani 2011, pls VIII.1–4, XI.1–3; Gabriadze 2013: pls XXIV-XXV.
80 Koba Koberidze, pers. comm. 2013.
81 P'ach'ikashvili 2014, pl. 111.
82 See chapter 17.
83 I am very grateful to Nodar Bahtadzeh and Jimsher Chkhvimiani for showing me some of the recent finds from Nekresi at the Georgian National Museum in 2017.
84 Ch'ilashvili 1964, pl. XXXIII.1.
85 See chapters 2.4.3 and 12.
86 See chapter 11.9.
87 Mindorashvili 2005, pls XXIX.17, XXX.165, XXX.187, XXX.159, XXX.220, XXX.223, XXX.326, XXXII.37.
88 Priestman 2013, 509–10.
89 Arzhantseva *et al.* 2000, 243. There is no absolute dating evidence available from the Zilgi sequence and the second and third-century deposits are dated on the basis of isolated occurrences of distinctive imported amphorae types. The latest occupation is dated to the fourth century on the basis of pottery paralleled in local funerary assemblages together with distinctive bronze items. However, the parallels discussed for the late material include dates from other sites which are themselves dated to the fifth and sixth centuries, so the rationale for a fourth-century cut-off is not obvious and indeed the close correspondence with the ceramic finds from Dariali may well be taken as a strong indication of continued occupation at Zilgi into this period.
90 Arzhantseva *et al.* 2000, 215.
91 Types represented at Dariali closely paralleled in the Zilgi assemblage include 'pitchers' (Arzhantseva *et al.* 2000: figs 6.1–6, 7.1–5), 'basins' particularly of the inverted rim type (figs 8–9, especially fig. 8.1–8), 'two-handled pitchers' (fig. 12.1–9), 'pithoi' (fig. 13.1–3), 'lanterns or ladles' (fig. 13.4–6).
92 Arzhantseva *et al.* 2000, 245.
93 Arzhantseva *et al.* 2000, especially 228, fig. 10.1–3.
94 See chapter 11.9.
95 Ch'ilashvili 1964, fig. 48.
96 Chikhladze 2015, pls XXII.126, XXVI.301.
97 Davit Mindorashvili, pers. comm. 2017.
98 Afanas'ev 2013a; 2013b, 23, fig. 3.
99 See, for example, Afanas'ev 2013a, figs 1, 4–6; 2013b, figs 1.2, 7.
100 Mindorashvili 2005, pl. XIV.75.
101 Arzhantseva *et al.* 2000, 243–44, fig. 16.9.
102 There are many illustrated examples of small drinking vessels with raised bosses on the side but these are mostly combined with vertical lines on the body. They differ in this respect from the SMOG vessels and also in the absence of rouletted marks, but they appear to form part of a related complex (Malashev 2000, figs 2.1–3, 2.5, 3.1, 3.3, 3.6–7, 4.3, 4.5, 4.8, 5.2, 5.5–6, 6.4).
103 Large numbers of examples occur throughout the report of the medieval ceramics from the cemetery of Mokraya Balka. There are too many examples to cite the specific parallels (Malashev 2001).
104 Afanas'ev 2013b, fig. 1.1.
105 Ch'ilashvili 1964, pls XX.1–4, XXI.1–3, XXIII.6, XLII.1.
106 Abramishvili and Ch'ilashvili 1962, fig. 4.
107 Bakht'adzeh 2013, 19–21, 25.
108 Watson 2004, 106–15.
109 Bakht'adze 2013, 11.
110 See chapter 25.6.
111 See chapter 11.5.3.
112 See chapters 2.2.4–2.2.5.
113 See chapter 4.1.
114 See chapter 4.3.
115 See chapter 3.
116 See chapter 11.2.
117 See chapters 6.2–6.3.
118 See chapter 6.2 and 6.4.
119 Bakht'adzeh 2013, 12.
120 See chapter 5.2.
121 See chapter 5.1.
122 See chapter 4.2.
123 See chapters 6.2 and 6.5.
124 See chapter 8.2.
125 See chapter 8.3.
126 See chapter 8.4.
127 See chapter 8.5.
128 See chapter 8.6.
129 See chapter 8.7.
130 Mindorashvili 2005, pls XIV.23, XIV.57, XIV.76, XIV.130.
131 See chapter 9.1.
132 See chapter 9.1.
133 See chapter 9.1.
134 See chapter 11.5.4.1.
135 See chapter 9.1.
136 See chapter 9.1.

137 Cited and discussed in Braund 2001 and chapters 25.2–25.3.
138 See chapter 25.3.4; Daryaee 2009, 25; Dignas and Winter 2007, 188–95.
139 Raby and Vickers 1986; Vickers 1992.
140 Wilson 2009, 214–15.
141 Payne 2017, 182, 196–97; Howard-Johnston 2014; Alizadeh, 2014; Gadjiev 2008; Aliev *et al*. 2006; Sauer *et al*. 2013.
142 See sources in previous note.
143 See chapter 10.
144 Wilson 2009, 243.
145 Quinn, 2013, 4.
146 Freestone 1995; Whitbread 2001.
147 See Northern Caucasian Federal District maps in bibliography.
148 See chapter 11.1.3, cf. 9.1.
149 See chapter 11.3.2.

12

Fragment of a ceramic vessel with an ancient Georgian inscription discovered at Dariali Fort

George Gagoshidze

Archaeological excavations carried out at Dariali Fort in 2015 revealed a fragment of a ceramic vessel (F.165/1413)[1] whose handle is inscribed with a word made up of Georgian *nuskhuri*[2] (minuscule) graphemes, written on it in a single line. The inscription was engraved on wet clay and consists of four characters (Fig. 12:1). It measures 5.3 × 1.6 cm, the biggest grapheme 1.6 cm, the smallest 0.5 cm. The word reads: *gogi*.

Georgian inscriptions on medieval earthenware are most often found on tiles across Georgia,[3] but there are inscriptions on ceramic vessels as well. Their chronological frame is rather vast and embraces the period from the Early to the Late Middle Ages inclusively. Fragments of pottery with Georgian inscriptions have been discovered during excavations of the urban sites of Urbnisi[4], Nekresi,[5] Rustavi,[6] Dmanisi,[7] the village of Lochini,[8] the monasteries of Vanis Kvabebi,[9] Alaverdi,[10] Gudarekhi,[11] Samtavisi, Gelati, the Georgian monastery of Ghalia on Cyprus,[12] and so on. The majority of the cited inscriptions are scratched on baked earthenware and, as a rule, the owner of the vessel is recorded. The inscription on the fragment discovered at Dariali Fort is engraved on wet clay, before firing, which points to the fact that '*gogi*' is, presumably, the name of the potter. 'Gogi' is a shortened, domestic form of the most popular male name in Georgian onomastics – Giorgi. The name Giorgi (George) was introduced when Christianity spread to Georgia. Amongst the material found to date, the earliest record of the name 'Giorgi' in a Georgian context is a graffito on plaster within an old church, unearthed in the course of archaeological excavations at a Franciscan church in Nazareth (modern Israel). In this graffito, dating to the first half of the fifth century AD, a certain Giorgi asks Christ for mercy.[13] The name 'Giorgi' enjoyed great popularity in Georgia. It was given to upper class secular people and clergy as well as to common people. In 677–678, the Catholicos of Georgia was Giorgi I.[14] The name 'Giorgi' was also popular with the Georgian royal family of Bagrationi; no less than twelve kings of this dynasty were named Giorgi.

The letters of the inscription on the vessel fragment discovered at Dariali Fort are executed in skilled, literary handwriting. Dating of the inscription is based on the results of radiocarbon analysis of osteological material, firmly stratified below and above the vessel, suggesting, with high probability, a date in the eighth century (or, at the latest, in the first third of the ninth century).[15] This and other recent discoveries allow us to revise previously accepted norms in Georgian palaeography. According to the previous standpoint, the colophon of the Sinai Polycephalon (864)[16] was considered the earliest sample of *nuskhuri* script. However, recent research has revealed inscriptions in *nuskhuri* dating to 711 and 835 among the numerous graffiti preserved on the walls of a domed



Fig 12:1: Vessel handle with the graffito.

church of At'eni Sioni (Georgia, Gori Municipality).[17] A further inscription mentioning the historical person Varaz Mampali dates probably to as early as the second half of the seventh century; if so, this type of script was introduced approximately 200 years earlier than previously thought.[18] The grapheme 'g' of the *nuskhuri* inscription on the jar handle found at Dariali Fort, with its concave back, is reminiscent of the analogous grapheme from the inscription on the pastophorium in At'eni Sioni. Remarkable is the contour of the grapheme 'o'. It is formed of two wavy lines, not connected to each other, and looks like it is written with a pen. An analogous grapheme is depicted in red paint on the wall of Parkhali Church (dated to the second half of the tenth century and located in the historical Georgian province of Tao, today in the north-eastern province of Turkey, Artvin, near the city of Yusufeli). The Dariali graffito shows also some similarity with the grapheme 'o' of the above-mentioned inscription from At'eni Sioni.

In conclusion, the inscription discovered at Dariali Fort is one of the earliest examples of *nuskhuri* script, which is further proof that *nuskhuri* must have been formed shortly after *asomtavruli* writing emerged, whereas the inscription of the potter executed in perfect handwriting points to the fact that in the eighth century, literacy in Georgia was common even amongst people of the lower classes.

Notes

1 See also chapter 2.4.3, on the archaeological context, and 11.3.2, on its attribution to the eastern Georgian HASOG pottery class.
2 In Georgia three kinds of alphabet were in use: *asomtavruli* (capital), *nuskhuri* (minuscule) and *mkhedruli* (modern lay); ancient Georgian inscriptions (fifth century AD) were written in *asomtavruli*.
3 See Jghamaia 1980 on a ceramic water pipe with a long *asomtavruli* inscription engraved on, kept in the stone depository of the Sh. Amiranashvili Art Museum, Georgian National Museum; for more detail, see Gagoshidze 2000.
4 Ch'ilashvili 1964, 115, pl. XLIII 1,3.
5 Ch'ilashvili 2004, figs 23–24.
6 Ch'ilashvili 1961.
7 Muskhelishvili 1938, 403; Japaridze 1956, 62, pl. XXXVIII.
8 Ramishvili and Ch'ilashvili 1962, 200.
9 Burdiladze 1984.
10 Bolkvadze and Ts'ereteli 2007, 93, 105, pls V-VI.
11 Mindorashvili 2015, 33, 145.
12 Gagoshidze *et al.* 2014, 92–93, figs 12.h, 12.i, 12.j, pls I, V.1,2,3.
13 Aleksidze 2011, 22.
14 Abashidze 2000, 32.
15 See chapter 2.4.3.
16 Abuladze 1973, 83, pl. 41.
17 Abramishvili 2012, 99–100, 104.
18 Abramishvili 2012, 101–105, pl. XXXII.

13

Vessel glass from the Dariali Fort

Fiona Anne Mowat[1]

13.1. The assemblage from Dariali

The glass vessel assemblage from the excavations on the Dariali Fort is a significant one. The gorge, in Antiquity, as today, was an important crossing point over the Caucasus Mountains and goods were traded via this pass. Accordingly, the vessel fragments that will be discussed below, are attested in glass production centres in Georgia and much further afield, with parallels found from other archaeological sites in Georgia and the Southern Caucasus, the Northern Caucasus, Egypt, the Levant, Central Asia, Iraq and Iran. They encompass a range of fabric types in various colours, vessel shapes and decoration. As such, findings from Dariali shed important light on trade relations at the site as well as glass production and circulation in medieval Georgia.

Vessel glass was recovered in each of the four seasons of the Dariali Fort campaign, from 2013 to 2016. In total 1,282 individual sherds have been preserved. The extant number of vessels recovered is at least 392. The trenches from the excavation which yielded ancient vessel glass are F, Q, M and X, with one burnt sherd from E, (Fig. 13:1). Trenches F and Q covered areas of the Fort structure, which itself dates from the late fourth century onwards and from where more than 97 per cent of the vessel glass was recovered; more than 60 per cent from Q, and over 17 per cent of all vessel glass comes from a single context in Trench Q: Q.027. Much of the earlier contexts of Trenches F and Q were reasonably well stratified and the vessels have therefore been dated based on the dates of the contexts in which they were found. In the less well-stratified contexts, where these are likely to be earlier redeposited finds, this has been noted.

The other trenches which yielded glass fragments were M, X and E. Trench M was located nearby at the base of the Fort, and X consisted of a pit dug into the side of the hilltop on which the fort is situated. These trenches yielded a mixture of materials from various stratigraphic layers which have cascaded down the side of the fortification. Trench E was part of the cemetery near Dariali Fort and the one burnt piece of vessel glass is the only example from the area of the cemetery, coming from context E.024, the fill of a possibly modern pit-like feature and is, therefore, likely to be a modern or medieval loss, rather than a grave good. No ancient vessel glass was recovered from the Fort at Gveleti or the cemetery further away from the main fortification at Dariali, represented by Trench G.

13.2. Methodology

Vessel glass was excavated by hand although the recovery rate was hampered a little by the soil type and damp conditions which made sieving impractical; therefore, less fragile and more visible bases and rims are likely to be found in much higher numbers than sides of vessels or items of a friable nature: sides themselves comprise 64 per cent of the assemblage and may have represented many more vessels that cannot now be reconstructed (see Fig. 13:1). This is especially true of the blue green fabrics as sherds of this colour are numerous and largely of a homogenous appearance, and it is therefore likely that many of these fragments could belong to a single vessel. In the vessel quantification this will probably result in a lower minimum vessel count in this fabric, in stark contrast to the distinctive fragments from vessels in the purple or blue classes, for example. No complete vessels were recovered, but several are over 70 per cent complete and/or include a full profile (notable examples are: blue to green goblet Q.166/29;[2] thick blue to green diagonally-moulded bowl; Q.011/60.14 and another of the same type F.094/758;[3] most of the side and base of an amber beaker with trailed decoration Q.043/359.1).[4]

Recovered vessel glass was mostly treated as ‘small finds’ but some contexts yielded so much of it that it was recorded in bulk with a single find number. These bags

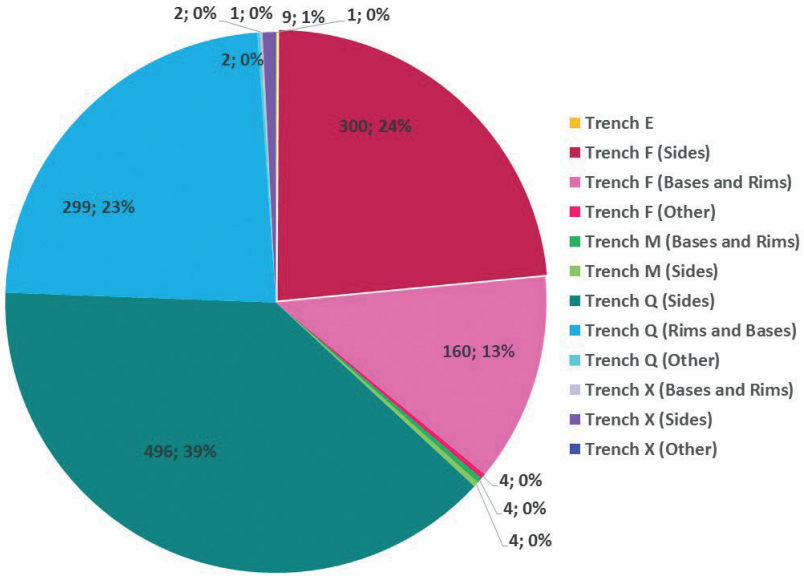


Fig. 13:1: Total excavated fragments by trench and vessel part.

of glass sherds were then taken to the base for cleaning and in cases where multiple pieces were associated with one find number these were examined, split into sub-groupings with each grouping allocated a separate sub-number. Each subgroup of sherds was kept together with a label in an individual finds bag. Cleaning in a weak alcohol solution was undertaken by our onsite conservator Nino Kamkamidze as was the refitting of the vessels.[5]

13.3. Fabric classes

All of the vessel glass fragments were classified into fabric types based on their most dominant colour (or absence of colour) with subtypes based around groups of fragments displaying the other attributes as follows:

1. Colour: the dominant colour followed by less dominant colours.
2. Reflection of light: whether the material is transparent (objects can be seen through it), translucent (light can shine through it), or opaque.
3. Clarity of fabric: if the material is clear (bubbles are absent or minimal) or bubbly.
4. Surface condition: if the fabric is corroded or unworn.
5. Thickness: the relative thickness of the fabric.

Applying this methodology resulted in the following 21 fabric classes which represent all fragments and are described in detail in the catalogue (chapter 13.7) with the chapter numbers of each type given here, as well as sub numbers (the blue green types have been separated out and arranged by major vessel forms):

13.7.1. Red opaque fabric
13.7.2. Purple fabric
13.7.3. Blue fabric
- 13.7.3.1. Bright clear cobalt
- 13.7.3.2. Opaque blue
- 13.7.3.3. Thick blue

13.7.4. Green fabric
- 13.7.4.1. Green with streaks
- 13.7.4.2. Yellowish green
- 13.7.4.3. Bubbly green
- 13.7.4.4. Bright clear green
- 13.7.4.5. Thick green

13.7.5. Amber, yellow and black fabrics
- 13.7.5.1. Dark amber fabrics (non-decorated)
- 13.7.5.2. Thin amber with moulded decoration
- 13.7.5.3. Thick amber with applied moulding

13.7.6. Colourless fabric
- 13.7.6.1. Colourless (with efflorescent spots)
- 13.7.6.2. Colourless thin
- 13.7.6.3. Colourless thick
- 13.7.6.4. Colourless brittle

13.7.7. Blue green fabric 1 (BG-1)
- 13.7.7.1. Wall sherds
- 13.7.7.2. Open forms – beakers and bowls
- 13.7.7.3. Handled lamps
- 13.7.7.4. Goblets
- 13.7.7.5. Closed forms – jars and bottles
- 13.7.7.6. Closed forms – *unguentaria*
- 13.7.7.7. Alembics
- 13.7.7.8. Moulded decoration
- 13.7.7.9. Diagonal moulding
- 13.7.7.10. Diagonal ribbing
- 13.7.7.11. Diagonal to horizontal ribbing
- 13.7.7.12. Horizontal ribbing
- 13.7.7.13. Diagonal net ribbing
- 13.7.7.14. Others

- 13.7.7.15. Applied decoration
- 13.7.7.16. Pinched decoration

13.7.8. Blue green fabric 2 (BG-2)

- 13.7.8.1. Vessels
- 13.7.8.2. Diagonal moulding

13.7.9. Blue green fabric 3 (BG-3)

13.7.10. Blue green fabric 4 (BG-4)

This descriptive catalogue is number 13.7 and is structured to incorporate the catalogue information (in the tables) with descriptive analysis of the fabric groups, individual sherds and broader vessel typologies in the accompanying text.

13.4. Chemical analysis

Of the 1,282 glass fragments recovered from the Dariali excavation, samples were taken of 265 representative examples chosen by the author of this report, with an aim to capture various fabric colours, thicknesses and vessel types (Fig. 13:2). The following chapter by Yoshinari Abe and Ryuji Shikaku discusses in detail the analytical results of the glass composition study from Dariali, but to summarise here, there are three main broad compositional types: A (with two subdivisions); B (five subdivisions) and C (with two main subdivisions). In addition, there are two associated types: a copper fabric in the C grouping and a completely separate lead-based fabric.[6]

Of the A fabrics; type A-1 has been compared to the plant ash glasses found in Islamic Iraq and Iran and which have possibly been manufactured in those loci and exported to Georgia as finished products.[7] Type A-2 glass is similar to that of Islamic plant ash glasses from Syro-Palestine however its aluminium content is somewhat higher indicating that this glass may have been reworked in the local area, with additional material added.[8] Type B fabrics also have a higher aluminium content but are soda-lime based, a phenomenon associated with the Indian Subcontinent and East Africa.[9] However, it is likely that vessels in this fabric grouping were manufactured in Anatolia during the Byzantine period and these also may be compared to the Armenian compositional group discussed below.[10] Type C glass has a comparable level of aluminium oxide to the type A plant ash material.[11] However, this fabric contains less magnesium oxide than one would expect suggesting that it is actually natron-based, though with a higher (and varied) level of potassium oxide.[12] The following chapter suggests that the type C fabric was most likely a product of the local area (either Georgia or the wider-Caucasus region) with possible subdivisions to be identified in future studies.[13] As discussed in more detail below, Chkhat'arashvili characterises Georgian medieval glass as natron-based and low aluminium therefore it would fit type C, which is also by far the most numerous type in the assemblage. Of the total analysed fragments, 265, type C fabrics accounts for more than 66 per cent of all vessels; more than 24 per cent belong to type B fabrics and more than 10 per cent of these belong to the type A fabric (see Fig. 13:4). This division adds additional weight to the assumption that the C grouping represents a locally manufactured fabric, which would be expected to be most commonly attested in the assemblage.

13.5 Site phasing and vessel circulation

The vast majority of the vessel glass discussed in this chapter comes from stratigraphic layers dating between the late seventh and tenth centuries (see Table 13:1 and Fig. 13:3). As Table 13:1 and the graph (Fig. 13:3) show, four fragments can be dated no later than the seventh century, with one of them dating with certainty to the fifth century or earlier, and two more dating no later than the sixth century (all together accounting for less than one per cent of the assemblage). 824 are found in stratigraphic

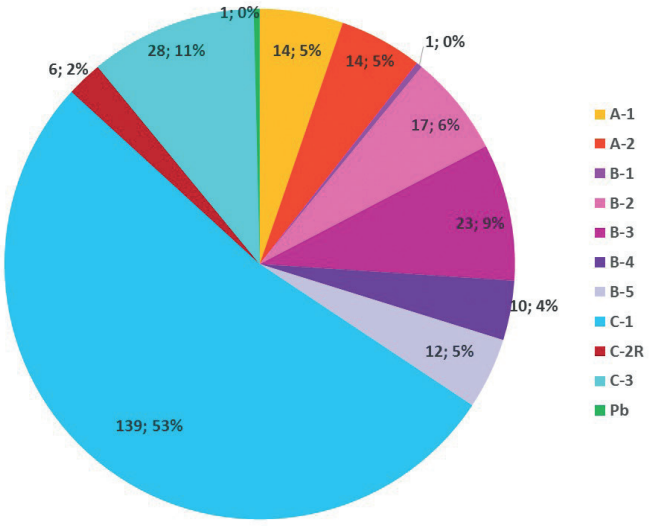


Fig. 13:2: Total sampled fragments (265) by compositional grouping.

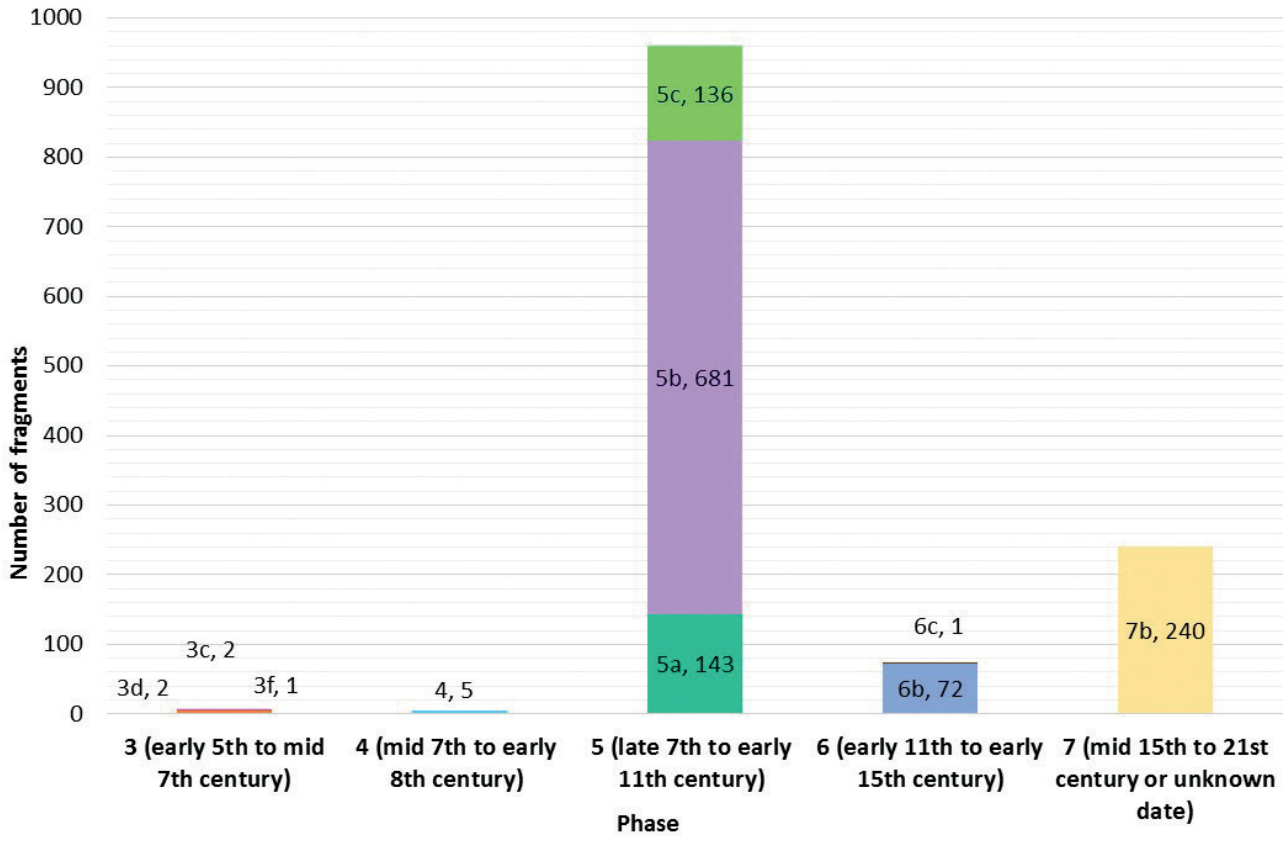


Fig. 13:3: Graph showing the number of glass fragments per phase by latest possible date.

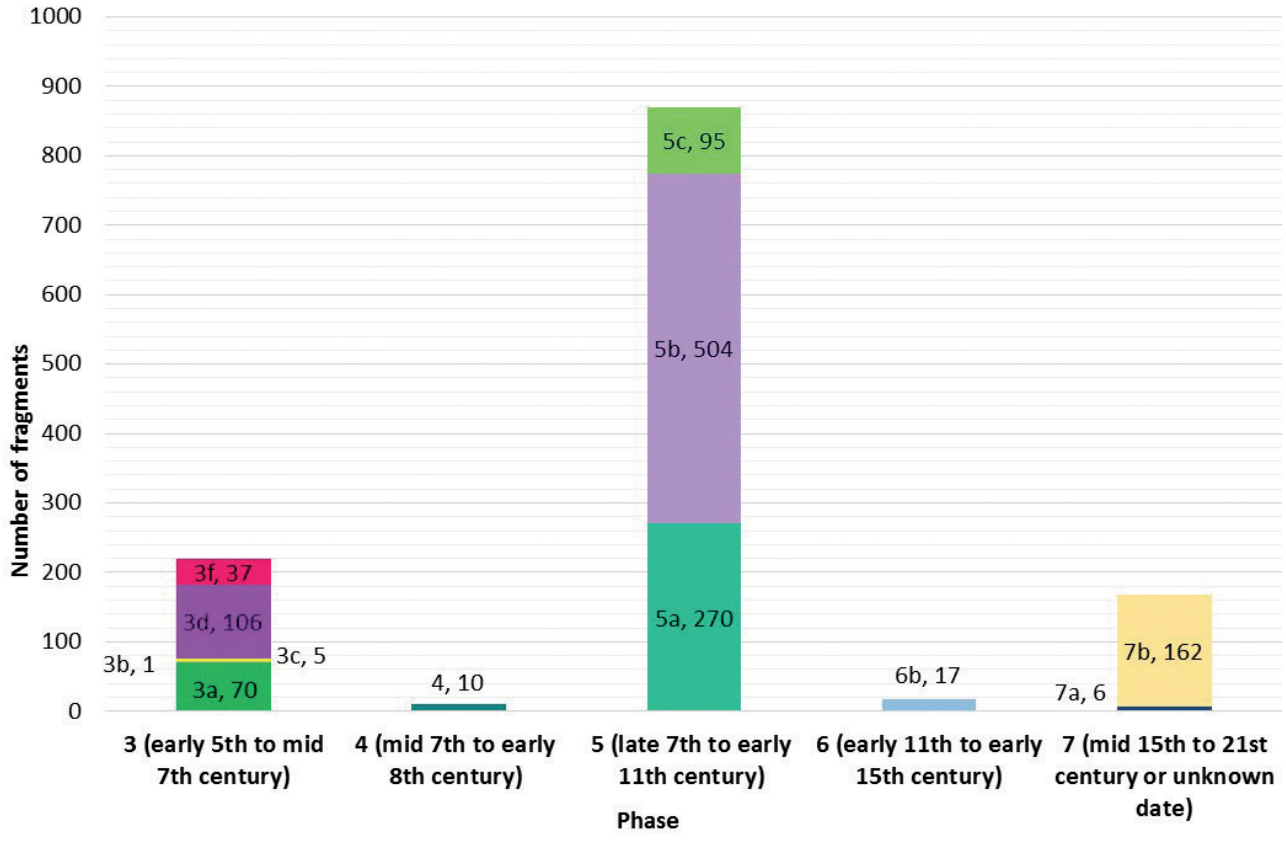


Fig. 13:4: Graph showing the number of glass fragments per phase by earliest possible date.

layers which are no later than the ninth century, and 136 likely date between the late ninth and early eleventh centuries. Just two were found in late medieval deposits dated between the thirteenth and fifteenth centuries (and need not be late medieval products, but could be redeposited, one being non-diagnostic and the other potentially quite early) and the remainder of the fragments are more modern or are not well stratified. Perhaps no glass reached Dariali Gorge in the Late Middle Ages, which may also explain its absence on Gveleti Fort whose main occupation dates to the first two thirds of the second millennium. A clear gap exists between the late tenth/early eleventh and thirteenth centuries and from the thirteenth century onwards vessels are attested again (less than six per cent of the overall assemblage and less than one per cent well stratified) but not in anything like the high numbers of the seventh to tenth centuries.

Through examining the earliest possible dates for the stratigraphic layers that yielded vessel glass (see Fig. 13:4), we can surmise that a few glass vessels circulated in Dariali Fort between the late fourth/early fifth century to the early seventh century. It is tempting to assume a correlation between the building of the walls of the present fortification and the small influx of the earliest glass vessels. The glass supply increased dramatically in the late seventh or eighth century. The influx reaches a peak in the eighth to tenth centuries before coming to an end in the late tenth or early eleventh century.

13.5.1. The earliest, securely dated, vessels

The earliest securely-dated deposits which yielded vessel glass were F.190 and F.178 (phase 3c) dated between the late fourth and early fifth century. F.178/1521.1, a small piece of diagonally moulded vessel in a thick blue fabric (BG2 below in 13.7.8) was found in layer F.178. The fragment can be matched with others of this type which all belong to the C-1 compositional grouping. Another example of the diagonally moulded glass bowl (F.094/758) in the thicker blue green fabric (BG2) comes from later context F.094 (phase 4), mid-seventh to early eighth century. Therefore, this vessel type is likely to have been manufactured in the early period of occupation at Dariali (c. fourth century) and is still in circulation in the seventh century, which, as discussed below in detail supports Chkhat'arashvili's dating of these vessels.[14]

Context F.190, a fill of the same foundation trench as F.178 and also dating to phase 3c (late fourth and early fifth century), contained two small sherds of blue green glass possibly representing the neck of a bottle (F.190/1599.1). This is in fabric A-1, indicating an import from the East. In addition to this, another such vessel, from F.175 (phase 3d) a context dated from the mid-fifth to sixth centuries, represents a piece of a small vessel (F.175/1481.1) in a thick blue-green fabric (BG4, see 13.7.10 below); this could be part of a small bottle, such as a molar flask. The fabric composition belongs to the B-3 grouping indicating the early circulation date for this material but also marking the place of manufacture for this item as distinct from the former, despite their typological similarity. In fabric of the same chemical composition (B-3), coming from context 3f (early to mid-seventh century), is a piece of a small beaker or small *unguentarium* bottle (F.175/1119.1). Therefore, small bottles are one of the earliest vessel types in the assemblage.

From phase 4 context F.094 in particular, dating from the mid-seventh to early eighth century, is a moulded beaker of the diagonal-net style, in BG1 fabric (F.094/761), with a chemical composition in C-1. In addition, and in the same fabric is a distinctive applied glass goblet stem (F.094/760.1, which matches the almost complete goblet from Q.166, Q.166/1129). There are two non-diagnostic sherds in F.096 (both F.096/852.1), in BG1 fabric of a B-2 composition. A base fragment of a small bottle (F.094/783.1) in BG1 fabric was also recovered from this phase. The finds from phase 4 suggest that diagonally moulded glass in the thin type of fabric is manufactured between the mid-seventh and early eighth century, as are the goblets with the beaded stems; see the following sections below (13.7.8.2 and 13.7.7.4).

Therefore, the earliest definable vessel types that we see in our assemblage are: diagonally moulded bowls in thick blue green fabric (BG2), small bottles, diagonally moulded beakers in thin blue green fabric (BG1) and goblets with beaded stems. These are all vessels that are likely made in the territory of medieval Georgia and are found in other excavations there: similar bowls, beakers and goblets are found at the Narikala Fort in Tbilisi, for example.[15] The diagonally moulded beaker was made specifically for an export market.[16] These are found alongside, potentially imported, small bottles of the types found in funerary contexts throughout medieval Georgia.[17]

13.5.2. Circulation of compositional groupings

Table 13:1 and Fig. 13:5 visualise the chemical composition groups arranged by stratigraphic phase. The A-1 compositional type appears in the late fourth to mid-sixth centuries and continues in circulation until phase 5c, late ninth to early eleventh century. Circulation of A-2 on the other hand can only be assigned with certainty to the late seventh/eighth century onwards, and is well represented especially in phase 5b in the ninth century. Overall A-1 is the more common of the two A groups in well stratified contexts.

Material of the B-3 composition is the earliest securely attested group of those described as B, and is in circulation from the mid-fifth to sixth century and until at least the tenth century; it is also the most common of the B groups. B-3 arrives first in phase 3d, in the second quarter of the fifth century to sixth century and was in circulation until at least the ninth century; it is the most commonly attested of the B compositions. In the late seventh to early ninth centuries, in phase 5a, group B-4 is attested but it becomes more common in 5a-5b, where we also see the introduction of the B-5 type. B-1 is only found in one fragment and this is unfortunately not well stratified.

Table 13:1: Vessel circulation.

Phase	*Number of associated fragments*	*Compositions*
3c	2	A-1
3d	1	B-3
3f	1	B-3
4	5	C-1
3d-5a	1	C-1
4–5a	5	n/a
5a	136	A-2; B-2; B-3; B-4; C-1; C-3.
3a-5b	61	A-2; B-2; C-1.
3d-5b	104	A-1; A-2; B-3; C-1; C-3.
3f-5b	36	C-1
5a-b	122	A-1; A-2; B-2; B-3; B-4; B-5; C-1; C-2R; C-3.
5b	359	A-1; A-2; B-2; B-3; B-5; C-1; C-3.
3a-5c	1	C-1
5a-c	2	n/a
5b-c	91	A-1; A-2; B-2; B-3; B-4; B-5; C-1; Lead-based.
5c	42	A-1; A-2; B-3; B-5; C-1; C-2R.
3a-6b	4	C-1.
3c-6b	2	n/a
5a-6b	7	C-1; C-2R; C-3.
5b-6b	5	n/a
5c-6b	52	A-2; B-2; B-3; B-4; C-1
6b	2	n/a
5b-6c	1	n/a
3a-7b	4	n/a
5a-7b	4	n/a
5b-7b	48	B-2; B-3; C-1
5c-7b	1	n/a
6b-7b	15	B-3
7a-7b	6	B-4
7b	162	A-1; A-2; B-1; B-2; B-5; C-1
Total Fragments:	**1,282**	n/a

C-1 is, as stated above, the most numerously attested fabric composition of those vessels sampled, it is attested at the latest from phase 4, dating from the mid-seventh to early eighth century. The C-3 group is attested in the 5a and 5b phases (in the late seventh to ninth centuries), likely coming in after the C-1, and in phase 5a-b the CR-2 (the opaque red fabric) comes into circulation. In Fig. 13:5, the high numbers of type C-1, and to a lesser extent, C-3 fabric, are plain to see, these are very popular in the late eighth to early ninth centuries.

This analysis demonstrates that types A-1 and B-3 being the earliest securely attested types (arriving by phase 3c and 3d respectively), with B-2 and C-1 arriving a little later (by phase 4 at the latest), and the remainder not until phase 5. In the late seventh to early ninth centuries (phase 5a), we see an increase in the influx of glass into the fort, and the majority of all compositional groups are represented in phases 5a-b (see Fig. 13:5). This indicates that a great deal of glass, from a wide range of sources, is being traded at this time. The types that come in slightly later than phase 5a are B-5 and C-2R (opaque red glass). Therefore, we cannot see necessarily that one type of glass is being superseded by the other, rather all types are circulating at the same time.

13.5.3 Circulation of fabric types

Fabric colours and types all markedly come into circulation in the 5a-5b period. It is interesting that, at this time, we see the introduction of several vessels of the same type and/or style of decoration in different chemical

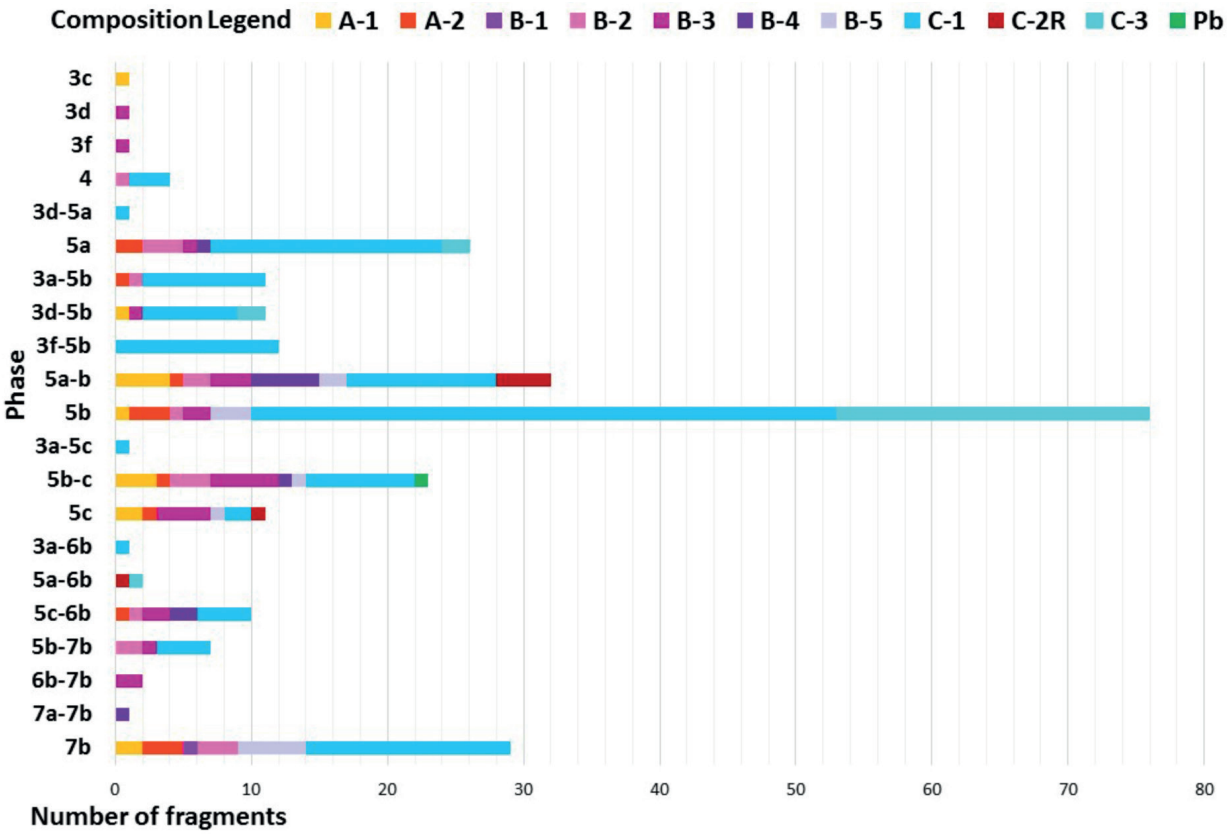


Fig. 13:5: Graph of sampled glass fragments by composition and by phase.

composition: a group of pinched beakers discussed in detail below[18] are the best example of this phenomenon. These may indicate different manufacturing loci but the high degree of uniformity in shape and style imply that the point of production is the same but that the raw material used is different. The pinched beakers are of C-1, C-3 and B-3 compositions. It is, therefore, possible that these beakers were made locally in fabrics comprising different raw materials. Some of these vessels show barely any wear and some were melted down. Such finds raise interesting questions as to why these items had been procured, if they were to be melted down, or passed on for their value as cullet.

In addition, one of the most exciting findings of the above analysis is that vessels dating to the post-Sasanian style and which might be assumed to have been manufactured in the Iranian region, because they have been made in a thick fabric and ground with a wheel, or cut, could be manufactured in the Caucasus region, quite likely, in the territory of Georgia.[19] In particular one of the very thick bowls in a BG4 fabric with circular ground areas, perhaps prepared for further faceting manufacture, was attested in a C-1 composition,[20] (F.037/256). Most of the vessels of this type were manufactured in a colourless fabric of chemical composition A-1, with a single A-2 example. Future analysis of other vessels of this type coming from excavations in Georgia, and further afield, will help us to understand more about medieval Georgia's role in glass manufacture in the post-Sassanian era.

13.6. Glass recycling, cullet and trade at Dariali

Chkhat'arashvili (following Ugrelidze) mentions Stepantsminda (Kazbegi) as a potential area where glass may have been manufactured in the medieval period.[21] Whilst there is currently no direct evidence for large scale glass production at Dariali Fort, there is evidence to suggest that it may have been taking place nearby (Fig. 13:6). For example, as seen in Fig. 13:7, in phase 5b we see some evidence of glass being melted down for some purpose. We know that these were fully-formed vessels at some point as they are decorated with pinch marks[22] or other designs and some were finished with rims. This may be evidence of the local reworking of glass, perhaps even into cullet for transfer to a local manufacturing site. All of the melted pieces (Q.027/171.23, Q.032/230.16, Q.165/1085, Q.011/60.11) are of the C-1 composition. In addition, two reworked long pieces of glass were recovered from the excavation. The first (Q.003/15.1) is a shaped rod in a variant of the opaque red fabric, and the second (Q.037/512), is of triangular shape with one end flattened, slightly similar to some styles of glass bracelet. The fabric colour is green with red flecks. Both of these items are in the B-1 composition. It is possible that these imply some glass reworking on a small scale.

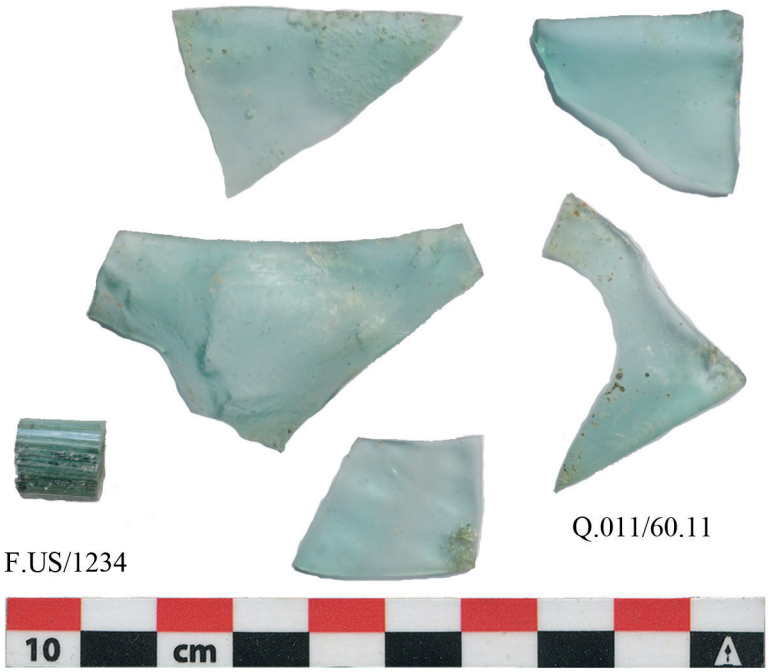


Fig. 13:6: Examples of melted glass and glass cane.

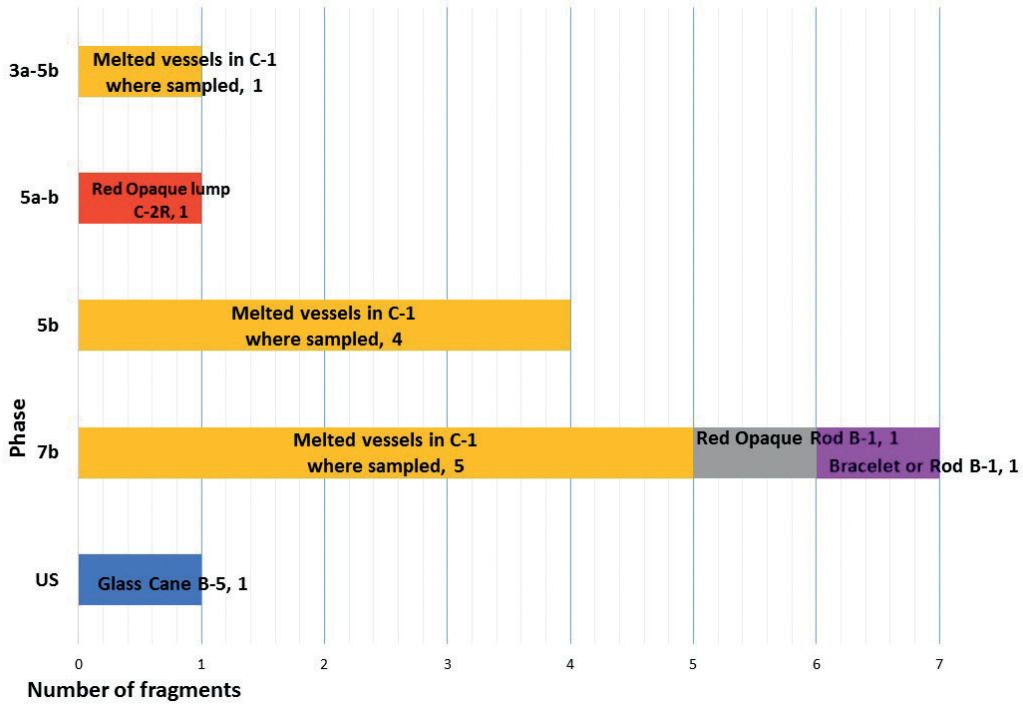


Fig. 13:7: Graph of glass manufacture or re-use.

A piece of turquoise glass cane (F.US/1234) was recovered from an unstratified area of the site. It could have been part of a vessel's straight handle, or a glass tool of some sort but it was most likely the raw material for glass manufacture. The object has a slightly ribbed surface on the exterior which is matt and not transparent and shows pronounced striation marks; it is surprisingly light. Its section is shiny and contains a few small bubbles. It is in the B-5 composition. In addition, a large lump of glass in an opaque red/black fabric mixed with some blue/colourless material (F.131/1215) is described in detail below.[23] The piece is opaque in some areas and transparent in others. It appears to contain the same material that was used to make the red opaque glass. Although its

composition (type B-5) differs from that of the red-opaque fabric which is in the CR-2 grouping. The implication may be that the red glass object has been recovered and partly melted down, along with some of the blue green glass of a different composition, perhaps in order to trade the material as cullet, thus turning broken vessels into lucrative items.

13.7. Descriptive catalogue by fabric type

The following is a descriptive catalogue of glass vessel types arranged by fabric class. Each fabric, and the vessel types associated with it, is described in turn. Note that in the following tables which describe the fragments date ranges are frequently given. *E.g.* 'Earliest production phase (3d-)5b' indicates the fabric cannot be securely attested before 5b, but at least one poorly stratified deposit could be as early as phase 3d. It is the latest phase in the range that provides the likely date of introduction, but we should bear in mind that it could be earlier. Whilst glass occurs in disturbed late medieval to modern deposits, most material from phases 6 and 7 will be redeposited earlier glass.

13.7.1. Red opaque fabric

This fabric is an opaque red colour with black streaks and a delicate marbled effect, perhaps in imitation of precious stone. It is very fine and any vessels manufactured in this fabric would have to be considered luxury items. Fifteen fragments in this fabric were spread over several contexts (Figs 13:8–13:9; Table 13:2).

Oinochoe jug

One distinctive vessel type in this fabric is a jug with a trefoil mouth (an *oinochoe*), probably evoking an object cast in metal (see Fig. 13:8). The body is bulbous and the object has a fine foot which is still extant (F.070/602). The vessel likely dates to the eighth century AD. Pieces from this one vessel may have become widely scattered, for some reason, as the fabric was found throughout the excavations of the main fortification, including in Trench M at the foot of the fort. The finesse of the extant sherds, the quality and thinness of the material, imply that it was made by skilled craftsmen in a specialist workshop.[24] Jugs made of remarkably similar red-opaque fabric are found in the Corning Museum of Glass although the provenance of the pieces is not well known.[25] Carboni considers these to date from the eighth-ninth centuries and to be of Syrian manufacture, with similar pieces to be found in the collections of the Tel Aviv Museum. The vessel from Dariali also dates to a similar time (phase 5a) and is, to my knowledge, the most complete and the finest example of a jug in this fabric, and the chemical composition suggests this piece was manufactured in the territory of Georgia, possibly for the export market.

Two other items, a lump of raw glass (F.131/1215), and a roughly worked twisted rod (Q.003/15), indicate that this fabric is manufactured or, perhaps more likely, reworked at Dariali, by using a mixture of fabric types, thus accounting for the changes in chemical composition between the analysed samples noted above. This piece of raw glass may have been produced by mixing the red opaque vessel glass with some other types on the fort with the intention of sending it to a glass manufacturing site elsewhere. The red twisted rod (Q.003/15) was certainly a product of melting this fabric, either before the *oinochoe* vessel was manufactured or afterwards; sadly this rod is not well stratified and comes from a top-soil mixed context.

As Fig. 13:9 shows, the lump of raw glass (F.131/1215) was well stratified, coming from a 5a-5b context and

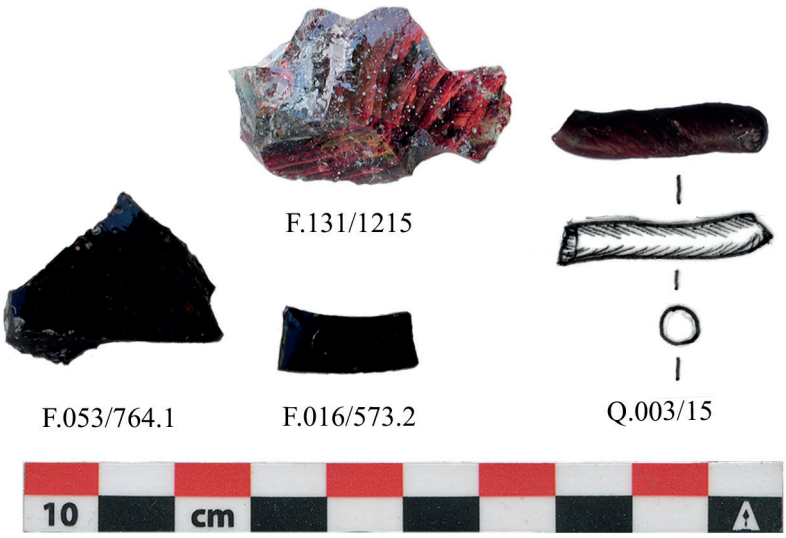


Fig. 13:8: Red Opaque and Purple Fabrics.

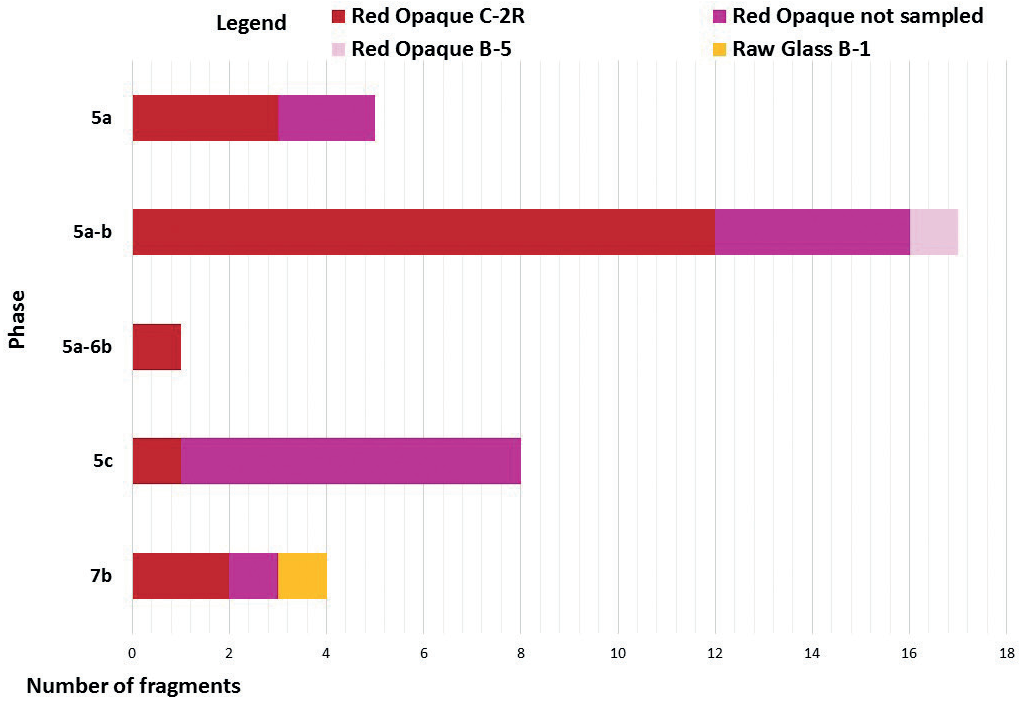


Fig. 13:9: Graph of Red Opaque Fabric.

Table 13:2: Red opaque glass.

Red Opaque Glass	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1; Oinochoe	16	5a	5a-5c	F.037, F.070, F.077, F.US.	C-2R
Sides	19	5a	5c	F.037, F.043, F.053, F.070, F.119, F.164, F.US; Q.011, Q.042; M.003.	C-2R
Lump/Ingot; F.131/1215	1	5a	5a-b	F.131	B-5
Twisty rod; Q.003/15	1	7b	7b	Q.003	B-1
Total Minimum Vessels: 1	**Total Fragments: 36**	**Earliest production phase: 5a**	**Latest circulation phase: 5c-7b**	**Number of contexts: 12**	**Chemical Compositions: B-1; B-5; C-2R**

is contemporary with the more complete pieces of the vessel. It is opaque in some areas and transparent in others. It contains three main colours of fabric: a clear light blue green to colourless, a black fabric and a slightly orangey red fabric. A great deal of blue green glass is attested in the analysis below so this element would not be difficult to source at the Fort. Black or very dark coloured glass was also recovered from the excavation, as was obsidian, which was itself a key component in the manufacture of vessels in a dark fabric from Armenia, for example.[26]

The obsidian from Dariali (F.046/507.2) comes from a mixed context dating from the tenth century onwards (phase 5c-6b) so later than the manufacture of this vessel, but not by a great deal. A red mineral (Q.004/936) used for colouring ceramics or glass was embedded in a wall (Q.004) dating to the eighth or ninth century (phase 5b) and is thus roughly contemporary with the vessel. It seems possible that the glass was manufactured nearby or even in the surroundings of the fort, especially as the chemical composition suggests that this was partially made from locally sourced fabric: C2-R. Based on the current evidence and the fact that this vessel was so professionally made, it would have required a glass workshop. All we can say for certain is that the finished product was reworked at the Dariali Fort.

Table 13:3: Purple glass.

Purple Glass	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Base; F.053/764.1	1	5c	5c	F.053	B-2
Side; F.016/573.2	1	5c-6b (6b?)	5c-6b (6b?)	F.016	B-3
Total Minimum Vessels: 2	**Total Fragments: 2**	**Earliest production phase: 5c**	**Latest circulation phase: 5c-6b**	**Number of contexts: 2**	**Chemical Compositions: B-2; B-3**

Table 13:4: Bright blue.

Cobalt Blue	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Goblet; F.070/749	1	5a	5a	F.070	B-2
Side; F.046/507.1	2	5c-6b	5c-6b	F.046	B-4
Total Minimum Vessels: 2	**Total Fragments: 3**	**Earliest production phase: 5a**	**Latest circulation phase: 5c-6b**	**Number of contexts: 2**	**Chemical Compositions: B-2; B-4**

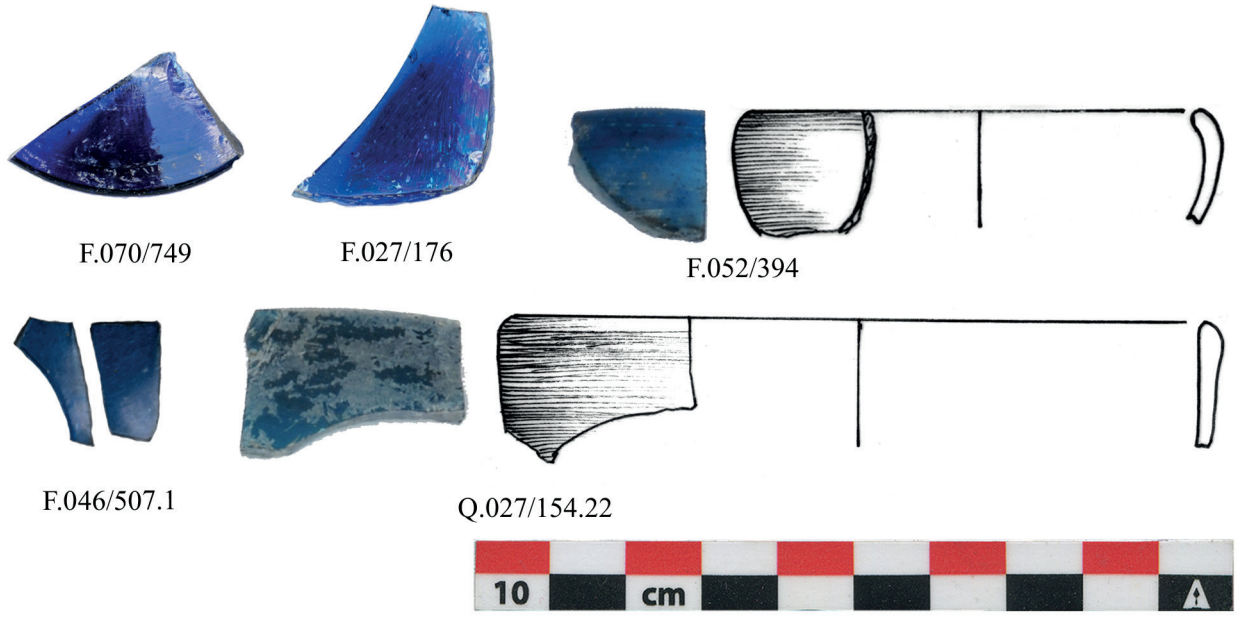


Fig. 13:10: Blue Fabric.

13.7.2. Purple fabric

Two pieces of dark purple glass were recovered from the Dariali Fort excavations and these represent two different vessels. Both items belong to type B fabric groupings and thus likely represent imported objects (Table 13:3).

Goblet

Fragment F.053/764.1 is part of a thick goblet base in a dark reddish purple colour. The base had a considerable push up in the centre from the pontil.

Bowl

The other piece, which shines red in the light, is probably the side of a vessel such as a bowl. The fabric is translucent and contains small to large frequent bubbles. The side piece comes from a tenth century context, when this vessel must have been deposited.

13.7.3. Blue fabric

A total of six fragments of blue glass are extant, representing at least five different vessels and three main subtypes: 1) a bright clear cobalt blue; 2) a slightly opaque blue and 3) a thick blue fabric (Fig. 13:10).

Table 13:5: Opaque blue.

Slightly Opaque Blue	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Bottle; F.027/176	1	5c-6b	5c-6b	F.027	C-1
Cup; F.052/394	1	7a-b	7a-b	F.052	B-4
Total Minimum Vessels: 2	**Total Fragments: 2**	**Earliest production phase: 5c-6b**	**Latest circulation phase: 5c-7b**	**Number of contexts: 2**	**Chemical Compositions: B-4; C-1**

Table 13:6: Thick blue.

Very Thick Blue	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Thick Bowl; Q.027/154.22	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Total Minimum Vessels: 1	**Total Fragments: 1**	**Earliest production phase: (4-) 5b**	**Latest circulation phase: 5b**	**Number of contexts: 1**	**Chemical Compositions: C-1**

13.7.3.1. Bright blue

Two examples of a clear cobalt blue fabric were recovered (Table 13:4).

Goblet

One belongs to the foot of a goblet (F.070/749) which has a pronounced push up in the centre; the striation markings from the manufacturing process are clearly seen on the underside of the piece. The fabric is remarkably translucent with only a few bubbles of small to large size. Chkhat'arashvili records one such goblet dated between the eighth and tenth centuries, which accords with the stratigraphic dating of context F.070 to the eighth century. She associates this type of goblet with Eastern Georgia.[27]

Bowl

It is possible that the body sherd (F.046/507.1) in a clear and bright navy-blue fabric is part of a vessel such as a bowl. As with the purple vessels both items in bright blue fabric are likely imports, perhaps from Anatolia or the Levant.

13.7.3.2. Opaque blue

Two vessels were recovered in this fabric (Table 13:5), a bottle and a shallow bowl. The material feels rather brittle to the touch and although it is now translucent, it may have been transparent in Antiquity.

Bottle

This body fragment (F.027/176) belonged to a bottle in a bright blue cobalt fabric of medium thickness. The fabric is now covered in an iridescent layer but some of the original horizontal manufacturing marks are still visible on the outer part of the fragment.

Cup

The second fragment was part of a thick-walled shallow vessel (F.052/394) with a slightly-rolled beaded rim. The fabric is somewhat transparent and lighter in colour towards the bottom of the cup with striation marks on the surface.

The bottle comes from a layer which dates roughly between the tenth and fourteenth centuries. The cup is not well stratified but is very likely to be broadly contemporary. These vessels find parallels in bottles and cups from Iraq but the chemical composition suggests a mixture of manufacture elsewhere in the Caucasus/Anatolia and locally.[28]

13.7.3.3. Thick blue

Bowl

The final type of blue fabric is a very thick piece of solid beaded rim (Q.027/154.22), of similar thickness to Sasanian bowls made for wheel grinding, manufactured in a bright greenish navy blue colour (Table 13:6). The fabric is very bright, translucent, and reasonably clear but it is now difficult to see through it due to corrosion; it is covered in striation marks from manufacture. It was deposited in the late eighth or ninth century and was likely manufactured in the post-Sasanian style and may have been made in this thickness for wheel grinding, cutting and polishing. This

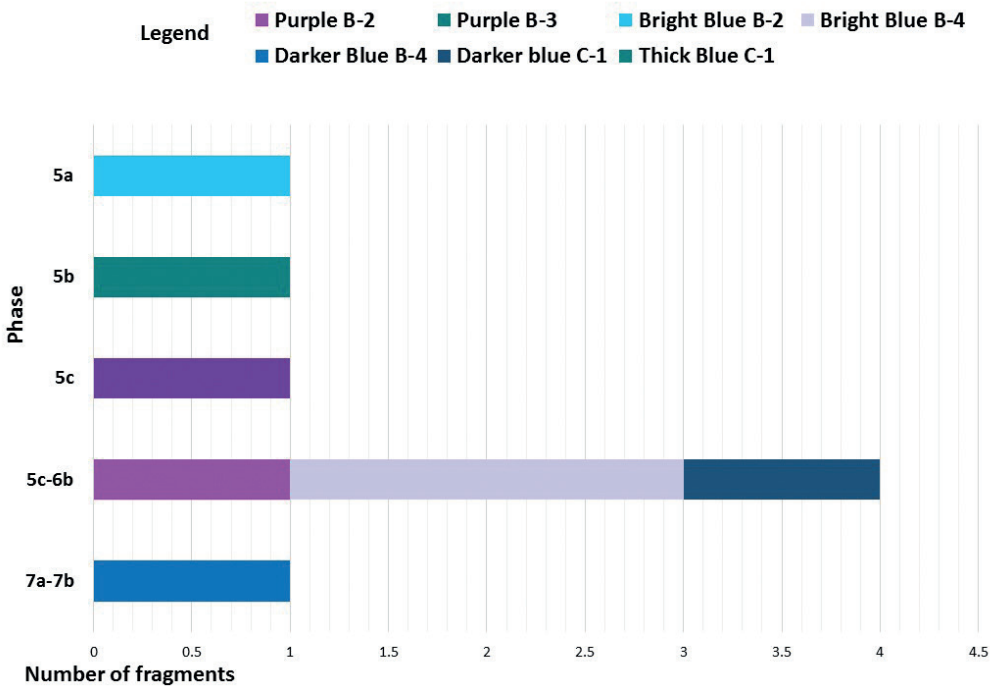


Fig. 13:11: Graph of blue and purple fabric.

piece is in composition C-1 indicating it is locally manufactured. This fits into trends observed with other fabric types and vessels in the post-Sasanian style which were possibly manufactured in the territory of medieval Georgia.

Figure 13:11 shows the circulation dates for the blue and purple fabrics. We can see that the earliest piece to appear in the assemblage is the cobalt blue goblet, followed by the post-Sasanian style blue bowl with all well stratified pieces circulating between the late seventh to tenth centuries.

13.7.4. Green fabric

There are 42 fragments of green glass that represent at least 23 different vessels, in five main fabric groupings 1) green streaks; 2) yellowish green; 3) bubbly bright green; 4) clear bright green; 5) thick bright green.

13.7.4.1. Green with streaks

The green fabric of this type is interesting. It ranges in colour from a dark bright green to a bluish green. The main base material contains visible streaks of red, orange or brown possibly the result of rolling the glass in fine frit powder during the marvering process. The fabric is distinctive and few parallels exist for this. The chemical composition of the items is fairly uniform (almost all are B-3) indicating that they are produced in the same workshop, probably between the Syro-Palestinian area and Anatolia, or perhaps with raw material from those areas, and peripatetic artisans (Fig. 13:12; Table 13:7).

Beakers

The main vessel type attested is a beaker, represented by at least three such vessels in this fabric in total. It has a slightly beaded and flattened rim and a flat base; two of the four examples are decorated. Of the plainer vessels, the first (F.066/712) is in a pale leaf green coloured fabric with bluish green streaks, which is a little bubbly. Base Q.027/154.29 is also of a similar fabric.

Vessel 2 (F.125/1070.1–2/F.112/1381) in Table 13:7 is of a yellowish green fabric with brownish red streaks. The fabric is translucent and contains many small to large sized bubbles (the base Q.075/527.2 is of a similar fabric). Three fragments were brought together from two different contexts to form this rim and side piece. The vessel is decorated with impressed ovals near the rim and a double diamond shape on the body. The decoration was made by pressing into the hot glass with a stamp or tool. A parallel for part of this stamping decoration is also found on a vessel recovered at Derbent.[29]

Vessel 3 (F.112/1397) was found in the same context as parts of vessel 2, and the fabric is similar to the first two vessels described (bright green with red streaks). This item is unlikely to be part of a beaker, however, and may be part of closed shape such as a jug or vase.

Vessel 4 in Table 13:7 (F.091/743) is of a blue fabric with reddish brown streaks. The rim piece shows the characteristic features of the other rims in this category. This vessel, however, has a moulded decoration in the form of small ovals and a V-shaped design. Possibly this is meant to represent a vegetal motif such as a flower. A possible parallel here comes from Djausaq, Samarra in Iraq.[30]

This fabric type is found in contexts dating between the ninth and tenth centuries, so it is in circulation a little later than many of the other vessels and certainly after glass production has declined in the Syro-Palestinian area

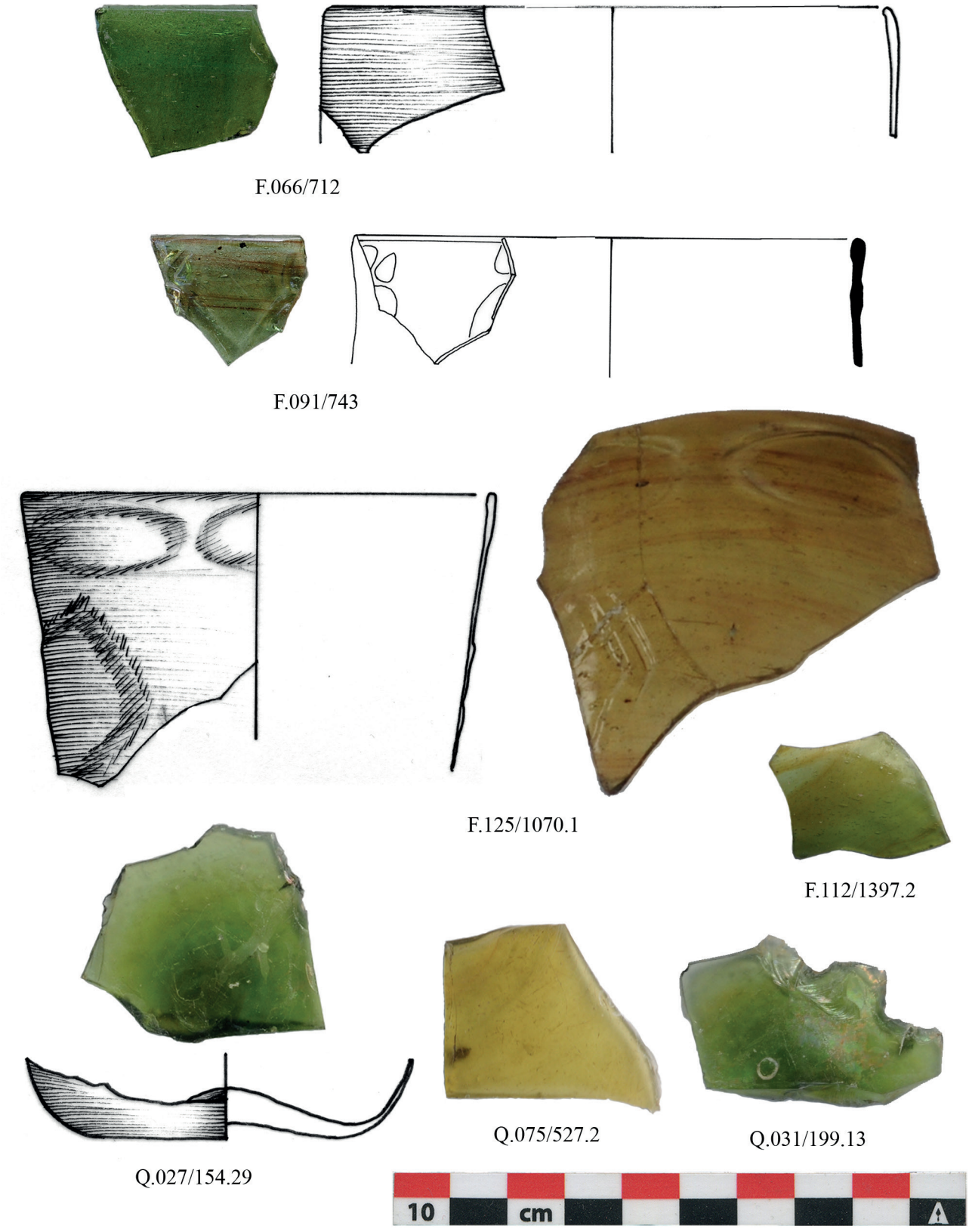


Fig. 13:12: Streaky Green fabric.

Table 13:7: Green with streaks.

Green (streaks)	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, plain beaker; F.066/712	1	5c	5c	F.066	B-3
Vessel 2, beaker with ovals with diamonds; F.112/1381; F.112/1395; F.125/1070.	3	5b	5b-c	F.112; F.125	B-3
Vessel 3, bright red streaks; F.112/1397	1	5b-c	5b-c	F.112	B-3
Vessel 4, with flower moulding; F.091/743	1	5c	5c	F.091	B-3
Vessel 5 Base; Q.027/154.29	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Base; Q.075/527.2	1	5b-7b	5b-7b	Q.075	n/a
Base; Q.031/199.13	2	3d-5b	3d-5b	Q.031	n/a
Side; X.004/33.	1	5b-7b	5b-7b	X.004	n/a
Total Minimum Vessels: 5	**Total Fragments: 11**	**Earliest production phase: (3d-)5b (highest concentration in 5b-5c)**	**Latest circulation phase: 5c-7b**	**Number of contexts: 8**	**Chemical Compositions: B-3; C-1**

and the parallels that these items, and others, have with vessels from here is strong, therefore suggesting that there is some glass industry crossover.

13.7.4.2. Yellowish green

Various items are attested in a yellowish green fabric of varying shades and intensities (Fig. 13:13; Table 13:8). In a lighter coloured fabric are a beaker, a jar and a bottle:

Beaker

The beaker, represented by fragment Q.002/5.1, was manufactured in a light green fabric with yellowish streaks. The shape has a beaded, flared and slightly flattened rim. It is decorated with shallow incisions. The fabric is very bubbly and is now pitted where the bubbles meet the surface of the vessel; several very large bubbles can be seen within the fabric and a blueish sheen covers the glass. This is likely of local manufacture (based on its chemical composition of C-1).

Jar

One fragment (Q.046/381.1) probably comes from the lip of a large jar. It is in a similar colour of fabric to the above beaker. This piece is thicker and the fabric is much clearer but it does contain many large long bubbles. The chemical composition of this vessel (A-2) indicates that it has been imported from Iran or Iraq.

Bottles

Q.074/566.2 is most likely a fragment of a curved bottle neck in a greenish yellow fabric of B-2 composition. The fabric is transparent with several small to large bubbles. In a similar fabric is fragment F.164/1429.2 which is also probably part of a small bottle with a right-angled curve (*i.e.* a thick rim); this fabric is transparent too and contains a few medium sized bubbles (it is of B-5 composition). Another squarish-shaped bottle is attested in a brighter yellowish green fabric (Q.114/841).

In a similar brighter fabric to the bottle discussed above are two decorated sherds. The first is a small fragment (F.131/1216) in a yellowish green fabric partly decorated with a flower. This may be a piece of a bottle or a beaker side (where the design is stamped on) or a fragment of the base of an object which has been blown into a multipart mould. A number of small bubbles can be observed in the transparent fabric. A potential parallel for this item is the flower stamped/moulded type of beaker such as one attested at the Dargavs Catacombs.[31] The motif is also similar to that attested on Islamic glass bottles, particularly the bases.[32] This example is in B-5 composition, indicating an Anatolian/Levantine point of origin.

Disc

Another moulded object is a round disc of glass (Q.US/1008) in a similar bright yellowish green fabric. It was

Table 13:8: Yellowish green.

Yellow-Green	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Moulded glass base or other object; Q.US/1008	1	n/a	n/a	Q.US	B-2
Bottle Neck Vessel 1; Q.074/566.2	1	5b-c	5b-c	Q.074	B-2
Bottle Neck Vessel 2; F.164/1429.2	1	5a-b	5a-b	F.164	B-5
Beaker Rim Vessel 3; Q.002/5	1	7b	7b	Q.002	C-1
Vessel 4 with flower moulding; Q.131/1216	1	3a-5b	3a-5b	Q.131	B-5
Vessel 5 yellow with moulded decoration; Q.075/495	1	5b-7b	5b-7b	Q.075	n/a
Vessel 6 Jar; Q.046/381.8	1	7b	7b	Q.046	A-2
Vessel 7 bottle neck; Q.114/841	1	5b-7b	5b-7b	Q.114	n/a
Sides in yellowish green fabric	8	3d-5b	7b	X.004; F.011; Q.008; Q.031	n/a
Total Minimum Vessels: 8	**Total Fragments: 16**	**Earliest production phase: (3a-)5b (highest concentration in 5b)**	**Latest circulation phase: 5b-7b**	**Number of contexts: 11**	**Chemical Composition: A-2; B-2; B-5; C-1**

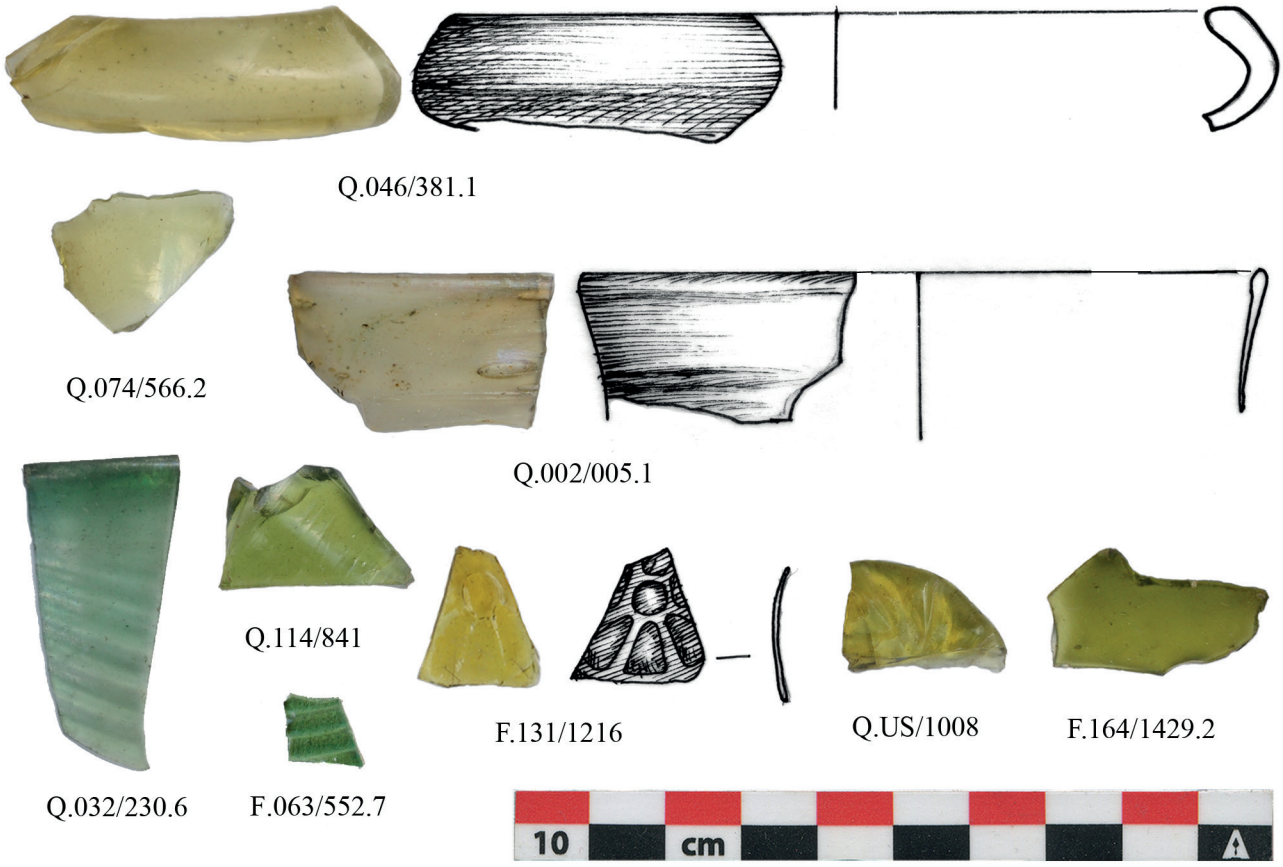


Fig. 13:13: Yellowish green fabric.

likely cast and then worked with a tool. The piece could be a goblet base, a weight or part of a Georgian window glass.[33] The fabric is transparent with frequent small and fine bubbles. The composition, in a B-2 fabric, implies that it was imported.

The majority of vessels and objects manufactured in a clear green fabric are dated between the eighth and tenth centuries, indicating that the material type is circulating at a slightly earlier point than the streaky green fabric discussed first in this section. The composition of the fragments is also more varied than the above group, perhaps indicating imports coming from a number of locations are common in this earlier phase.

13.7.4.3. Bubbly green

Beaker (Honeycomb Net)

This vessel (F.112/1390.1) was made in a mould with several (at least two) parts in order to achieve the high relief of the decoration (Fig. 13:14; Table 13:9). The fabric of the vessel is a very bright 'forest green' and extremely thick and bubbly. A vessel found in Azerbaijan and dating from the ninth to tenth centuries was made in an almost identical mould.[34] A close parallel also comes from Derbent and Saginashvili records a further, earlier Georgian parallel, which is dated much earlier, to between the fourth and fifth centuries.[35] The context in which the

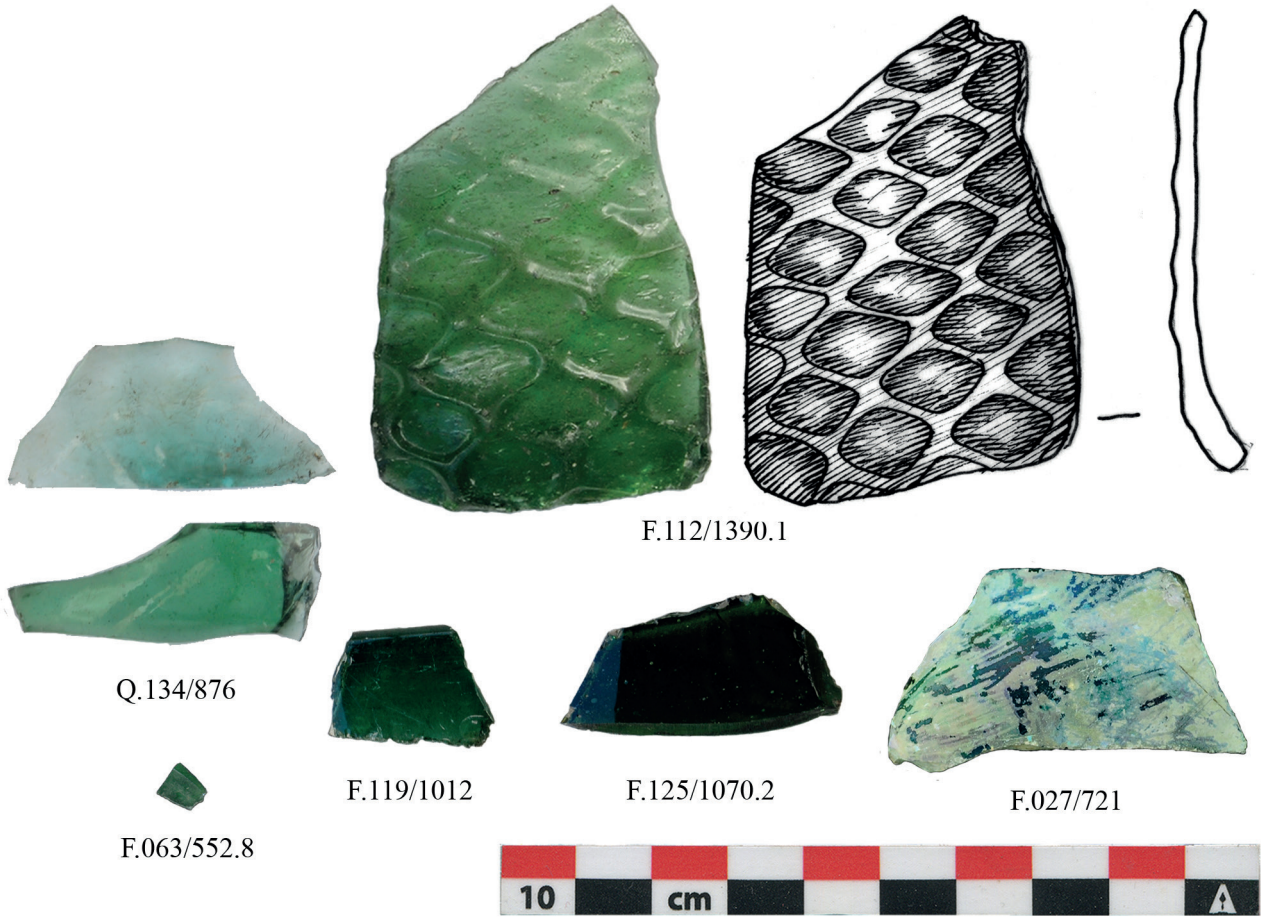


Fig. 13:14: Bright clear green, bubbly green and thick green fabrics.

Table 13:9: Bubbly green.

Bright Green bubbly	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, honeycomb moulded net in high relief; F.112/1390	1	5b-c	5b-c	F.112	B-3
Total Minimum Vessels: 1	**Total Fragments: 1**	**Earliest production phase: 5b-c**	**Latest circulation phase: 5b-c**	**Number of contexts: 1**	**Chemical Compositions: B-3**

Table 13:10: Bright green.

Bright Green Clear	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, small bottle base; Q.134/876	1	3a-6b	3a-6b	Q.134	n/a
Vessel 2 with moulded horizontal ribs (body sherds, incl. F.063/552.7	12	4–5a	5b-c	F.063; Q.045; Q.065	n/a
Vessel 3, Emerald Green fragment; F.063/552.8	1	5b-c	5b-c	F.063	Lead-based
Sides (thinner); Q.043/327	1	5b (with redeposited 4–5a material)	5b	Q.043	n/a
Sides (thicker); F.089/782.2	1	5c	5c	F.089	n/a
Total Minimum Vessels: 3	**Total Fragments: 16**	**Earliest production phase: (3a-)5a**	**Latest circulation phase: 5c-6b (high concentration in 5b-c)**	**Number of contexts: 6**	**Chemical Composition: Lead-based**

Table 13:11: Thick green bowls.

Bright Green Thick Bowls blanks intended for cutting	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Bowl 1; F.027/721	1	5c-6b	5c-6b	F.027	A-2
Bowl 2; F.119/1012	1	5c	5c	F.119	B-3
Bowl 3; F.125/1070	1	5b	5b	F.125	B-3
Total Minimum Vessels: 3	**Total Fragments: 3**	**Earliest production phase: 5b**	**Latest circulation phase: 5c-6b**	**Number of contexts: 3**	**Chemical Compositions: A-2; B-3**

Dariali vessel was found supports a date between the eighth and the tenth centuries. Its composition, in B-3 fabric, indicates that it was manufactured in the South; the parallels suggest that this type could be coming from the Southern Caucasus, such as from Armenia or Azerbaijan. It is also possible that some of the B chemical composition groupings come from these areas and future studies of material from elsewhere in the Caucasus will allow us to come closer to a conclusion on the subject.

13.7.4.4. Bright green

In this bright and clear green fabric we see two distinct vessel types, a small bottle and a ribbed beaker (Fig. 13:14; Table 13:10).

Bottle

Fragment Q.134/876 is part of a small bottle base; this could be similar to an *unguentarium*.

Beaker

The beaker, vessel two in Table 13:10, is finely ribbed (represented by several sherds, including F.063/552.7) and was probably blown in a mould. The fabric is a darker green. This can be compared to ribbed pieces in the BG-1 type of fabric.[36]

A piece of distinctly bright coloured emerald green glass (F.063/552.8) must represent another vessel but the sherd is too small to indicate the type. However, the chemical composition of the latter piece is of a lead base and, therefore, specific parallels for this type of fabric can be made with early Islamic glass.[37]

13.7.4.5. Thick green

Bowls

In a very thick green fabric (between three and six millimetres) are three fragments, all likely parts of bowls (Table 13:11). The first is represented by a base fragment of a bowl which is rather flat (F.027/721). The fabric is

green with a yellowish-blue/turquoise aspect. It is heavily corroded. The fabric contains several bubbles and is thick enough for decoration by cutting or grinding. The vessel was likely cast in a mould and the base flattened, as no pontil marking can be discerned. Its composition is of the A-2 type, and so it probably comes from the Syro-Palestinian area. A similar thick-walled bowl was manufactured in a dark bluish sea green fabric (F.119/1012.1). The thickness of the sides of the vessel and the flatness of the rim indicates that item was cast. A further piece (F.125/1070) was also part of a bowl manufactured in a very thick, very dark almost black looking green colour of fabric. It is extremely shiny and slightly curved. The latter two examples are in a B-3 composition.

13.7.4.6. Overview of green fabrics

Most of the green fabrics examined in this section can be shown to date between the eighth and tenth centuries, Fig. 13:15 gives a detailed breakdown of these. The yellowish and bright fabrics come into circulation first, then the thick green items are attested, the final type to appear in the assemblage is the streaky green fabric.

The methods of manufacture of all these vessels are incredibly varied: those in the streaky fabric were given colour through the use of glass powder; some vessels were decorated with hot stamping; others dipped in moulds then blown; and others made entirely in moulds with only the rim requiring later reworking. The latter thick bowls demonstrate the manufacturing method of glass casting. Likewise, the chemical compositions are varied, with A, B and C types all represented. This broad fabric grouping encompasses items from varied glass manufacturing areas with different specialities: likely centring around Georgia, Azerbaijan and the Levant.

13.7.5. Amber, yellow and black fabrics

This fabric group is represented by 25 fragments from at least 14 distinct vessels in colours ranging from amber and yellow to black. These have been divided into three distinct groups for the purposes of this brief analysis: non-decorated items in dark amber fabrics; a thinner-walled dip-moulded vessel; thick walled vessels with applied decoration.

13.7.5.1. Dark amber fabrics (non-decorated)

This group of fragments, that range from yellow to black, represent at least seven distinct vessels (Fig. 13:16; Table 13:12). Several are small flat pieces: F.037/263.8 in a yellow to brown fabric that now appears as opaque black or blue and F.033/306.3 in a bright yellow to brown colour. Another is a flat fragment in an unusual opaque black with white, orange and blue streaks (Q.001/863), an effect presumably achieved by fusing different colours of glass together. Another flat piece, but with a ridged exterior, is X.004/37.3, manufactured in a bright orange-brown fabric with many visible bubbles. As these are

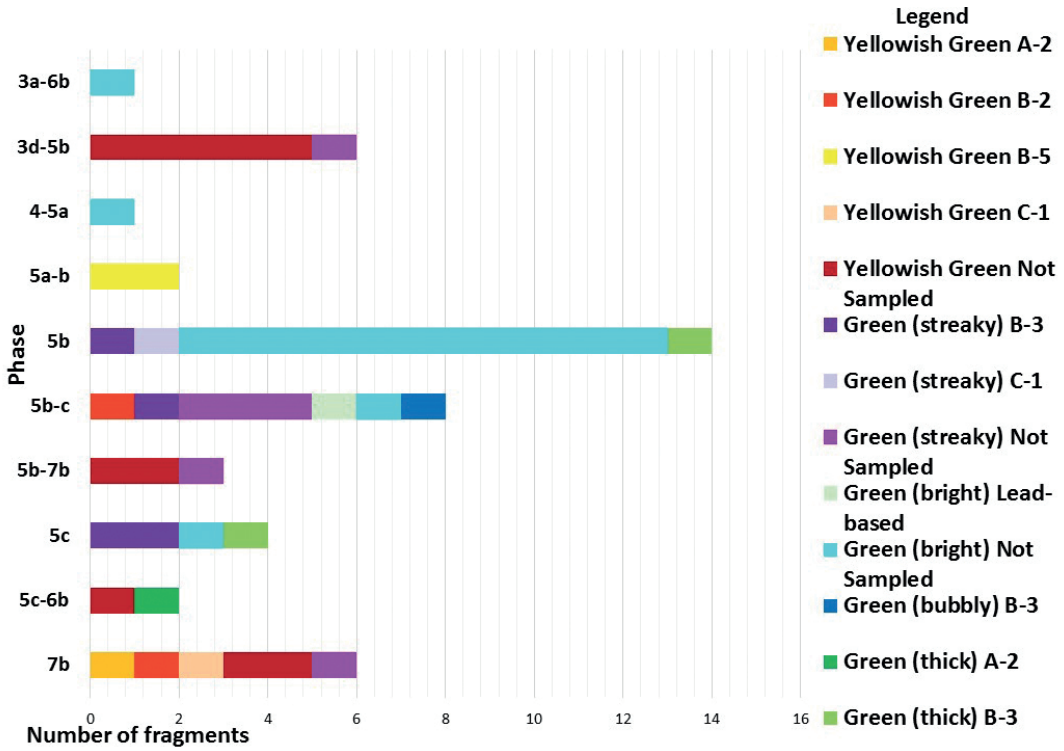


Fig. 13:15: Graph of green fabric circulation.

Table 13:12: Dark amber fabrics (non-decorated).

Dark amber fabrics (non-decorated)	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Flat thin opaque piece with coloured streaks; Q.001.863	1	7b	7b	Q.001	B-5
Vessel 2, Bright orange brown (thick); F.033/306.3	1	5b-c	5b-c	F.033	C-1
Vessel 3, Very dark thin opaque fragment; F.037/263.8	1	5a-b	5a-b	F.037	C-1
Vessel 4, Dark orange brown (thick); X.004/33	1	5b-7b	5b-7b	X.004	B-5
Vessel 5, Very dark almost translucent (thick) rim; Q.072/691	1	5b-6b	5b-6b	Q.072	B-3
Vessel 6, Orangey brown fabric, translucent and very bubbly; X.004/37.3	1	5b-7b	5b-7b	X.004	n/a
Vessel 7, Bottle-type base in a fabric that appears almost black but shines a little yellow in the light; F.017/112	1	6b-7b	6b-7b	F.017	B-3
Vessel 8, Beaded (hollow) rim of open bowl, corroded and pearlescent; Q.011/1143.1	1	7b	7b	Q.011	n/a
Total Minimum Vessels: 8	**Total Fragments: 8**	**Earliest production phase: 5a-b**	**Latest circulation phase: 5b-7b**	**Number of contexts: 7**	**Chemical Compositions: B-3; B-5; C-1**

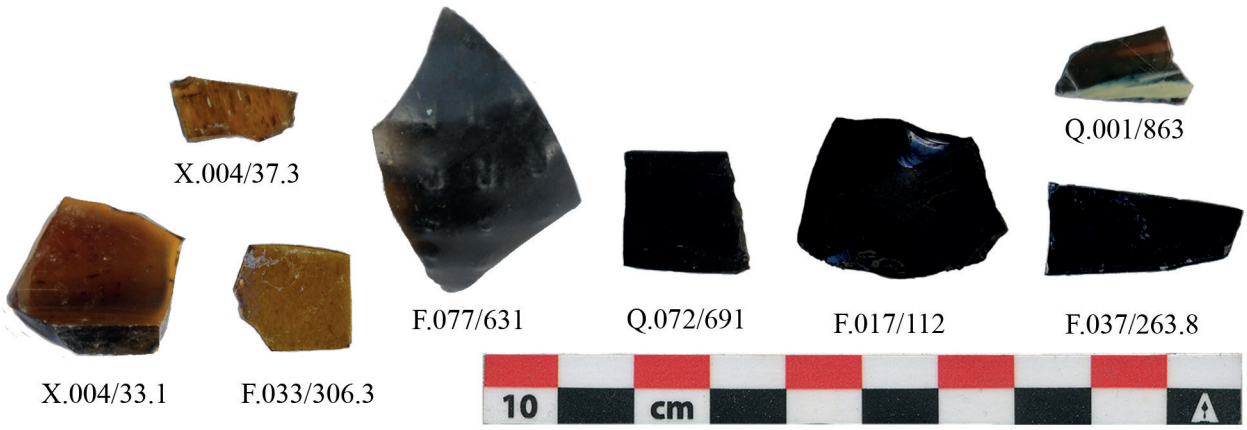


Fig. 13:16: Thin amber brown and dark amber fabrics.

very small fragments, it is difficult to draw conclusions about the vessel types to which they belonged. The first two were manufactured in material of the C-1 local manufacture grouping and the latter third to the B-5 composition group; therefore these represent a mixture of locally made items and those imported from the territories to the south of modern-day Georgia.

Bottles

Fragment X.004/33.1 in a greenish orange-brown amber fabric is a small part of a bottle. The fabric is a translucent streaky brown which contains a few small to medium bubbles. Striation marks can be seen on the inside of the curved vessel where it was shaped with the jack. A base fragment of a different bottle was manufactured in a dark

Table 13:13: Thin amber fabric moulded.

Thin Amber fabric moulded	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Honeycomb bottle; F.077/631	1	5a	5a	F.077	B-3
Total Minimum Vessels: 1	**Total Fragment: 1**	**Earliest production phase: 5a**	**Latest circulation phase: 5a**	**Number of contexts: 1**	**Chemical Compositions: B-3**

yellow fabric that appears almost opaque (F.017/112); it has a raised central boss and is very thick. This piece is of B-3 composition.

Bowls

Also in a B-3 composition is fragment Q.072/691, part of a thick-walled bowl in an amber, dark yellowish greenish-brown fabric. The bowl was likely cast and the rim worked on a lathe, as it is flat on the top and scratch marks can be seen on the inside of the vessel.

Overview

Several of these pieces were found in contexts dating to the Early Islamic period: namely the bottle base and the thick rimmed vessel (though these are rather mixed contexts); two of the flatter pieces are likely to date no later than the tenth century, and the rest are not well stratified.

13.7.5.2. Thin amber with moulded decoration

Bottle (Honeycomb Net)

One fragment was part of a bulbous bottle (F.077/631) made in an amber fabric with a dark greenish tinge and decorated with a honeycomb-type net moulding (Table 13:13). The fabric is dark yet translucent with a few small bubbles. This moulding would have been achieved by mould dipping and then blowing the vessel. It was found in a context dating between the late seventh and early ninth centuries; yet here, as with several of the items in the previous table (Table 13:13) the composition of the fabric belongs to the B grouping (this example is B-3).

13.7.5.3. Thick amber with applied moulding

Three main types of decoration are represented in this group: 'Nip't diamond waies' (abbreviated as 'ndw' in Table 13:14), moulded ribs; and applied trails (Fig. 13:17).

Bowls ('Nip't diamond waies')

These vessels decorated in the pattern referred to as 'Nip't diamond waies' were excavated at Dariali Fort. This design is Syro-Palestinian in origin with examples dating back to the third century.[38] However, the chemical composition of all three vessels in the Table 13:14 is C-1, indicating that they were manufactured locally, most likely within the territory of medieval Georgia. The examples from Dariali date no later than the tenth century and cluster around the eighth to ninth century phase (5b). These bowls were cast, resulting in a thick fabric, and the material has now become brittle and pearly blue, although the amber colour can be glimpsed in the broken profile of the fragments. The decoration was made through trailing thick threads of molten glass over the surface of the vessel (these could have been in colours contrasting with the main vessel. One bowl (F.035/238) also has a small applied foot (in a circular trail of thick glass) which connects with the banding, implying it was made whilst the decorative trails were applied. The foot masks a circular depression from the original moulding of the vessel, and the base is otherwise flat. A much smaller bowl is Q.027/293.3 which has the applied banding but no additional foot. Some parallels for these items have been unearthed in excavations in Georgia, and an eighth-century date has been postulated.[39]

Beaker (Sub-type of 'Nip't diamond waies')

A similar decorative scheme to 'nip't diamond waies' is seen on a beaker (Q.043/359.1) manufactured in a dark brown fabric with a greenish-yellow to orange glow. Nine fragments of this are extant, three still show the original vessel colour (one is the base) and the others are now almost entirely opaque with iridescence, beige coloured, and extremely fragile and corroded. The top of the vessel was decorated with horizontal ridges created from trailing molten glass, the ridges loop downwards towards the middle of the vessel gaining in weight and resulting in more space between loops thus producing a variant of the 'nip't diamond waies' effect. In this version, however, where the ends of trailing loops meet, a diamond pattern is formed. The loops are very thick around the flat base. A close parallel for the design comes from Armenia but the applied glass trails meet in the middle rather than forming a space as on the Dariali example. However, the similarities are strong and may suggest it is the product of the same workshop.[40]

Bottle (thick trailed threads)

A fragment of a bottle (Q.020/123.1) which was manufactured in an amber fabric, is now covered in pearlescent corrosion and has a petroleum film-like appearance. It is probable that this bottle was decorated with applied trails of glass threads in contrasting colours which have caused a more extreme chemical reaction.[41]

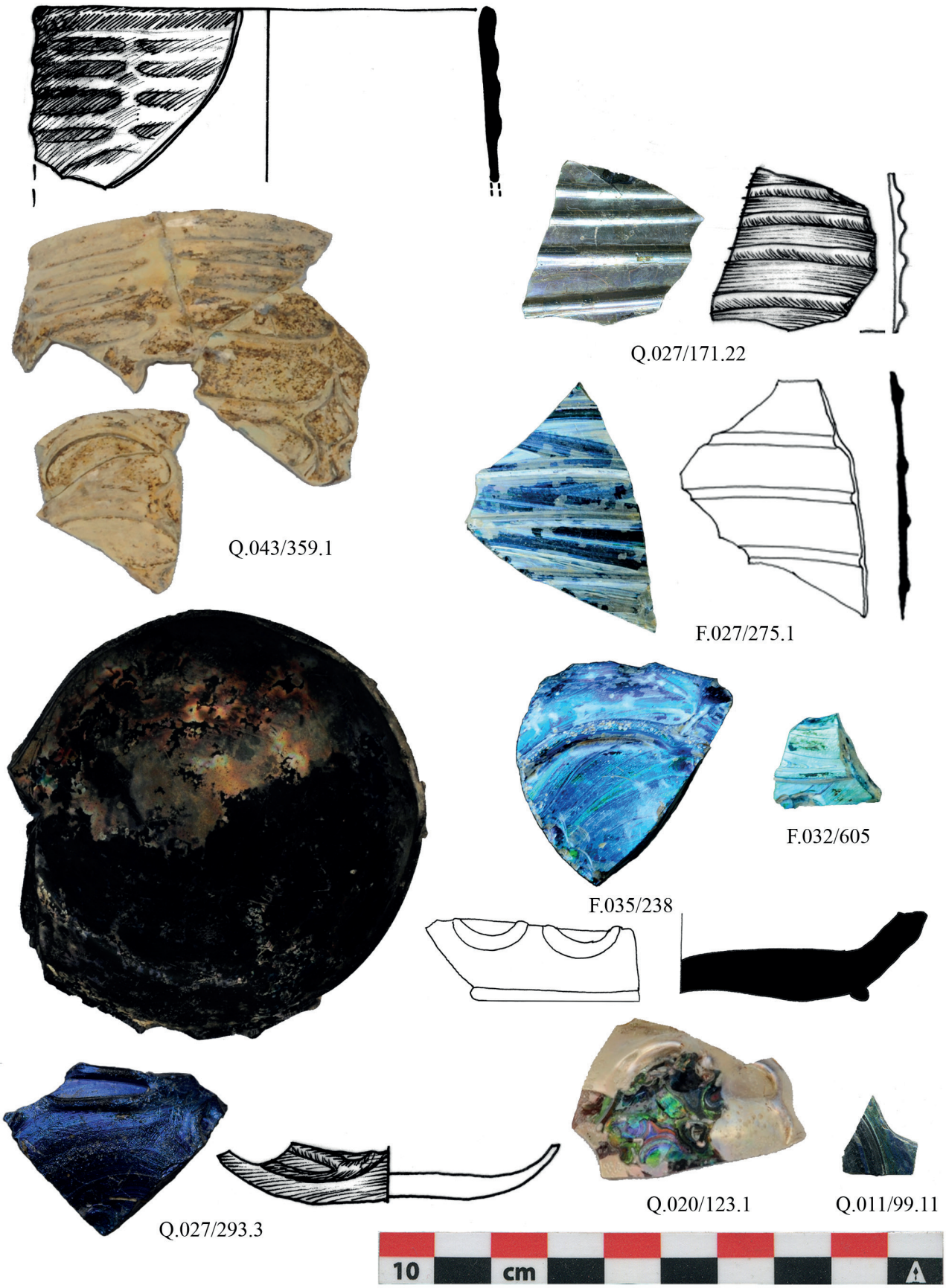


Fig. 13:17: Dark amber fabrics with applied and moulded decoration.

Table 13:14: Thick amber fabric with applied decoration.

Dark Amber fabric with applied decoration	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, with ribbing in high relief (sides)	2	5b (with redeposited 4–5a material)	5c-6b	F.027; Q.027	C-1
Vessel 2, 'ndw' type; Q.027/171.13; Q.027/278; Q.043/359) entire side complete	10	5b (with redeposited 4–5a material)	5b	Q.027; Q.043	C-1
Vessel 3, 'ndw' type; Q.027/293.3) Base	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 4, 'ndw' type; F.035/238) Base	1	5a-b	5a-b	F.035	C-1
Vessel 5, with snake-like decoration; Q.020/123.1	1	5b-7b	5b-7b	Q.020	C-1
Vessel 6, Base (thin); Q.011/99.11	1	7b	7b	Q.011	C-1
Base with foot; F.032/605	1	5b-c	5b-c	F.032	n/a
Total Minimum Vessels: 6	**Total Fragment: 17**	**Earliest production phase: (4-)5b (redeposited) or 5a-b**	**Latest circulation phase: 5c-7b (5b frequently represented)**	**Number of contexts: 7**	**Chemical Compositions: C-1**

Beaker (horizontal ridges)

Finally, at least one other vessel was manufactured by winding an even trail of glass around the vessel to produce thick decorative ridges. All three pieces with this type of decoration are now pearlescent and corroded (Q.027/171.22; F.027/275.1; F.032/605). There are excellent parallels for these types of vessels in the Sasanian style of glass manufacturing.[42] The examples from Dariali are likely of local manufacture (the sampled piece is in C-1 composition) and dating to a later period (probably the eighth to tenth centuries). The artisans responsible for these vessels are likely following a style continued from the Sasanian period.

13.7.5.4. Overview

The thick amber-black fabric group is characterised by mould blown or cast objects decorated with trailing in order to produce decorative banded or ribbed effects. The material has a tendency to weather, gaining a film of pearlescent or petroleum-like corrosion, and in extreme cases becoming brittle, dry and powdery. In some circumstances then it is unlikely that this fabric would survive well and that is why most of the examples are relatively thick. These items have parallels in the Near East, in Syria and Iran, but were made locally probably to suit a post-Sasanian market.

The other fabric types in the yellow, amber to black class contain more examples belonging to the B compositional group, indicating that they were made outside the territory of medieval Georgia but perhaps nearby in other areas of Transcaucasia. In terms of the dates of circulation, as can be seen in Fig. 13:18, the thin amber brown moulded fabric, in B-3 composition, is the earliest attested, followed by vessels in the C-1 compositional group.

13.7.6. Colourless fabric

The colourless fabric has been called such here where it appears that the intention of the manufacturer was to decolourise the glass. Many of these intentionally decolourised fabrics do still have a tinge of colour but the fragments included in this section are predominantly colourless. There are four different colourless groups outlined here: the first is slightly yellowish with efflorescence; the second is a thin clear type; the third is very thick, and mostly of a similar type to the thick bowls for cutting found in varied fabrics; the fourth and final type is a medium thick fabric which is rather brittle and includes glass vessels of types found in Nishapur. The total number of decolourised vessels in this assemblage is 22.

13.7.6.1. Colourless (with efflorescent spots)

This fabric type (Fig. 13:19) is characterised by its yellow-greenish appearance and the efflorescent spots which appear on its surface. One small fragment of a side and base of a vessel in this type of fabric (the last two items in Table 13:15), have a slightly pink tinge with a rippled surface made by dipping into a mould before free-blowing into a beaker or vase shape.

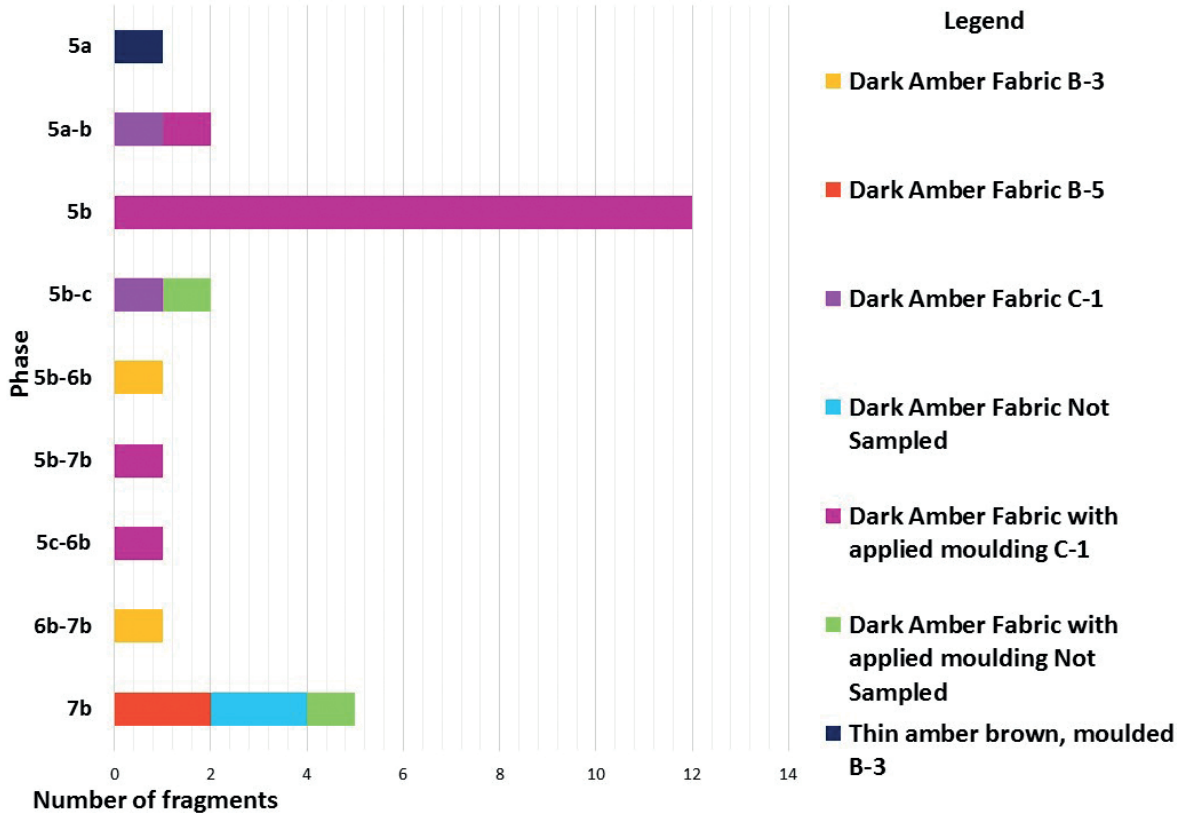


Fig. 13:18: Graph of amber to yellow fabric circulation.

Squat bottle

Five fragments in this fabric belong to a squat bottle type. One part comprises the neck of the bottle (F.070/561.2) and several others are from the side of the same or a similar bottle. The fabric, which belongs to the A-2 chemical grouping (indicating that it was made in the Syro-Palestinian area) appears colourless with a yellowish tinge; it contains a number of large bubbles and has striation marks on the surface of the fabric with some snowflake shape efflorescence.[43] The fabric is sturdy which has no doubt contributed to the fragment's preservation. This style is first attested at Dariali in the eighth century.

13.7.6.2. Colourless thin

This type of fabric is transparent, clear and thin. It is predominantly colourless but some pieces are now covered in a pearlescent blue tinged corrosion layer. The most common vessel types in this style of fabric are: large and very small bottles, jars, and beakers. A few flat pieces of glass vessel in this category may have been used as window glass. A number of vessel sides are also extant (Table 13:16).

Bottles

Two bottle bases are attested; the first has a noticeable push-up on the pontil (F.001/489.1) which has left clear markings on the underside of the object. The fabric is iridescent and heavily pitted where the large bubbles have been exposed through corrosion of the material. The other example (F.125/1095) also has a noticeable push up but it is slightly more rounded; the pontil markings can also be discerned. When looking through the fabric it can be seen to have a yellowish tinge although it has a blueish sheen in the light. The first fragment is in the A-2 composition and the second in the A-1 group and therefore an eastern import. Fragment Q.076/899 is also very likely part of a similar bottle.

Jar

A jar shape (F.169/1441.1) is represented by a beaded-rim fragment of a wide vessel with a lip in the inside for a lid; the fabric includes visible small bubbles. It is now corroded with a pearlescent metallic finish. This is also an eastern import of A-1 composition.

Items with moulded decoration

Small Bottle with Circular Moulding

One fragment of a base (F.114/989) was part of a small bottle with squarish corners and moulded decoration protruding from the base, in a circular design. The base itself has been flattened. The fabric is very clear and contains a few small bubbles. This too is of A-1 composition.

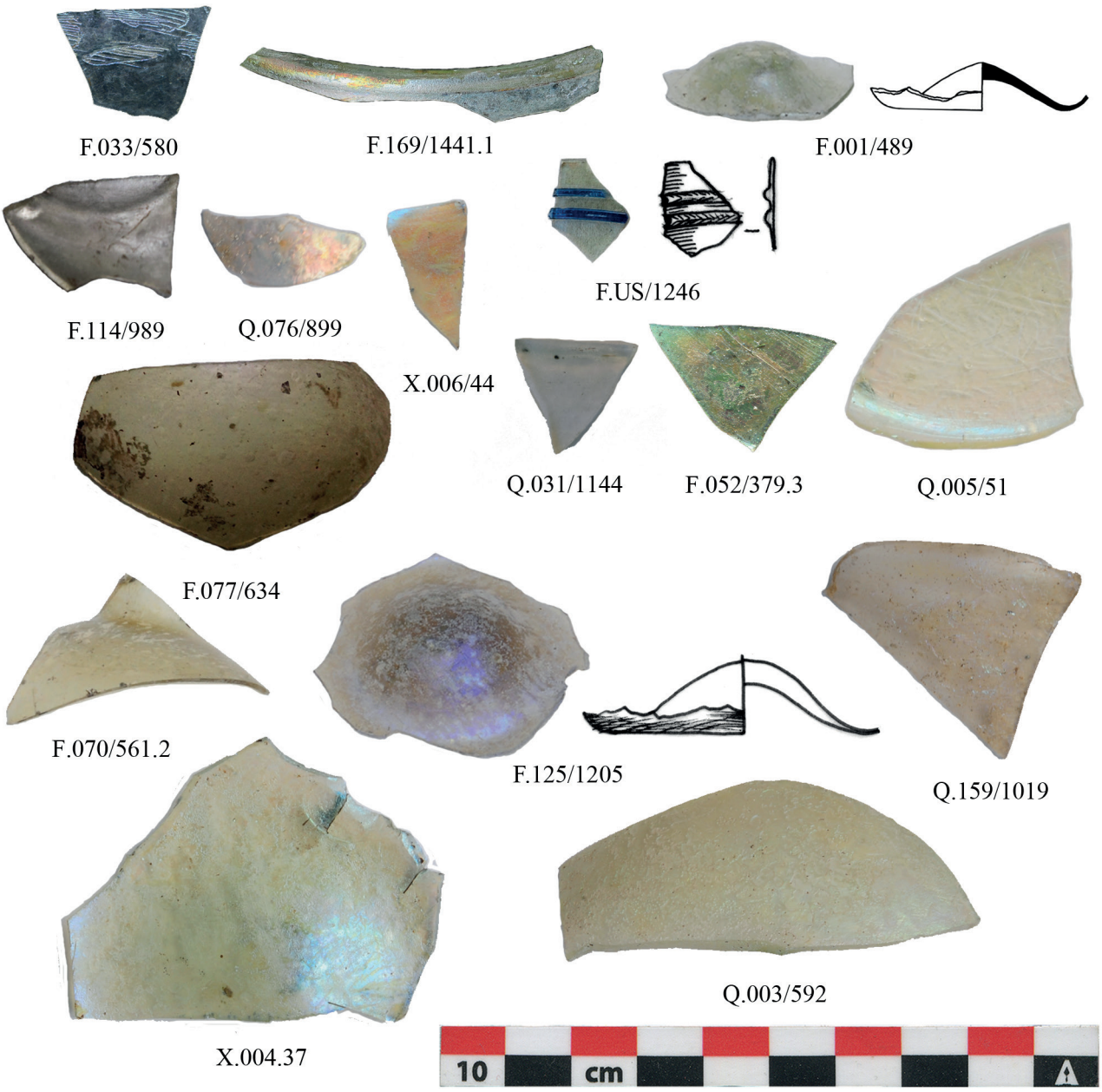


Fig. 13:19: Colourless with efflorescence (bottom of plate) and thin colourless vessels (top of plate).

Table 13:15: Colourless (early Islamic type with efflorescence).

Colourless (early Islamic type with efflorescence)	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, squat bottle; F.037/263.9; F.037/263.10; F.070/561.2; F.077/634; F.125/1205.	5	5a	5b	F.037; F.070; F.077; F.125	A-2
Vessel 2, moulded beaker (Base)	1	5a-6b	5a-6b	Q.159	n/a
Vessel 3, Base	1	7b	7b	Q.003	n/a
Vessel 4, Base; X.004/37.2	1	5b-7b	5b-7b	X.004	n/a
Total Minimum Vessels: 3	**Total Fragment: 8**	**Earliest production phase: 5a**	**Latest circulation phase: 5b-7b**	**Number of contexts: 7**	**Chemical Compositions: A-2**

Beakers with Applied Decoration

Beaker (Diamond Incised)

One very small example of a diamond incised beaker was recovered from Trench F, F.033/580. This is a very thin fragile piece decorated with abraded ovals filled in with incised lines. Some brown speckles can be seen on the surface of these which indicate that the vessel was also painted. The fabric is transparent but now cloudy with corrosion and contains small bubbles which are evenly dispersed. On this type of decorated vessel Carboni observes that the fabric composition can be either natron or plant ash (soda-lime) fabric and that the fabrics used are usually brightly coloured and perhaps more finely decorated than this piece.[44] He states that the region of manufacture was likely Syria or Mesopotamia.[45] However, the fragment from Dariali is of chemical composition A-1, indicating that the vessel was manufactured in Iran or Iraq.

A good match for this piece has been published by Whitehouse: a fragment of a cup in a transparent yellowish-brown with ivory iridescence.[46] It is dated between the eighth and ninth centuries and was found in excavations at Fustat (Cairo). The decoration features large narrow ovals with the incisions extending beyond the outline of the design which includes triangles (in isosceles form). It was found during the excavations of George Scanlon at the bottom of a pit mostly filled with eleventh-century material, but the lower part contained mainly ninth-century artefacts, including two coins – one of Abu Ishaq and 'Isa (AD 831–832) and the other of Mahfuz and of the Salih type (AD 802–803). This is a closely dateable decorative type of early Islamic glassware, as a key example was found in the Famen Temple in China in a context that must be dated before AD 874.[47] Indeed, a mid- to late ninth century date for this style would fit well with the dating of the context in which the piece from Dariali was recovered (F.033).

Beaker (trails)

One colourless glass rim fragment is decorated with cobalt blue trails (F.US/1246). The practice of decorating glass by trailing has been popular since the late antique period and is associated with the Syrian region from the fourth century onwards.[48] Chkhat'arashvili discusses

Table 13:16: Colourless (thin, clear and not brittle).

Colourless (thin, clear and not brittle)	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Small and angular moulded item; F.027/323	1	5c-6b	5c-6b	F.027	n/a
Vessel 2, Diamond incised vessel; F.033/580	1	5b-c	5b-c	F.033	A-1
Vessel 3, Small moulded bottle; F.114/989; F.125/1095	2	5c	5c	F.114; F.125	A-1
Vessel 4, Jar; F.169/1441	1	3d-5b	3d-5b	F.169	A-1
Vessel 5, Rim; Q.002/1144	1	7b	7b	Q.002	n/a
Vessel 6, Fragment of beaker rim with applied blue trails; F.US/1246	1	n/a	n/a	F.US	B-5
Vessel 7, Bottle Base: F.001/489	1	5b	7b	F.001; F.125	A-2
Vessel 8, Side with ridged moulding; FNs 764; 379; 230.19; 44	5	5c	7b	F.052; F.053; Q.032, X.006	n/a
Flat base or window piece; Q.005/51	1	5c-6b	5c-6b	Q.005	n/a
Vessel 9, Part of a small bottle; Q.076/899	1	5b-6b	5b-6b	Q.076	n/a
Side fragments	22	3a-5a	7b	F.037; F.043; F.052; F.063; F.104; F.112; Q.011; Q.027; Q.031; Q.032	n/a
Total Minimum Vessels: 7	**Total Fragment: 37**	**Earliest production phase: (3a-)5a**	**Latest circulation phase: 5c-7b (5b-c frequent)**	**Number of contexts: 21**	**Chemical Compositions: A-1; A-2; B-5**

colourless glass in Georgia decorated with dark blue glass and dating between the fourteenth and eighteenth centuries.[49] The piece from Dariali is unstratified but its composition, B-5, implies it may belong to around the ninth to tenth century and is likely manufactured in the Syro-Palestinian region.

13.7.6.3. Colourless thick

Thick colourless fabric is represented by at least five vessels which were mostly thick-walled bowls and beakers, but a vase is also attested (Fig. 13:20; Table 13:17). One very thick fragment was likely the foot of a goblet, F.133/1228. The fabric is bubbly and has a blue pearlescent shimmery fabric. Another thinner flattish piece of colourless fabric may be window glass, Q.020/128; it has a golden pearlescent sheen. The other vessels are decorated through moulding and cutting or grinding.

Moulded decoration

Vase

Fragment X.004/37.1 probably belongs to a vase which has been mould dipped and blown, perhaps using a variation of a technique used to crackle the surface of the blown vessel by dipping into water and then re-blowing. This piece is rather flat, so the walls of this vessel were quite straight. The fabric which is colourless with light pink streaks is very thick; it is not transparent but translucent and contains several small to large bubbles. This item is an import from Iran or Iraq, based on its chemical composition of A-1. A tenth to eleventh century vase formerly in the Maurice Nahman Museum in Cairo provides a good parallel as its fabric is also thick and the vessel is decorated with a honeycomb pattern.[50]

Applied decoration

Bowls (wheel ground)

Bowls with ground decoration are represented through several fragments in a mostly colourless fabric with a yellowy-greenish tinge, and they are now almost totally covered in pearlescent corrosion. The three fragments of this type (F.036/547; F.022/1738.1; F.164/1429) are from one or more thick walled bowls with circular decorations ground into them with a wheel, as in the Sasanian tradition. Such vessels are commonly found in Iran,[51] though examples have been recovered as far north as the Dargavs Catacombs,[52] and from other areas in the modern territory of Southern Russia, such as at Torpakh Kala.[53] A beaker variant is also attested in Armenia.[54] Chkhat'arashvili discusses these vessels arguing that they date between the sixth and eighth century and that many of these cups are locally produced but that some are imported from Iran and the Byzantine world.[55] The contexts from Dariali, from which these vessel are found, are dated between the seventh and tenth centuries. Their chemical composition, A-1 and A-2 indicates that they came from Iran and Iraq and the Syro-Palestinian region and that such vessels were likely transported to the Dargavs Catacombs through the Dariali Pass.

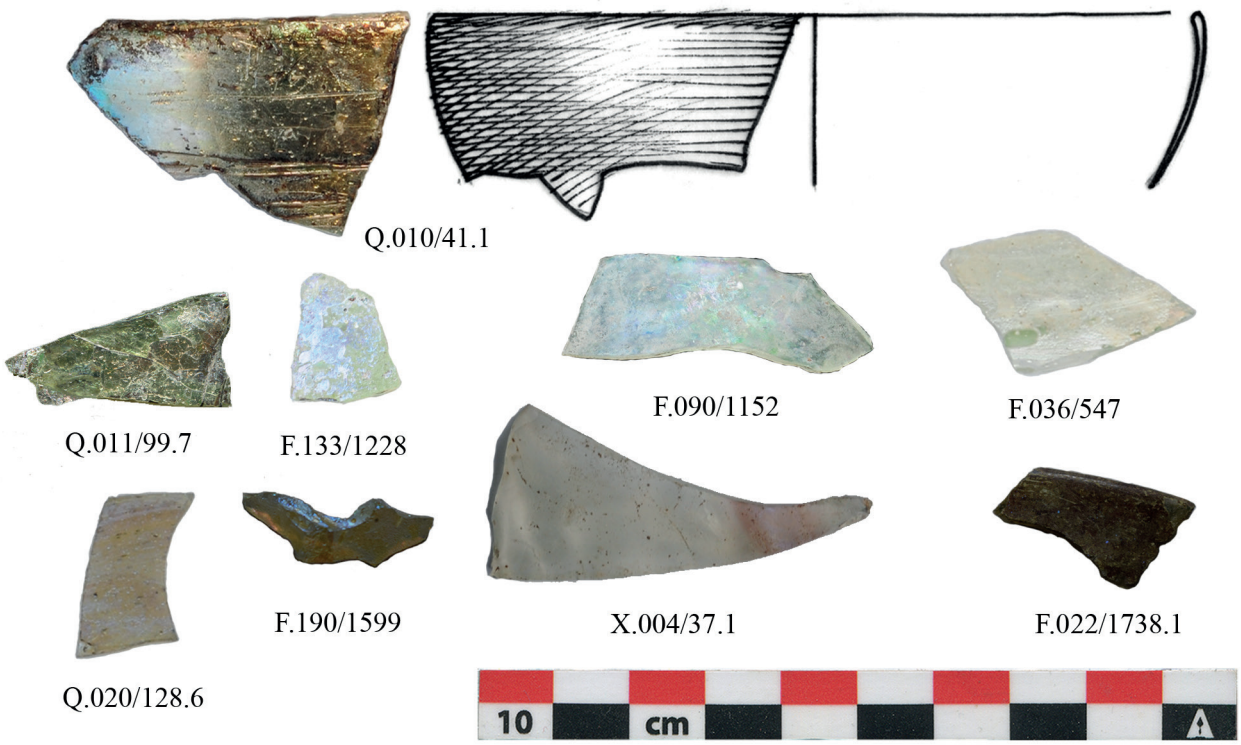


Fig. 13:20: Thick colourless fabric.

Table 13:17: Colourless (thick fabric).

Colourless (thick fabric)	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, thick walled bowl with ground circles; F.022/1738; F.036/547; F.164/1429	5	5a-b	5b-c	F.022; F.036; F.164	A-1/A-2
Vessel 2, vase with pinkish streaks; X.004/37	1	5b-7b	5b-7b	X.004	A-1
Vessel 3, molar type flask; F.090/1152; F.190/1599	2	3c	5c	F.090; F.190	A-1
Vessel 4, incised beaker; Q.010/41.1	1	7b	7b	Q.010	C-1
Object 5, Flattish side or window glass fragment; Q.020/128.6	1	5b (with redeposited 4–5a material)	5b-6b/7b	Q.020	n/a
Base; Q.011/99.7; F.133/1228	2	3d-5a	7b	F.133; Q.011	C-1
Undecorated side fragments	6	5a	5a-b	F.037; F.070.	n/a
Total Minimum Vessels: 5	**Total Fragment: 18**	**Earliest Phase: 3c**	**Latest Phase: 5b-7b**	**Number of contexts: 12**	**Chemical Composition: A-1; A-2; C-1**

Beaker (incised lines)

A fragment of a flattened rim (Q.010/41.1) belongs to a thick-walled bowl decorated with horizontal incisions. This vessel now has a golden pearlescent coating which is reminiscent of the fabric of a group of amber vessels decorated with applied moulding, discussed in the above section ('ndw' and related types). This vessel is in the C-1 composition, as the amber vessels were, indicating that it was produced locally and the colourless incised and amber moulded vessels could be a product of the same workshop.

Bottle

Two small fragments (F.090/1152; F.190/1599) potentially represent parts of a molar flask or another unusually-shaped cut bottle. The fabric is thick and brittle, colourless, and now has a pearlescent glimmer: the first fragment is brittle and entirely opaque; the second is translucent but cloudy and contains a few medium-sized bubbles. Both are in composition A-1 showing that they are likely to be related to the small bottles manufactured in Iran or Iraq.[56] These vessels evidently were in circulation at Dariali from as early as the late fourth or early fifth century, even if the second fragment was found in a tenth-century deposit.

13.7.6.4. Colourless brittle

This fabric is rather brittle and heavier than the other types (relative to its thickness). Those represented are a bottle and several decorated beakers (Fig. 13:21). Of all the vessels in the grouping that were sampled, almost all were shown to be in the A-1 compositional grouping (Table 13:18) and therefore probably originate in Iraq or Iran.

Bottle

One fragment is of a long neck of a bottle (F.036/339), in two adjoining pieces. The fabric contains many small bubbles. Bottles with long necks are common in the period of early Islamic glass manufacture and indeed the Dariali example comes from a context dating between the ninth and tenth centuries.[57]

Moulded fragments (moulded circles)

One rim fragment comes from a moulded beaker (F.125/1075); the fabric contains a few medium sized bubbles. It is decorated with a circular moulding on the side of the vessel near the rim. The impression of this can be felt on the inside of the vessel indicating that it was likely made in a mould or stamped whilst the vessel was hot.[58]

Window glass (honeycomb moulding)

A flattish piece of glass, F.033/306.1, with a folded edge similar to a rim is most probably a piece of window glass. The object was decorated with a moulded pattern in a diagonal honeycomb arrangement which appears to culminate in a central circular design.[59]

Applied Decoration

Beaker (linear style with tulip)

This fragment, F.131/1100, is part of the side of a tulip beaker decorated with a flower design; it has been made by abrading/grinding the glass with a wheel. The fabric

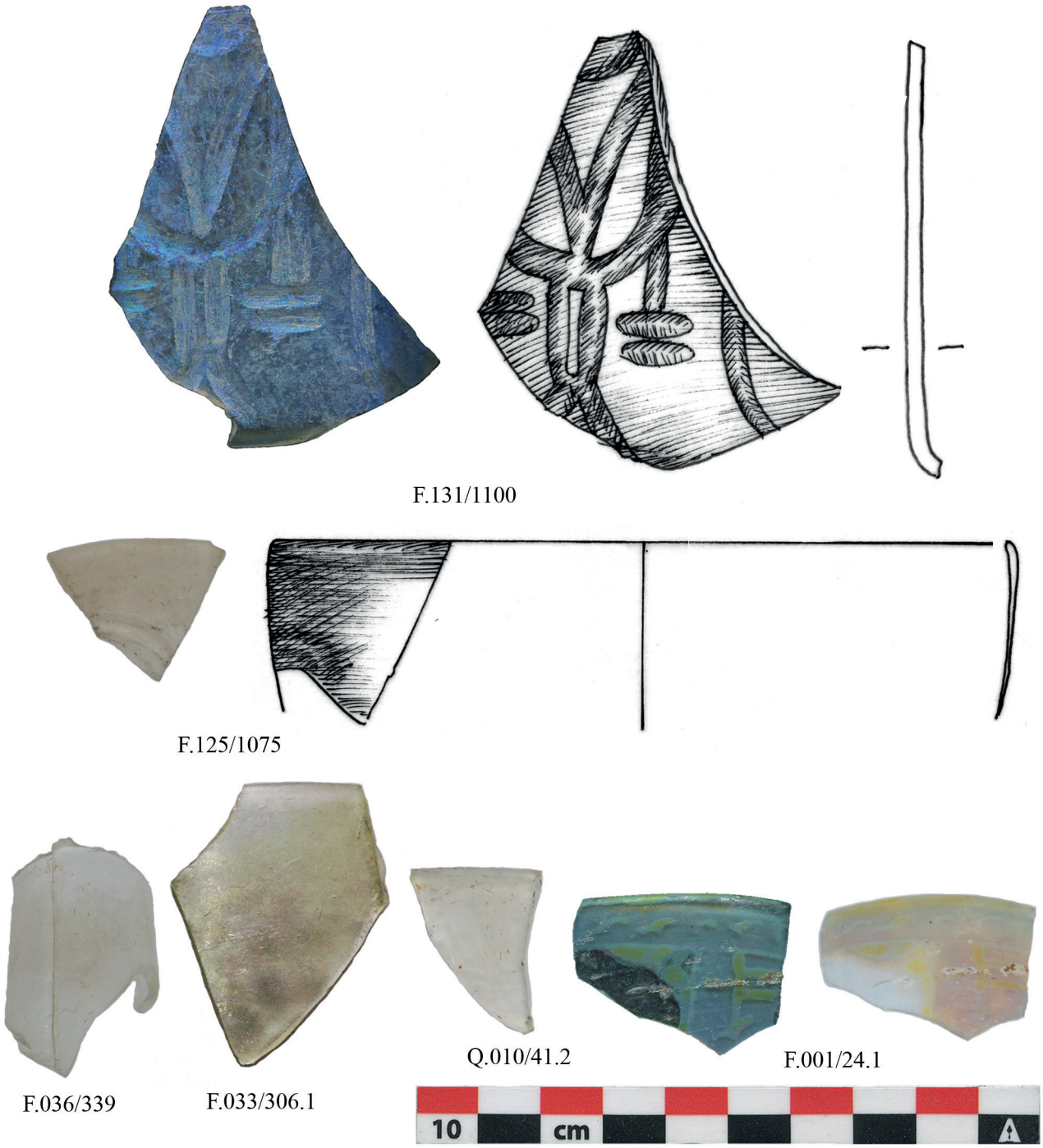


Fig. 13:21: Brittle colourless fabric.

is very thick, heavy and a little brittle; it contains a number of small bubbles. It is intentionally de-coloured and now has a bluish-pearlescent appearance. This vessel is decorated in a variant of the 'linear style' of Islamic glass typology; a type specifically called the 'intermediate style' by Kröger.[60] It is a style of beaker that is unlikely to be made after the tenth century. Indeed, our fragment cannot be dated later than this period and may have been in circulation since the eighth century. This type is attested in various production centres of early Islamic glass manufacture, but large numbers come from Fustat in Egypt and Nishapur in Iran.[61] One example perfectly matches this Dariali piece is from Medinet Habu in Egypt, and comes from the Smith Collection in the British Museum.[62] The colourless fabric of these glasses was intended to come close to rock crystal. It is notable that several of the colourless vessels discussed in this section have parallels in both Fustat in Egypt and Nishapur in Iran (such as the

Table 13:18: Colourless (brittle relatively thick – including Nishapur style).

Colourless (brittle relatively thick – including Nishapur style)	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Rim of lustre painted bowl; F.001/24	1	7b	7b	F.001	A-2
Vessel 2, Rim or window piece with honeycomb style moulding; F.033/306	1	5b-c	5b-c	F.033	A-1
Vessel 3, Beaker with circular moulding; F.125/1075	1	5b	5b	F.125	A-1
Vessel 4, Nishapur tulip beaker; F.131/1100	1	5a-b	5a-b	F.131	A-1
Vessel 5, bottle; F.036/339.	2	5a-b	5a-b	F.036	A-1
Vessel 6, painted object; F.164/1411.2	2	5a-b	5a-b	F.164	n/a
Vessel 7, rim of bowl; Q.010/41.2	1	7b	7b	Q.010	n/a
Body fragment with moulded decoration; F.046/493	1	5c-b	5c-6b	F.046	n/a
Total Minimum Vessels: 7	**Total Fragment: 10**	**Earliest production phase: 5a-b**	**Latest circulation phase: 5c-7b (5c frequent)**	**Number of contexts: 8**	**Chemical Compositions: A-1; A-2**

diamond incised vessel discussed above). Therefore, we see clear trade links between Nishapur in Iran, Fustat in Egypt and Dariali in Georgia.

Beaker (lustre painted)

A fragment of a lustre painted beaker was recovered from the excavation (F.001/24.1). It is a solid beaded rim piece in a fabric of cloudy appearance with frequent small to large bubbles. It is decorated with a silvery greenish and an orange-yellow lustre paint in a wave pattern (which could be kufic) around rim of bowl and side. Unfortunately the piece from our assemblage comes from a topsoil context and is not well stratified. Several other painted fragments were found, two rims, probably belonging to beakers show spots of orange paint (F.164/1411 and Q.010/41.2), and may also belong to a similar type of vessel. The lustre-painted beaker was found to be in A-2 chemical composition and therefore may have been manufactured in the Syro-Palestinian area, with parallels from there and Egypt dating between the tenth and eleventh centuries.[63]

13.7.6.5. Overview

The intentionally decoloured glasses include some distinct items and mostly date from between the seventh and tenth centuries, with the majority of vessels entering circulation in the eighth century or slightly later. The molar flasks come into the assemblage in the sixth century, a date which is supported in the literature on cut glass and the Sasanian glass-making tradition; these items are represented in the graph as part of the colourless (thick) fabric in composition A-1, see Fig. 13.22, and are shown as circulating from the 3c phase potentially until the eleventh century (5c), all other types are circulating between 5a and 5b, so in the late seventh to early ninth centuries.

13.7.7. Blue green fabric (BG-1)

The blue green fabric is by far the most frequently attested type of vessel glass recovered from the excavations at the Dariali Fort. Material in this colour has been classified into four main types, labelled here BG1–4. The first is thin material that is transparent and mostly quite clear (*i.e.* not bubbly). The second type is of medium thickness, it tends to have a milky frosted appearance, due to weathering. The third is of thin to medium thickness, very translucent but containing a large number of bubbles. The fourth and final group is of a similar thickness as the post-Sasanian style vessels.

13.7.7.1. Wall sherds

This is the most commonly attested fabric type with 191 associated wall sherds recovered from the Dariali excavations. Table 13:19 lists the contexts in which the body sherds were found (with the contexts which yielded the largest amount of sherds highlighted in bold). These represent at least 20 vessels (Table 13:19).

Overall the number of vessels in this fabric was 268 accounting for 68% of the vessel assemblage when

examined by probable extant vessels. The most prominent forms will be discussed in the following section. The earliest securely stratified fragments belong to phase 3f and phase 4 deposits (F.134 and F.094) but the majority of the vessel types below are introduced in phase 5a. The four main types and subdivisions thereof, which the diagnostic vessel glass in fabric BG1 has been divided into are:

1) Open Forms:
   - Beakers and Bowls
   - Handled lamps
   - Goblets
2) Closed forms:
   - Jars and Bottles
   - *Unguentaria*
   - Alembics
3) Decorated vessels with moulded decoration:
   - Wider diagonal moulding
   - Medium diagonal moulding
   - Diagonal ribbing
   - Horizontal ribbing
   - Diagonal net
   - Other moulded vessels
4) Decorated vessels with applied decoration:
   - Trailed
   - Pinched

13.7.7.2. Open forms – beakers and bowls

These beaker types (Fig. 13:23; Table 13:20) are first attested securely in phase 3f (first half of the seventh century) and stayed in circulation to the end of the millennium.

Type 1: beaded rim

The most common type of beaker has a beaded rim (Fig. 13:24), which has been created through folding the edge of the rim over on itself in the finishing process. These beakers range in size from small objects to much larger ones. Smaller examples are Q.027/171.4 and Q.027/190.2, both have been made in a clear turquoise to light blue fabric with striation marks, though the base is now cloudy; a small push up can be seen on the pontil.

These beakers have several subtypes. Subtype 1.1 represents beakers whose rims turn inwards a little and are flattened more severely than in the other examples (*e.g.* Q.027/171.11, Q.027/265.2, F.033/273, Q.027/171.3 Q.043/326.1, Q.043/359.2). The fabric these are made of is also much thicker and tends to contain more bubbles. Both composition B-3 and C-3 are attested, suggesting that different workshops produced identical vessel types.

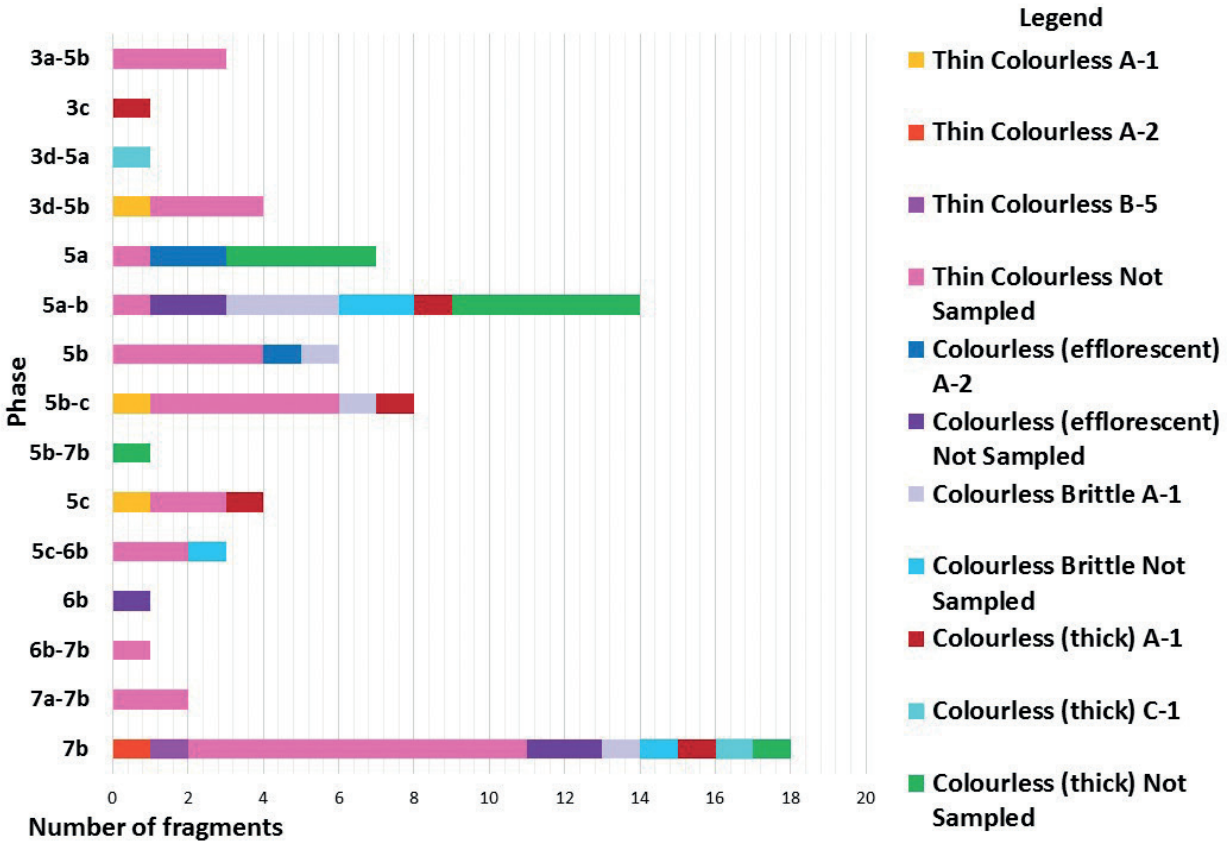


Fig. 13:22: Graph of colourless fabric circulation.

Table 13:19: Thin and transparent blue/green glass.

Deposits	*Phases*	*Quantity*
c.20 vessels F.001; **F.027;** F.032; F.035; F.036; **F.037;** F.042; F.043; F.053; F.062; **F.063;** F.065; F.068; **F.070;** F.077; F.080; F.092; F.098; F.102; F.112; F.118; F.130; F.131; **F.132;** F.146; F.164; F.169; F.183; M.003; Q.011; Q.020; Q.027; Q.032; Q.037; Q.042; Q.043; Q.046; Q.047; Q.049; Q.054; Q.058; Q.063; Q.065; Q.074; Q.075; Q.076; Q.093; Q.106; Q.125; Q.128; Q.141; Q.142; Q.147; Q.157; Q.159; X.004	3a/5a-6b	191 sides

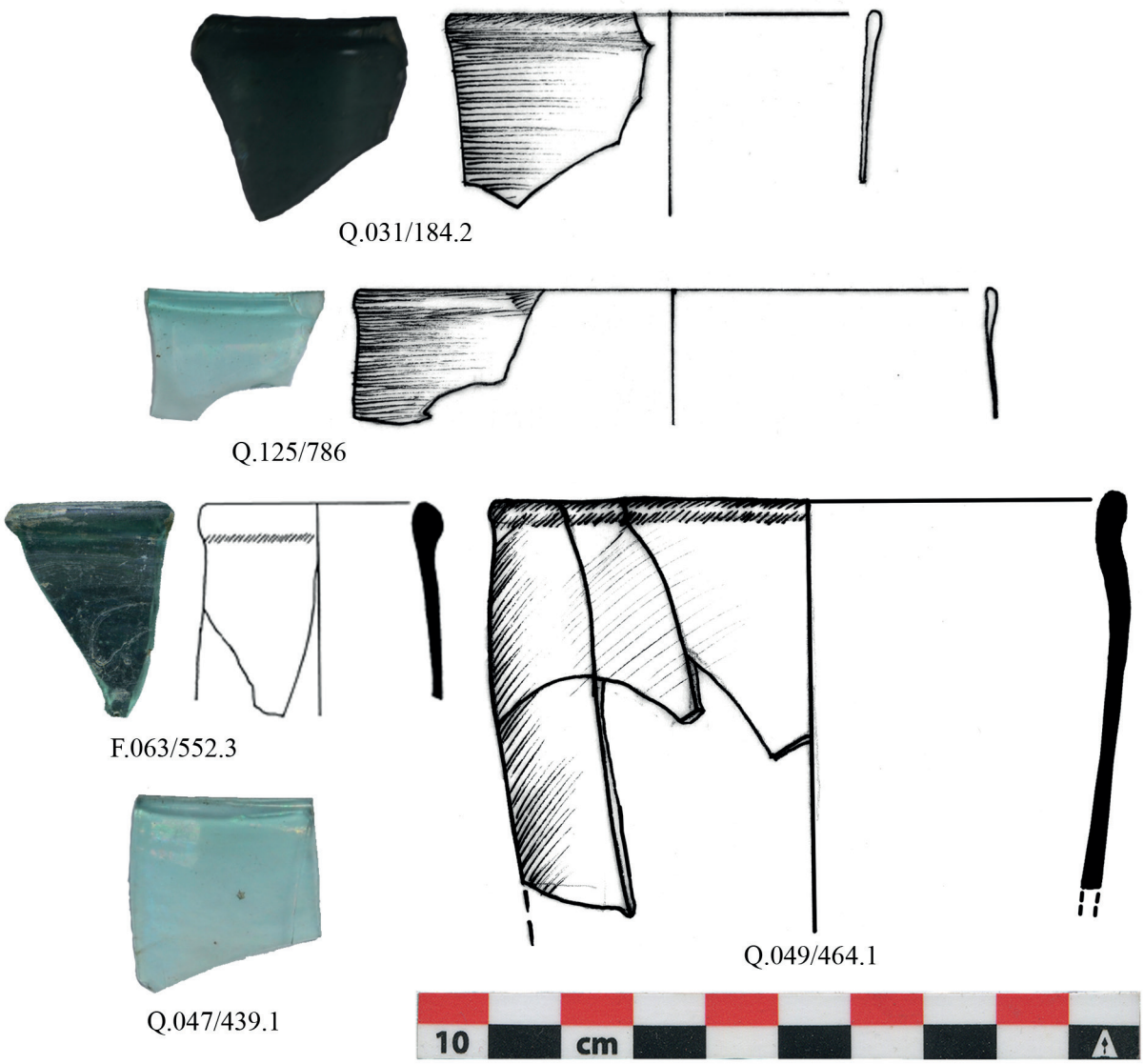


Fig. 13:23: Beaded rim beakers.

Subtype 1.2

The rims of subtype 1.2 are flattened but they flare outwards, *e.g.* F.063/552.3, Q.031/184.2 and Q.049/464.1. The rims are thick and bulbous; the fabric is generally cloudy and contains a few unevenly dispersed bubbles that are small to medium in size; striation marks can be seen on the outside. Fabric with composition C-1 and a closely related group C-3 were discovered in sampling, indicating a local production but with variation in raw materials. One such vessel is attested in the Dargavs Catacombs.[64]

Subtype 1.3

Subtype 1.3 is characterised by a thinner lip, a fabric type containing more visible bubbles and larger vessel sizes (*e.g.* F.027/496.2, Q.027/171.1). These vessels are of C-1 and B-3 composition, also implying the involvement of different workshops (Fig. 13:25).

Table 13:20: Open forms (beakers and bowls).

Open Forms (beakers and bowls)	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Beaker Type 2; F.070/595.1	1	5a	5a	F.070	B-4
Vessel 2, Beaker Type 2/window glass; F.169/1444.1	1	3d-5b	3d-5b	F.169	B-3
Vessel 3, Beaker Type 1.1; F.033/273	1	5b-c	5b-c	F.033	B-3
Vessel 4, Beaker Type 1.1; Q.027/171.3	1	5b (with redeposited 4–5a material)	5b	Q.027	C-3
Vessel 5, Beaker Type 1; Q.027/171.4	1	5b (with redeposited 4–5a material)	5b	Q.027	C-3
Vessel 6, Beaker Type 1.1; Q.027/171.11	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 7, Beaker Type 1.1; Q.027/265.2	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 8, Beaker Type 1.1; Q.043/359.2	2	5b (with redeposited 4–5a material)	5b	Q.043	C-3
Vessel 9, Beaker Type 1.3; F.027/496.2	1	5c-6b	5c-6b	F.027	B-3
Vessel 10, Beaker Type 1.3; Q.027/171.1	2	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 11, Beaker Type 1.2; F.063/552.3	1	5b-c	5b-c	F.063	C-1
Vessel 12, Beaker Type 1.2; Q.031/184.2	1	3d-5b plus redeposited 4–5a material	3d-5b	Q.031	C-3
Vessel 13, Beaker Type 1.2; Q.049/464.1	4	3f-5b (plus redeposited 4–5a material)	3f-5b	Q.049	C-1
Vessel 14, Beaker Type 1.1; Q.043/326.1	1	5b (with redeposited 4–5a material)	5b	Q.043	C-1
Vessel 15, Beaker Type 1; Q.027/190.2	1	5b (with redeposited 4–5a material)	5b	Q.027	n/a
Vessel 16, Beaker Type 5; F.037/248.1	5	5a-b	5a-b	F.037	B-4
Vessel 17, Beaker Type 4; Q.043/359.9	1	5b (with redeposited 4–5a material)	5b	Q.043	C-3
Vessel 18, Bowl; M.003/34.2	1	5a-6b (5a-b?)	5a-6b	M.003	B-4
Vessel 19, Beaker Type 1.4 with folded beaded rim; Q.031/184.1	1	3d-5b	5b (with redeposited 4–5a material)	Q.031	C-3
Vessel 20, Melted piece of beaker rim; Q.032/230.16:	1	3a-5b	3a-5b	Q.032	C-1
Vessel 21, Warped beaker rim; Q.037/283.1	1	7b	7b	Q.037	C-1
Vessel 22, warped pieces of glass beakers	4	4–5a	4–5a	Q.165	C-1
Vessel 23, Flattish piece of glass with a flattened flared lip, possible window glass; Q.058/409.1	1	5b	5b	Q.058	C-1
Vessel 24; Q.091/612, Warped beaker rim	1	5b-c	5b-c	Q.091	C-1

(Continued)

Table 13:20: Open forms (beakers and bowls). (Continued)

Open Forms (beakers and bowls)	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Small beaker rim fragments (c. 14 vessels); F.022; F.037; F.080; F.088; F.100; F.118; Q.011; Q.027; Q.031; Q.032; Q.042; Q.043; Q.049; Q.050; Q.062; Q.075; Q.125	33	3a-5a	5c-7b	17 contexts	n/a
Small beaker bases (c. 4 vessels); F.070; F.077; F.134; Q.074	4	3f	5b-c	F.070; F.077; F.134; Q.074	F.070/641.4, C-3; Q.074/537.1, C-1; F.134/1119, B-3
Vessel 25, 1 inward turning beaker lip subtype 1.1; F.053/424	1	5c	5c	F.053	n/a
Large Beaker rim fragments (c. 19 vessels); F.001; F.027; F.035; F.037; F.063; F.070; F.128; Q.005; Q.008; Q.010; Q.011; Q.020; Q.029; Q.031; Q.032; Q.042; Q.043; Q.046; Q.047; Q.049; Q.062; Q.063; Q.065; Q.074	77	3a-5a	7b	24 contexts	n/a
Large Beaker bases (c. 3 vessels) : F.070 F.077; F.128; Q.027; Q.029; Q.032; Q.036; Q.043; Q.047; Q.063	12	3a-5a	5c	10 contexts	All C-1: F.128/1140; Q.029/300.2; Q.043/327.2; Q.063/437.1
Total Minimum Vessels: 65	**Total Fragments: 162**	**Earliest production phase: 3(a-)f**	**Latest circulation phase: 5c-7b (5b-c most frequent)**	**Number of contexts: 44**	**Chemical Compositions: B-3; B-4; C-1; C-3**

Subtype 1.4

Subtype 1.4 was manufactured with a tightly folded rim which created a similar profile to the beaded rim but with a tube in the inside. The vessel wall here is rather bulbous (see Q.031/184.1). It is in the C-3 compositional group.

Type 2: Folded flattened rim

This beaker type is characterised by a lip which has been folded over and flattened creating a narrow gap inside the lip (Fig. 13:26). The main examples of this are vessels F.070/595.1 and Q.031/184.1. Sampled examples are in the B grouping (B-4) so such vessels were probably manufactured a little further afield.

Some of the fragments with this type of rim are so flat that they could actually be window glass, *e.g.* F.169/1444.1. This window glass was of the 'omphalos' type and would fit within a frame. Examples of this can been seen at Samarra in Iraq and in Greece where such glass oculi were found at the Hilandar Monastery on Mount Athos.[65] The flat piece from Dariali is in the B-3 composition, so was probably manufactured in the Levant or Anatolian regions.

Type 3: Very small beaker

Small beakers are common in decorated types, as seen later in this section[66] but two undecorated examples of this type also exist: F.070/641.3 and F.070/641.4. Both are turquoise to green, one is now cloudy and the other clear, the fabric is a little bubbly. These are attested in both C-1, C-3 and B-3 chemical compositional groups.

Type 4: Large beaker

One notable beaker has been manufactured in a dark green fabric, with little push up from the pontil (almost flat); the fabric is clear, transparent and unworn with several small to medium sized bubbles (Q.043/359.9, in the probably local C-3 composition).

Type 5: Large closed shape – lamp

There is one clear example from the assemblage that represents part of a large beaker that may have been used as a lamp, F.037/248.1 (Fig. 13:27), in five joining fragments. It was made in a thin light blue to colourless fabric which contains some bubbles and is of the B-4 composition.

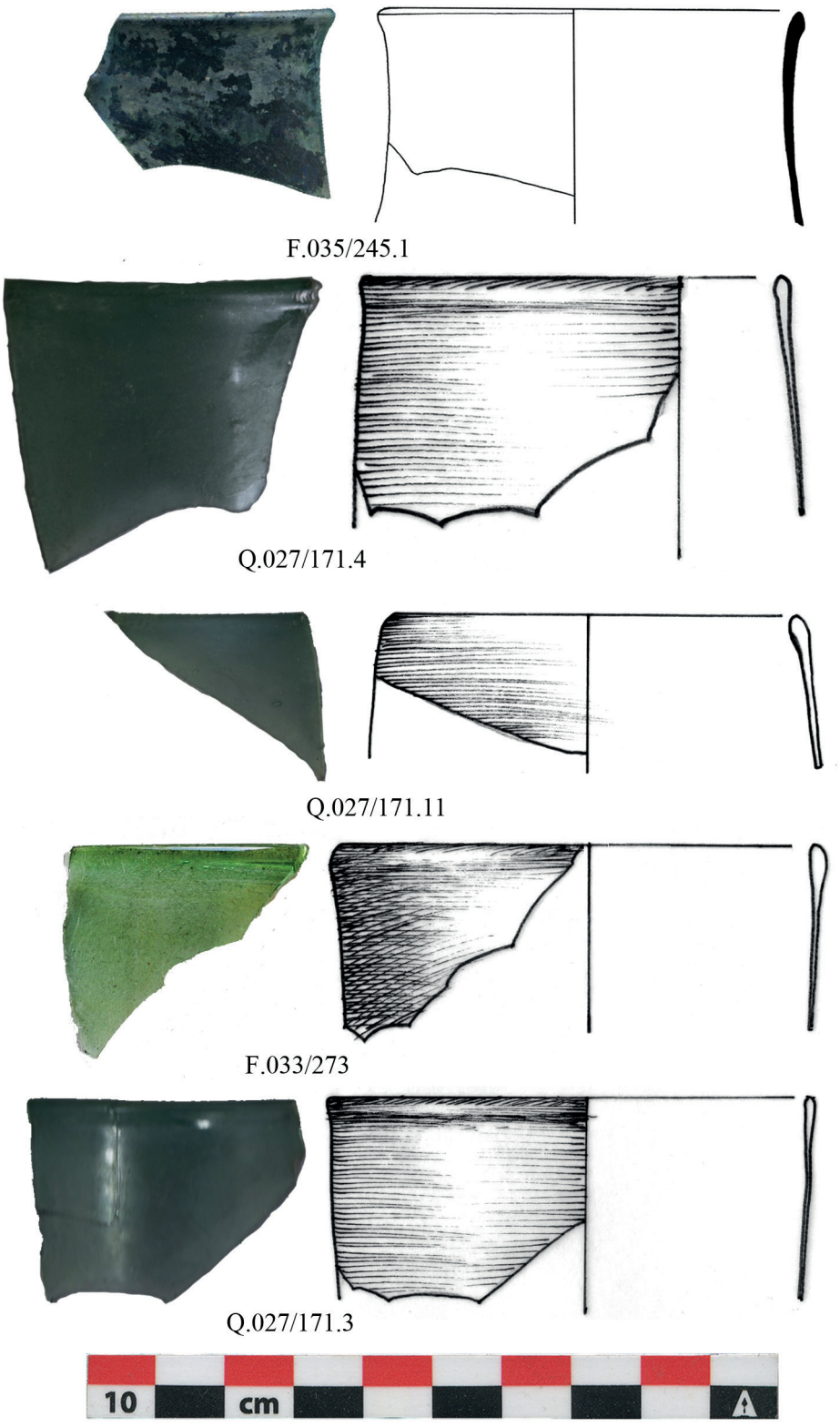


Fig. 13:24: Beakers with flattened beaded rims.

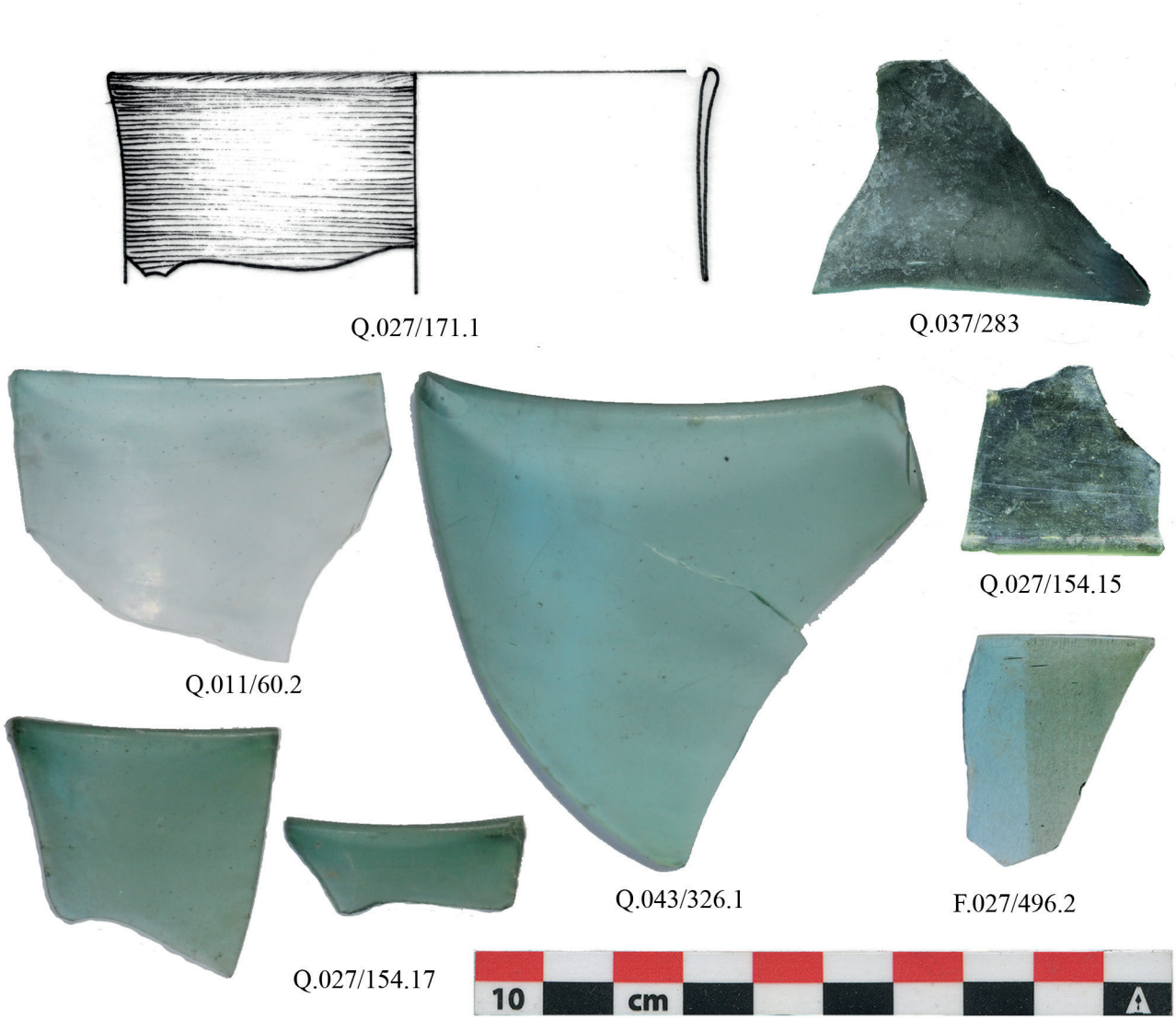


Fig. 13:25: Beakers with flared rims.

Bowls

From Trench M a fragment of a thick-walled bowl was recovered (M.003/34.2). It was made in a turquoise to light blue transparent and unmarked fabric and contains several small bubbles of uneven distribution, with more around the rim. Its chemical composition is C-1. Many varieties of open beaker and bowls are attested, which is not surprising considering that these are universal types. The vast majority of beakers are of a composition that would imply they were locally manufactured (C-1). Indeed, we would expect to find high-use vessel types manufactured locally and specialist items to be imported.

13.7.7.3. Handled lamps

Handled lamps, designed for hanging from the ceiling, are attested at Dariali Fort with two examples (Q.020/142.3 and Q.032/230.2) manufactured in a turquoise fabric which is textured with visible striation markings and several small to medium bubbles (Fig. 13:28; Table 13:21). The extant fragments show the folded rim of an open vessel with very small handles in one instance and in the other raised areas where the handles have broken from the vessel. Chkhat'arashvili argues that such lamps were produced between the ninth and tenth centuries. None of the examples from Dariali are well stratified, but were introduced by the ninth century at the latest, which would match this dating proposal.[67] The chemical composition of these lamps, is B-3 and B-2 respectively. They were either made in two separate sister workshops or they were produced in one locus of production with two types of raw materials.

13.7.7.4. Goblets

Several goblet fragments have been examined (Table 13:22) and fall into two distinct types. The first



Fig. 13:26: Beakers and similar items with folded rims.

Table 13:21: Lamps.

Lamps	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1; Q.020/142.3	1	5b-7b (with redeposited 4–5a material)	5b-7b	Q.020	B-3
Vessel 2; Q.032/230.2	1	3a-5b	3a-5b	Q.032	B-2
Rim fragment (2 pieces), light green fabric with small handle; Q.032/230.1	2	3a-5b	3a-5b	Q.032	n/a
Rim fragment of a very large bowl, possibly a lamp;), with a handle; Q.075/847	1	5b-7b	5b-7b	Q.075	n/a
Total Minimum Vessels: 4	**Total Fragments: 5**	**Earliest production phase: (3a-)5b**	**Latest circulation phase: 5b-7b**	**Number of contexts: 3**	**Chemical Compositions: B-2; B-3**

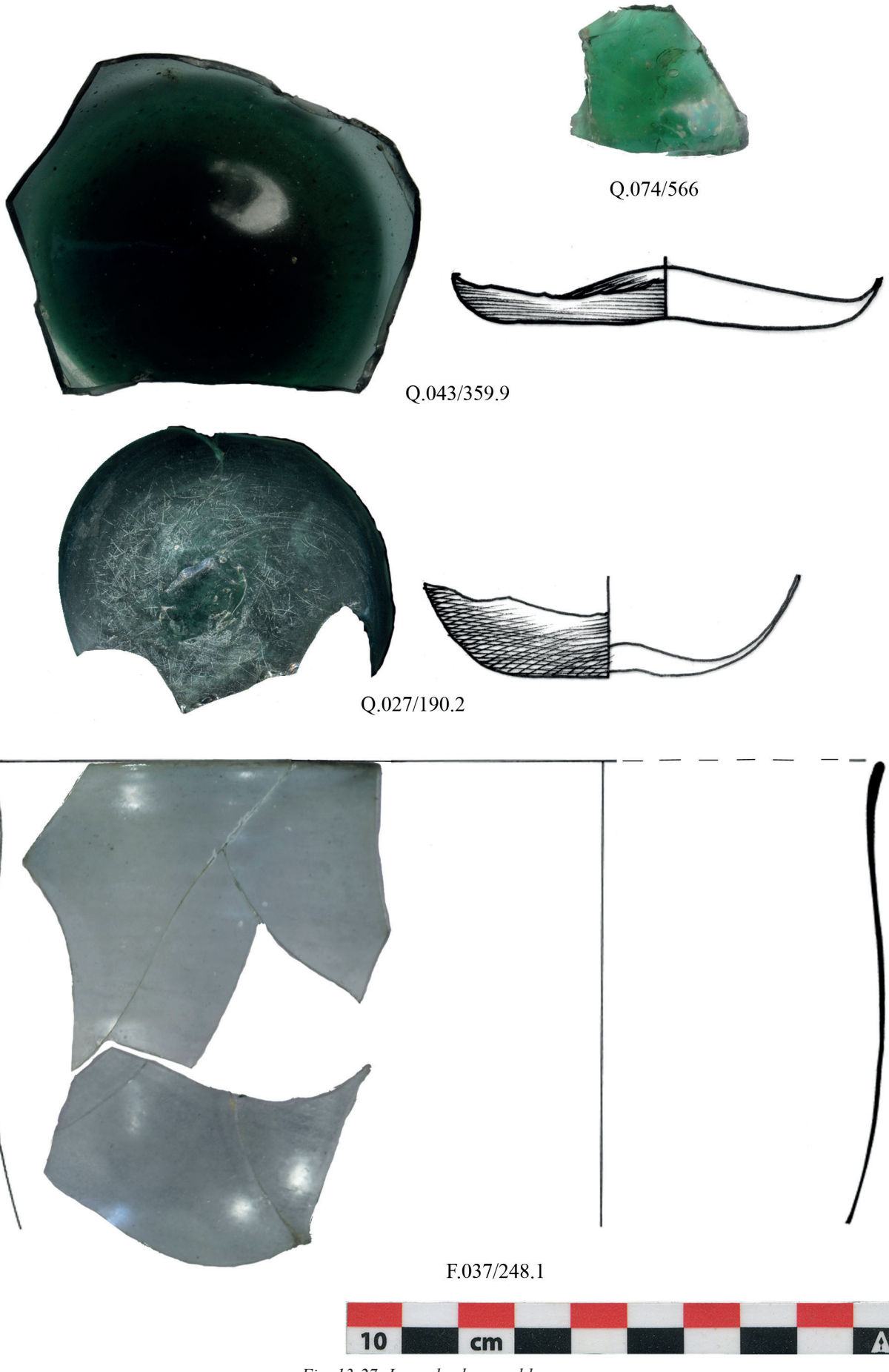


Fig. 13:27: Large beakers and lamp.

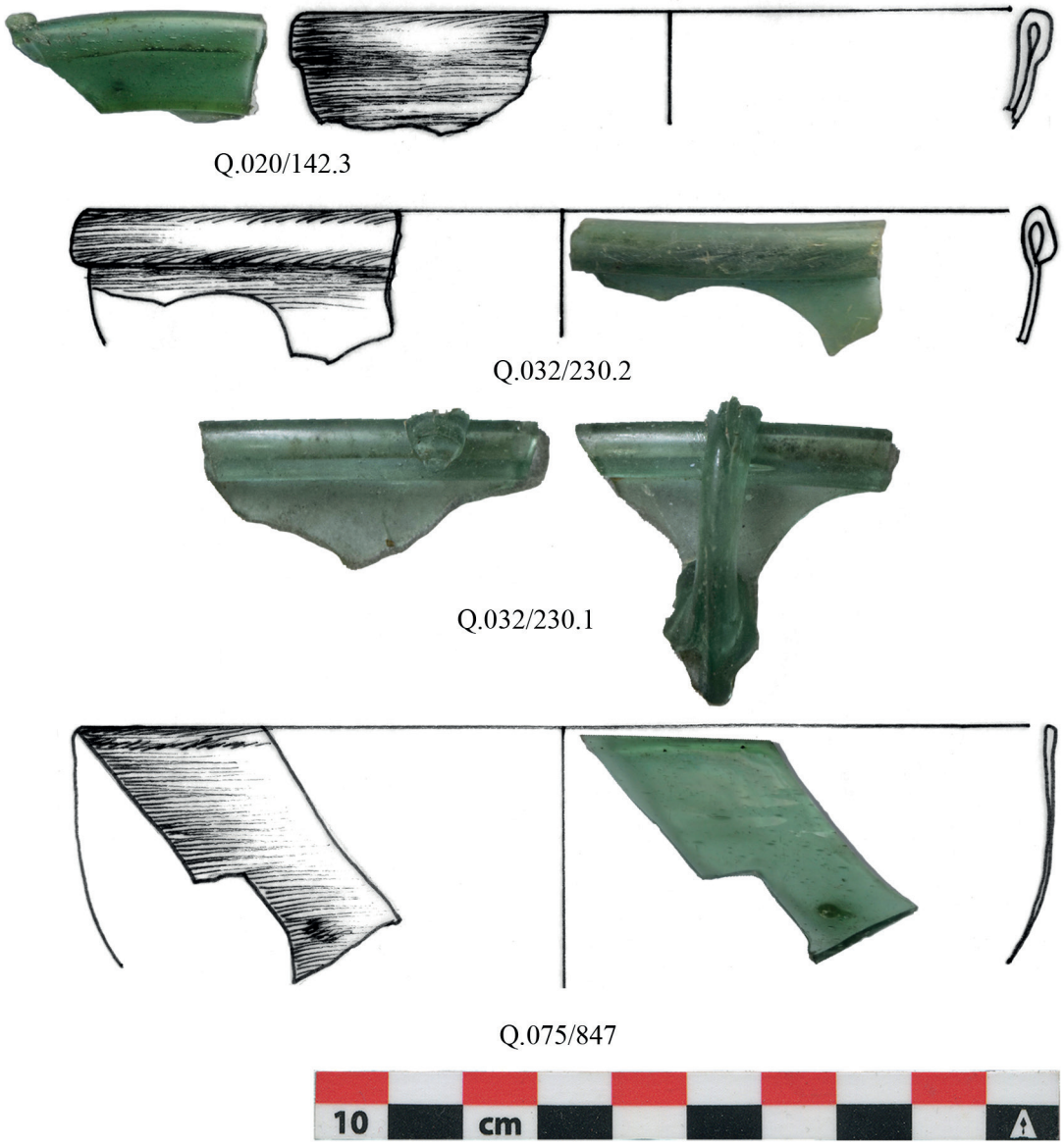


Fig. 13:28: Handled lamps.

type is a goblet with a foot made with a folded rim and the second with a stem of applied blobs (Fig. 13:29).

Type 1 goblet

This type is attested in just one example (F.035/340) manufactured in a light green fabric. The extant base of the goblet is broken, just where the stem meets the base. The foot has a distinct folded rim. Parallels for such goblets date between the sixth and eighth centuries which roughly accords with our internal dating of the Dariali examples to between the mid-seventh/early eighth centuries and the late eighth, ninth or tenth centuries.[68]

Type 2 goblet

Two goblet stems/feet found in Trenches F and Q respectively represent a distinctive goblet type (F.094/760 and Q.166/1129) whose stem was made by applying three blobs of glass to join the base of the cup and the foot. Both examples are alike; they are manufactured in the same style and in the same type of fabric. Vessel Q.166/1129 comprises the foot, stem, base and half of the cup profile of this type of goblet. The cup is very thin, and the fabric is transparent in the thinner areas and contains several small to very large bubbles; the appearance is now a little cloudy due to corrosion. Similar types of goblet stems have been found in Rustavi (dating to the sixth–eighth centuries) and in Tbilisi (eighth–ninth centuries). Chkhat'arashvili dates them between the fifth and ninth centuries.[69] Evidence from Dariali indicates that these goblets were in use here in the later seventh/early eighth century and circulating until the late eighth, ninth or potentially tenth century (see Fig. 13:30 for their circulation and that of other open forms).



Fig. 13:29: Footed goblets.

Three other fragments may also represent goblets stems: fragment F.063/552.2, in a bright turquoise colour, is part of a very thick base which could support the stem of a goblet (but potentially could be the stopper for a bottle). Strong iron-staining can be seen on the underside where the piece has been attached to the pontil. F.078/648.1 is a fragment of a stem and base of a goblet, also with an iron stain on the bottom from the pontil; the fabric is cloudy in appearance and contains a few small bubbles.

These goblets (and potential goblet fragments) are all manufactured in a similar type of fabric (C-1). They are perhaps indicative of a specifically Georgian glass manufacture.

Table 13:22: Goblets and possible goblets.

Goblets and possible goblets	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Type 1, Vessel 1; F.035/340	1	5a-b	5a-b	F.035	C-1
Type 2, Vessel 2; F.094/760	2	4	4	F.094	C-1
Type 2, Vessel 3; Q.166/1129	1	4–5a	4–5a	Q.166	C-1
Vessel 4; F.063/552.2	1	5b-c	5b-c	F.063	C-1
Vessel 5; F.078/648.1	1	5a-b	5a-b	F.078	C-1
Total Minimum Vessels: 5	**Total Fragments: 5**	**Earliest production phase: 4**	**Latest circulation phase: 5b-c**	**Number of contexts: 5**	**Chemical Compositions: C-1**

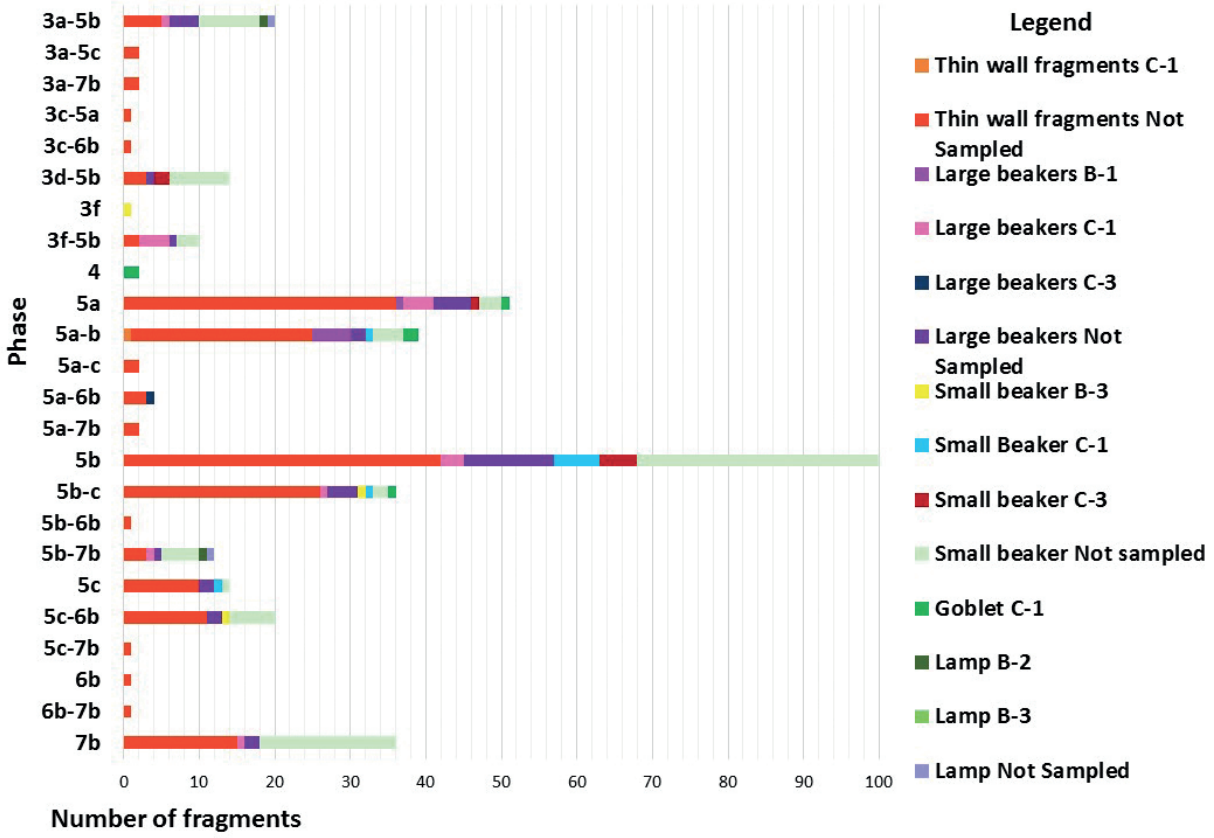


Fig. 13:30: Graph showing circulation of open forms in BG-1 fabric.

13.7.7.5. Closed forms – jars and bottles
(Fig. 13:31; Table 13:23)

Jar

There are several examples of jars with flattened folded rims that have a flattish tube in the inside of this fold, one such example is F.027/496.1. This was manufactured in a turquoise to light blue transparent fabric with few to frequent bubbles including some very large bubbles (mostly in the worked rim). This fabric is of composition B-3 indicating that these vessels were imported.

Bottles

There are four main types of bottle attested in the assemblage: those with flared rims, a squat body, large bottles and small bottles (or *unguentaria*). The latter type is the most numerous and will be dealt with in a separate section below. Bottles were manufactured using material in all of the main three fabric composition groups, A-C. This is unsurprising as bottles are likely to have a particularly wide circulation as they can store items for transport.

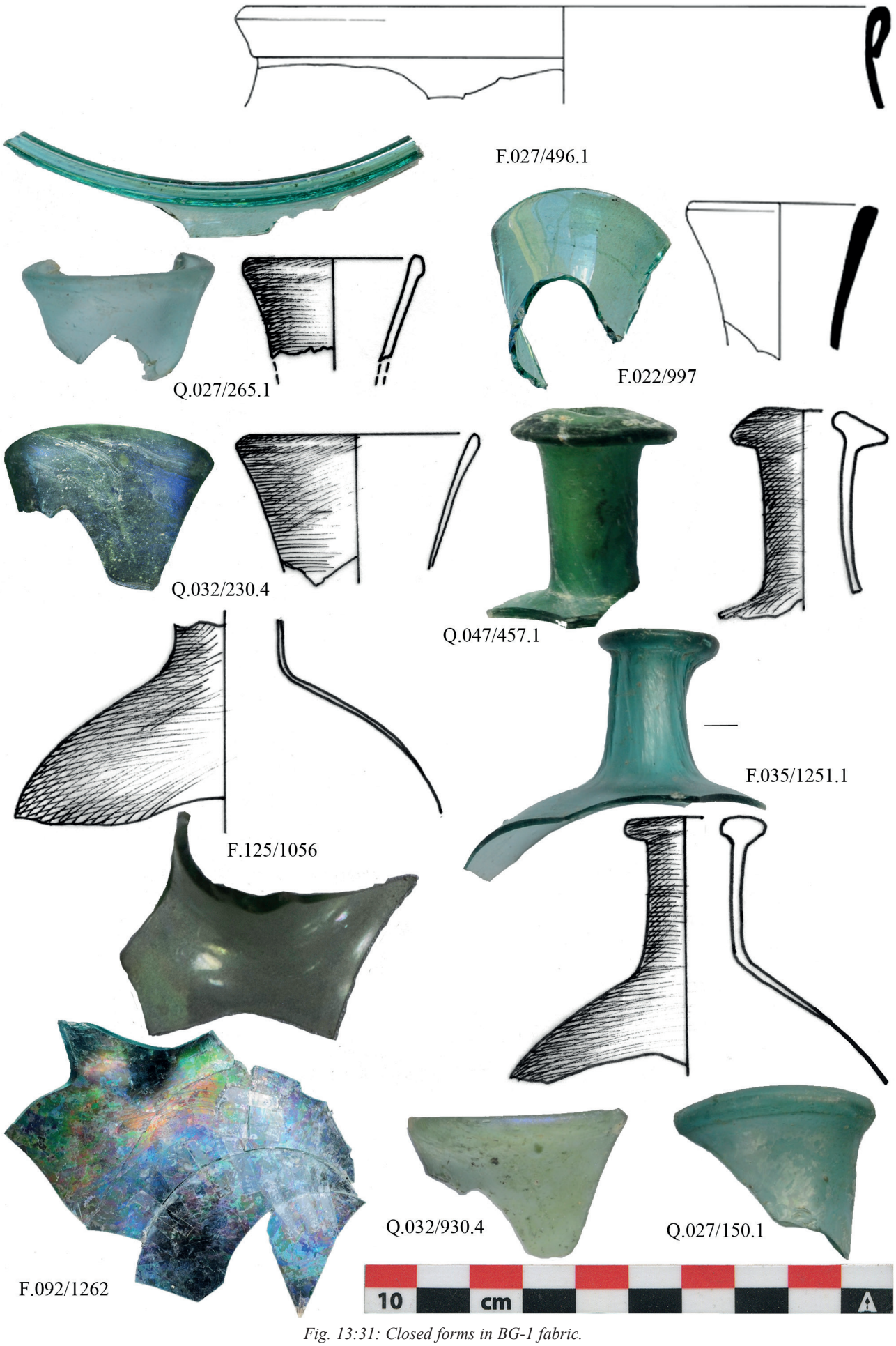


Fig. 13:31: Closed forms in BG-1 fabric.

Table 13:23: Closed forms.

Closed forms	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, closed jar 1; F.027/496.1	1	5c-6b	5c-6b	F.027	B-3
Vessel 2, bottle type 1; F.022/997	1	5b-c (with redeposited 5a)	5b-c	F.022	B-4
Vessel 3, bottle type 1; Q.027/150.1	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 4, bottle type 1; Q.027/154.2	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 5, bottle type 1; Q.032/230.4	1	3a-5b	3a-5b	Q.032	C-1
Vessel 6, bottle type 1; Q.027/265.1	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 7, bottle type 2; F.125/1056	2	5b	5b	F.125	B-5
Vessel 8, bottle type 2; F.137/1171	1	3a-5c	3a-5c	F.137	C-1
Vessel 9, bottle type 2; F.035/1251.1	1	5a-b (5b?)	5a-b (5b?)	F.035	B-2
Vessel 10, bottle type 2; Q.031/184.5	1	3d-5b plus redeposited 4–5a material	3d-5b	Q.031	C-1
Vessel 11, bottle type 2; Q.157/1062	1	5a	5a	Q.157	C-1
Vessel 12, bottle type 3; F.033/230	1	5b-c	5b-c	F.033	B-2
Vessel 13, bottle type 3; Q.027/154.28	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 14, bottle type 3; Q.027/171.15	1	5b (with redeposited 4–5a material)	5b	Q.027	C-3
Vessel 15, bottle type 3; Q.027/171.16	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 16, probable bottle type 3; Q.027/154.23	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 17, bottle type 3 or beaker; Q.043/359.10	1	5b (with redeposited 4–5a material)	5b	Q.043	B-2
Vessel 18, bottle type 3 or beaker; Q.074/566.1	1	5b-c	5b-c	Q.074	A-2
Vessel 19, Rim fragment, perhaps with a mouth for pouring; Q.027/154.10	1	5b	5b	Q.027	n/a
3 vessels, neck pieces; Q.011/99.5;114.1; Q.056/401.1; Q.088/585.1	5	5b-c	7b	Q.011; Q.056; Q.088	n/a
c.11 Vessels, base fragments medium to large bottles; F.027; F.033; **F.035**; F.037; F.052; F.077; F.092; F.102; **Q.011**; Q.020; Q.027; Q.032; Q.037; Q.043; Q.065; Q.121; Q.US	28	3a-5a	5c-7b	17	n/a
c.2 vessels (wall sherds); F.027; **F.070**; F.092; **Q.027**; Q.158	72	5a	5c-6b	F.027; **F.070**; F.092; **Q.027**; Q.158	n/a
Total Minimum Vessels: 35	**Total Fragments: 125**	**Earliest production phase: (3a-)5a**	**Latest circulation: phase 5c-7b**	**Number of contexts: 26**	**Chemical Compositions: A-2; B-2; B-3; B-4; B-5; C-1; C-3.**

Type 1 bottle

The bottles of type 1 have a flared rim to facilitate the pouring of liquid. The rims are a little flattened on top (such as in example F.022/997, Q.027/154.2) whilst others are beaded (Q.027/265.1; Q.027/150.1 is heavily beaded). These bottles vary in colour between light blue or light green and colourless. Example Q.032/230.4 in a light green has a pearlescent sheen. The surface of this piece is pitted with bubbles (as are other examples), and the marks from twisting the bottle whilst hot are quite clear; prominent bubbles are also discerned in example Q.027/265.1, which has a pearlescent sheen. The chemical composition of these bottles is mostly C-1, suggesting they are of local manufacture, but example F.022/997 is of the B-4 grouping.

Type 2 squat bottle

Squat bottles are common in early Islamic glass production and are found also in Israel: for parallels see those from Ramla dating to the Abassid-Fatimid period.[70] The examples from the Dariali assemblage are in various colours of fabric from light blue/light green/turquoise to colourless. They appear in a variety of chemical compositions: B-2, B-5 and C-1. One example (F.035/1251.1) includes an extant rim piece which is not symmetrical. Vessel Q.047/457.1 also has a rim that is roughly made, thick, pressed down, and protruding over the bottle neck.

Type 3 large bottle

There are several examples of large bases, most likely belonging to bottles, from the excavations at Dariali (Fig. 13:32). These bottles have bases with a fairly high push up on the pontil (examples are F.022/216, F.033/230, Q.027/154.28, Q.027/171.15, Q.027/171.16, Q.027/154.23). Two have a very pointed push up (Q.043/359.10, Q.074/566.1). Some examples have iron staining from the pontil as well (especially F.022/216). These fabrics vary widely in compositional type which is not surprising as the form is quite generic and easily replicable. A-2, B-2, C-1, C-3.

13.7.7.6. Closed forms – unguentaria
(Figs 13:33–13:35)

Unguentaria

Several small bottles manufactured for the purposes of containing precious liquids, or unguents, are attested from the excavation (Fig. 13:33; Table 13:24). These are mostly small bottles with a flanged rim, sometimes with a ridge inside for a stopper (as seen on example F.001/55). The Georgian literature refers to these items as reliquary bottles, and they parallel such items which were generally made in an extremely bubbly type of fabric.[71] As with the large bottles, they are found in a wide variety of chemical compositions, likely due to their use as receptacles for other expensive goods (oil, perfume, etc.).

Subtype 1 round base

A subtype of this bottle was blown and then the base flattened slightly (*e.g.* F.164/1435.1) to create a stable foundation for the bottle to stand upright. Other examples retain the push up from the pontil (*e.g.* F.011/66.1 and Q.011/110.1). The following compositions are represented: B-2, B-3 and C-1.

Subtype 2 small base

The other main subtype of the *unguentarium* form is the bottle with a very round small base where only a tiny area makes contact with the surface it stands on (*e.g.* M.003/34.1 and Q.058/431.2). The base has been flattened and iron staining from the pontil can also be seen. As with the above type some of these are of local manufacture and others imported being both of C-1 and A-2 composition.

One of the rims of such a bottle (M.008/52) is an unusual asymmetrical shape and it looks as if it has been squashed down in the shaping process thus rendering the hole for pouring rather small. It is possible that this would be a great advantage if the bottle were used to store expensive oil or perfume. The varied compositions and vessel types of small bottles indicates that they were mostly imported from afar and that they carried expensive liquids.

13.7.7.7. Alembics

Fragments of three alembic vessels were recovered from Dariali Fort (Fig. 13:34; Table 13:25). All have been manufactured in a thin turquoise fabric (F.036/321, F.114/1016 and Q.027/154.30). These can be identified as parts of tubular hollow alembic spouts from a cap placed on the distilling apparatus, or possibly parts of medical apparatus such as a dropper. Most of the fragments show striation marks on the surface of the outside of the tube.

A good parallel for the shape and fabric of the items from Dariali has been found at Kuyruktobe in Kazakhstan, and is assigned to the tenth to twelfth centuries.[72] Chkhat'arashvili discusses alembics in Georgia, dating one example from Rustavi to between the tenth and eleventh centuries. Another, apparently imported from Iran, dates between the ninth and tenth centuries, and another found in Mtskheta dates even earlier, between the sixth and eighth centuries.[73] Carboni's work also supports the production of the cupping glasses of alembics, in a green fabric, taking place in Iran between the ninth and twelfth centuries.[74] This evidence seems to suggest that some such items were manufactured in Georgia, and others further afield. The glass composition (dividing between B-3 and B-5 and C-1 classes) probably indicates production taking place in various loci.

13.7.7.8. Moulded decoration

Of the 298 estimated number of vessels in BG-1 fabric, a significant amount, 78, are diagonally moulded, comprising 29% of this fabric type (Table 13:26). Various types

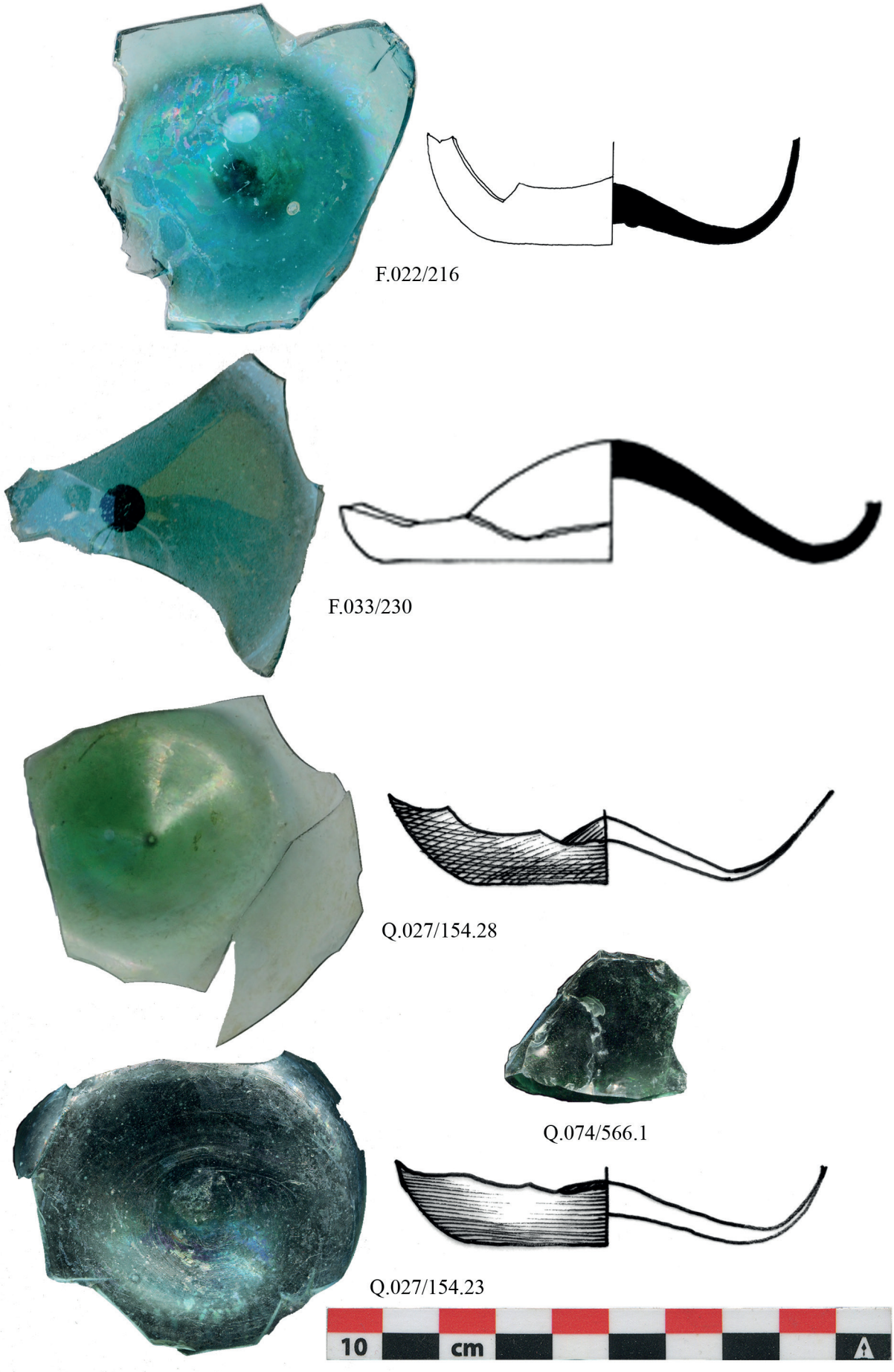


Fig. 13:32: Large bottle bases.

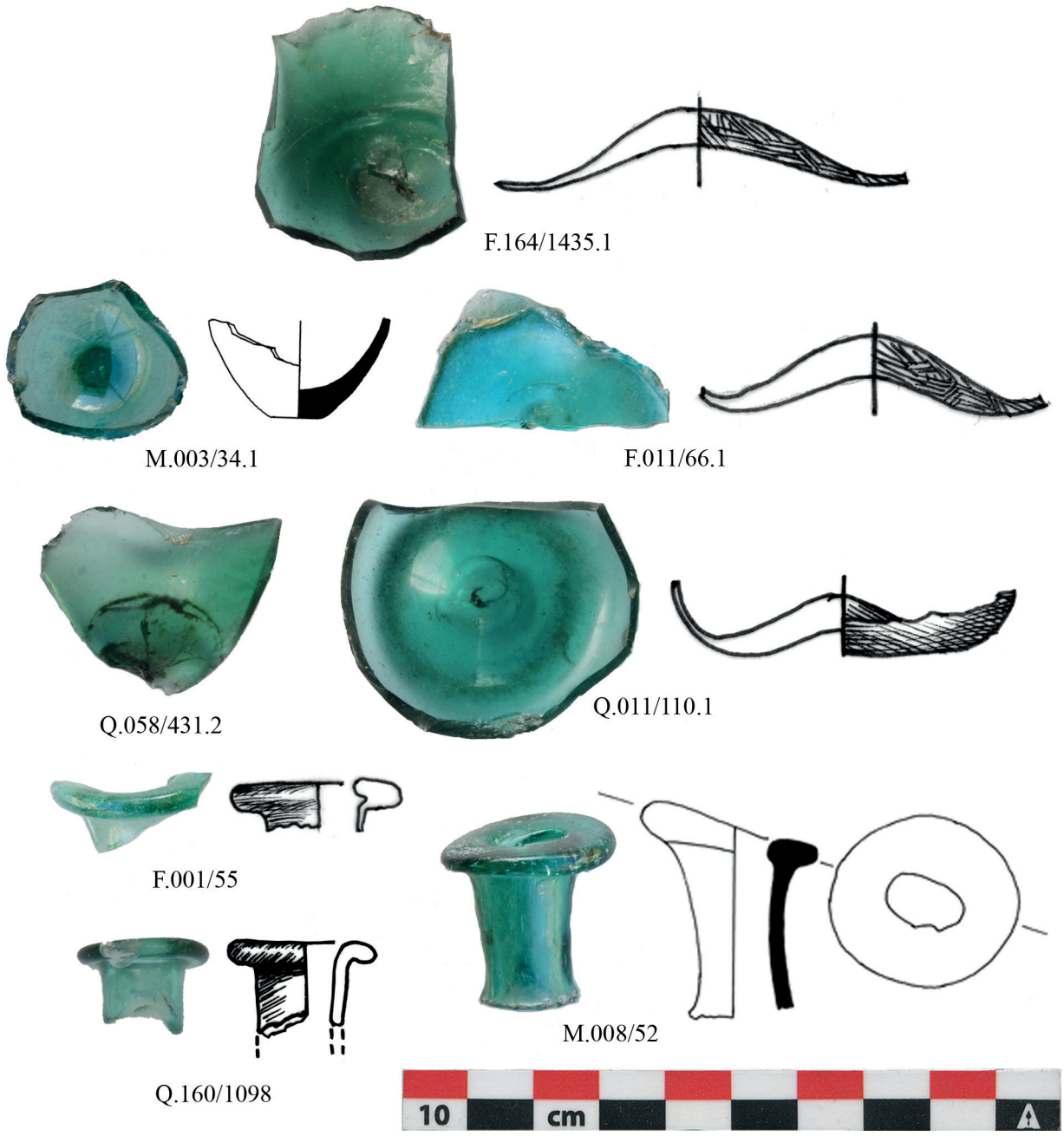


Fig. 13:33: Small bottles.

Table 13:24: Closed forms – unguentaria.

Closed forms – unguentaria	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1; F.001/55	1	7b	7b	F.001	B-2
Vessel 2; Q.160/1098	1	5a	5a	Q.160	B-2
Vessel 3, round base; F.011/66.1	1	5c-6b	5c-6b	F.011	C-1
Vessel 4, round base; F.164/1435.1	1	5a-b	5a-b	F.164	B-3
Vessel 5, round base; Q.011/110.1	1	7b	7b	Q.011	B-2

(Continued)

Table 13:24: (Continued)

Closed forms – unguentaria	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 6, small base; M.003/34.1	1	5a-6b	5a-6b	M.003	C-1
Vessel 7, small base; Q.058/431.2	1	5b (with redeposited 4–5a material)	5b	Q.058	A-2
Vessel 8, rim; M.008/52	1	5a-b	5a-b	M.008	B-2
Vessel 9, rim; F.065/527	1	5b-c	5b-c	F.065	A-2
Vessel 10, rim; F.070/595.11	1	5a	5a	F.070	B-2
Vessel 11, rim; Q.075/852	1	5b-7b	5b-7b	Q.075	B-2
Vessel 12, rim; Q.047/457.1	1	5b (with redeposited 4–5a material)	5b	Q.047	A-2
15 vessels (bases); F.022; F.033; F.063; F.092; F.094; F.164; M.003; Q.011; Q.013; Q.020; Q.027; Q.037; Q.047; Q.063; Q.065; Q.072; Q.095; Q.160	24	4	5b-7b	18 contexts	n/a.
2 vessels (flat bases); F.015/84; F.046/507.4; F.065/557.1; F.070/641.11	5	5a	5c-7b	4 contexts	n/a
1 vessel, neck fragment; Q.076/636	1	5b-6b	5b-6b	Q.076	n/a
Total Minimum Vessels: 30	**Total Fragments: 42**	**Earliest production phase: 4**	**Latest circulation phase: 5c-7b**	**Number of contexts: 28**	**Chemical Compositions: A-2; B-2; B-3; C-1**

Table 13:25: Alembics.

Alembics	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1; F.036/321	1	5a-b	5a-b	F.036	B-3
Vessel 2; F.114/1016	1	5c	5c	F.114	B-5
Vessel 3; Q.027/154.30	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Total Minimum Vessels: 3	**Total Fragments:** 3	**Earliest production phase: (4-)5b**	**Latest circulation phase: 5c**	**Number of contexts: 3**	**Chemical Compositions: B-3; B-5; C-1**



Fig. 13:34: Alembics.

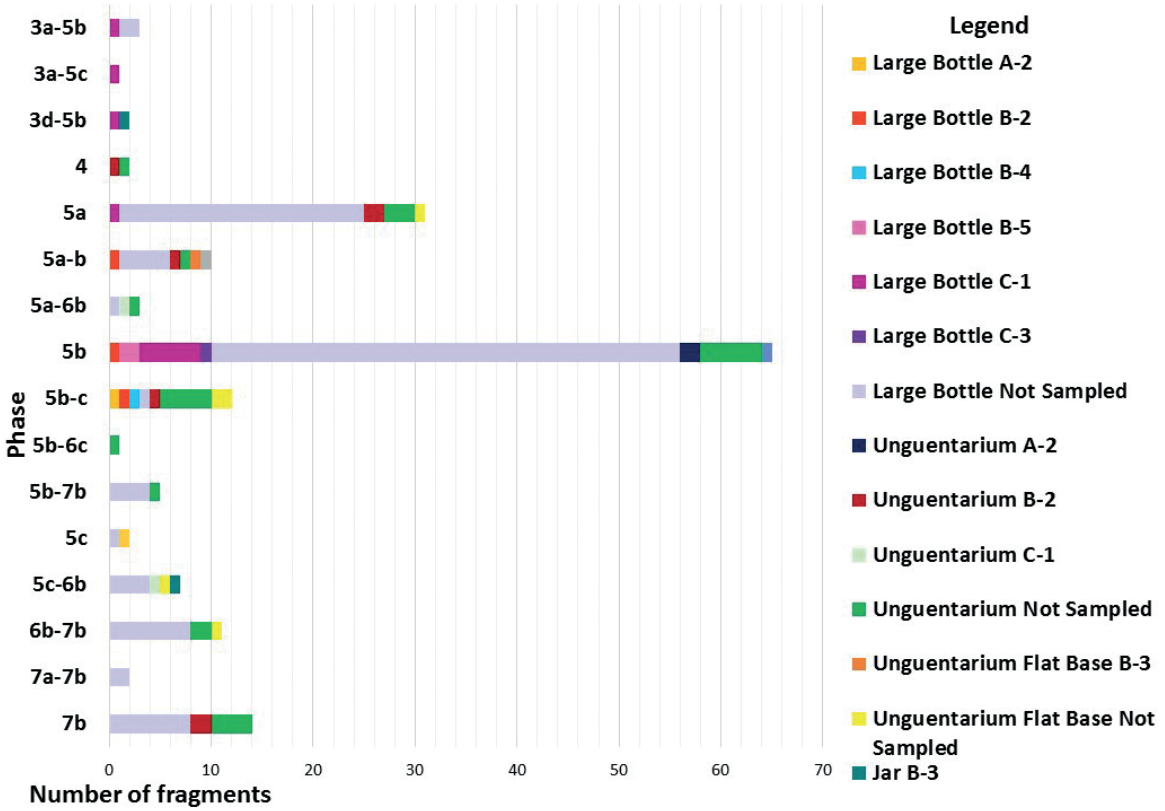


Fig. 13:35: Graph of the circulation of closed forms in BG-1 fabric.

Table 13:26: Wider diagonal moulding.

Wider diagonal moulding	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Type 1 wide diagonal ridges; F.027/296	1	5c-6b	5c-6b	F.027	C-1
Vessel 2, Type 1 wide diagonal ridges; Q.011/60.9	1	7b	7b	Q.011	C-1
Vessel 3, Type 1 wide diagonal ridges; Q.027/171.8	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 4, Type 1 wide diagonal ridges; Q.031/199.9	1	3d-5b	3d-5b	Q.031	C-1
Vessel 5, Type 1 beaker; F.022/216	3	5b-c (with redeposited 5a material)	5b-c	F.022	C-1
Vessel 6, Type 1.1 diagonal moulding with folded rim; F.118/949	1	5a	5a	F.118	C-1
Vessel 7, Type 1.1 diagonal moulding with folded rim; Q.027/171.12	2	5b (with redeposited 4–5a material)	5b	Q.027	C-3
Vessel 8, Type 2 wide diagonal ridges almost vertical in direction; Q.027/154.1	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1

(Continued)

Table 13:26: (Continued)

Wider diagonal moulding	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 9, Base/side of a beaker, Type 2 wide diagonal ridges almost vertical in direction; Q.011/114.3	3	7b	7b	Q.011	n/a
Vessel 10, Rim of beaker, Type 2 wide diagonal ridges almost vertical in direction; Q.032/230.11	1	3a-5b	3a-5b	Q.032	n/a
Vessel 11, Small beaker with medium sized ridges, Type 1.2; F.070/641.3	1	5a	5a	F.070	C-3
Vessel 12, Flat base of beaker with traces of wide diagonal ridges, Type 1.2; Q.031/199.10	1	3d-5b	3d-5b	Q.031	C-1
Bases in wide diagonal moulding (c.1 vessel)	4	5a	7b	F.027; F.077; Q.011	n/a
Rims in wide diagonal moulding (c. 1 vessel)	4	5a	7b	F.077; Q.011; Q.020; Q.027	n/a
Sides in wide diagonal moulding	29	5a	7b	F.070; Q.011; Q.027	n/a
Total Minimum Vessels: 14	**Total Fragments: 54**	**Earliest production phase: (3a)-5a**	**Latest circulation phase: 5c-7b**	**Number of contexts: 10**	**Chemical Compositions: C-1; C-3**

of this moulded decoration are attested, namely, different thickness of the ridges (widely spaced, medium spaced and ribbed), and variant patterns, such as the diagonal net and horizontal ribbed.

13.7.7.9. Diagonal moulding

Type 1

The first type is decorated with wide ridges and is a large beaker of a thin fabric (Fig. 13:36). The ridges are more than 7 mm in width, they stop before the rim of the vessel which flares outwards and is beaded and flattened. The fabric colour ranges between turquoise, light blue or yellowish green to colourless with small to large bubbles, some of which are on the surface. The fabric is now cloudy on the surface (*e.g.* F.027/296, and with striation markings – Q.011/60.9). A base fragment shows a slight push up on the pontil, Q.031/199.9, completing the profile (see F.027/296 for another base). All of the sampled examples are in C-1 composition and so are probably locally produced. A parallel can be seen in the Dargavs Catacombs;[75] and a thicker diagonal ridge vessel is attested at Derbent.[76]

Subtype 1.1 (wide ridged moulding with a folded rim)

Two examples of vessels decorated with thick diagonal moulding were finished with a folded rim which occupies the space between the moulding and the top of the vessel. Vessel F.118/949 was decorated with diagonal moulding, running from the top left to the bottom right. The fabric is thin, and the width of the moulded strips is thinner than in the above examples. The rim has been folded over the front of the glass creating a thin hollow tube. The fabric itself contains bubbles and some very large imperfections.[77] This beaker was also probably locally manufactured as its chemical composition is C-1. Another example is vessel Q.027/171.12, which has a beaded folded rim, forming a tube, with a hole inside; it is folded over the front of vessel. This is of the variant C-3 fabric.

Subtype 1.2 (diagonal to vertical ridges)

These vessels are characterised by wide diagonal ridges that tend towards a vertical position, the decoration sloping towards the outward flaring rim of the vessel, but terminating some distance from it, leaving an undecorated field under the rim area (*e.g.* Q.027/154.1 and Q.027/171.8). These types are also likely of local production both having a C-1 composition.

Type 2 (Medium ridges)

Medium spaced diagonal ridges are a distinct type of the wider diagonal moulded vessel decoration that are between 6 and 7 mm in width (Fig. 13:37; Table 13:27).

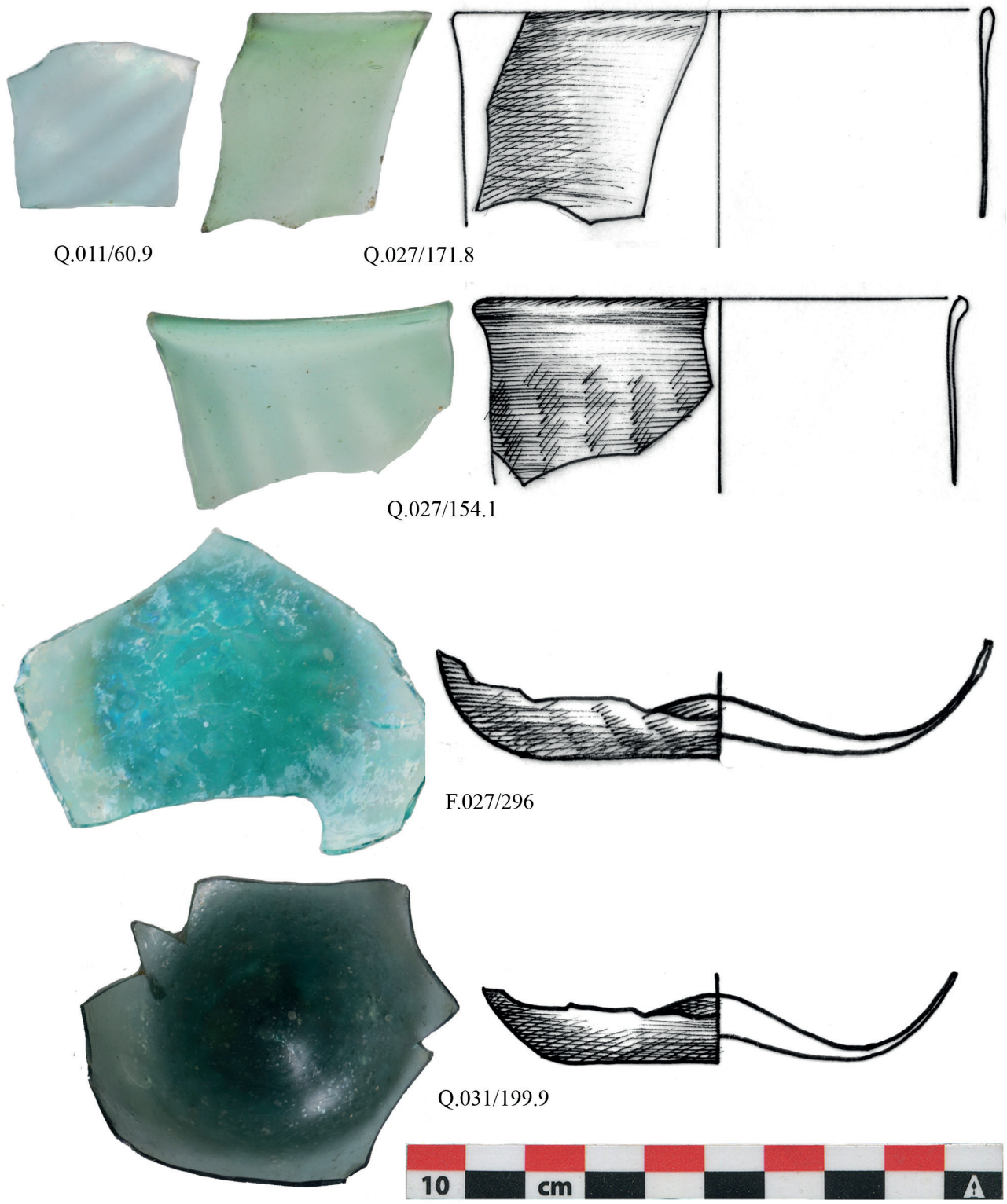


Fig. 13:36: Beakers decorated with wide diagonal moulding.

Table 13:27: Medium diagonal moulding.

Medium diagonal moulding	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Type 2 medium diagonal ridges; F.070/649	1	5a	5a	F.070	C-1
Vessel 2, Type 2 medium diagonal ridges; Q.011/99.10	1	7b	7b	Q.011	C-1
Vessel 3, Type 2 medium diagonal ridges; Q.037/323.1	1	7b	7b	Q.037	C-1
Vessel 4, Type 2 medium diagonal ridges; Q.134/846	1	3a-6b	3a-6b	Q.134	C-1
Vessel 5, Type 2 beaker base; F.037/249	1	5a-b	5a-b	F.037	n/a
Vessels 6 and 7; F.022/400; F.003/470	2	5b-c	7a-b	F.022; F.003	n/a
Vessel 8, Type 2.1 folded beaded rim; Q.031/199.8	2	3d-5b	3d-5b	Q.031	C-1
8 rims (c. 5 vessels)	8	3a-5a	7b	F.070; Q.001; Q.027; Q.031; Q.032; Q.047; Q.058; Q.074	n/a
12 groups of side fragments (c. 3 vessels)	15	3a-5a	5c-7b	F.070; F.119; Q.002; Q.027; Q.028; Q.031; Q.032	n/a
Total Minimum Vessels: 16	**Total Fragments: 32**	**Earliest production phase: (3a-)5a**	**Latest circulation phase: 5c-7b**	**Number of contexts: 17**	**Chemical Compositions: C-1**

Typically, the vessels in question are beakers and the moulding finishes before the rim, forming a smooth strip around the top of the item (*e.g.* Q.065/452.3). One such beaker has been found at Dargavs, in Catacomb 19.[78]

The rim of beaker Q.134/846 has a flattened solid rim. Vessel F.070/649 has a small push upon the pontil, so the entire profile of this type can be constructed from base to rim. The fabric is light blue or turquoise to colourless, with a few small to medium bubbles and often with a cloudy finish (*e.g.* Q.011/99.10 and Q.160/1084.2). The majority of the examples are in C-1 composition. These vessels were likely made in the territory of medieval Georgia.[79]

Subtype 2.1 (folded beaded rim – medium diagonal ridges)

Fragment Q.031/199.8 forms a subtype of the medium diagonal ridge with a folded rim. This example is of a turquoise to green colour, transparent with visible bubbles. The rim has been pushed in and then folded back over the outside of the vessel to form an inner tube and a rim in quite high relief.[80]

13.7.7.10. Diagonal ribbing

Type 3

The final type of diagonal moulding attested in the assemblage is characterised by its small ridges, less than 6 mm in width, which form a ribbed decoration (Fig. 13:38; Table 13:28). Several bases in this type are extant (*e.g.* F.092/1271.1 and Q.031/374.1) and display a high push up on the pontil; the fabric is now cloudy, covered in striation marks and contains a few small to very large sized bubbles. One sampled rim piece (in close set diagonal ribbing) is of an unusual shape perhaps worked to create a lip for pouring, or perhaps it was melted into this shape later on for a different purpose. This vessel, F.070/595.2, has medium to thin ribs that run top right to bottom. The turquoise fabric is a little cloudy and potentially corroded, with a few small to medium sized bubbles. Striation marks can be seen on the surface.

All of these vessels and subtypes below belong to chemical composition group C-1 (with a few C-3) and so are likely to be of local manufacture. A possible parallel for the diagonal ribbed decoration is a beaker from Dargavs' Catacomb 47, decorated with diagonal ribbing

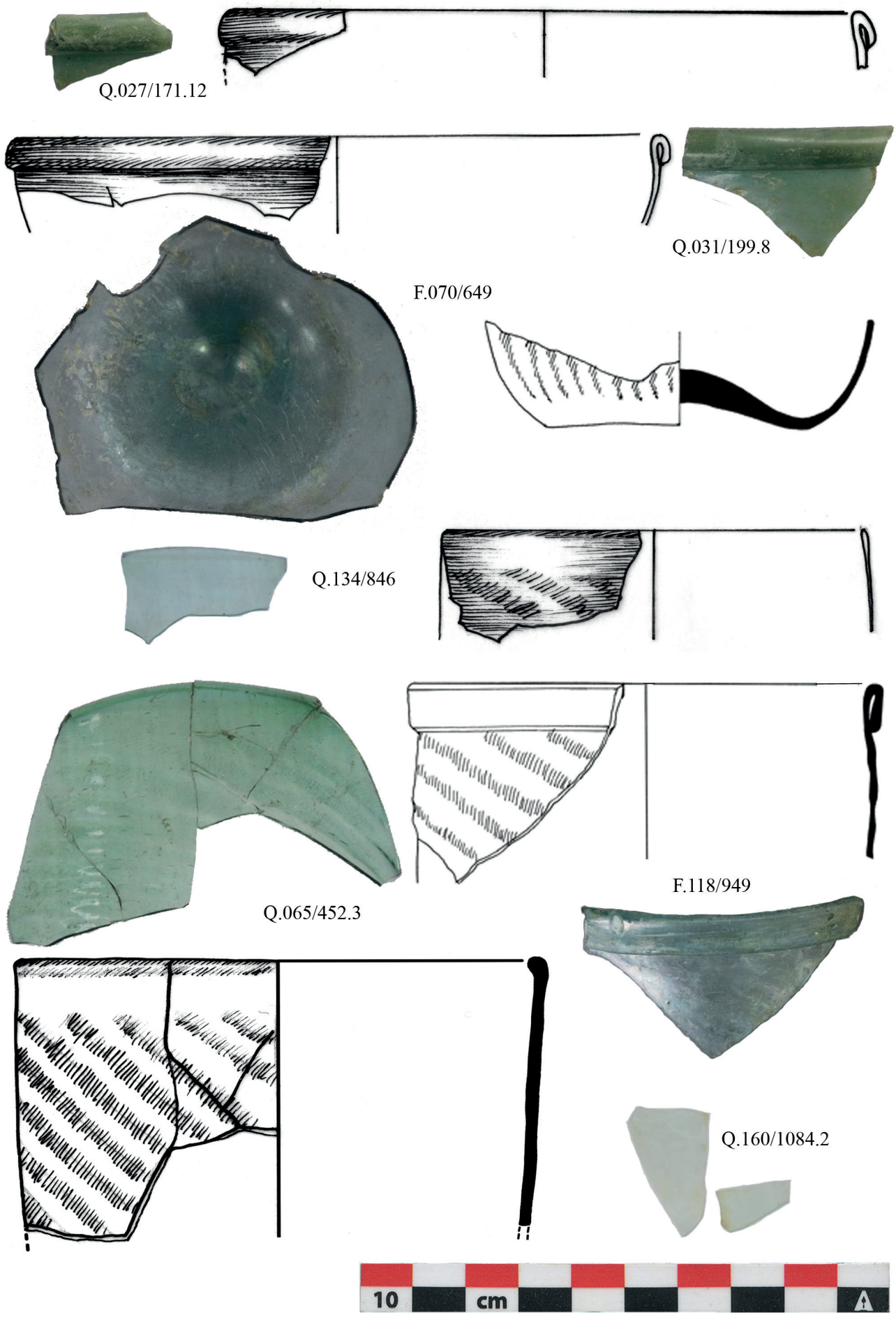


Fig. 13:37: Beakers decorated with medium diagonal moulding.

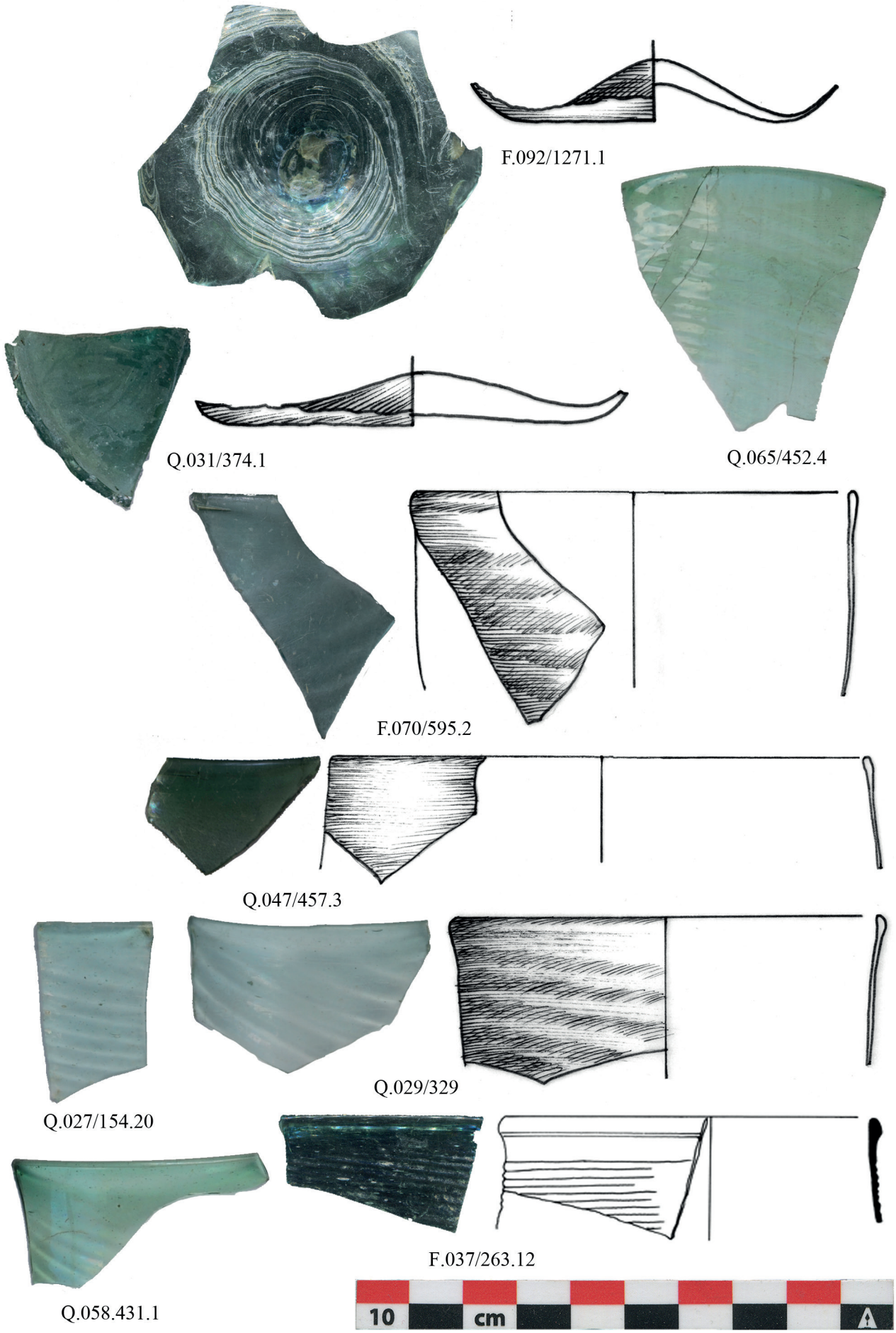


Fig. 13:38: Beakers decorated with thin diagonal moulding and ribbing.

Table 13:28: Thinner ridges.

Thinner ridges	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Type 3 thin diagonal ridges; F.070/595.2	1	5a	5a	F.070	C-1
Vessel 2, Type 3 thin diagonal ridges; F.092/1271.1	1	5a	5a	F.092	C-1
Vessel 3, Type 3 thin diagonal ridges; Q.031/374.1	1	3d-5b	3d-5b	Q.031	C-1
Vessel 4, Type 4 diagonal ridges, beaker with beaded rim; Q.065/452.3	5	5b (with redeposited 4–5a material)	5b	Q.065	C-3
Vessel 5, Type 3.1 diagonal to horizontal; Q.020/128.1	1	5b-7b (with redeposited 4–5a material)	5b-7b	Q.020	C-1
Vessel 6, Type 3.1 diagonal to horizontal; Q.027/171.2	4	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 7, Type 3.1 diagonal to horizontal, beaded rim; Q.065/452.4	5	5b (with redeposited 4–5a material)	5b	Q.065	C-3
Vessel 8, Type 3.1 diagonal to horizontal; Q.047/457.3	1	5b (with redeposited 4–5a material)	5b	Q.047	C-3
1 vessel, base; Q.031/184.6; Q.042/334.2	2	3d-5b	5b (with redeposited 4–5a material)	Q.031; Q.042	n/a
3 vessels, rims; Q.027; Q.29/329; Q.032; Q.043	4	3a-5b	5a-b	Q.027; Q.029; Q.032; Q.043	n/a
5 vessels, walls; Q.008; Q.010; Q.027; Q.031; Q.045; Q.047; Q.049; Q.166	23	3d-5a	5b	Q.008; Q.010; Q.027; Q.031; Q.045; Q.047; Q.049; Q.166	n/a
Total Minimum Vessels: 17	**Total Fragments: 48**	**Earliest production phase: (3a-)5a**	**Latest circulation phase: 5b-7b**	**Number of contexts: 16**	**Chemical Compositions: C-1; C-3**

Table 13:29: Horizontal ribbing.

Horizontal ribbing	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Type 4 – horizontal ribbing; F.037/263.12	1	5a-b	5b	F.037	C-1
Vessel 2, rim; F.027/275.2	1	5c-6b	5c-6b	F.027	n/a
Vessel 3, rim; F.037/263.1	1	5a-c	5a-c	F.037	n/a
Vessel 4, rim; F.070/595.3	1	5a	5a	F.070	n/a
Vessel 5, rim; Q.011/99.3	1	7b	7b	Q.011	n/a
Vessel 6, rim; Q.027/171.6	1	5b	5b	Q.027	n/a
Vessel 7, rim; F.001/412	1	7b	7b	F.001	n/a

(Continued)

Table 13:29: (Continued)

Horizontal ribbing	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 8, base; Q.134/876.2	2	3a-6b	3a-6b	Q.134	n/a
4 Vessels, wall sherds, Contexts; F.016; Q.005; Q.027; Q.085; Q.166	6	5a	5c-6b	5 contexts	n/a
Total Minimum Vessels: 12	**Total Fragments: 15**	**Earliest production phase: (3a-)5a**	**Latest circulation phase: 5c-7b**	**Number of contexts: 11**	**Chemical Compositions: C-1**

Table 13:30: Diagonal net and thin ribbed moulding.

Diagonal net and thin ribbed moulding	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Type 5 diagonal net; F.022/161	1	5b-c (redeposited 5a material)	5b-c	F.022	C-1
Vessel 2, Type 5 diagonal net; F.077/633	1	5a	5a	F.077	C-1
Vessel 3, Type 5 diagonal net; F.070/668	1	5a	5a	F.070	C-1
Vessel 4, Type 5 diagonal net; Q.032/280.1	7	3a-5b	3a-5b	Q.032	C-1
Vessel 5, base; Q.042/334.1	1	5b	5b	Q.042	n/a
Vessel 6, Type 5.1 – diagonal net with applied rim; F.037/510	1	5a-b	5a-b	F.037	C-1
10 vessels, wall fragments; F.027; F.063; F.070; F.094; F.118; F.128; F.US; Q.027; Q.031; Q.046; Q.054	26	3d-4	5c-7b	10 contexts and US	n/a
3 vessels, rims; F.063; F.070; F.104; F.118; Q.001; Q.027; Q.029; Q.031/199.1	14	3d-5a	5c-7b	8 contexts	n/a
Total Minimum Vessels: 19	**Total Fragments: 52**	**Earliest production phase: (3a-)4**	**Latest circulation phase: 5c-7b**	**Number of contexts: 18**	**Chemical Compositions: C-1**

running from the top right to the bottom left of the vessel. A similar shaped beaker is also found in Derbent.[81] Furthermore, fragment Q.029/329 has a close parallel in Armenia with a defined rim but with deeper and larger, more pronounced ridges.[82] This vessel form is also attested at Dargavs, in Catacomb 15.[83]

13.7.7.11. Diagonal to horizontal ribbing

Subtype 3.1

A subtype of this decoration is diagonal ribbing which turns partly into horizontal ribbing. These vessels have very fine ridges which create the ribbing effect, and the vessel fabric is quite clear but some bubbles appear in a few of the examples (*e.g.* Q.047/457.3).

13.7.7.12. Horizontal ribbing

Type 4 Beaker

A beaker with horizontal ribbed moulded decoration is also attested in the assemblage. Fragment F.037/263.12, for example, is a beaker rim with a finely ribbed exterior (Table 13:29). The ribs are almost horizontal with a slight slant between top left and bottom right. The beaker was manufactured in a turquoise to light blue fabric which contains few to medium bubbles of varying size. The

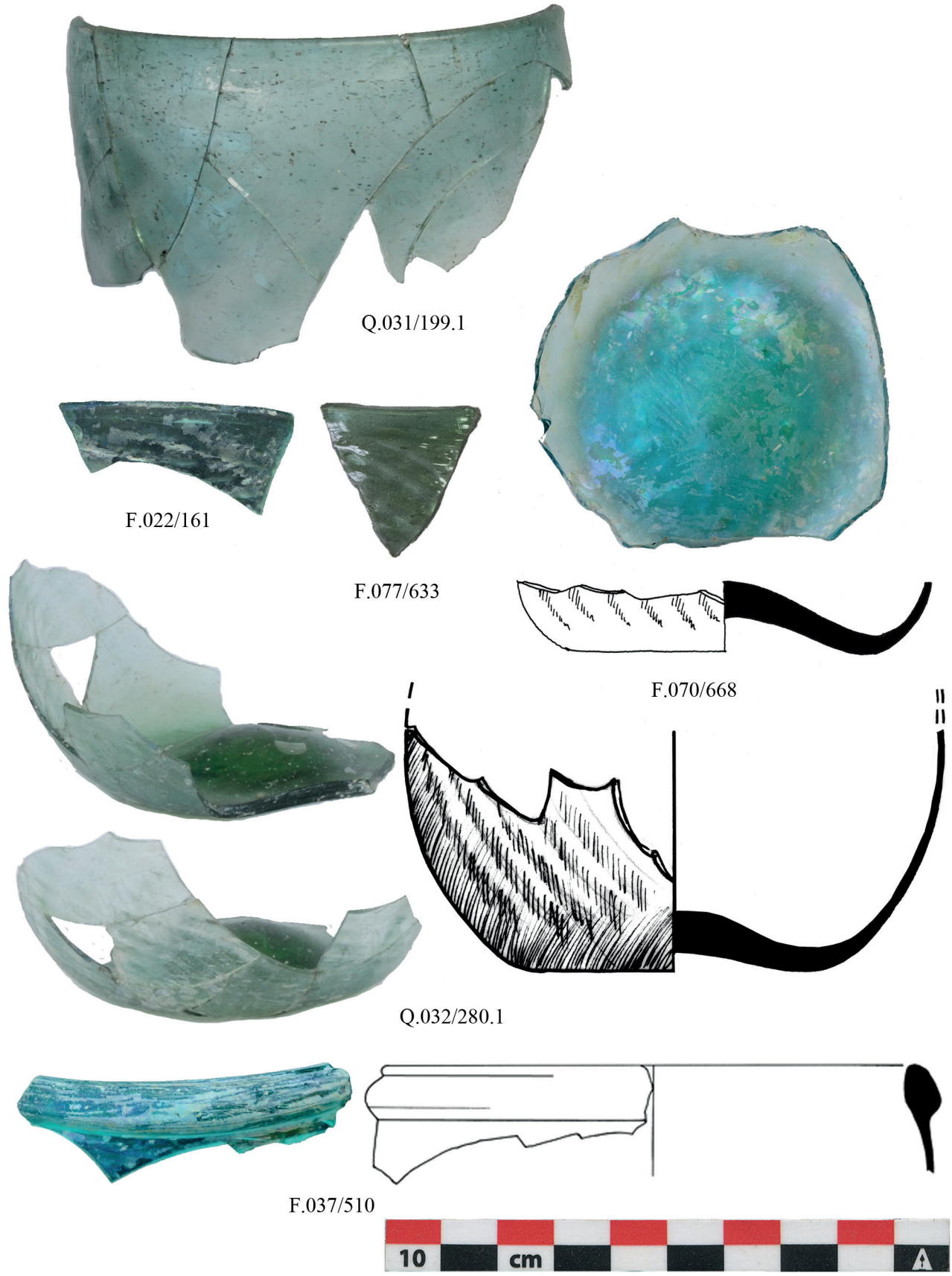


Fig. 13:39: Beakers decorated with diagonal net moulding.

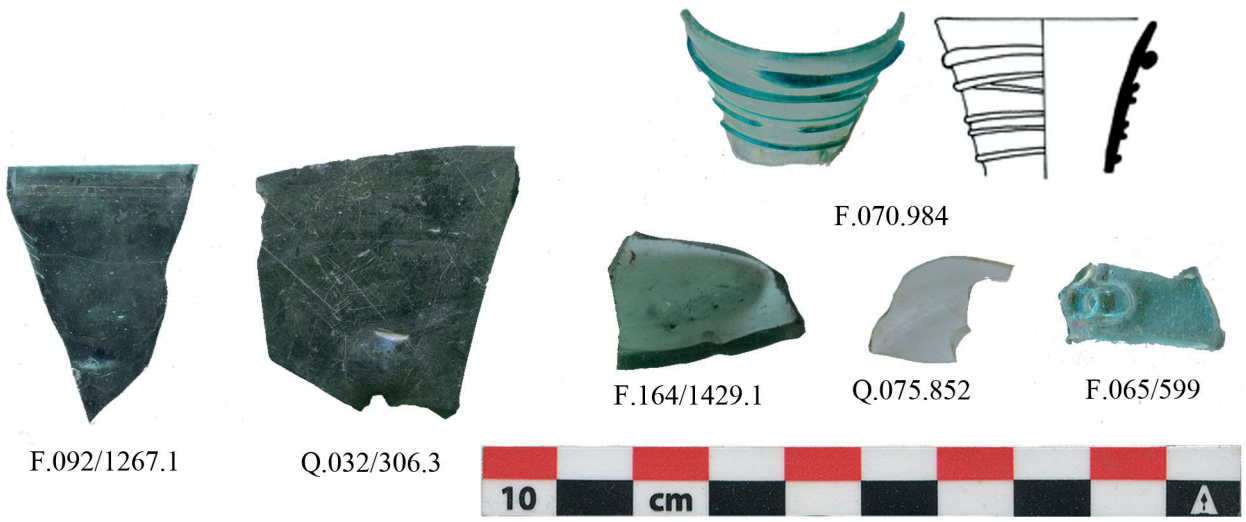


Fig. 13:40: Other decorated vessels in BG-1 fabric.

Table 13:31: Other types of moulding.

Other types of moulding	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, small circular mouldings; F.065/599	1	5b-c	5b-c	F.065	B-5
Vessel 2, beaded rim of a beaker with a moulded prunt; Q.032/306.3,	1	3a-5b	3a-5b	Q.032	C-1
Vessel 3, beaker with a possible applied prunting; F.092/1267.1	1	5a	5a	F.092	C-1
Vessel 4, Base fragment, light blue fabric with pronounced moulding; F.164/1429.1	1	5a-b	5a-b	F.164	n/a
Vessel 5, moulded part of vessel, possibly the neck or base; Q.075/852	1	5b-7b	5b-7b	Q.075	C-1
Total Minimum Vessels: 5	**Total Fragments:** 5	**Earliest production phase: (3a-)5a**	**Latest circulation phase: 5b-7b**	**Number of contexts: 5**	**Chemical Compositions: B-5; C-1**

fabric is transparent with a pearlescent glimmer and of a local C-1 composition.

13.7.7.13. Diagonal net ribbing

Type 5 Diagonal net moulding

Another form of optical mould used for the manufacture of glass vessels produced a diagonal net decoration (Fig. 13:39; Table 13:30). This can be identified by the small bumps and closely-knit honeycomb pattern that the mould produced. The fabric of beakers in this style belongs exclusively to the group C-1 chemical composition. It tends to contain patches of iridescence with small to large bubbles of even distribution. The fabric colours range between green and blue.

Chkhat'arashvili provides an excellent parallel for beakers decorated in this style which dates between the ninth and tenth centuries.[84] According to Ugrelidze, these vessels were intended for export. Such an example can be seen in the assemblage of Catacomb 15 at Dargavs,[85] and further comparanda are the Uzbekistani beakers from Afrasiab dating to the tenth century,[86] and a parallel from Armenia.[87]

Type 5.1 Subtype with applied rim

One example with diagonal net moulding, F.037/510, is part of jar with a very thick applied rim and a ridge around its circumference. The turquoise to light blue fabric is rough in texture with striation marks, now cloudy with

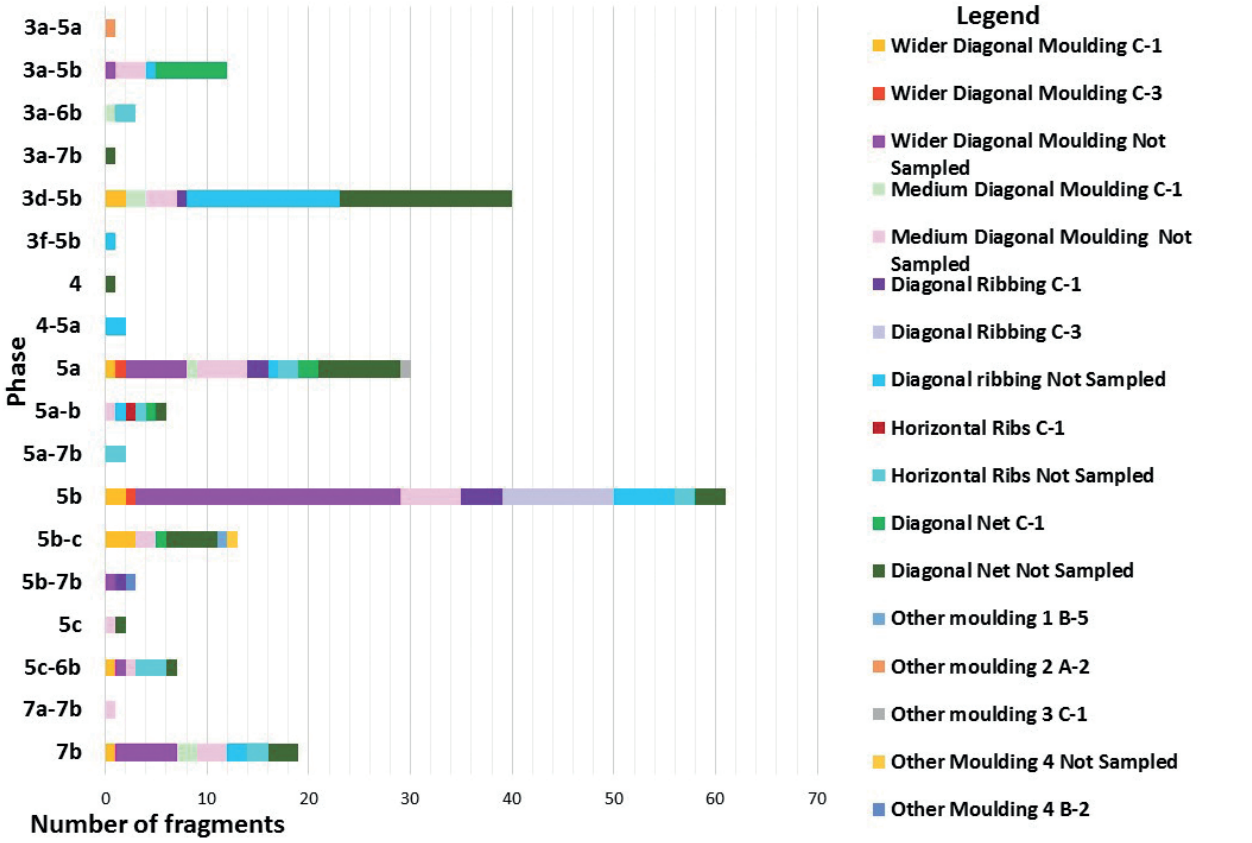


Fig. 13:41: Circulation of vessels in BG-1 fabric with moulded decoration.

a milky corrosion layer; it contains small to very large bubbles in an uneven distribution (most of these and the larger ones are in the reworked rim).

13.7.7.14. Others (Fig. 13:40; Table 13:31)

Circular moulding

A fragment of an unknown vessel type shows three small protruding circles. The fabric of this piece (F.065/599) is of a very clear turquoise to light blue colour. This was probably pressed into a mould. The B-5 chemical composition of this fragment suggests it was manufactured in the Levant or Anatolian region, or elsewhere in the Caucasus.

Beaker (Moulded Prunting)

Fragment Q.032/306.3 is a piece of a beaker rim, in a light green colour. It has been decorated with a small lump, or prunt, near to the beaded rim, likely part of a mould. A similar piece, F.092/1267.1, was manufactured in material of a turquoise to light blue colour that is now cloudy with striation marks on the surface; it contains frequent small to large bubbles. This fragment has a beaded rim (slightly flattened on the top) and the raised lump (perhaps applied) is near to the rim as in the first example. Both vessels are in the C-1 fabric and are probably locally made. These are securely attested in phases 5a-b respectively, and so likely circulated between the eighth and ninth centuries.

Others

Two other pieces (F.164/1429.1 and Q.075/852), given in Table 13:31 above possibly include moulded areas but it is difficult to discern their typology with any certainty. The latter example is also of C-1 composition.

Circulation of moulded thin blue-green glass

As can be seen in the graph (Fig. 13:41), the earliest circulating type of moulded decoration in this fabric is the diagonal net pattern (dating to phase 4, mid-seventh or early eighth century) followed by diagonal ribbing, coming in from the mid-late seventh or eighth century, with the various types of plain diagonal moulding, and horizontal ribbing, circulating from around the eighth century onwards. The ribbing and net patterns are also found in high numbers in less well stratified contexts, so too are medium diagonal ridges. All types are attested until at least the ninth century. It is likely that most types were manufactured locally, perhaps with a view to export, and indeed we see many examples further afield.



Fig. 13:42: BG-1 vessels decorated with pinching, including bases and melted fragments.

Table 13:32: Applied decoration.

Applied decoration	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Bottle with applied decoration; F.070/984	1	5a	5a	F.070	C-1
Total Minimum Vessels: 1	**Total Fragments:** 1	**Earliest production phase:** 5a	**Latest circulation phase:** 5a	**Number of contexts: 1**	**Chemical Compositions: C-1**

Table 13:33: Pinched decoration.

Pinched	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Melted beaker, folded in on itself; Q.027/171.23	2	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 2, Very small pinched decorated beaker; Q.027/276.1	1	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 3, Beaker with large pinching and greenish colour; Q.043/359.7	3	5b (with redeposited 4–5a material)	5b	Q.043	C-3
Vessel 4, Base in greenish fabric; Q.043/359.8	1	5b (with redeposited 4–5a material)	5b	Q.043	C-3
Vessel 5, Very large base with part of a pinched decoration; F.035/325	1	5a-b	5a-b	F.035	B-3
Vessel 6, Very flat and large base with pinched decoration; Q.027/171.14	2	5b (with redeposited 4–5a material)	5b	Q.027	C-1
Vessel 7, Small beaker with several rows of pinched marking in horizontal bands; fragments of base and side; Q.062/435.3; Q.049/464.8.	4	3f-5b (with redeposited 4–5a material)	5b (with redeposited 4–5a material)	Q.062; Q.049	C-1
Vessel 8, Beaker, with beaded and slightly outward flared rim, slightly bulging in middle, traces of pinched markings towards middle/bottom of side; Q.049/464.2	4	3f-5b (with redeposited 4–5a material)	3f-5b	Q.049	C-1
Vessel 9, Flat and worn base of beaker, side with pinched markings; Q.049/464.7	4	3f-5b (with redeposited 4–5a material)	3f-5b	Q.049	C-1
Vessel 10, Bulging side fragment; F.037/263.4	1	5a-b	5a-b	F.037	C-1

(Continued)

Table 13:33: (Continued)

Pinched	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 11, Rim; Q.032/230.3	1	3a-5b	3a-5b	Q.032	n/a
Vessel 12,Small wall sherd of pinched glass; F.089/1623.1	1	5c	5c	F.089	C-1
Vessel 13, 5 pieces of melted pinched glass vessel/s; Q.011/60.11	5	7b	7b	Q.011	C-1
Vessel 14, A wall sherd with various pinch marks in a row; Q.011/99.8	1	7b	7b	Q.011	C-1
Vessel 15, A piece of pinched glass, wall sherd; Q.020/142.4	1	5b-7b	5b-7b	Q.020	C-1
Vessel 16, The flattened base of a beaker decorated with pinched design; Q.031/199.11	1	3d-5b	3d-5b	Q.031	C-1
Vessel 17, The base of a small beaker decorated with pinching, Fabric unworn; Q.063/439.4	1	5b (with redeposited 4–5a material)	5b	Q.063	C-1
Vessel 18, Base of a pinched vessel, greenish fabric; Q.031/199.12	1	3d-5b	3d-5b	Q.031	n/a
4 Vessels, Wall sherds.	41	3a-5b (mostly 5b)	5b-7b (mostly 5b)	**F.037;** Q.011; **Q.027;** Q.032; Q.043; Q.049; Q.054; Q.058; Q.062; Q.063: Q.US.	n/a
Total Minimum Vessels: 22	**Total Fragments: 76**	**Earliest production phase: (3a-)5b**	**Latest circulation phase: 5c-7b**	**Number of contexts: 14**	**Chemical Compositions: B-3; C-1; C-3**

13.7.7.15. Applied decoration

Bottle with trailed decoration

There is only one vessel in this fabric group with applied decoration; a bottle with a flared rim, F.070/984 (Table 13:32). The fabric is light turquoise to colourless with few bubbles. Trails are applied to the neck of the vessel in a thicker fabric of the same type and so appear in a darker turquoise colour. This vessel belonged to the compositional type, C-1 and so is probably of local Georgian manufacture.

13.7.7.16. Pinched decoration

Vessels decorated with pinching were recovered in large numbers from Trench Q (Figs 13:42–13:44; Table 13:33). This style of vessel likely comes to the site in the later eighth or ninth century as it is found frequently in the fill (*e.g.* Q.058, Q.062 etc.) of the large stone-lined pit (Q.176), but is not represented in well-stratified deposits of phase 5a or before. This type circulates until the tenth century at least, with the most frequently occurring contexts dating to the later eighth or ninth centuries (Q.027 in large numbers and in F.037). In one of the later well-stratified contexts where this decorated type is found, the vessels have been melted down (see especially Q.027/171.23 and Q.027/154.39). This implies that these vessels found a different use, perhaps as cullet rather than as drinking vessels, raising the possibility that some localised glass production was taking place on the site.

The two main types of pinched decorated vessel attested at Dariali are bottles and beakers. The beakers are

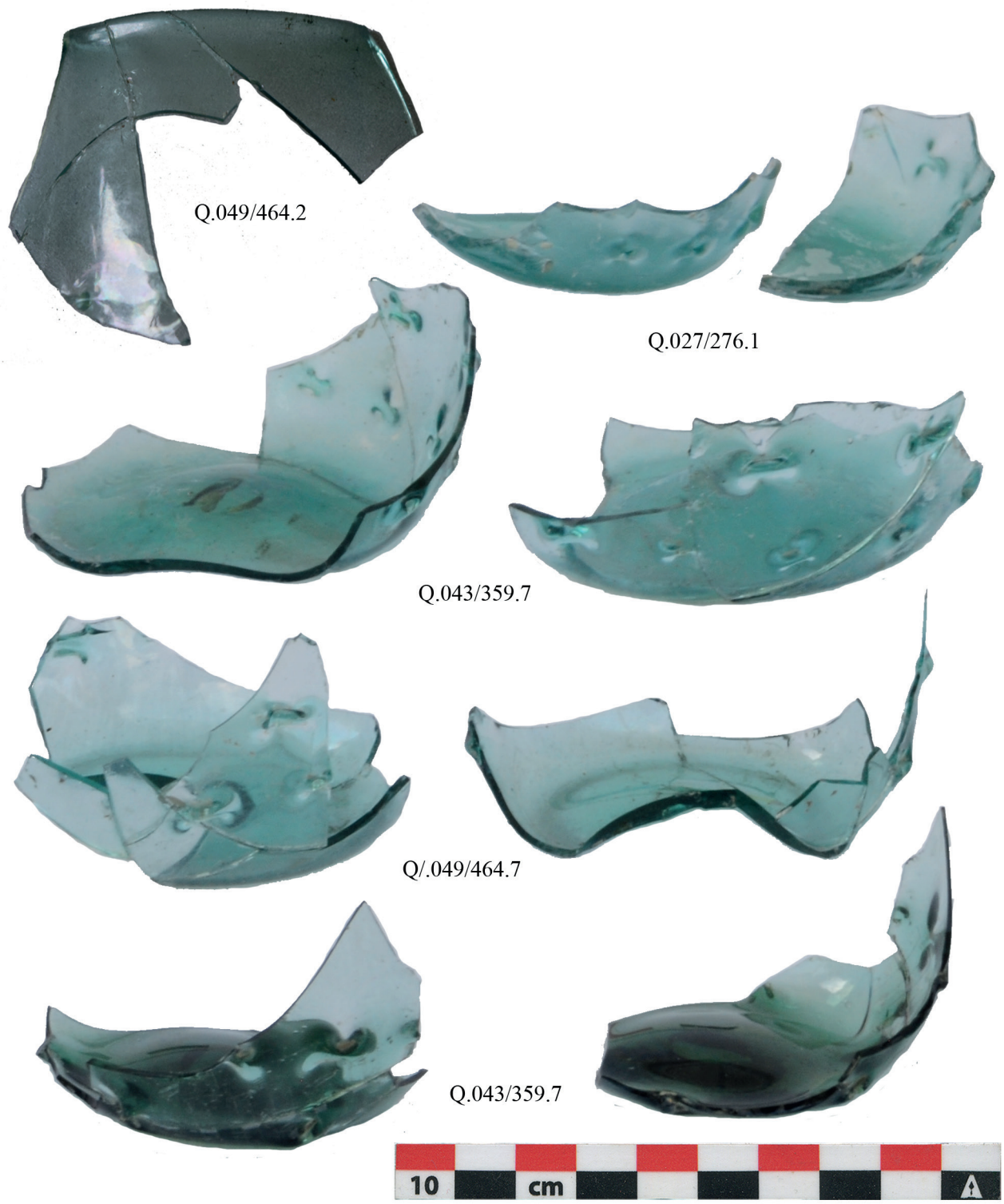


Fig. 13:43: BG-1 pinched beakers.

Table 13:34: BG-2.

BG-2	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, Bottle with tall neck and applied wavy band; F.104/871	1	5a	5a	F.104	C-1
Vessel 2, Body fragment; blue/green glass with a small applied ridge; F.016/573.1	1	5c-6b	5c-6b	F.016	n/a
Vessel 3, Fragment of base with possible applied decoration or moulding; F.112/957	1	5b-c	5b-c	F.112	n/a
Vessel 4, Two joining fragments with moulded exterior; blue/green fabric with no bubbles; F.027/275.6	2	5c-6b	5c-6b	F.027	n/a
c. 27 other vessels, represented in sides from 27 contexts.	226	3a-5a	5c-7b	F.001; F.022; F.027; **F.033;** F.035; F.036; **F.037; F.043;** F.046; F.092; F.100; F.114; F.169; F.170; **Q.011;** Q.014; Q.020; **Q.027; Q.031;** Q.032; Q.043; Q.045; Q.046; Q.047; Q.049; Q.062; Q.074	F.170/1466.1 = C-1
Total Minimum Vessels: 31	**Total Fragments: 231**	**Earliest production phase: (3a-)5a**	**Latest circulation phase: 5c-7b**	**Number of contexts: 30**	**Chemical Compositions: C-1**

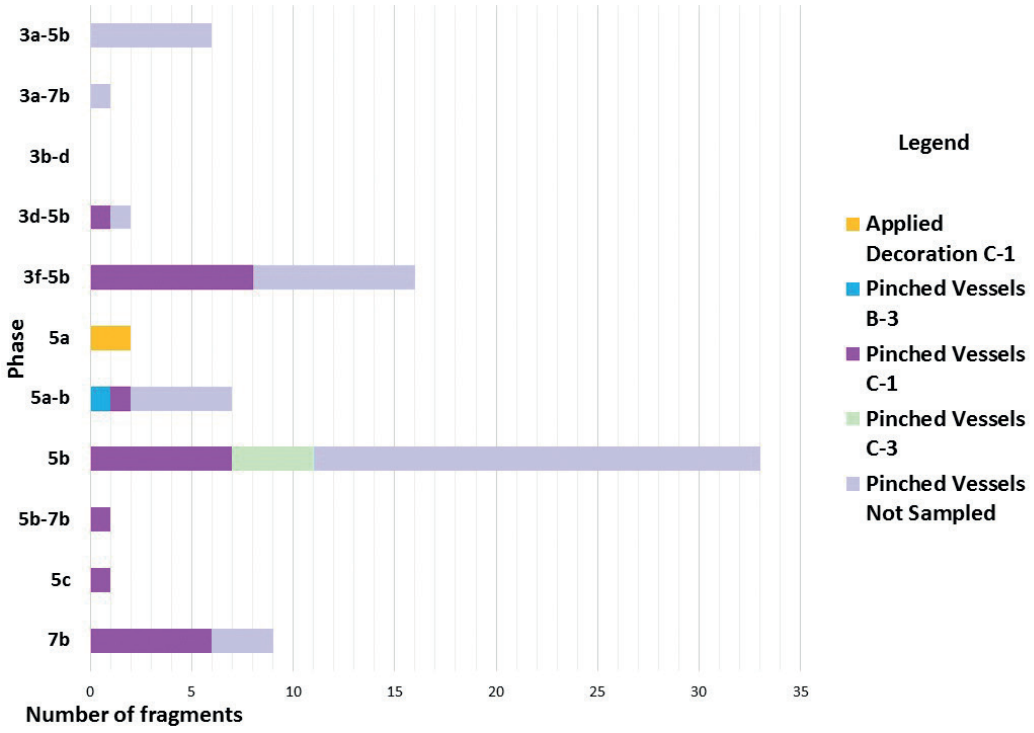


Fig. 13:44: Circulation of vessels decorated with pinching in BG-1 fabric.

found ranging from very small to large sizes. The fabric used for both these types of vessels is usually clear (*i.e.* there are not many bubbles present) and the bubbles are of a small to medium size. Many of these look unworn as if they have not been used much in Antiquity. However, some of the examples in this fabric now have a cloudy appearance, striation marks on the surface and are pitted on the surface with corrosion; this is presumably an effect of weathering. Most bases have a clear pontil mark on them showing that they have been shaped through blowing and the pontil broken off. The colour of the fabric is mostly turquoise blue to colourless but quite a few examples tend towards green, and a few are in a rather dark turquoise green shade (those greenish vessels are in a slightly different chemical composition – C-3 rather than C-1; there is also one B-3 item).

The pinched decoration itself was applied onto the completed blown vessel form with very small looped trails of glass. When hot, these blobs were then pinched to prevent the shapes from drooping which has also resulted in a slight thinning of the vessel wall where the manipulation of the applied glass has pulled on the surrounding structure. The inside of the vessel remains more or less flush. The pinched decoration itself is varied; some examples are delicate and small in execution, such as in Q.027/276.1 but in other cases they are much larger and a little haphazard, *e.g.* Q.027/154.34 and Q.011/99.8 (see also Q.043/359.7 and Q.043/359.8, including both horizontal and vertical decorations.). The latter two are in the variant composition (C-3), so are made of different material. The overall uniformity of decoration indicates, however, that the craftsmen likely belonged to the same workshop, though they may have been peripatetic, or experimenting using different combinations of raw materials for other reasons (lack of reliable supplies, etc.).

Bottles

At least two pieces likely belong to a bottle base (F.035/325 and Q.027/171.14). Bottles are the most prolifically attested type of pinched vessel found outside of Georgia;[88] one of these has quite a different chemical composition, B-3, and therefore this might have been made further afield and its form copied by local craftsmen, or as with C-3 examples above, it could be made in the same place with different fabric.

Beakers

The beaker shape is by far the most common form of pinched vessel found at Dariali, and it is found in various sizes from very small to rather large (Fig. 13:43). One fragment which includes the entire profile shows the beaker with a slightly beaded rim (Q.049/464.2). The smallest example is Q.027/276.1.

Similar pinched types of beakers are found at Tbilisi (dating to the eighth to ninth centuries) and Mtskheta (sixth-eighth centuries), the former closely paralleling the dating of the Dariali contexts.[89] One example is found in Catacomb 76 at Dargavs, so it is likely that such vessels travel through Dariali to the north.[90] Such vessels (from Umayyad and Abbasid-Fatimid contexts) have also been found at Jerusalem, at Ḥorvat Ḥermeshit, a factory dump in Jalame and Beth Shean. Jackson-Tal suggests this decoration is consistent with late Roman, Byzantine and Umayyad types of production.[91]

13.7.8. Blue green fabric 2 (BG-2)

This blue green coloured fabric is distinct from the former type as it is a much thicker material; it is associated most closely with the characteristic diagonal moulded bowl, discussed below. Other forms were identified in this fabric and these can be found in Table 13:34:

13.7.8.1. Overview (Fig. 13:45; Table 13:34)

Bottle

One distinctive bottle (F.104/871) was manufactured in a thick turquoise to light blue fabric of this type and has a wavy band applied around its long neck. This band was made in the same fabric as the rest of the vessel. The fabric is now a little cloudy in appearance, with many small to medium bubbles. A parallel for a long-necked bottle such as this can be found in Chkhat'arashvili.[92] Carboni published a similar piece in a different fabric (colourless with a greenish to brown tinge).[93] The body decoration of this example was made using a honeycomb mould and by applying another layer of glass over the initial vessel shape before re-blowing, called 'post-technique'. Carboni describes this type of glass as influenced by the Nishapur style.[94] The other vessel types in this fabric cannot be distinguished, but moulded decoration, perhaps similar to prunting, appears to be common. The two sampled pieces in this fabric are of C-1 composition, consistent with the moulded vessels below.

13.7.8.2. Diagonal moulding (Table 13:35)

Bowl

Two almost entirely extant bowls in this fabric were recovered, with one coming from an early phase of the site (phase 4 – mid- to late seventh century). These bowls are widely attested in Georgian glass literature and were blown into moulds made in several parts – following the Roman tradition. This can be discerned from the mouldings on the base, the relative thickness of the fabric and the relief of the decoration. The object was attached to the pontil after moulding in order that the rim could be reworked, and the pontil marking can be seen in the centre of the base. The most extant example of the two bowls (comprised joining fragments: F.094/758/F.094/670) is decorated with thick diagonal moulding running from

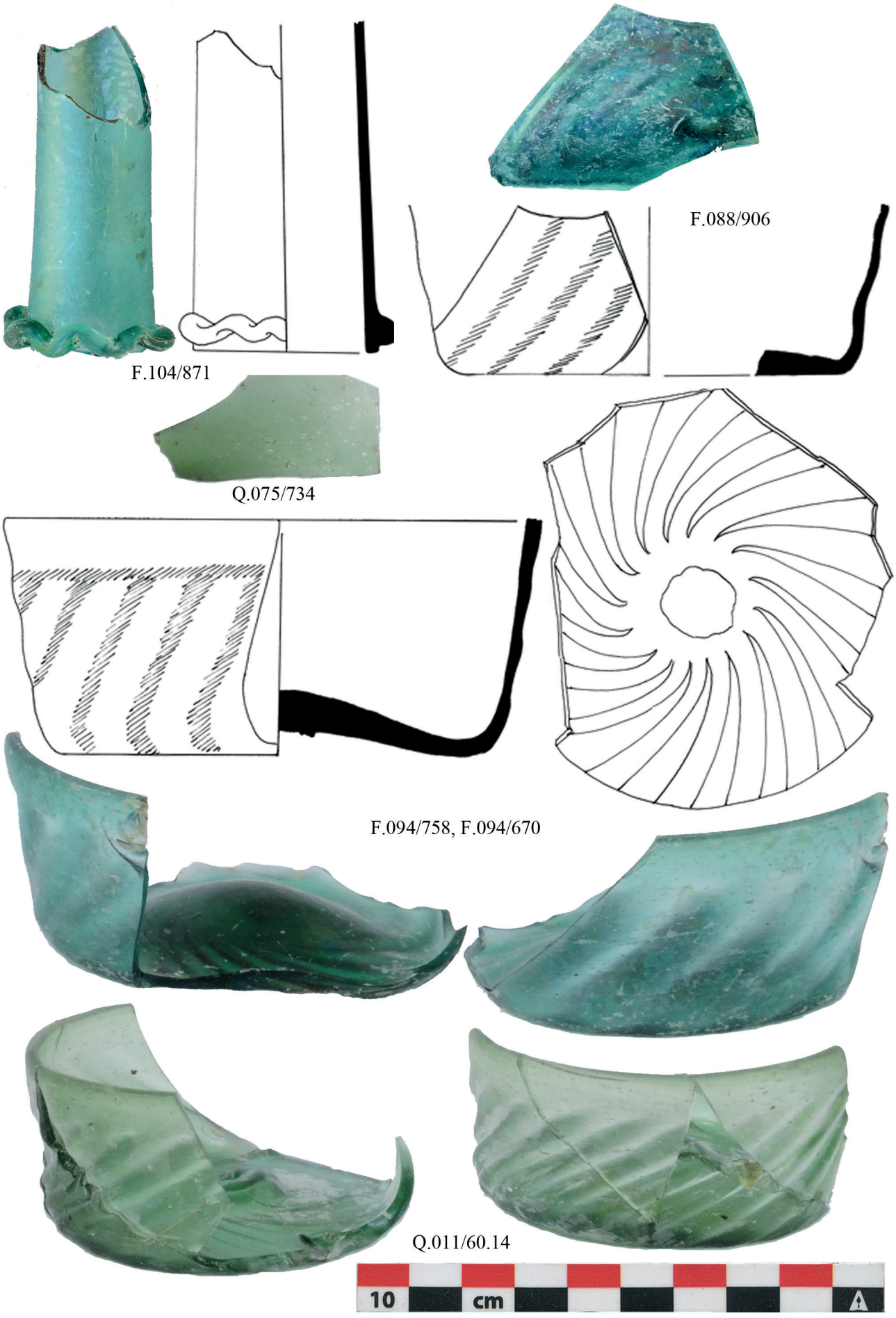


Fig. 13:45: Vessels in BG-2 fabric.

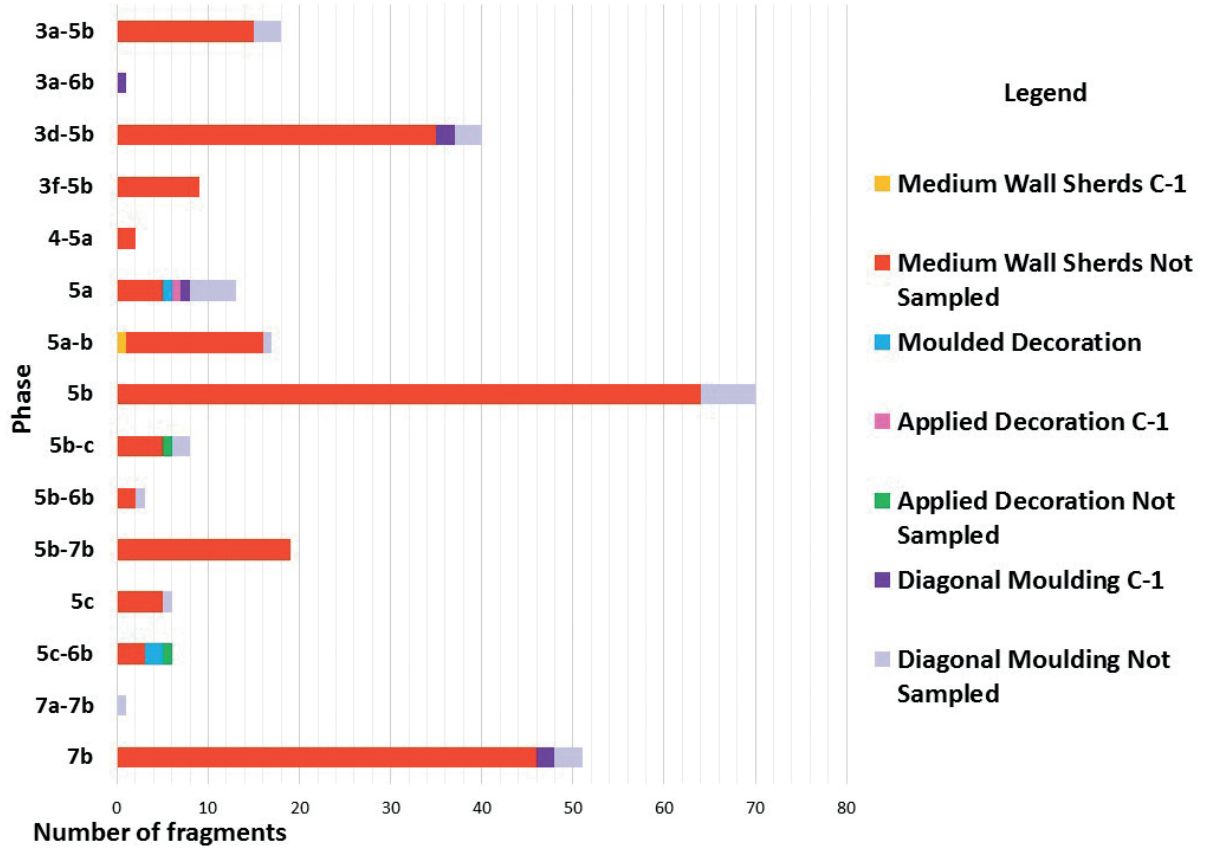


Fig. 13:46: Graph of Blue Green Fabric Type 2 (BG-2) Circulation.

Table 13:35: BG-2, Diagonal moulding.

BG-2, Diagonal Moulding	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, 3/4s of a diagonally moulded bowl in a darker green to turquoise colour with wider spaced diagonal ridges; F.094/758; F.094/670	2	4	4	F.094	C-1
Vessel 2, 3/4s of a diagonally moulded bowl in a light greenish fabric, the ridges are medium spaced; Q.011/60.14; Q.011/85.1	4	7b	7b	Q.011	C-1
Vessel 3, two sides of a bowl; Q.160/1084.2	2	5a	5a	Q.160	C-1
Vessel 4, Fragment of the base and side of a bowl with diagonal moulding; F.088/906	1	5b-c	5b-c	F.088	n/a
Vessel 5 and 6 sides of bowls in diagonal ridging; Q.075/734; F.178/1521.1	2	3c	5b-7b	Q.075; F.178	n/a
Total Minimum Vessels: 6	**Total Fragments: 11**	**Earliest production phase: 3c**	**Latest circulation phase: 5b-7b**	**Number of contexts: 6**	**Chemical Compositions: C-1**

top right to bottom left; the ridges stop rather short of the rim creating a flat area around the circumference of the bowl. The fabric is much thicker than the BG-1 discussed above; it is now a little cloudy in appearance and contains large frequent bubbles. It (at least no longer) is transparent but rather is translucent in the light. An example from trench Q (Q.011/60.14) is smaller but of identical manufacture and fabric type. The earliest specimen, from deposit F.178, dates to the time of fort construction in the late fourth to early fifth century. As with the other vessels above, all of the sampled pieces in this fabric were of C-1 composition, suggesting this is a locally produced fabric. This accords with examples of these bowls found in the Narikala Fort (Tbilisi) and dating between the eighth and ninth centuries, although evidence from our excavation indicates that these vessel types had an earlier circulation date.[95]

13.7.8.3. Overview

This fabric is characterised by its blue green colour and thickness. It is likely of local manufacture and the items made from it are probably a response to demands for products in the post-Sasanian/early Islamic style, supported by the relatively early date for the items (see Fig. 13:46). The diagonally moulded bowls are the most common vessel type but the bottle with the trailed neck is also distinctive.

13.7.9. Blue green fabric 3 (BG-3)

Fabric of this type is similar to the above material but it has a much bubblier composition (Figs 13:47–13:48). There are four main object types, given in Table 13:36:

Unguentaria/bottles

One of the bottles found in Dariali, fragment F.088/726 resembles an *unguentarium* of the Urbnisi type. The rim is very asymmetrical; the fabric is extremely bubbly and translucent but not transparent. The fabric of this item is in the B-3 compositional group, indicating that it is made in the Anatolian region, or perhaps locally with materials from that area. Moreover, this fabric type is the closest material to the *unguentaria* coming from Urbnisi (the type often called reliquary bottles) where they are found in vast numbers in cemeteries dating between the first and eighth centuries.[96] The bottles found in Urbnisi are likely to be of a Central Georgian manufacture.[97]

The other example (Q.037/279.1) represents an extant neck and rim of a small bottle (likely of a squat shape) with a short neck; the rim is a little rough in appearance and covers much of the central part. The fabric is very bubbly, and pitted; the bubbles are small to very large in size. The chemical composition of this bottle, A-2, is in keeping with typological parallels in the early Islamic vessels from Syria indicating that such small squat bottles were manufactured there.

Beaker (moulded)

Fragment F.112/1397.1 shows the profile from the rim to the base, decorated in a honeycomb net motif in a very low relief. This vessel was manufactured by dipping the glass into an optic mould and subsequently blowing it. The fabric colour is dark green to turquoise, and it is transparent, very shiny and unmarked; it contains small to very large bubbles. The fabric belongs to group B-3, and can therefore be compared

Table 13:36: BG-3.

BG-3	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 1, small squat bottle, for perfume or similar; Q.037/279.1	1	7b	7b	Q.037	A-2
Vessel 2, *unguentarium*; F.088/726	1	5b-c	5b-c	F.088	B-3
Vessel 3, side of a beaker with faint honeycomb moulding; F.112/1397.1	1	5b-c	5b-c	F.112	B-3
Vessel 4 or window pane, Thick bubbly glass with streaks of brownish green; X.004/16.1	1	5b-7b	5b-7b	X.004	B-5
c. 6 vessels, Sides; F.001, F.027, F.033, F.037, F.042, Q.094	12	5a-b	5c-7b	F.001; F.027; F.033; F.037; F.042; Q.094	n/a
Total Minimum Vessels: 10	**Total Fragments: 16**	**Earliest production phase: 5a-b**	**Latest circulation phase: 5c-7b**	**Number of contexts: 10**	**Chemical Compositions: A-2; B-3; B-5**

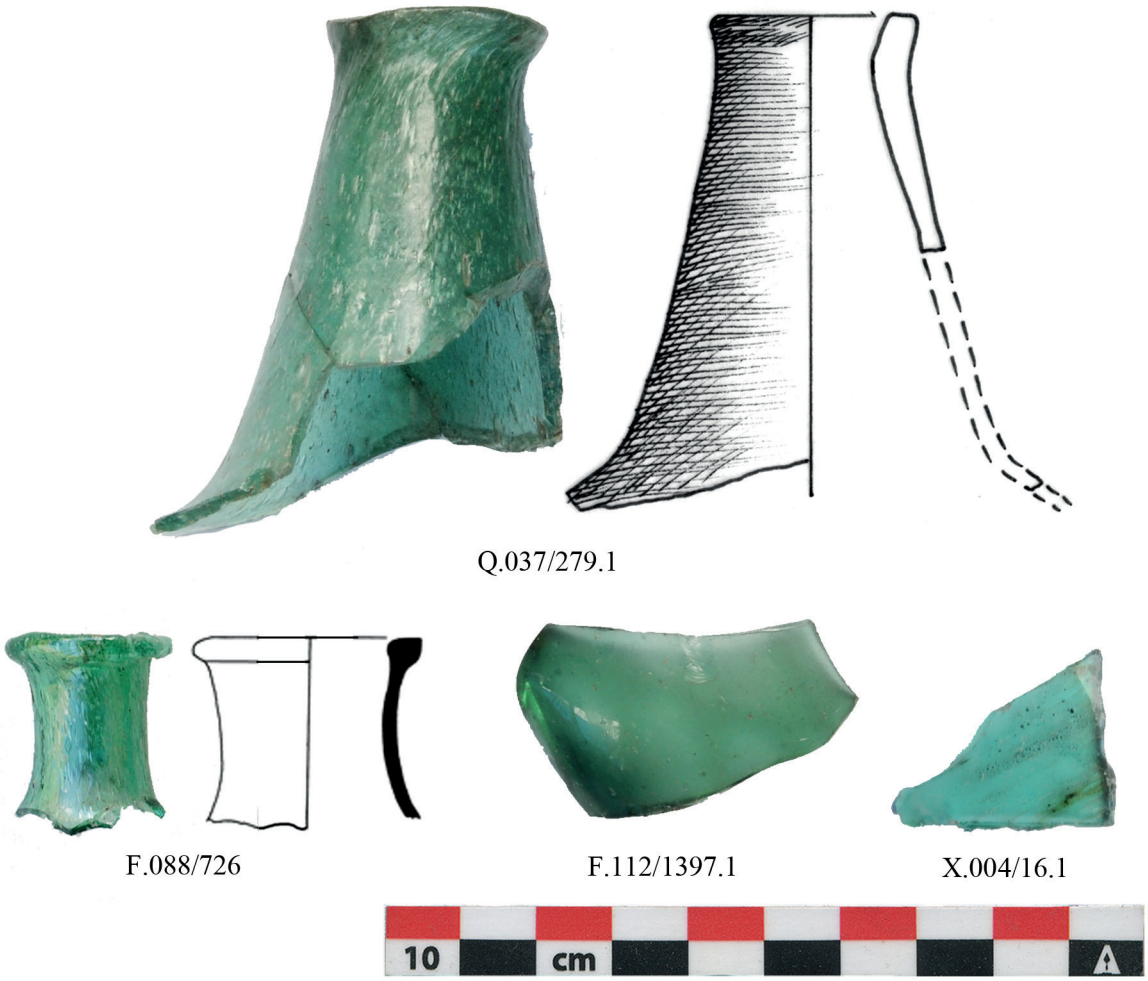


Fig. 13:47: Blue Green Fabric Type 3 (BG-3).

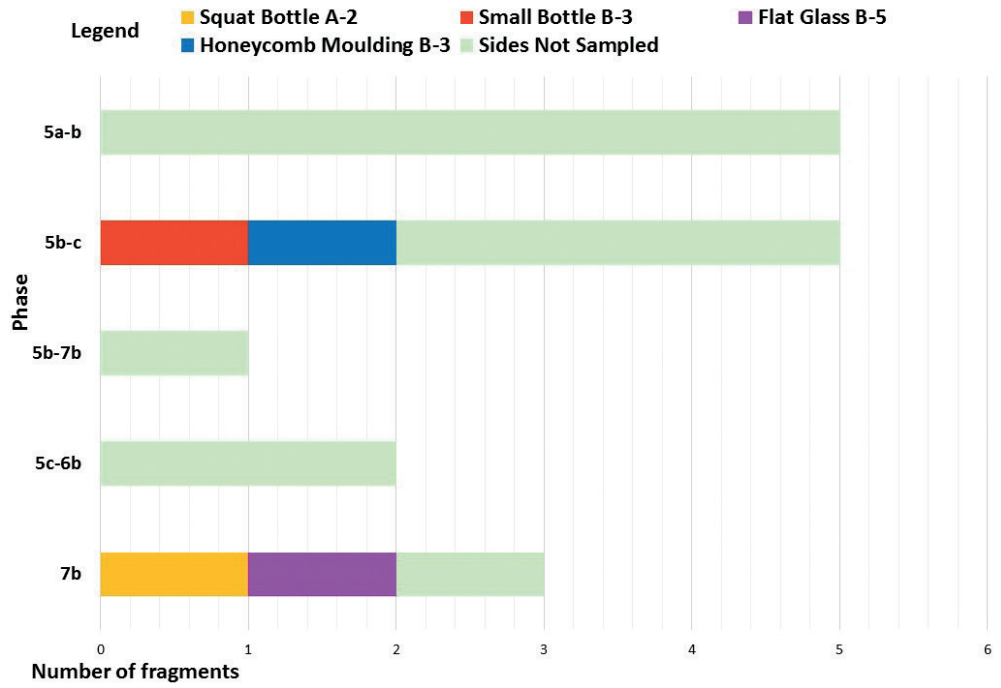


Fig. 13:48: Graph of Blue Green Fabric Type 3 (BG-3) Circulation.

compositionally to a similar-sized beaker in a brighter green bubbly fabric, also made in an optical mould of a similar type, but in higher relief. A good parallel, however, for this lower relief moulded decoration is a bowl in a cobalt blue colour, dated to the twelfth or thirteenth century but with no archaeological provenance.[98] An example of this decoration is also seen on a beaker in Dargavs Catacombs.[99]

Window glass

A final fragment (X.004/16.1) represents a very thick-walled vessel or potentially a piece of window glass. It was manufactured in a bubbly greenish fabric with streaks of brownish green, in a B-5 composition.[100] Overall these vessels fall into the period from the late seventh to tenth century (see fig. 13:48). None of those pieces sampled show the potentially local chemical composition of C-1. Therefore, these items were all probably imported from the Levant or Anatolia and the Syro-Palestinian areas.

13.7.10. Blue green fabric 4 (BG-4)

This fabric is a blue-green type (Fig. 13:49), but very thick and a little brittle or rough to the touch. Those vessels manufactured in it and listed below (Table 13:37) were manufactured following the Sasanian tradition of casting vessels and grinding them with a wheel; a style of decoration common to objects made from precious stone, rather than glass. Although not all of these vessels have extant ground decoration the thickness of the glass implies they have been made following this tradition, or for that purpose.

Bowls

Bowls following the Sasanian tradition of glass cutting and belonging to the post-Sasanian style are attested in the Dariali assemblage. These are all in a blue green fabric and appear broadly similar to the examples discussed above.[101] One fragment is a thick base of a bowl, F.078/648.2; the fabric is a dark greenish turquoise colour and now has a yellow-green patina (the chemical composition, A-2, confirms that this is an import). Another such example is part of a thick-walled bowl, F.089/782.1, with ground decoration on the surface. The fabric, which is light blue to colourless with heavy pearlescent corrosion, contains many medium-sized bubbles. The composition of this vessel is also of the A-2 grouping. These bowls were, therefore, likely manufactured for the post-Sasanian glass market but in the Syrian region.

Q.088/585.2 is also part of the base of a thick-walled bowl; the fabric is turquoise in colour, cloudy with striation marks but several small to large bubbles can be observed in it. This object belongs to the B-2 compositional group implying that it was produced in the Levant, Anatolia, or elsewhere in the Caucasus. It could also have been made specifically in the territory of medieval Georgia with fabric coming from those areas.

This final vessel, F.037/256, appears to have been decorated with a sequence of ground circles around its base and was made in the local C-1 fabric. This implies that post-Sasanian type vessels were produced in the local area probably to supply local demand for the products. It is also possible that these were exported but only comparisons of the chemical analysis of vessels with such decorations from Iraq, Iran, and elsewhere could determine the validity of this idea. All three of these vessels were cast, accounting for their thick walls, before being ground with a wheel. This vessel type dates between the seventh and eighth centuries and probably remained in circulation until perhaps as late as the tenth century (Fig. 13:50).[102]

Molar flask/small bottles

A fragment of a molar flask in this fabric can be compared to those mentioned in the colourless section of this work.[103] This example (F.172/1474.1) has been manufactured in a light green fabric which moves

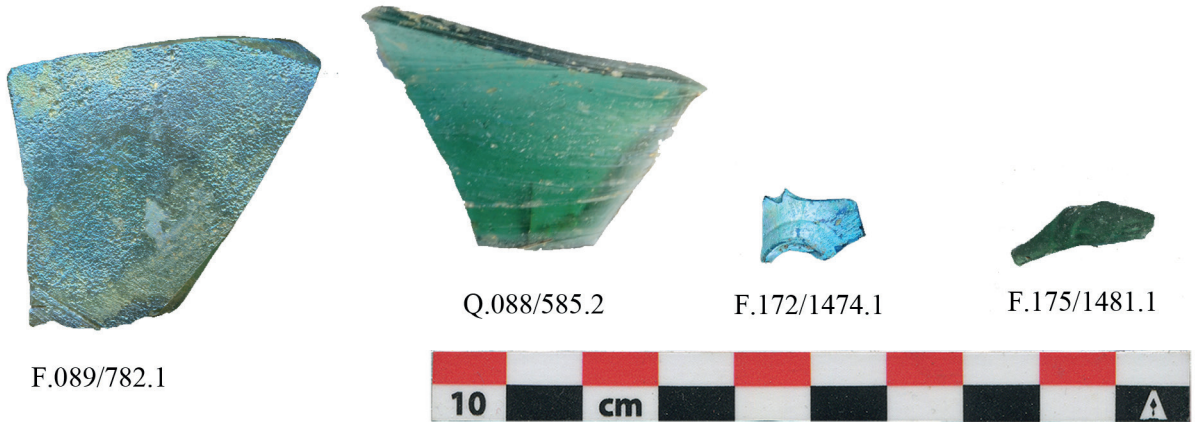


Fig. 13:49: Blue Green Fabric Type 4 (BG-4).

Table 13:37: BG-4.

BG-4	*Number of associated fragments*	*Begins in Phase*	*Extends to Phase*	*Contexts*	*Composition*
Vessel 2, thick bowl in a light blue fabric, with a large ground circle; F.089/782.1	1	5c	5c	F.089	A-2
Vessel 2, thick bowl in a light blue fabric, with a large ground circle; F.089/782.1	1	5c	5c	F.089	A-2
Vessel 3, part of a thick bowl; Q.088/585.2	1	5b-c	5b-c	Q.088	B-2
Vessel 4, possible base of a thick walled Sasanian-style bowl with ground circle around the base; F.037/256	1	5a-b	5a-b	F.037	C-1
Vessel 5, probable fragment of a molar flask; F.172/1474.1	1	3d-5b	3d-5b	F.172	A-2
Vessel 6, possible moulded part or base of a vessel in a thicker fabric; F.175/1481.1	1	3d	3d	F.175	B-3
5 vessels, sides; F.033; F.037; F.042; Q.142; X.004	5	3c-5b	5c-7b	F.033; F.037; F.042; Q.142; X.004	n/a
Total Minimum Vessels: 11	**Total Fragments: 11**	**Earliest production phase: 3d**	**Latest circulation phase: 5c-7b**	**Number of contexts: 9**	**Chemical Compositions: A-2; B-2; B-3; C-1**

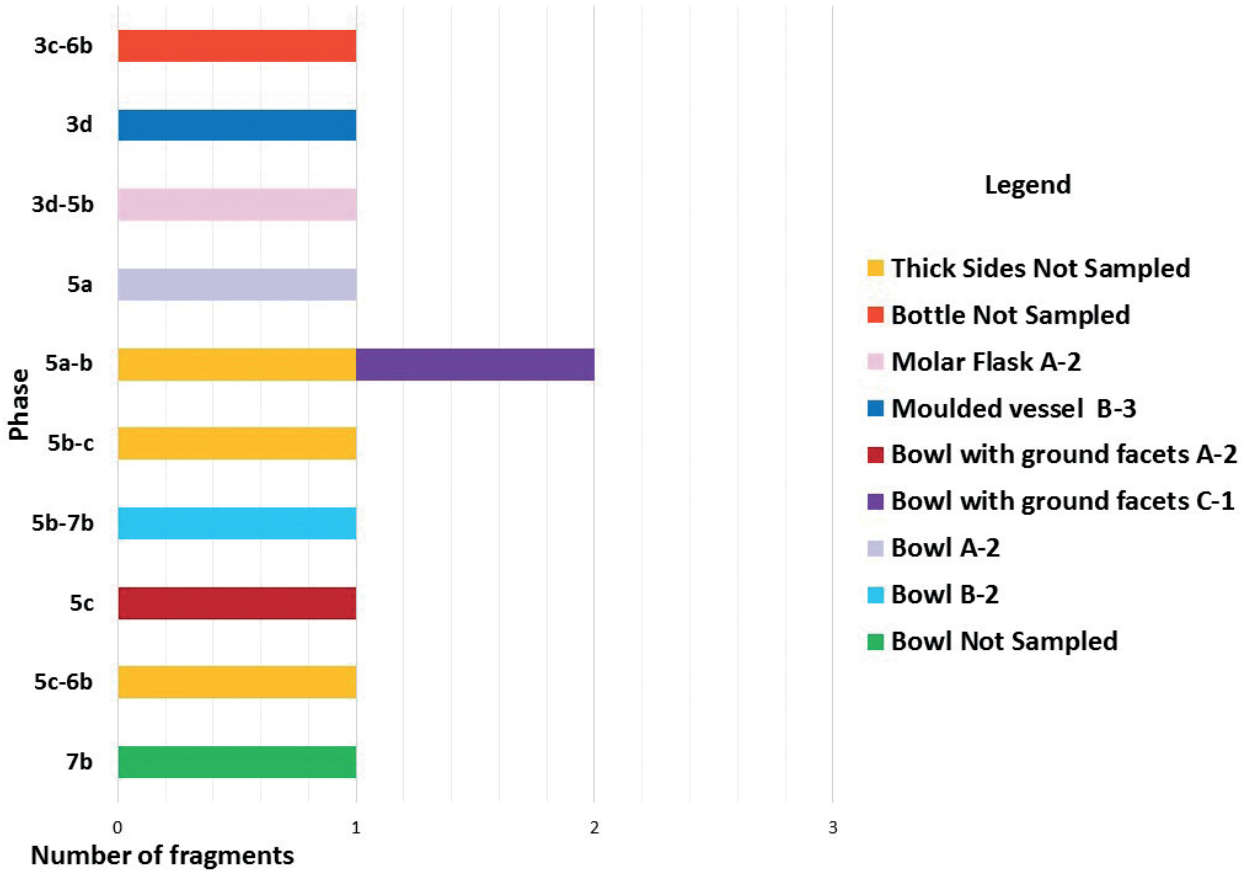


Fig. 13:50: Graph of Blue Green Fabric Type 4 (BG-4) circulation.

towards colourless, although it is unlikely to have been intentionally decoloured. The fabric is now covered in a blue pearlescent corrosion layer; it is now corroded and brittle and small frequent bubbles can be seen, pitting the surface. The fragment appears to belong to part of a very small flask, with cut or moulded decoration at the neck.

Fragment F.175/1481.1 is possibly also the base of small bottle with a decorated moulding, in a turquoise to green colour. The fabric is translucent with small to medium bubbles distributed throughout. The dating for this piece, like those made with the colourless fabric, is early. It is one of the few securely stratified pieces of glass, dating to the fifth to sixth centuries.[104] It is likely that the example cited at the beginning of this section, F.172/1474.1, is also early but it is not as well stratified. The deposit it comes from, however, probably contains some material from the 3d phase see Fig. 13:50 for the overview.

Overview

This fabric is characterised by its thickness and suitability for cutting or wheel grinding. It contains a noteworthy proportion of vessels from the early contexts of the Dariali excavations and is mostly characterised by post-Sasanian style vessels, imported and made locally or elsewhere in the Caucasus.

13.8. Conclusion

13.8.1. The Dariali assemblage in the context of vessel glass in medieval Georgia (fourth to fifteenth centuries AD)

The chronological spread of the types of vessel glass excavated at the Dariali Fort has implications for our understanding of glass trade and glass manufacture in ancient Georgia. Vessel glass was manufactured in the region from a very early period until the fourteenth century.[105] Glass vessel finds in Western Georgia (for example from Vani and Pichvnari) dating from the Achaemenid period and into the Hellenistic period, include imports from Iran, Syria and Egypt.[106] From the early Roman period and into the medieval period, glass vessels are found in high numbers from funerary contexts (mostly small bottles for perfume and other funerary/religious purposes); namely in the graves of Urbnisi, Rustavi and Samtavro where they occur from the second to eighth century onwards.[107] Between the eighth to ninth centuries a workshop in Orbeti is active and produced vessels for export, some of which are attested at Dariali and appear to be intended also for transport north of the fort.[108]

In the Georgian medieval period, very thick glass vessels, prepared by wheel grinding, are attested in various locations, but they are especially prominent at the site of Rustavi.[109] These vessels are in keeping with the Sasanian (third to seventh century) and largely with the post-Sasanian (seventh to tenth century) and Islamic (eighth to thirteenth century) glass manufacturing traditions of Iraq and Iran, and are thought to have been manufactured in Central Asia but, as postulated in the section above, these may have also been produced in the territory of ancient Georgia. It is also probable that vessels were imported from the Southern Caucasus and in particular from the Levant (Syria, Anatolia and manufacturing loci in the area of the modern state of Israel in particular). As discussed above, the vessels excavated at Dariali overlap with all of these production sites, and raw materials from these geographic areas appear to have been used indiscriminately, potentially in the same production locus, to make vessels of the same or similar forms and types.[110] These findings bring us closer to being able to understand the way glass was manufactured and circulated in this period from Egypt, the Levant, Anatolia, through the Caucasus to Iran and the Near East.

Furthermore, the seventh to ninth centuries AD, the period to which most of the Dariali assemblage belongs, is a particularly fascinating era in glass production in the Levant and surrounding areas, as the material source for the fabric changes, from a natron to a plant ash base. This most likely occurred as a result of the interruption of the supply of natron from Egypt.[111] Analysis of the chemical composition of key pieces from the Dariali vessel glass assemblage can, therefore, provide crucial insights into the manufacture and circulation of new and old fabric types. Evidence from the existing literature indicates that Georgian medieval glass is representative of the system Na2O-CaO-SiO2 and Chkhat'arashvili reports in her summary that of the 68 vessels sampled for her work the majority were of this composition and some of the items sampled contain a high alumina content.[112] Djanpoladian and Kalantrian report that the glass manufactured in Dvin in Armenia shows extensive use of obsidian and dolomite, especially between the fifth to sixth centuries, coming from the furnace of the palace at Dvin.[113] In the ninth to thirteenth centuries glass composition in Armenia contained a high aluminium content.[114] The authors contrast these findings with the glass of Georgia and the Near East which show a low alumina content.[115] The export items in question, two dark yellow bowls manufactured in Orbeti, can be compared to the fabric group discussed above: Black/Amber/Brown/Orange, subtype 3 (thick fabric) which is thought to have been locally produced.[116]

Overall, as we have seen, and as is revealed in the glass compositional report in the following chapter, the most commonly represented group in our assemblage is a natron-based fabric. In the context of the above, this is very exciting and shows that in medieval Georgia, glass factories, or at least the factories that produced the majority of glass vessels circulating in Georgia in this period, still had access to a natron source. If indeed the factories in question were operating in medieval Georgia, whereas others perhaps experienced difficulties to find raw materials, it would be no surprise that factories in Transcaucasia were flourishing and such places may even have attracted artisans from the former workshops, perhaps especially from elsewhere in the Levant.[117]

Georgian glass scholars Chkhat'arashvili, Ugrelidze and Bakht'adze have shown, through chemical and typological analyses, that a large number of glass vessels were manufactured in Georgia in the medieval period (which in Georgian historical tradition spans the fourth to seventeenth/eighteenth centuries AD). They focus not only on large scale production in urban centres, such as Tbilisi, Rustavi, Mtskheta and Dmanisi, but they also show that, particularly in the period between the eleventh and thirteenth centuries, glass manufacture also took place in smaller locations such as Carsani and Natbeuri, as well as at rural sites, as at Orbeti and at monasteries.[118] Chkhat'arashvili argues that after the fourteenth century glass production declined, only to revive again in the sixteenth century, now focused in the centres of Tbilisi, Gremi and Karagadzi.

It is significant that glass was produced in medieval Georgia in the highest numbers after the decline of activity at Dariali Fort around AD 1000. There is no archaeologically traceable activity at Dariali between the eleventh and thirteenth or fourteenth centuries, and it is thus unsurprising that no glass of this period reached the fort. That none of the finds at Dariali can be securely attributed to the Late Middle Ages may be a result of the site's reduced status, the temporary decline in imports of glass vessels into Georgia in favour of hyper-local production or perhaps an unknown factor that caused both phenomena.

Moreover, the chemical analysis of the Dariali glass assemblage elicits some interesting conclusions: primarily that the glass workshops of the territory of medieval Georgia, or surrounding areas, were a large producer of glass in a similar style to that was imported from Iran and Iraq, as well as the Syro-Palestinian region, and a great innovator (if it is the production location of the red opaque fabric, for example). It is in the eighth to ninth centuries that we see an explosion of the amount of glass in circulation at the Dariali Fort, a time when the Orbeti glass factory was thought to be most productive and when glass manufacture outside of Georgia has changed in composition, from a natron to a plant ash based fabric. If the Orbeti factory is the producer of the type C-1 glass then it is most probably using natron in its manufacturing process, and the supply of this has not been interrupted as appears to be the case for the glass manufactured at the same time in the Syro-Palestinian area. If the pinched glass vessels are indeed made in Georgia, as all evidence suggests, then the implication of this is that raw materials of different types travelled to the glass workshops in medieval Georgia for manufacture into the same types of vessels. The analysis of the Dariali assemblage opens up exciting new avenues for further research into glass manufacture in the Caucasus, Transcaucasia and Georgia in particular, as well as highlighting Georgia's role in the Sasanian and early Islamic Empires, providing a key trade route through which goods could pass both north and south.

13.8.2. Trade routes

It is clear, from the many parallels cited in the catalogue above, in addition to the evidence from the chemical composition report, that the glass circulating at Dariali Fort originated in part in the Near East and in Anatolia and the Levant. Its presence at the Fort, therefore, indicates strong trade links with the Near East, where some of the material likely originated but also where it circulated in significant numbers. Some types of glass vessels, mostly in a colourless fabric, such as the Nishapur 'cut glass' have been known to originate/circulate in both Fustat in Egypt and Iran.[119] Now we know that these types of vessels were also to be found in Dariali and probably travelled even further north, as similar cut glass was found in the Dargavs Catacombs in Ossetia.[120] Therefore, not only was Dariali Fort well connected with trade routes between Egypt and Iran, but it was also a pivotal point on the road to the territory of the Alans and the occupants of the fort appear to have had close connections with these people living in the north.

The territory of medieval Georgia was evidently an important consumer and supplier of glass to neighbouring territories in the eighth to tenth centuries. Imported glass came from Iran/Iraq, the Syro-Palestinian area, perhaps also from Egypt and likely from other areas of Transcaucasia and Anatolia. Moreover, Georgian glass was found in Armenia, and it was also represented at Derbent in Dagestan.[121] Workshops in the territory of medieval Georgia may not only have been exporting goods to the north, *e.g.* the Dargavs Catacombs in the territory of the Alans, but they may also have been exporting vessels to the east, to Azerbaijan and potentially into Iran. This hypothesis can be tested in future through chemical analysis of similar vessels from excavations in Iran. At present, we may conclude that it is evident that vessels from those areas were imported into Georgia. In many cases the imported vessels moved through the Dariali Gorge to be traded elsewhere and this shows their value as important commodities in this period. Similar types of vessels to those in the Dariali assemblage are used as burial goods by the Alans. The presence of such varied vessel glass from this excavation highlights the importance of the Dariali Pass as a key trade route, through which goods flowed both north and south.

Notes

1 With chemical compositional classification by Yoshinari Abe and Ryuji Shikaku.
2 See chapter 13.7.7.4.
3 See chapter 13.7.8.2
4 See chapter 13.7.5.3
5 I am very grateful to Nino Kamkamidze and all of the finds team for their help with the glass. Particular thanks go to Seth Priestman for teaching me about all aspects of finds recording and facilitating my work on the vessel glass when an ear infection kept me from working on site. Thanks are also due to Ketevan Gotsiridze for her assistance with conservation, recording and searching

for parallels, to Rosalind MacDonald for helping with recording, photography and the plates, to Silvia Perini for completing all of the plates, and to Ana Gabunia who has helped immeasurably with translation of the Georgian sources. I am especially grateful to St John Simpson for his advice on the glass study and for giving the samples of the material, taken on study season in 2017, to Drs Yoshinari Abe and Ryuji Shikaku who have written the following chapter. I am thankful to them and their team in Japan for undertaking work on these which has allowed us to understand so much more about the glass vessels from Dariali and about glass production in the Caucasus more generally.

6 See chapter 14.2.
7 See chapter 14.2.
8 See chapter 14.2.
9 See chapter 14.2.
10 See chapter 13.8.1.
11 See chapter 14.2.
12 See chapter 14.2.
13 See chapter 14.2.
14 See chapter 13.7.7.4 below for more details.
15 Chkhat'arashvili 1978a, pl. 4, no. 9, cf. 9 on Narikala; Mindorashvili 2015, 271, no. 2.
16 See chapter 13.7.7.13: Type 5.1; Chkhat'arashvili 1978a, pl. 5 no. 1, type 8.
17 For example at Urbnisi, see Saginashvili 1970, 20; Rustavi: Chkhat'arashvili 1978a, 10–11, and Samtavro: Ugrelidze 1967, 40.
18 See chapter 13.7.7.16.
19 See Chkhat'arashvili 1968: faceted glass vessels; Ch'ilashvili 1964: Urbnisi excavations; compare Simpson 2015, 92–93, postulating that the Central Caucasus was an important locus of glass manufacture in the Sasanian period with specific reference to these faceted vessels.
20 See chapter 13.7.10.
21 See Chkhat'arashvili 1978a, 6: map of glass production sites.
22 See chapter 13.7.7.6.
23 See chapter 13.7.1
24 It may have been made using a wax casting technique, or some other form of mould.
25 Carboni, 2011, 153, no. 3.3a-h. Another similar coloured fabric is in the private collection of P.L.W. Arts, see Arts 2000, 75 no. 77, thought to be from the Syro-Palestinian coast.
26 Dzhanpoladi͡an and Kalantari͡an 1988, 42.
27 Chkhat'arashvili 1978a, pl. 4, no. 3.
28 See Lamm 1928, no. 165 pl. 4 for a parallel for the shape of this cup. Lamm's example is decorated with small circles near the base. For such cups from Iraq, see Whitehouse 2005, 61–63, no. 2.
29 See Gadjiev 2011, no. 67, pl. 7, no. 11. There are also similar examples from Nishapur: see Kröger 1995, 95–100. He calls this style 'pinched decoration' *i.e.* manipulated with a tool.
30 Lamm 1928, 48 no. 165.
31 Dzattiaty 2014a, pl. 123, no. 18, from Catacomb 62.
32 See Whitehouse 2014 on rosettes for this motif as a wall decoration, dated to the twelfth to thirteenth centuries, without provenance. For the motif on a bowl base from Iraq, see Whitehouse 2005, 61–62, no. 6.
33 Chkhat'arashvili 1978b, pl. 7.
34 Dostiyev in Baypakov *et al.* 2011, fig. 4; with another Azerbaijani example in Dzhanpoladi͡an and Kalantari͡an 1988, pl. 31.
35 For the Derbent example, see Gadzhiev 2011, no. 27, pl. 7, no. 13; for the Georgian evidence see Saginashvili 1970, pl. 29. The latter example could date later than the author believes, or the type of mould could have been in circulation for some time.
36 See chapter 13.7.7.10.
37 See chapter 14.2.1, under lead silicate composition, for comparanda, especially to the Serçe Limanı shipwreck material.
38 Saldern 1980, 323.
39 Ugrelidze 1961, pl. 18.
40 Dzhanpoladi͡an and Kalantari͡an 1988, pl. 32.
41 We can see a potential parallel from Azerbaijan, in Dostiyev, in Baypakov *et al.* 2011, fig. 3 – a vessel applied with a trail in the form of a snake, although the example from Dariali is very corroded.
42 See, for example, Whitehouse 2005, 27 no. 15, for Sasanian glass with ivory-coloured weathering and a thick trail wound around it, dated to the third to sixth centuries and originating in Northern Iran; see also Fukai 1977, pl. 10.
43 See Carboni 2001, 177, no. 43b for a fabric parallel.
44 Carboni 2001, 76–81.
45 Carboni 2001, 80.
46 Whitehouse 2010, no. 12.
47 See Carboni 2001, 76–81 on the early Islamic sgraffito glass.
48 A parallel can be seen in Lamm 1928, no. 262, pl. 4.
49 Chkhat'arashvili 1978a, 91.
50 Whitehouse 2014, 109 no. 795.
51 See Carboni 2001, 47, no. 1.17, for a bottle demonstrating a similar technique.
52 See Dzattiaty 2014a, Catacomb 39, pl. 82, no. 7, a beaker with the 'thumb print' like grindings filling the upper three quarters.
53 See Gadzhiev and Magomedov 2008, 297 for an example from Sasanian Torpakh Kala.
54 Dzhanpoladi͡an and Kalantari͡an 1988, pl. 4.
55 Chkhat'arashvili 1978a, pictured on pl. 3, no. 2.
56 See for examples those published by Carboni 2001, 100–01: multisided colourless bottles of various sizes.
57 See Carboni 2001, no. 3.21, 188, a tenth to eleven century Iranian bottle, described as translucent greyish colourless fabric, long narrow cylindrical neck. This example was reportedly found in Afghanistan, Qala-i Naw (Badghis).
58 A parallel for this can be seen in Whitehouse 2014, no. 867, likely dating between the ninth and tenth centuries and coming from Egypt. It was formerly in the collection of the American Research Center in Egypt. There are also examples from Nishapur, see Kröger 1995, no. 139.
59 For similar designs, see Chkhat'arashvili 1978b, pl. 9.
60 Kröger 1995, 150–52.
61 Kröger 1995, 146–48.
62 Erdmann 1961, 35, BM no. 541.
63 For similar lustre painted glass see Carboni 2001, no. 2.4, from the Egyptian (or Syrian) region tenth to eleventh century, especially 68; see also Kunz 1981, no. 626.
64 Dzattiaty 2014a, no. 19, pl. 39.

65 See Lamm 1928, 127 for the examples from Samarra; Antonaras 2009, pl. 4, for fourteenth to sixteenth century Greek examples.
66 See chapter 13.7.7.16.
67 Chkhat'arashvili 1978a, pl. 5, no. 3; Lamm 1928 also mentions handled lamps, see no. 265.91.
68 See Ugrelidze 1967, 68, repeated in Chkhat'arashvili 1978a, pl. 4, no. 1: sixth to eighth centuries.
69 See Chkhat'arashvili 1978a, pls 4.4, 5.
70 Tal *et al.* 2008, 115 fig. 6 no. 4.
71 See chapter 13.7.9; see also Saginashvili 1970, 21 and Mgaloblishvili 2014, 51.
72 Baypakov *et al.* 2011, fig. 13.
73 Chkhat'arashvili 1978a, 91.
74 Carboni 2001, 144–45, no. 34a-c.
75 Dzattiaty 2014a, no. 41, illustrated on pl. 39, no. 19.
76 Gadzhiev 2011, no. 43, pl. 7, no. 10.
77 For a parallel see Chkhat'arashvili 1978a, pl. 5, no. 2.
78 Dzattiaty 2014a, pl. 39.
79 Folded rim subtype exemplified by F.118/949 has an excellent parallel in Chkhat'arashvili 1978a, pl. 5 no. 2.
80 For a parallel for this type, see Chkhat'arashvili 1978a, pl. 4, no. 6.
81 Dzattiaty 2014a, pl. 94, no. 2; see also Gadzhiev 2011, no. 78, pl. 7 no 12.
82 Dzhanpoladi͡an and Kalantari͡an 1988, pl. 30.
83 Dzatiatty 2014a, pl. 23.
84 Chkhat'arashvili 1978a, pl. 5 no. 1, type 8.
85 Dzattiaty 2014a, table 23, no. 2, from Catacomb 15.
86 Mirzaakhmedov in Baypakov *et al.* 2011, fig. 24.
87 Dzhanpoladi͡an and Kalantari͡an 1988, pl. 30.
88 Some examples are: a honey coloured bottle with pinch marks which is thought to have come from eighth to tenth century Syria/Egypt. It is now in the Berlin Islamic Art Museum but sadly has no provenance: Kunz, 1981, 70; Another, from Aleppo, is in the collection of the Rijksmuseum van Oudheden, ex Frits Lugt Collection, Halbertsma, 2010, no. 56. This is made from a thick material, and is an open mouth bottle in blue/green to colourless fabric. A further mid blue coloured vessel, with two rows of pinch marks can be compared to the Dariali examples. This is in a private collection and is thought to have come from the Eastern Mediterranean, c. fourth to fifth century, Arts 2000, no. 81.
89 Chkhat'arashvili 1978a, pl. 4 no. 8.
90 Illustrated in Dzattiaty 2014a, pl. 191, no. 3.
91 Jackson-Tal, in Lipschits *et al.* 2016, 578 no. 34.
92 See Chkhat'arashvili 1978a, pl. 13 no. 2 for a similar long necked bottle, and pl. 9 for other parallels.
93 Carboni 2001, no. 66: it is dated to the twelfth to thirteenth centuries and comes from Iran.
94 Carboni 2001, no. 66.
95 See Chkhat'arashvili 1978a, pl. 4, no. 9.
96 Saginashvili 1970, 21.
97 Saginashvili 1970, 21.
98 Whitehouse 2014, 97 no. 772.
99 Dzattiaty 2014a, no. 16, pl. 30.
100 See for window glass Chkhat'arashvili 1978b, pl. 5.
101 See chapter 13.7.6.3.
102 A further parallel for this vessel type can be seen in Whitehouse 2005, no. 48; see also Saldern 1963, 10, fig. 6. These are characterised by shallow facets which do not touch each other. Such vessels have been found in Iran, Iraq and Azerbaijan: Whitehouse 2005, 44.
103 See chapter 13.7.6.3.
104 See the molar flasks in Carboni 2001, 128–29, arguing they are from Egypt. For a further parallel, see Carboni 2001, no. 2.30h, supposedly from Balkh (Afghanistan).
105 See Shortland *et al.* 2006 for the beginnings of glass production in the Near East and Caucasus and its Bronze Age development. For the latest medieval glass workshop in Georgia see Ugrelidze 1963.
106 See the article by Kakhidze 2007: about Achaemenid imports into Western Georgia, especially 113–14.
107 For examples of the small bottles found in funerary contexts, see recent parallels in the Akhaltsikhe cemetery, Gambashidze and Mindiashvili 2007, 344; Urbnisi: Saginashvili 1970, 20; Rustavi: Chkhat'arashvili 1978a, 10–11; Samtavro: Ugrelidze 1967, 40. On imports amongst the late antique finds, see vessels from Cheremi (site no.1, burial no. 4) and Akhaltsikhe Cemetery that have been compared to vessels from Dura-Europos, see also Mamaiashvili 2004, 32, fig. X-90.
108 See Bezborodov and Abdurazakov 1964, 67–69.
109 See Mindorashvili 2015, pl. 271, nos 15–17 and Chkatarashvili 1968.
110 See chapter 13.7.7.16.
111 See Whitehouse 2002, Shortland *et al.* 2006.
112 Chkhat'arashvili 1978a, 90.
113 Dzhanpoladi͡an and Kalantari͡an 1988, 42.
114 Dzhanpoladi͡an and Kalantari͡an 1988, 42.
115 Dzhanpoladi͡an and Kalantari͡an 1988, 42.
116 Dzhanpoladi͡an and Kalantari͡an 1988, 42; 46: our dark yellow-amber vessels are thought to be of Georgian manufacture based on their composition.
117 Tal *et al.* 2013, 140 hypothesise that the glass factory in Khirbet al-Ḥadra was dismantled by the artisans themselves in the eighth century, as perhaps also the glass factory at Ramla 1998.
118 Chkhat'arashvili 1978a, 92.
119 Uspenskiĭ, 2015, 121–36.
120 See chapter 13.7.7.16 on the pinched vessels; chapter 13.7.7.13 on type 5.1, a diagonally moulded vessel; chapter 13.7.5.3 the amber trailed beaker.
121 See for example chapter 13.7.7.8 on the beaker with wide diagonal moulding and chapter 13.7.4.3 on the green vessel with honeycomb moulding.

14

Report of chemical compositional characterisation of glass fragments excavated from Dariali Fort (Georgia) by non-destructive X-ray fluorescence analysis

Yoshinari Abe and Ryuji Shikaku[1]

14.1. Materials and methods

The chemical composition of 212 exported samples of glass fragments from the British-Georgian archaeological excavations at Dariali Fort (Georgia) was quantified using an X-ray fluorescence (XRF) spectrometer, 100FA-IIL, in a laboratory. These samples belonged to 200 glass vessel fragments, ten glass bangles and two fragments of vitreous material. The spectrometer was developed by Ourstex Co. Ltd. in collaboration with the authors, with the aim of archaeological application and has been already applied in several earlier investigations of archaeological artefacts by the authors.[2] Both sodium and magnesium, which are necessary to characterise chemical composition of historical glass artefacts, can be quantified with the use of a ring-shaped sample chamber connected to a small vacuum pump. Two excitation modes are available: a monochromatic X-ray excitation mode utilising a built-in monochromator for the analysis of trace amount (~1ppm) of medium to heavy elements with a K-edge energy of 8~20 keV; and a white X-ray excitation mode for analysis of both light and heavier elements. Fluorescent X-rays that occurred from the sample were collected by a silicon drift detector equipped with MOXTEK AP3.3 polymer windows. In this study, two XRF spectra were acquired by two excitation modes for each sample. Integration time of each spectrum was set to 200 seconds (in live time). A total of 22 elements were quantified by a calibration curve method as the concentration of typical oxide form. Please note that oxidation numbers of metal elements in our quantification results do not necessarily correspond to their actual forms in the glass. Fresh and glossy sections of each sample were analysed in order to minimise the influence of surface weathering. It should also be noted that each colour was analysed in the case of multiple-coloured fragments, but only the data for the main composition is reported here. All measurements were applied in a non-destructive manner. For further information on the 100FA-IIL spectrometer, such as lower limits of detection and our quantification methods, please refer to our previous applications for historical glass. artefacts.[3]

As supporting data, to understand the colouring agent, we conducted ultraviolet-visible absorption (UV-vis) spectroscopy for red opaque pieces. The UV-vis spectrometer was jointly developed by Tokyo Instruments, Inc. and the authors. The spectrometer equips a concave grating spectrometer, BLACK-Comet-SR (StellarNet, Inc.) as a detector suitable for analysis of UV-vis range (200~1,080 nm). A balanced deuterium-tungsten-halogen light source DH-2000-BAL (Ocean Optics Inc.) is a light source. While both transmission and refraction measurements are available, all spectra were collected by the refraction mode with an integration time of 1.5 seconds.

14.2. Results and discussion

14.2.1. Chemical compositional classification

In this report, 212 pieces of glass were classified into four different groups and 12 compositional types, as summarised in Table 14:1. All data giving the chemical compositions are listed in tables at the end of the report. With the exception of a piece of emerald green vessel glass (F.063/552.8) identified as a lead silicate ($PbO\text{-}SiO_2$) glass, all the other samples are glasses containing silica (SiO_2: 53.4~73.7 wt%), soda (Na_2O: 10.9~21.3 wt%) and lime (CaO: 1.98~11.2 wt%) as major components, *i.e.* soda-lime silicate ($Na_2O\text{-}CaO\text{-}SiO_2$) glass. Although our XRF analyses were conducted non-destructively, the quantified value of Na_2O seems not to have been seriously affected by surface weathering. Figure 14:1 shows two bi-plots focusing on four elements derived from raw materials: magnesia (MgO) versus potash (K_2O) in Fig. 14:1a, and alumina (Al_2O_3) versus

Table 14:1: Summary of chemical compositional classification of 212 pieces of Georgian glass samples (mean value±1σ).

Grou p	*Group A (n = 28)*				*Group B (n = 66)*														*Group C (n = 117)*						*PbO-SiO2 (n = 1)*
Type	*A-1*		*A-2*		*B-1*		*B-2*		*B-3*		*B-4*		*B-5*		*B-6*		*C-1*		*C-2R*		*C-3*			
Number																									
Vessel	11		17		0		15		22		6		11		0		98		5		14				1
Bangle	0		0		5		0		1		3		0		1		0		0		0				0
Other	0		0		2		0		0		0		0		0		0		0		0				0
Total	11		17		7		15		23		9		11		1		98		5		14				1
Presumed production area	Islamic, Iraq-Iran		Islamic, Syria-Palestine		Byzantine Anatolia?		Byzantine Anatolia?		Byzantine Anatolia?		Byzantine Anatolia?		Byzantine Anatolia?		Byzantine Anatolia?		Local?		Local?		Local?				Islamic
Na_2O /wt%	14.8	±1.9	15.6	±1.0	19.5	±1.7	19.3	±1.7	15.4	±1.8	14.3	±0.9	13.6	±1.7	17.9		14.7	±2.3	14.6	±0.7	15.0	±1.4			tr.
MgO /wt%	5.14	±0.53	2.86	±0.19	3.42	±1.48	1.03	±0.11	1.43	±0.25	1.68	±0.20	1.32	±0.15	1.49		1.42	±0.31	1.56	±0.20	1.52	±0.24			tr.
Al_2O_3 /wt%	1.13	±0.28	2.95	±0.82	9.50	±0.62	11.21	±0.55	10.06	±0.58	6.98	±0.56	6.30	±0.38	9.95		2.75	±0.89	3.03	±0.13	4.75	±0.37			0.94
SiO_2 /wt%	70.4	±2.4	64.9	±2.7	56.7	±2.2	56.6	±1.3	61.7	±1.6	65.0	±1.2	68.2	±2.5	58.9		69.2	±2.1	66.9	±0.9	67.4	±0.9			34.0
K_2O /wt%	2.67	±0.43	2.63	±0.27	4.31	±0.38	4.29	±0.34	4.08	±0.64	3.45	±0.81	4.19	±0.34	1.96		2.86	±1.11	1.56	±0.09	1.84	±0.61			0.44
CaO /wt%	4.71	±0.55	8.45	±1.46	4.26	±1.80	5.24	±0.56	4.08	±0.69	5.21	±0.67	4.13	±0.99	4.82		7.04	±0.97	7.16	±0.07	6.15	±0.24			0.28
TiO_2 /wt%	0.05	±0.02	0.18	±0.08	0.07	±0.02	0.15	±0.03	0.31	±0.04	0.22	±0.03	0.14	±0.02	0.75		0.10	±0.04	0.14	±0.01	0.28	±0.03			n.d.
MnO /wt%	0.51	±0.32	0.81	±0.76	0.05	±0.01	0.33	±0.56	0.44	±0.94	1.09	±1.53	0.24	±0.26	0.06		0.23	±0.40	0.22	±0.23	0.17	±0.13			0.01
Fe_2O_3 /wt%	0.37	±0.09	1.13	±0.42	1.69	±0.42	1.23	±0.20	1.63	±0.22	1.39	±0.17	0.97	±0.21	3.47		1.05	±0.29	2.71	±0.08	2.16	±0.14			0.19
CuO /ppm	29	±14	144	±175	1,059	±598	134	±345	320	±1,347	286	±314	1,139	±2,331	80		289	±1,718	10,500	±500	71	±33			7,580
SrO /ppm	481	±108	555	±91	252	±107	432	±118	279	±43	344	±42	246	±58	182		354	±76	273	±26	292	±53			n.d.
ZrO_2 /ppm	100	±45	140	±33	121	±10	73	±12	185	±34	151	±34	73	±7	380		40	±14	38	±5	67	±13			n.d.
SnO_2 /wt%	n.d.		n.d.		n.d.		n.d.		n.d.		n.d.		tr.		n.d.		n.d.		0.07	±0.02	n.d.				0.05
PbO /wt%	tr.		tr.		tr.		tr.		tr.		tr.		tr.		n.d.		tr.		0.12	±0.01	tr.				61.64

n.d.: not detected (less than detection limit)
tr.: trace amount (less than quantification limit)

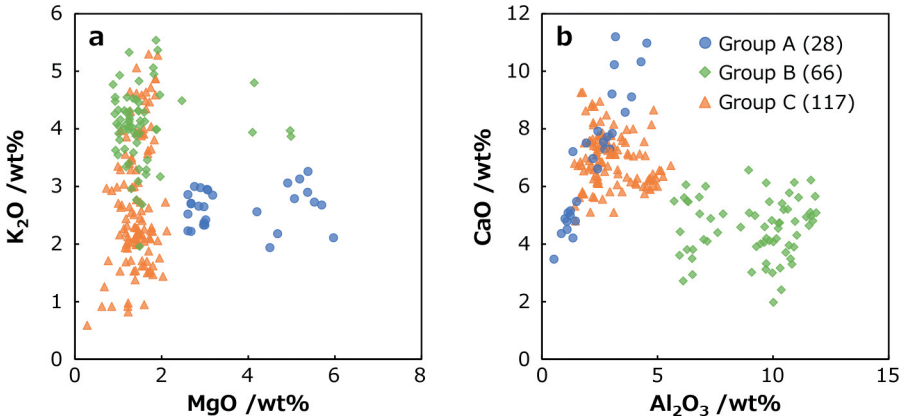


Fig. 14:1: Principal classification of glass samples from Dariali Fort, Georgia: (a) MgO vs. K2O content; (b) Al2O3 vs CaO content.

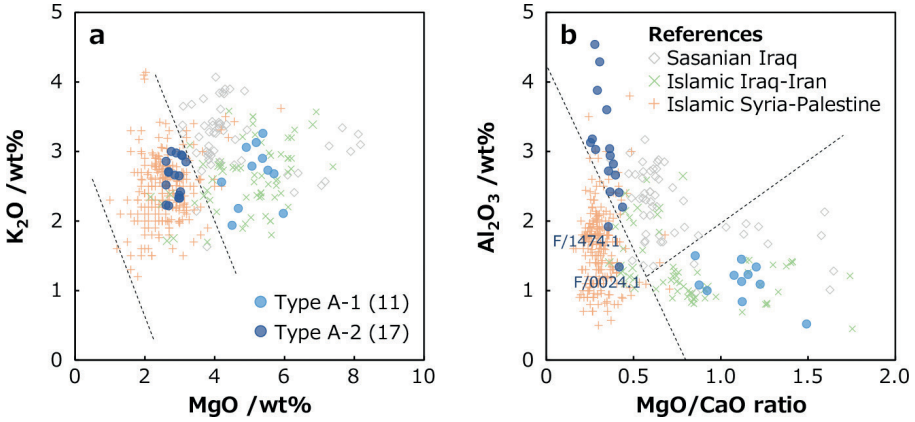


Fig. 14:2: Bi-plots showing (a) MgO vs. K2O content and (b) MgO/CaO ratio vs Al2O3 content for Group A of Georgian glass samples, compared to published data of Sasanian and Islamic plant ash glasses.

lime in Fig. 14:1b. Based on these plots, we classified 211 pieces of soda-lime glass into three compositional groups: Groups A, B and C.

Group A (n = 28)

Group A is typical plant ash glass characterised by higher contents of MgO and K_2O. A total of 28 pieces of glass fell into this group, all belonging to vessels. Plant ash glass was traditionally produced in Western and Central Asia through the ancient and medieval periods.[4] Although a mineral soda flux, mainly Egyptian 'natron', was used in glass production in the Mediterranean region since the tenth century BC;[5] it changed to plant ash at the end of the first millennium AD. As shown in Fig. 14:1a, the Group A glasses contain a relatively high content of MgO in contrast to the K_2O-rich composition of Central Asian plant ash glass; it is thus expected that Group A is comparable to plant ash glasses manufactured in Western Asia and Syro-Palestine, such as Sasanian or Islamic glass. Figure 14:2 compares the chemical composition between Group A and published data of plant ash glasses found at the following Sasanian and Islamic sites:

- **Sasanian Mesopotamia**: Veh Ardashir (third to seventh centuries).[6]
- **Islamic Mesopotamia and Iran**: Samarra (ninth to tenth centuries), Ctesiphon (seventh/ninth to tenth centuries), Al-Raqqa (ninth century) in Mesopotamia, and colourless glass from Nishapur in Iran (ninth to tenth centuries).[7]
- **Islamic Syro-Palestine**: Khirbat al-Minya in Israel (eighth century), Serçe Limanı shipwreck in Asia Minor (eleventh century), Beirut in Lebanon (twelfth to fourteenth centuries), Damascus in Syria (twelfth to fourteenth centuries), Cairo in Egypt (fourteenth to fifteenth centuries), and PA-1 type from Raya/al-Tur in Egypt (ninth to eleventh centuries).[8]

Please note that some data identified as imports from other regions were excluded from the references.

Compositional boundaries shown in Fig. 14:2 were established with reference to Swan *et al*.[9] Group A was subdivided into two compositional types (Fig. 14:2):

- **Type A-1**: 11 pieces of high-MgO/low-Al_2O_3 glass.
- **Type A-2**: 17 pieces of low-MgO/high-Al_2O_3 glass.

All fragments classified as Type A-1 were colourless. This feature corresponds with our analytical result of a lower concentration of iron oxide (Fe_2O_3: 0.37±0.09 wt%). In addition, almost all of the Type A-1 glasses contain a certain amount of manganese (Mn) as a decolouriser. The chemical composition of the Type A-1 glass closely matches that of plant ash glasses found in Islamic Iraq and Iran (see Fig. 14:2). This result strongly indicates the possibility that Type A-1 was manufactured at workshop(s) in Islamic Iraq or Iran and exported to Georgia as finished products. Actually, this type contains a fragment of beaker with a characteristic 'linear style' of cut decoration (F.131/1100), which can be compared with glassware excavated at Nishapur in north-east Iran. Likewise, a piece of 'diamond incised' glass (F.033/580) was classified as Type A-1. Stefano Carboni pointed out that the region of manufacture of glassware with such decoration was most likely Syria or Mesopotamia.[10]

In contrast, the chemical composition of Type A-2 glass is similar to that of Islamic plant ash glasses from Syro-Palestine (Fig. 14:2). This type consists of six pieces of colourless glass and 11 pieces of blue/green-coloured glass. Most of the blue/green colour of the glass seems to be caused by Fe^{2+} ion, but some fragments contain trace amounts of copper (Cu) sufficient to produce a pale blue colour: 610 ppm in F.172/1474.1 and 530 ppm in Q.037/279.1 as concentration of copper oxide (CuO). Two characteristic forms of decoration found in the Type A-2 glasses resemble those on Islamic glass vessels believed to have been manufactured in Egypt: a lustre-staining (F.001/24.1) and a molar flask (F.172/1474.1). However, except for these two fragments with characteristic decorations, the Al_2O_3 content of the Type A-2 glass seems to be slightly higher compared to actual Islamic glass from Syro-Palestine (see Fig. 14:2b). We should therefore entertain the possibility that the excess amount of Al_2O_3 was a contaminant during a secondary production process. In other words, some Al_2O_3-rich Type A-2 glasses may be local products manufactured at local workshop(s) by recycling colourless or blue/green glass fragments imported from Syro-Palestine.

Group B (n = 66)

Group B is the composition characterised by higher content of Al_2O_3 (> 5 wt%) and consisted of 54 vessel fragments, all ten glass bangles and two pieces of raw glass-like materials. Such high-Al_2O_3 soda-lime glass is commonly associated with the Indian Subcontinent and East Africa. However, it has been observed that there were primary glass production centre(s) for high-Al_2O_3 glasses in Anatolia during the Byzantine period (mid-first to early second millennium) following recent scientific investigations of Byzantine glass vessels and bangles excavated at Pergamon and Ḥiṣn al-Tīnāt in Asia Minor.[11] As discussed later, these Byzantine high-Al_2O_3 soda-lime glasses were possibly manufactured using raw material(s) derived from borate deposits in Western Asia Minor. Fig. 14:3 shows three bi-plots characterising the chemical composition of the Group B glasses; for comparison, data of the Group C glass are also presented. As shown in Fig. 14:3, we can subdivide 66 pieces of the Group B glass into six compositional types as follow: Type B-1 (n = 7), B-2 (n = 15), B-3 (n = 23), B-4 (n = 9), B-5 (n = 11) and B-6 (n = 1). To discuss possible provenance and distribution of these Georgian glasses, we compared the chemical composition of the Group B glass and published data on Byzantine glass possibly manufactured at Byzantine Anatolia as follows:

- **HBAl type**: Pergamon in Western Asia Minor, mid-first to early second millennium.[12]
- **HLiBAl type**: Pergamon, mid-first to early second millennium.[13]
- **Bracelet Group 2**: Ḥiṣn al-Tīnāt in Eastern Asia Minor, eighth to twelfth centuries.[14]
- **Bracelet Group 3**: Ḥiṣn al-Tīnāt, tenth to twelfth centuries.[15]

Type B-1 consists of two pieces of raw glass-like material (Q.003/15.1, Q.037/512) and five fragments of glass bangles but no glass vessel fragments. As shown in Fig. 14:3, the chemical composition of the Type B-1 glass matches the published data of Bracelet Group 2 from Ḥiṣn al-Tīnāt. If two objects (Q.003/15.1 and Q.037/512) found at Dariali really were raw glasses used in the glass production process, it can be demonstrated that this compositional type of glass was distributed widely from Eastern Anatolia to the east coast of the Black Sea as raw glass (ingot, rod etc.) for the secondary production of glass bangles.

With the exception of a piece of bangle fragment (F.164/1437) classified as Type B-3, all other glasses in Types B-2 and B-3 were vessels. The chemical composition of these two types can be characterised by very high content of Al_2O_3 (B-2: 11.21±0.55 wt%, B-3: 10.06±0.58 wt%) compared to other types of Group 2 glass (see Fig. 14:3a and Table 14:1). Note that two pieces in Type B-3 (F.035/325, F.164/1435.1) have a characteristic pinched decoration, although all other pinched glass vessels were classified into the Group C (see below). There are no compositional similarities between Types B-2/B-3 and Byzantine Anatolian glass from Pergamon and Ḥiṣn al-Tīnāt (Fig. 14:3).

Type B-4 consists of six glass vessels and three glass bangles and Type B-5 consists of 11 fragments of glass vessels. Although these two types show almost the same levels of Al_2O_3 (~7 wt%) and CaO (~5 wt%), they can be distinguished from one another by the concentration of some trace elements, including titanium (Ti) and

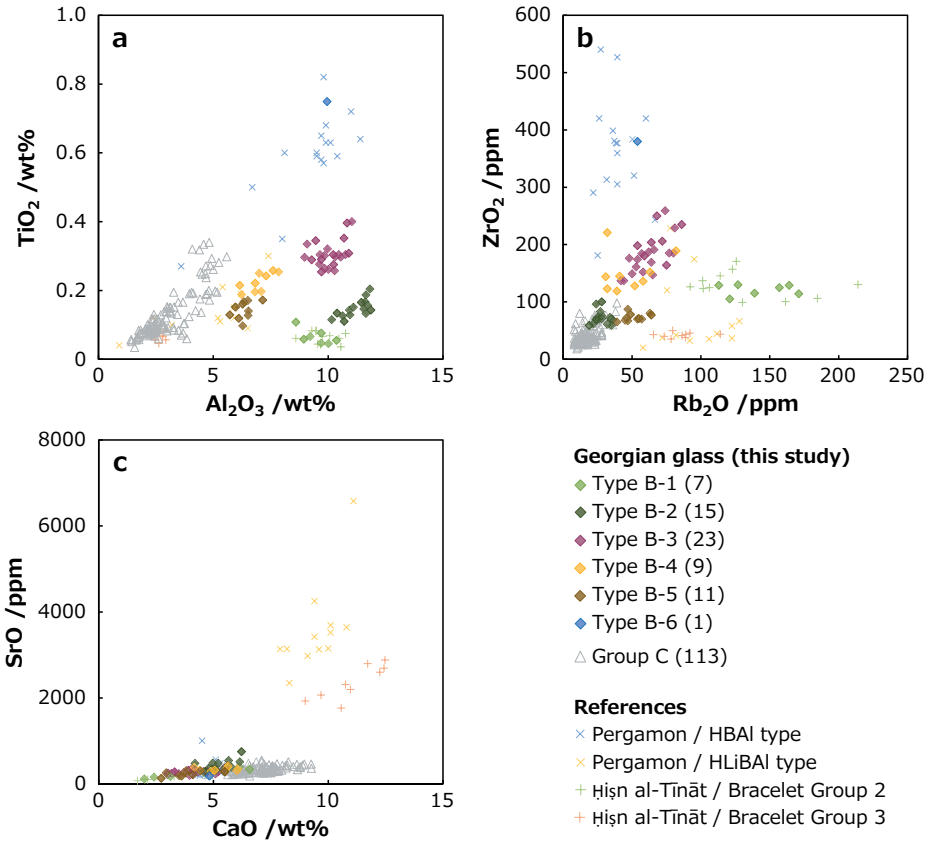


Fig. 14:3: Bi-plots showing (a) Al2O3 vs. TiO2 content, (b) Rb2O vs. ZrO2 content and (c) CaO vs. SrO content for Groups B and C of Georgian glass samples, compared to published data of Byzantine Anatolian glasses.

zirconium (Zr) (see Fig. 14:3, Table 14:1). As with Types B-2 and B-3, no similarity was found between these two types and Byzantine Anatolian glasses.

Only one fragment of a glass bangle (F.114/905) was regarded as Type B-6. The chemical composition of the fragment is similar to that of HBAl type from Pergamon (see Fig. 14:3). However, although the HBAl type of Pergamon glass contains a certain amount of arsenic (As: 92~1,916 ppm as oxide form of As_2O_3), only 21 ppm of As_2O_3 was detected from the Type B-6 fragment (F.114/905). Considering a possible volatilisation of arsenic during the production process, the difference in As_2O_3 content may be not enough reason to distinguish between these two glass types from Georgia and Pergamon.

Although the presence of two other compositional types of Byzantine Anatolian glass, HLiBAl type from Pergamon and Bracelet Group 3 from Ḥiṣn al-Tīnāt, has been previously pointed out, these two types are characterised by an extremely high amount of strontium (Sr), as shown in Fig. 14:3c. No sample analysed in this study showed such Sr-rich composition. It is pointed out that the high amount of Sr in some Byzantine Anatolian glass originates in Sr-rich borate deposits in Western Asia Minor.[16] The Byzantine Anatolian glasses previously investigated commonly contain a characteristic amount of B (500~2,000 ppm) and are often characterised by a small amount (>100 ppm) of lithium (Li), an element contained in the borate deposits. Based on these unique compositional features, it is suggested that soda-rich salts produced by evaporating water from Turkish borate deposits could have been a source of the alkali flux for Byzantine Anatolian glass production. However, unfortunately, our non-destructive XRF analysis cannot detect these light elements with a very low energy of fluorescent X-ray. To demonstrate compositional similarity between glass fragments from Dariali and Byzantine Anatolian glass with greater confidence, other analytical techniques, which enable us to detect a trace amount of lighter elements (such as a laser ablation inductively coupled plasma mass spectrometry applied in previous investigations referred here) should be applied.

Group C (n = 117)

Group C is composed of all other soda-lime glass pieces which were not classified into Groups A and B. The group constitutes more than half of glass samples analysed in this study. Based on three bi-plots as shown in Fig. 14:4, we could subdivide 117 pieces of the Group C glass into

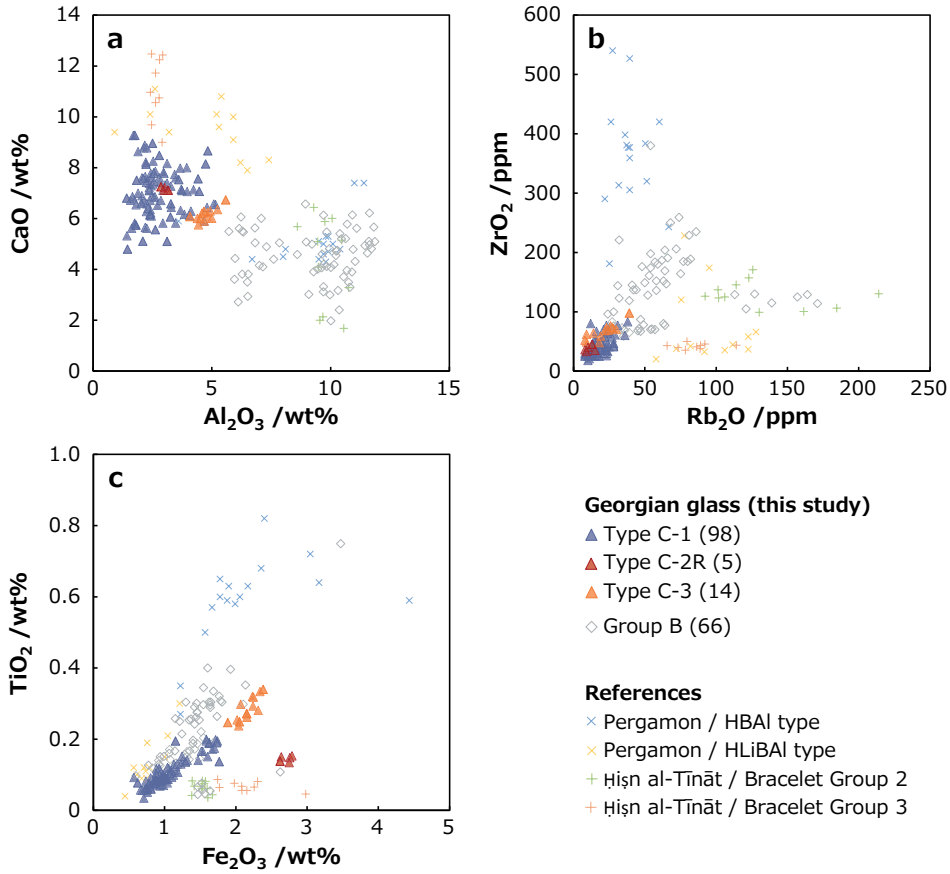


Fig. 14:4: Bi-plots showing (a) Al2O3 vs. CaO content, (b) Rb2O vs. ZrO2 content and (c) Fe2O3 vs. TiO2 content for Groups B and C of Georgian glass samples, compared to published data of Byzantine Anatolian glasses.

three fine compositional types as described later, but differences in chemical composition among these three types is not so striking. As shown in Fig. 14:1b, Al_2O_3 content of the Group C glass is comparable to that of the Group A, the plant ash glass. Meanwhile, the Group C glass lacks MgO, which is the most distinctive feature of the plant ash flux. In general, such soda-lime glass, containing a lower content of MgO, can be associated with glass products manufactured in the region west of the Euphrates using a mineral soda, namely 'natron glass'. However, as presented in Fig. 14:1a, the Group C glasses contain relatively a high concentration of K_2O with a wide variation. Given the large number of classified samples in this group, the Group C is the most likely candidate of the 'local products' of the glass vessels in Georgia, or the Transcaucasus during the medieval period. However, as noted above, it has been pointed out that the primary production of K_2O-rich soda-lime glass was carried out in Central Asia in the ancient and medieval periods. Considering the fact that a part of Georgia fell under the dominion of Mongol Empires since the thirteenth century, we should verify the possibility that these Georgian glass vessels had been imported from the Central Asia. Hence, we compared chemical composition between the Group C and medieval Central Asian glass in Fig. 14:5. Central Asian glass has been dated as follow:

- Glass vessels and ingots from Uzbekistan, fifth to fourteenth centuries.[17]
- Glass vessels from Afghanistan, fifth to thirteenth centuries.[18]

We may conclude that there is a marked difference in chemical composition between the Group C and the Central Asian glass, such as MgO content derived from the plant ash (see Fig. 14:5a) and a variability in contents of Al_2O_3 and CaO from the silica source (see Fig. 14:5b). Therefore, it is expected that the Group C glass did not originate from Central Asia.

Over 80% of Group C glasses (n = 98) were classified into Type C-1, a major compositional type. It is, therefore, expected that this type is the most likely candidate for a local glass vessel in Georgia and many techniques for manufacturing the glass vessel, such as pinched decoration, diagonal-net moulding, thicker diagonal ridge vessel, folded rim goblet stem, and 'nip't diamond waies', were identified in glasses classified as this type. There is a possibility that a higher-level and

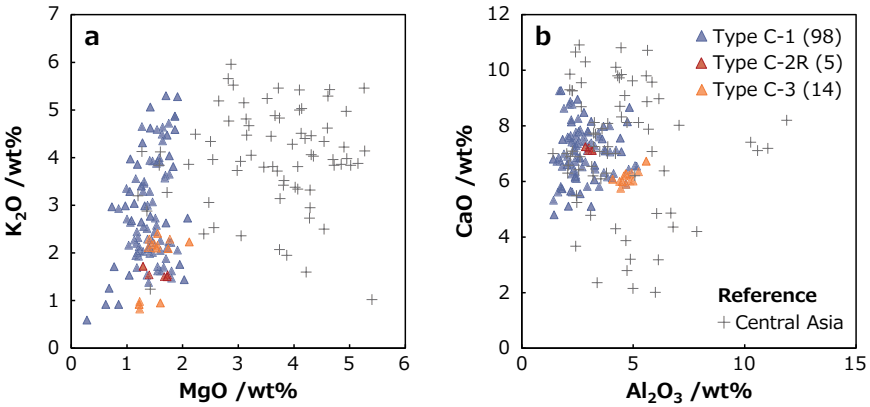


Fig. 14:5: Bi-plots showing (a) MgO vs. K2O content and (b) Al2O3 vs. CaO content for Group C of Georgian glass samples, compared to published data of Central Asian soda-lime glasses.

widely varying production of glass vessels was carried out at workshop(s) in Georgia or the wider Transcaucasus region. However, we should also consider the possibility that the Type C-1 glasses can be subdivided into several fine groups with different provenances, including Central Asia.

Type C-2R is a special compositional type prepared for five pieces of red-opaque fragments. As summarised in Table 14:1, the type of glass contains a significant amount of Cu (~1 wt% as CuO); it is thus considered that 'copper-red' technique was used for them. Because trace amounts of tin (Sn) were recognised as common to the Type C-2 fragments (see Table 14:1), we assume that a Cu-Sn alloy, namely bronze, was added to the glass batch as the colourant. Compared to Type C-1, the Fe_2O_3 content of Type C-2R is also higher, as shown in Fig. 14:4c. However, because there are not enough differences in other components between Types C-1 and C-2R, it is possible that the excess amount of Fe in Type C-2R had been added artificially as a reducing agent to enhance the colour of copper-red. As shown in Fig. 14:4 and Table 14:1, all five pieces of the Type C-2R glass have a very similar chemical composition. Therefore, it is possible that these five fragments originally belonged to the same vessel or were manufactured in the same production lot. They were, however, found in four separate deposits spread over three different trenches: F.037 (phase 5a-b), F.119 (5c), M.003 (5a-6b) and Q.042 (5b), making it perhaps unlikely that they belong to the same vessel. They could, however, be contemporary (c. ninth century, phase 5b?), notably as there is much redeposited material in the area of F.119. Note that one fragment of raw glass-like material with red opaque colour (Q.003/15.1) was classified as Type B-1 (see above), rather than this group. Type C-3 is a minor compositional type of Group C. A total of 14 vessels were classified into this group. The Type C-3 glass can be distinguished from Types C-1 by relatively high amounts of Al_2O_3, titanium oxide (TiO_2), Fe_2O_3 (see Figs 4a, 4c). However, there are no obvious differences in trace heavy element composition between the Type C-3 and other Group C glasses as shown in Fig. 14:4b. Considering that these three elements could be contaminated from a soil, it seems likely that this minor type was a part of the major type of the Type C-1.

Lead silicate glass (n = 1)

Only one fragment of Georgian glass (F.063/552.8) was identified as PbO-SiO_2 glass. This fragment has a characteristic emerald green colour, which can also be found on some Islamic glass vessels. Brill has reported chemical compositional data for a total of seven pieces of Islamic glass with emerald green colouring from the Serçe Limanı shipwreck (3576, 3577, 3578, 3579) and other sites (5381, 5383, 5199); all of these vessels were lead silicate glass and contain a sufficient amount of Cu as a colourant.[19] For comparison in the chemical composition between the Georgian PbO-SiO_2 glass and Islamic emerald green glass vessels, their chemical compositional data of major and minor elements is summarised in Table 14:2. Because of a serious influence of a self-absorption of X-rays by lead, it is not easy to quantify a correct chemical composition of Pb-rich material by non-destructive XRF analysis. However, as shown in Table 14:2, our XRF result of the Georgian glass fragment closely matches the published data of Islamic emerald green glass vessels and we conclude that this glass fragment was part of an emerald green vessel imported from the Middle East during the Islamic period.

14.2.2. Characteristic colourants

Over 200 ppm of cobalt oxide (CoO) were detected from 12 pieces of glass objects found at Dariali as follow:

- Type B-1 (n = 7): F.001/36, F.043/338.1, G.014/3, Q.003/15.1, Q.008/208, Q.037/512 and Q.076/1145.

- Type B-2 (n = 1): F.070/749.
- Type B-3 (n = 1): F.164/1437.
- Type B-4 (n = 2): F.052/394 and F.046/507.1.
- Type C-1 (n = 1): F.027/176.

Table 14:2: Comparison in chemical composition between PbO-SiO_2 glass from Georgia and Islamic emerald green glasses analysed by Brill.[1]

	Georgian glass (F.063/552.8)	*Islamic emerald green (n = 7)*	
Na_2O/wt%	tr.	0.8	±0.8
MgO/wt%	0.39	0.31	±0.37
Al_2O_3/wt%	0.94	1.27	±0.49
SiO_2/wt%	33.9	31.6	±3.3
K_2O/wt%	0.43	0.49	±0.06
CaO/wt%	0.28	0.86	±0.97
Fe_2O_3/wt%	0.19	0.37	±0.2
CuO/ppm	7,580	8,171	±1,202
PbO/wt%	61.38	63.06	±4.1

[1] Brill 1999.

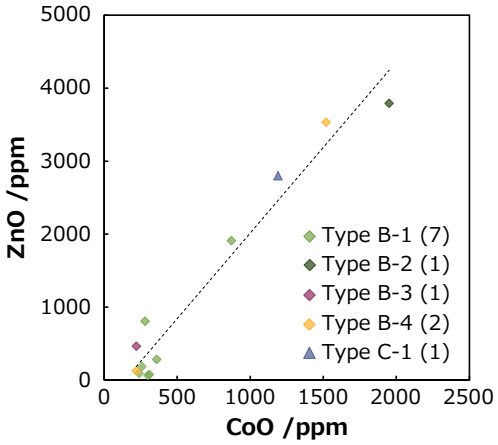


Fig. 14:6: Correlativity of concentrations between CoO and ZnO for 12 pieces of Georgian glass.

Note that a raw glass-like fragment classified in to Type B-1 (Q.003/15.1) contains red opaque colourant but the base part was coloured in transparent blue. Meanwhile, a bangle fragment of Type B-2 was not coloured in blue but deep green. There was no cobalt-blue coloured piece in Group A. Iran was one of the most important source areas of cobalt in the ancient and medieval periods of the Middle East because several kinds of cobalt ores have been mined since ancient times as follows:

- Arsenical cobalt mineral (erythrite: $Co_3(AsO_4)_2 \cdot 8H_2O$) found at Qamsar.[20]
- Zinc (Zn)-rich cobalt ore found at Anorak near Tabriz.[21]
- Mn and Fe-rich cobalt ore (asbolane: mixture of oxides of Mn, Fe and Co) found at Qamsar.[22]

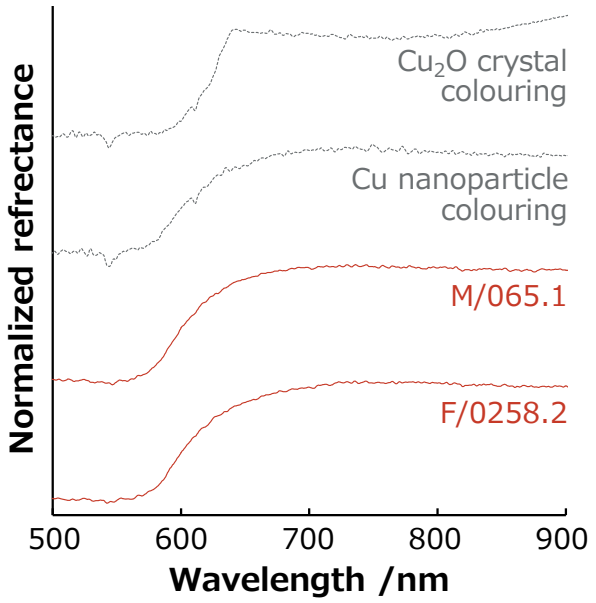


Fig. 14:7: UV-vis spectra of copper-red glass fragments (M.003/65.1 and F.037/258.2) and references of copper-red glass.

To verify the possibility that Iranian cobalt ores were used for the Georgian glass investigated in this study, we examined the correlation between the concentration of CoO and those of characteristic metals derived from cobalt ores for 12 glass fragments listed above. As the result, whereas no correlations were found between CoO and As_2O_3 (determination coefficient $R^2 = 0.02$), MnO ($R^2 = 0.01$), or Fe_2O_3 ($R^2 = 0.05$), a significant correlation was identified between CoO and zinc oxide (ZnO) as shown in Fig. 14:6. The strong correlation ($R^2 = 0.95$) between these two metals indicated that cobalt ore containing a certain amount of Zn was used in the production of the Georgian glass. It is possible that the Zn-rich cobalt-ore was derived from Iranian mines, as pointed out above. Now it should be noted that there is a fragment of the Type C-1 glass vessel (F.027/176) in the cobalt-bearing samples. Figure 14:6 suggested that the same cobalt ore was applied for both the glass production of Group B and that of Group C. Therefore, it appears that Iranian cobalt-ore was widely used across Anatolia and Transcaucasia in the Middle Ages.

In this study, we analysed a total of six pieces of red opaque glass fragments containing a significant amount of copper: a piece of Type B-1 (Q.003/15.1) and five pieces of Type C-2R. As pointed out by several previous investigations,[23] there are two types of colouring agents to produce copper-red glass as follows:

- Dendritic crystals of cuprite (Cu_2O), a red oxide of copper, deposited in colourless glass matrix.
- Surface plasmon effect of metallic copper nanoparticles generated in colourless glass matrix.

These two colourings of copper-red glass can be distinguished easily by observation of UV-vis absorption

by colouring agents. Figure 14:7 shows UV-vis spectra of two representative pieces of Type C-2R red opaque glass. We also analysed two spectra of copper-red glasses which have been identified as being coloured respectively by Cu_2O crystals or metallic copper nanoparticles using the X-ray absorption fine structure method[24] as referenced in Fig. 14:6. While we analysed the UV-vis spectra of all five red opaque glass fragments of the Type C-2R, shapes of the spectra obtained were almost the same. In addition, in the case of a piece of Type B-1 (Q.003/15.1), it was difficult to measure the absorption corresponding to the red opaque colouring because of the interference by the cobalt-blue colourant. As shown in Fig. 14:7, the red colouring agent of the Type C-2R glass was identified as metallic copper nanoparticles. Compared to the colouring by Cu_2O dendritic crystals, strong reduction conditions will have been required to achieve the colouring by the metallic copper nanoparticles, while it can keep an additive amount of copper lower. Therefore, we can propose the interesting hypothesis that much primary glass production, including a redox control, was carried out in Georgia or the wider Transcaucasus region.

14.3. Conclusion

A total of 212 pieces of glass fragments from Dariali Fort were scientifically analysed and classified into 12 compositional types by means of non-destructive X-ray fluorescence analysis. Twenty-eight pieces of plant ash glass and a piece of lead silicate glass were identified as imports, manufactured in Islamic territories, although some fragments were possibly recycled. Sixty-six pieces, including ten fragments of glass bangles, showed a characteristic composition, with a higher content of alumina, which suggests that they might be related to Byzantine Anatolian glass. The remaining 117 pieces of vessel glass are possibly local products made in Georgia or the surrounding area. Our scientific investigation of this glass has, therefore, demonstrated the import of glass products from both the Islamic world and Byzantine Anatolia into Georgia and raised the interesting possibility of large-scale glass production, using various colourants, in Georgia or the wider Transcaucasus region; although further verification focusing on production technique is needed. Especially, as pointed out above, quantification of light elements (B and Li) of these glasses will be necessary to evaluate the possibility that their raw material(s) were derived from borate deposits in Western Anatolia.

Notes

1 Tokyo University of Science (Yoshinari Abe) and Okayama Orient Museum (Ryuji Shikaku).
2 Abe *et al.* 2009; 2012; 2018.
3 Abe *et al.* 2012; 2018.
4 *E.g.* Brill 1999.
5 Shortland *et al.* 2006.
6 Mirti *et al*. 2008; 2009.
7 Brill 1999; Henderson *et al*. 2016.
8 Brill 1999; Henderson *et al*. 2016; Kato *et al*. 2010.
9 Swan *et al*. 2017b.
10 Carboni 2001.
11 Schibille 2011; Rehren *et al*. 2015; Tite *et al.* 2016; Swan *et al*. 2017a.
12 Rehren *et al*. 2015.
13 Rehren *et al*. 2015.
14 Swan *et al*. 2017a.
15 Swan *et al*. 2017a.
16 Schibille 2011; Swan *et al.* 2017a.
17 Abdurazakov 2009.
18 Brill 1999.
19 Brill 1999.
20 Freestone and Stapleton 1998.
21 Henderson 1998.
22 Allan 1973.
23 *E.g.* Brun *et al.* 1991; Arletti *et al.* 2006.
24 Kikugawa *et al.* 2014.

15

The small objects and other finds

Lana Chologauri [LCh], Ana Gabunia [AG], Fiona Anne Mowat [FM], Seth M.N. Priestman [SP], Eberhard W. Sauer [EWS] and St John Simpson [St JS], with an appendix by Scott Stetkiewicz[1]

15.1. Introduction

Dariali Fort is situated in Dariali Gorge, 11 km north of Stepantsminda (on foot, and 9 km as the crow flies), on a rock on the left bank of the River Tergi/Terek. Between 2013 and 2016 the University of Edinburgh and Tbilisi State University carried out joint archaeological excavations at the site. The main goal of the excavation was to reveal the early layers of the fort and a large quantity of artefactual materials was recovered throughout. We established that the main phase of occupation lasted from the late fourth to the late tenth or early eleventh century, with a period of reoccupation in the fourteenth century (or perhaps the late thirteenth to early fifteenth century). A cemetery was also explored a short distance to the south, and some of the graves excavated in both trenches contained objects found *in situ*. The chronology is discussed in more detail elsewhere in this report,[2] but in summary the radiocarbon dates indicate the earliest graves to be closest to the fort: the earliest dates to c. AD 671/770 (with 95.4% confidence) and the latest to c. AD 778/988, most probably to c. AD 867/988 (at 93% probability); the graves from Trench G are later and span the period from c. AD 770/942 to c. AD 988/1150 or, more probably, to 988/1035.

It should be added that the dates given to the objects are based on the date of the contexts in which they were found, and are not always necessarily those of the objects themselves as there was heavy disturbance of many contexts and some finds could be redeposited, particularly in the case of the latest phases. Radiocarbon samples from Trench F on Dariali Fort, however, suggest that old redeposited material accounts for just one in eight finds on average and the proportion of material that is many centuries older than the context may be as low as (roughly) one in fifty.[3] Some of the earliest layers are undisturbed.[4] There is also no redeposited material from sealed graves, if there is a little from disturbed deposits above, and if grave goods can, of course, contain old heirlooms in circulation long after their production. We are thus confident that for the vast majority of items presented, our proposed chronology is robust, even if there will be a small number of outliers of a more ancient production than the phase proposed. This applies to finds from ancient and medieval contexts (of phases 2 to 6) and perhaps also to early modern (phase 7a) layers on Gveleti Fort. It is important, however, to note that more recent deposits form an exception to the rule. The vast majority of finds from modern (phase 7b) deposits, such as topsoil and subsoil layers and the fill of twentieth-century pits, or from disturbed layers of uncertain date that may extend to phase 7, appear to be of earlier (predominantly early medieval) manufacture.

The report begins with a short introduction summarising the materials and functions of the objects, so far as they can be determined typologically, followed by a more detailed discussion of the finds. This section is divided into two parts, beginning with finds from Dariali and Gveleti Forts and cultivated land between these two strongholds, and followed by those from the graves in the cemetery near Dariali Fort. Apart from items placed as grave goods, little of the assemblage was found *in situ*. There was considerable modification and re-working of the structural elements and associated deposits in the fort at Dariali, as the builders and inhabitants were restricted by the tight physical restraints of the rocky outcrop on which the original fort had been built. Periodic dumping and redeposition of the deposits which contain finds is typical of multi-period occupation sites and these processes invariably shift deliberately discarded or accidentally lost objects from secondary into tertiary contexts. In rare cases they may be in significantly later contexts and in others they may be some distance away from where they were

originally used. The contextual information is therefore useful in determining the latest possible dates of the objects in question but not necessarily in determining how or where it was used. The presentation of the information in this report allows the reader to use the contextual information, if they wish, but the emphasis here has been to analyse each object on an individual basis and then develop a structured interpretation of the assemblage as a whole. It follows a function rather than materials-based approach in order to capture the range of activities, and follows a template used by one of the authors [St JS] for a number of other Sasanian and early medieval finds reports from Iraq, the Persian Gulf and Central Asia. Comparative literature has been cited where appropriate, particularly for the carved bone items, beads and sword, but has not been systematically carried out for all classes of object or material. The report ends with some general conclusions and observations which reflect the input of all the co-authors of this section of this excavation monograph.[5]

15.1.1. Materials

This assemblage of finds is dominated by items made of hard inorganic materials, namely metal, stone, fired clay and glass (Figs 15:1–15:2). Organic materials did not survive apart from bone and a small number of jet, coral and shell ornaments, and a wide range of artefact types which must have been made of cloth, felt, fur, leather, horn or wood, such as equipment, items of clothing, bags and other containers and tools or other objects, are therefore not preserved apart from some exceptional remains of clothing, probably leather, from one of the graves (G4). It should be stressed that the materials that do survive are therefore only a small proportion of the original and, in some cases, represent a small portion of items originally made of composite materials. As a result, the assemblage is biased by factors of preservation although this is admittedly true of almost all sites except in waterlogged, exceptionally dry or frozen conditions.

Metal was used for weapons, including a sword and a wide variety of arrowheads, and everyday tools. These included small knives, a sickle, an adze, razors, a comb, a possible pendant and a twisted bangle, a pin, nails, rivets, various handles and fittings, rods, and sheet. All of these were forged from iron and there was little evidence for the use of copper alloy apart from some bangles, a pin, a rivet, 'washers' and some pieces of sheet. The exact types of copper alloys used is not known as these were not scientifically analysed, but in theory could include different compositions as copper, brass, leaded bronze, tin bronze and gunmetal were used to make different types of object during the late antique and early medieval periods. Unsurprisingly, there was little evidence for precious metals but a small and broken silver mirror and some other silver objects were found in Graves G4 and E3 and a short strip of silver sheet was found in a disturbed modern context in Trench K.

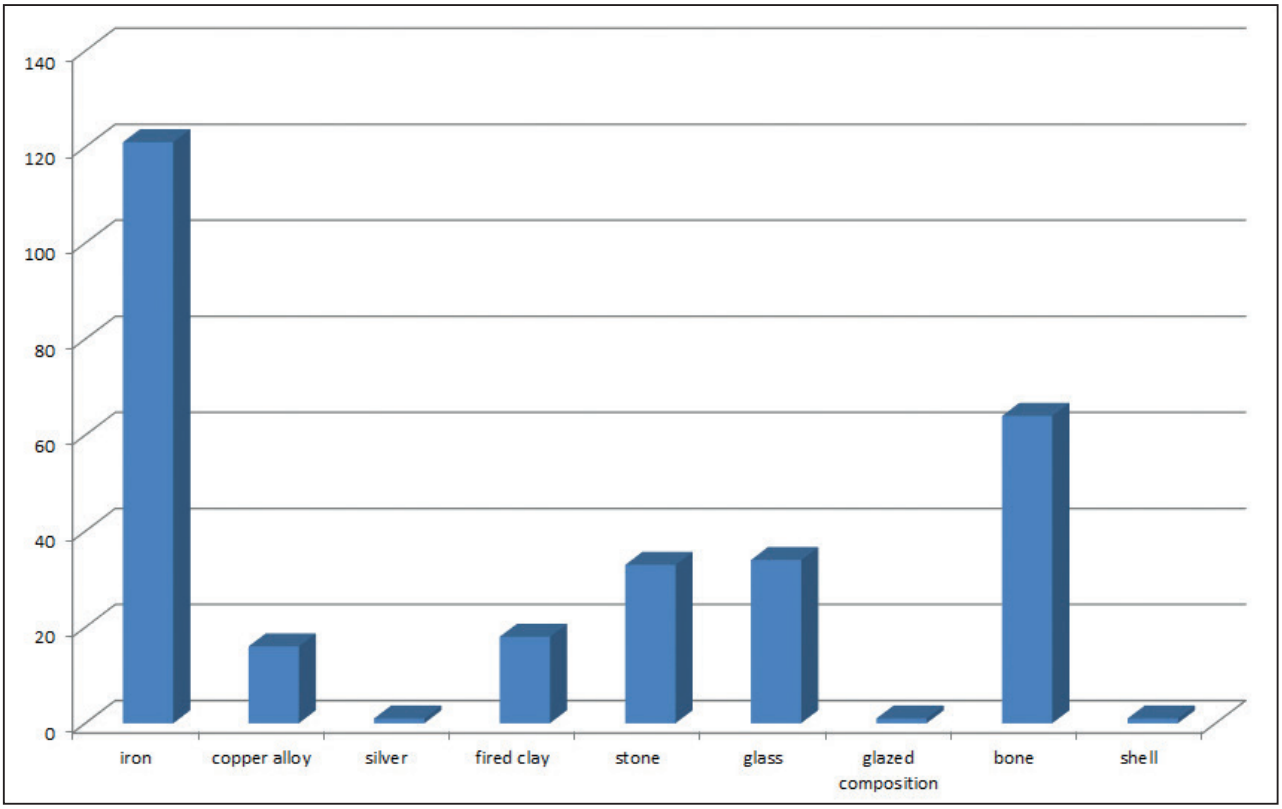


Fig. 15:1: Relative frequency by counts of materials used for excavated finds other than pottery or glassware.

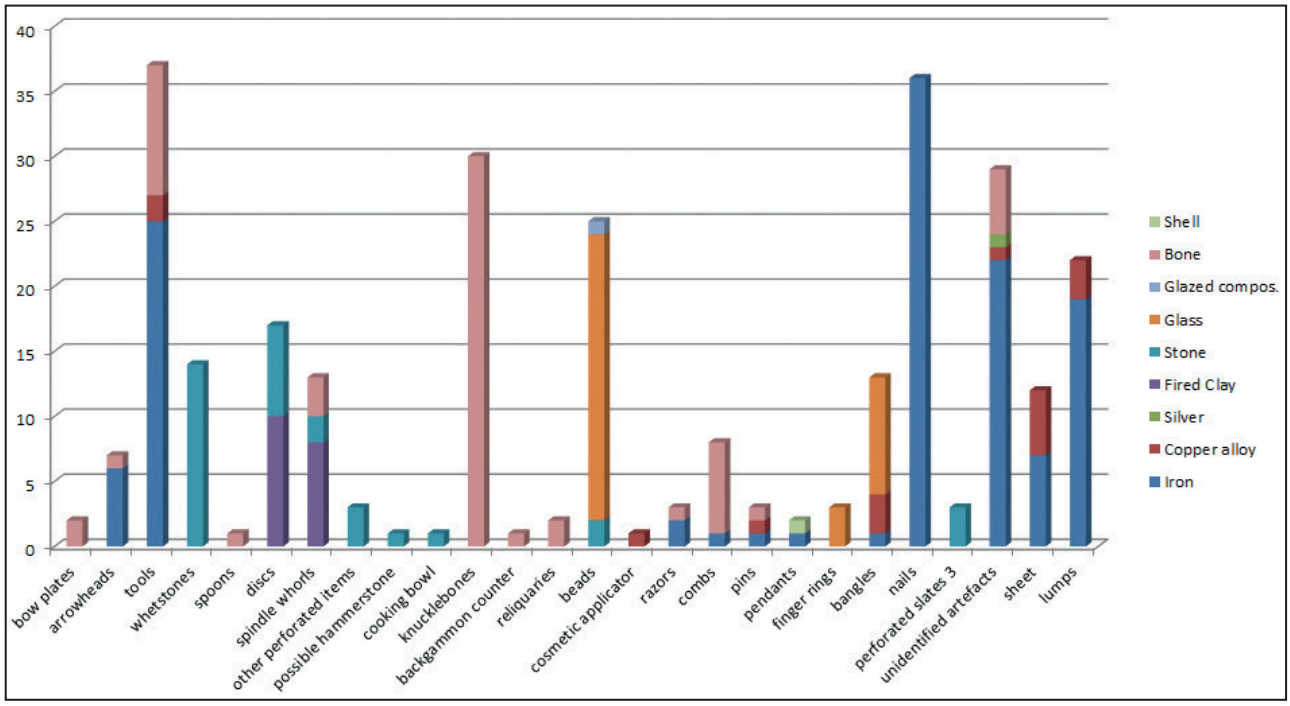


Fig. 15:2. Graph showing the frequency by count of different materials of object.

Bone was worked to make items of personal adornment, jewellery, musical instruments, gaming pieces, and different objects for daily use or cosmetic application. It was also an important material for decorating certain tools and objects. Judging by the finished items, bone working must have been an important craft industry in medieval Georgia, yet evidence for the working of it has only been recognised at the site of Dmanisi and there are no contemporary written sources on this subject.[6] The study of the bone artefacts from Dariali Fort does not suggest the existence of a local bone-carving workshop and some of the higher quality artefacts must have been imported from workshop(s) elsewhere, and this is supported by some of the comparative parallels discussed below. However, other bone artefacts are roughly made and might have been carved on an *ad hoc* basis by local residents or soldiers, and these include most of the objects of uncertain function. Included within the present assemblage are worked bone artefacts and these consist of the following: gaming pieces (knuckle bones and a backgammon counter), implements for cloth production (such as spindle whorls), tools of everyday use (handles and an awl handle), items of personal adornment (combs, implements and a pendant), utensils (a fine bone spoon), weapons (a tanged arrowhead and parts of bows), ritual objects (decorated 'reliquaries') and objects of unidentified function.

Although stone was employed as the main building material, it was used sparingly for making artefacts: the few exceptions were rock crystal and carnelian beads, stone querns, whetstones, a possible hammerstone and two spindle whorls; a small number of perforated slates were also found, as was part of a small chlorite cooking bowl or incense-burner, the latter representing a distant import from Arabia. The beads were imported but probably from within Transcaucasia rather than further afield. The sources of the stones used for the other objects is uncertain.

Fired clay items were scarce and limited to building materials and spindle whorls; potsherds were occasionally recycled to make spindle whorls. In addition to the vessel glass discussed above,[7] glass was used for small items of personal adornment, namely beads, bangles and small finger rings, again all imported.

15.1.2. Functions

The categories adopted here are as follows (cf. Fig. 15:3):

- Weapons (sword, composite bows, arrowheads).
- Everyday tools (iron knives, sickle and adze blades, whetstones, other utilitarian items, potsherd discs, spindle whorls, other perforated weights and a possible hammerstone).
- Chlorite bowl.
- Gaming pieces.
- Ritual objects ('reliquaries').
- Beads and pendants.
- Other items of personal adornment (mirror, applicator, razors, combs, pins, finger rings, bangles and a buckle).
- Architectural elements (nails and other items).
- Other objects.
- Unidentified metal objects.
- Metal sheet.
- Unidentifiable metal lumps.

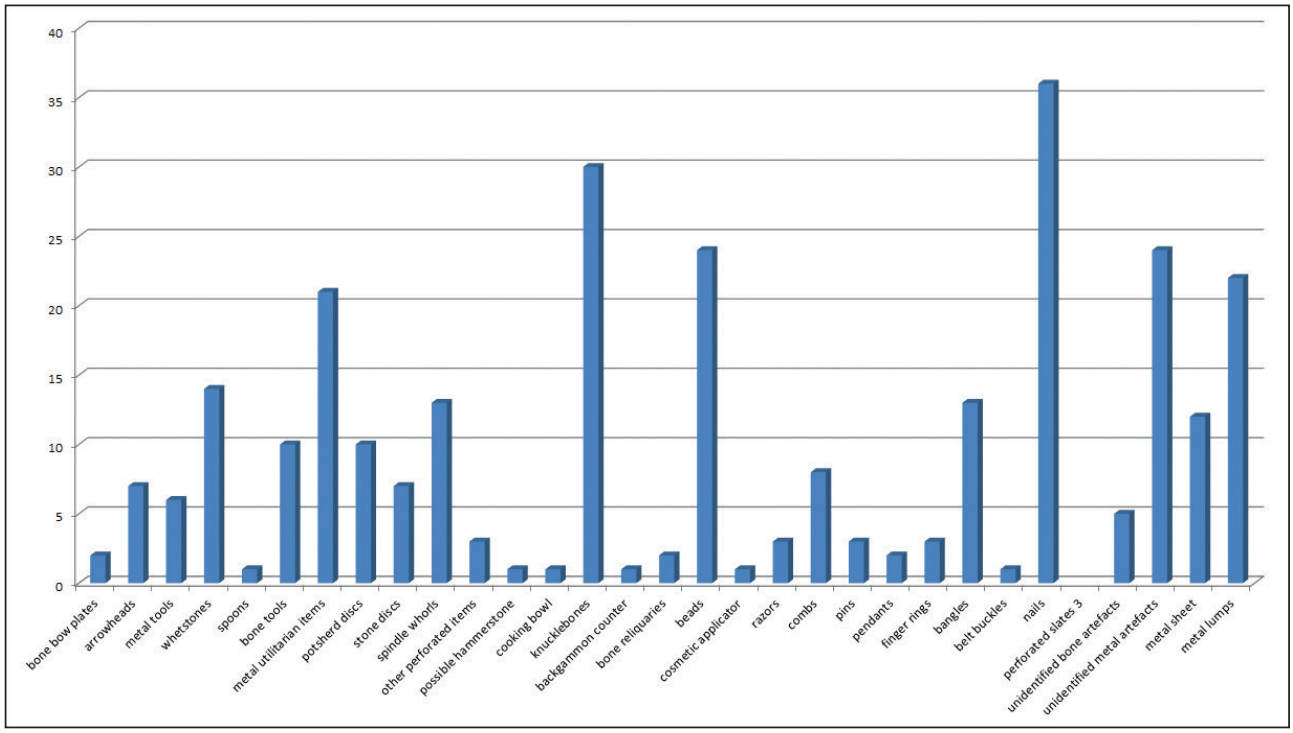


Fig. 15:3: Graph showing the frequency by count of different functions of object.

15.2. Finds from the Dariali and Gveleti Forts and extramural areas

By far the largest quantity of finds was found on Dariali Fort itself, notably in Trenches F and Q.[8] These items lost and deposited in a settlement context are discussed, together with those from the extramural area and Gveleti Fort,[9] in this section of the report, whilst grave goods from Dariali Cemetery[10] are discussed separately below.[11]

15.2.1. Weapons

Evidence for weaponry was found both in the fort and one of the graves, described below. The commonest such finds were arrowheads. The fort garrison at Dariali must have relied on archers to control passage through the pass and the excavations provided proof of this in the form of both bow elements and arrowheads. All but one of the latter were made of iron but there was a difference between those found in the fort and the cemetery where three were found with the burial of a young person interred with a sword.

15.2.1.1. Composite bows [LCh, St JS]

The archers used composite bows and support for this comes in the discovery of two bone objects which are tentatively identified as plates or lathes originally glued either side of the ends or so-called 'ears' of composite bows (Fig. 15:4; Table 15:1).[12] One was found broken in two, but both were found in the same context in Trench F (F.036/1557 and F.036/1564; F.036/1567). It is not clear whether these were discarded separately and/or were still attached to broken bows as the wooden and sinew portions of these do not survive.

Representations on third millennium BC reliefs and a stele from modern Iraq show Akkadian rulers and local chieftains brandishing recurved bows: none have survived, but they mark the earliest known stage of development in making bows of composite materials in order to improve their draw. It was during the same period that bifacially retouched leaf-shaped flint arrowheads were commonly used from Northern Mesopotamia to southern Central Asia and it is likely that these were part of the same bow kit. In the early first millennium BC, Scythian tribes developed a more powerful type of composite bow made of layers of wood and sinew which was held together with glue, and this has become popularly known as the 'Scythian bow'.[13] Scythian archers used small cast bronze trilobate arrowheads tied with sinew onto wooden shafts and the deadly effect of these combined with their powerful bows explains their reputation as warriors and why Scythian archers were employed as guards on ships in the Eastern Mediterranean and even the canals of Babylonia.[14]

The Scythians were replaced by other tribes from about the second century BC and it was in this period that the Hsiung-nu (Huns) had developed a new and even more powerful type of composite bow.[15] The core of this improved weapon was made of several pieces of specially selected wood with the flexible arms of the bow springing symmetrically on either side of the grip. The extremities diverge markedly from the line of the arms and the nocks which engage with the ends of the bow-string are reinforced with matching pairs of elongated and curving

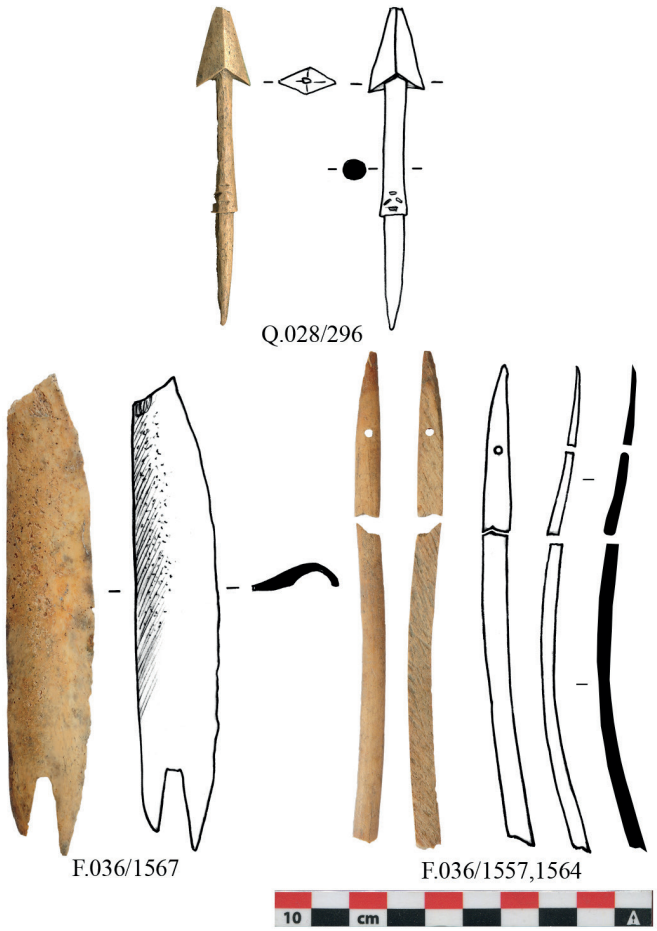


Fig. 15:4: Archery equipment made of bone.

Table 15:1: Composite bow.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
F.036/1557,1564	Composite bow tip	strip, carved from a rib bone; tapering with a small circular hole pierced through the pointed end; one face is convex and highly polished, the other is flat with evidence of diagonal saw marks; broken into two joining parts	4.2, 8.2	0.5, 0.4	0.1, 0.4	0.9, 1.99	5a-b	c. late 8th–9th c.	15:4
F.036/1567	Composite bow tip	strip, carved from a femur bone; cut down on both sides with a notch at one end and polished on the exterior side	12.7	2.1	0.5	11.25	5a-b	c. late 8th–9th c.	15:4

blade-like strips of bone or horn let into either side of each ear. These are typically slightly wider and rounded at the top, irregularly plano-convex in section and roughened on the underside to facilitate gluing to the ear of the bow; the inner curving edge often shows signs of rasping with a file, as do both surfaces on the lower tapered tip, whereas the surface around the broad notch at the broad end is often worn smooth and there are traces of wear inside the notch itself. The grip was also reinforced with three thicker plates, one on either side and the third on the belly, *i.e.* the surface of the bow facing the archer when in use. In some cases, additional plates were added along the other sections, and a semi-complete bow of this type with multiple plates along its entire length was excavated

at Torpakh-Kala.[16] The opposite side of the bow, known as the back, was covered with sinew and layers of birch bark, mixed with glue and added in layers onto the wood along the length of the bow. This combination and arrangement resulted in the bow adopting a 'negative' curve which faced away from the holder in an unstrung state whereas stringing it resulting in reversing the curve: releasing the string therefore allowed the bow to return to its normal rest of repose. The addition of these harder elements added compression whereas the sinew increased tension, hence their combination added to the stored energy and increased the range when the draw was released; before tightening the string, an average bow measured just over 1.50 m in length but as the bow is drawn the ends act as levers and allow the draw to be maintained for longer without discomfort. Experiments show that the advantage of the bone grip is that it remains rigid during the draw and therefore contributes to smooth action and greater accuracy.[17] With it, an experienced archer could shoot iron-headed arrows over several hundred paces and at medium range such arrows were capable of piercing practically any sort of armour used at the time. The manufacture of these bows required skill and experience and their production was slow in order to allow each layer to set and cure, and could take a year or more to complete; for this reason, composite bows were often made in large batches.[18] This is an additional reason to suggest that, when found in proximity to buildings where there are signs of craft activity or metal-working, that these are probably armouries.

These bows are found in numerous Eurasian graves dating from the second century BC onwards,[19] and this bow technology rapidly spread into the Middle East where it was adopted by Parthian archers: examples have been found in excavations of a workshop at Merv and the small site of Akhal, both in southern Turkmenistan, first century graves at Tillya Tepe in North-west Afghanistan, ed-Dur in Umm al-Qaiwain (United Arab Emirates) and Yrzi on the Syrian Middle Euphrates, and the main mound of Kuyunjik at Nineveh in Northern Mesopotamia, all most probably dating to this period.[20] They also reached the northern Black Sea region in the late first century AD,[21] were rapidly adopted by the Roman army,[22] and have been found at sites as far apart as Belmesa in Egypt[23] and Bar Hill on the Antonine Wall in Scotland, where two ears and a third element carved from deer horn were found in refuse pits and a well; and date to the mid/late second century when it was garrisoned by troops of the Cohors I Hamiorum Sagittariorum who are attested from inscriptions.[24] It is worth noting that units, such as this, originally raised in Syria probably were no longer ethnic units generations later.[25] The vast majority of archers in the Roman army did not serve in specialised *cohortes* or *alae sagittariorum*, but in other auxiliary units as well as the legions and were of a wide variety of ethnic origins.[26] It was the technology, more than archers of oriental origins, that spread to the west. These bows are common finds along the German *limes*, the Danube and in Britain,[27] another was found in the first century heap of debris at the legionary fortress of Vindonissa in modern Switzerland,[28] a group was found within the armoury at Carnuntum in Pannonia,[29] and as many as c. 50 splints made from cattle ribs were excavated in a third century armourers' workshop in the legionary fortress at Caerleon in Wales.[30] Within the Southern Caucasus, a bone ear from a composite bow is illustrated from Grave 10 at Koghoto in South-east Georgia and dated to the mid/late third century by an associated coin of Shapur I (c. AD 240–272); the person was also accompanied by glazed pottery flasks made in Southern Mesopotamia but whether these were imports or the individual was from there is unknown.[31]

A large number of isolated elements are known from these and later periods in Central Asia,[32] but these differ in detail from the pieces found in the fort at Dariali. Doubtless many others have been found in excavations, but have not been recognised as bone bow plates.

15.2.1.2. Arrowheads [St JS]

A total of five iron and one bone arrowheads were found on Dariali Fort: four of these belong to a trilobate (three-winged) tanged form with tips measuring about 4 cm in length on average and weighing up to 11.2 g (F.033/228; F.178/1504; L.002/3; Q.076/962), but one was considerably shorter and its tip only measured 2.2 cm in length (F.070/643). The bone arrowhead was tanged and barbed (Q.028/296). The shapes of these are different to those found in the cemetery, discussed below.[33]

The tanged trilobate form appears at sites in the Near East and across the Roman Empire in the first century and replaces socketed trilobate forms which were cast from copper alloy and ubiquitous from the seventh century BC onwards. This shape was aerodynamic but the iron versions were larger and heavier, and therefore capable of punching through stronger armour. Both types also created star wounds which lead to greater blood loss and are more difficult to sew up. (For similar reasons, Roman examples of this anti-personnel weapon often have barbs designed to cause maximum injury.) The appearance of the later variety coincides with the Parthian adoption of a new form of Eurasian composite bow technology, as discussed above, and this new arrowhead type was used throughout the Sasanian period judging by excavated finds.[34] There is less archaeological information about early medieval arrowheads from the Near East but one arrowhead of this type is reported from Nishapur[35] and others were found in fourth–fifth/sixth century and later contexts at Kush[36] and Fulayj respectively.[37]

Arrowheads from Trench F [EWS]

Three iron arrowheads were found in this trench (Fig. 15:5; Table 15:2). The first was a three-winged iron arrowhead (F.178/1504), 46 mm long and 9–14 mm wide, slightly bent along its long axis and asymmetrical,

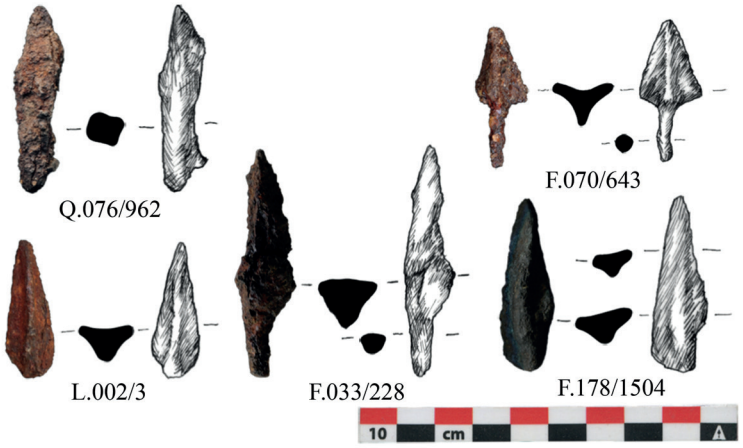


Fig. 15:5: Iron arrowheads from Dariali Fort.

Table 15:2: Iron arrowheads.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D tang*	*Wgt*	*Phase*	*Date*	*Fig.*
F.033/228	Arrowhead	Iron arrowhead; trilobate, tanged; complete	6.1 (1.4 tang)	1.5	1.3	0.4	9.62	5b-c	c. 9th–early 11th c.	15:5
F.070/643	Arrowhead	Iron arrowhead; trilobate, tanged; complete	3.7 (1.5 tang)	1.4	1.4	0.2	2.94	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:5
F.178/1504	Arrowhead	Iron arrowhead; trilobate, tanged; incomplete, missing tang	4.6	1.4	0.9	0.4	5.96	3c	c. late 4th to early 5th c.	15:5
L.002/3	Arrowhead	Iron arrowhead; trilobate, tanged; incomplete, missing tang	3.6	1.3	0.9	n/a	3.92	5c-6b (prob. 5c)	10th–15th c. (prob. 10th–early 11th c.)	15:5
Q.076/962	Arrowhead	Iron arrowhead; trilobate, tanged; incomplete, missing tang	4.9	1.1	0.9	0.4	11.21	5b-6b	c. 9th–15th c.	15:5

with unequal angles between its wings. It is the only such long-range weapon from a securely stratified pre-medieval deposit in any trench. The context points to a late fourth or early fifth-century date. The two other arrowheads from Trench F are both early medieval. The earliest of these dates to around the eighth century. It is a trilobate tanged iron arrowhead (F.070/643), some 37 mm long, the head itself some 22 mm long, the tang, 15 mm. The tip is broken and the piece may have been 2 mm longer originally. At -2.07 m (at 8.93 m north-east and 6.63 m north-west), it was found more than 10 cm over the burnt horizon (F.096) and is evidently not associated with the earlier conflagration. We cannot be certain whether it was an enemy missile, shot into the fort, or part of the garrison's arsenal. The latter, however, seems far more plausible as it was found embedded in a deposit full of occupation debris. Furthermore, there are fragments of a bow from the equally early medieval deposit F.036, discussed above. It confirms what one would have expected, that such long-range weapons were employed at the time. Archery would have allowed the fort occupants to target any assailants, or anybody attempting to make their way illicitly past the fort, with minimal risk to themselves. Arrows with small pointed iron heads, such as this up to 15 mm diameter where fully preserved, were an effective anti-personnel weapon. Of all arrowheads found at Dariali, this one has the smallest tip, yet unusually wide wings, not unlike a trilobate type popular in the early imperial Roman era.[38] Unlike its Roman counterparts, it has no barbs, but was probably also mainly intended for adversaries not wearing body armour. Its broad wings would have caused wider cut wounds, but would have been less effective in piercing armour. Metal was a precious commodity. Its scarcity amongst our finds was probably the result of care being taken not to lose it, rather than shortage of weaponry.

A three-winged iron arrowhead, 6 cm long, broadly similar to F.178/1504 and F.070/643 (and in dimensions closer to the former), was found in 1962 when parts of the road-blocking wall had been destroyed by explosives in the course of pipeline construction. The piece had been found then by a non-archaeologist, but subsequently acquired by Ts'itlanadze.[39] It seems likely that this arrowhead was also of late antique or medieval date, but the form is long-lived, of course. A second arrowhead, tentatively attributed to the Scythians, was also found in 1962 during the pipeline construction works in the area of the road-blocking wall.[40]

Deposit F.033 has yielded a 61 mm long and up to 13–15 mm wide tanged three-winged iron arrowhead (F.033/228).[41] The tip is 47 mm long, the tang, 14 mm. Whilst not precisely dated, deposit F.033 is towards the top of the sequence of early medieval bulk deposits and is likely to be of the late first millennium, or around the turn of the millennium at the latest. It may be of a broadly similar date to the smaller trilobate arrowhead from Trench L tower, the two large tanged rhomboid arrowheads from Grave G9 and the unstratified Y-shaped arrowhead from Trench G. Unsurprisingly, this long-range weapon remained in use throughout the fort's intensive period of occupation in the Early Middle Ages and probably beyond. As is typical for the period, a variety of types were used for different purposes. The small and thin arrowheads from F.033 and the Trench L tower would have been effective weapons against those wearing body armour more capable, than a larger projectile, to penetrate metal or leather.

Arrowhead from Trench L [EWS]

In Trench L, the small sondage within a tower-like structure on the rock outcrop south of the fort, we found a trilobate iron arrowhead (Fig. 15:5). Only the tip of the weapon survived, of 36 mm length and 9–13 mm across. Most probably, this had been part of the arsenal of the tower's garrison. Less probably, it could have been a well-targeted enemy missile, but this would naturally have reached the uppermost level rather than the surviving basement floor level. Judged by the masonry style of its mortared walls, the tower is likely to be late antique, but deposit L.002 cannot be earlier than L.004 underneath, with a radiocarbon date of c. AD 897–1020 and it seems likely the missile is of a similar age. It could be later, but there is no evidence for later occupation and a date in the tenth or early eleventh century seems most probable.

Iron arrowhead from Trench Q [EWS]

We found a possible iron projectile (Q.076/962) of 49 mm length and up to 11 mm width from high medieval to modern deposit Q.076 well above the level of the patchy paving (Fig. 15:5). It is rectangular (c. 9 × 11 mm) in section and double-pointed. It is not a winged arrowhead, but could be an artillery projectile, but this possible functional identification is not certain.

Bone arrowhead from Trench Q [LCh]

A bone arrowhead (Fig. 15:4; Table 15:3) was found in deposit Q.028 in Trench Q, to the south-west of the large stone-lined pit (Q.176). It was quite well-preserved and was carved and polished with a pointed tang, a tapered shaft and a neatly carved barbed point. This kind of bone arrowhead is not common at medieval sites in Georgia and suggests that they were not in widespread use. However, a similar bone arrowhead was found in early to high medieval (ninth to thirteenth century) cultural layers in Rustavi.[42] According to radiocarbon dating, the bone arrowhead from Dariali Fort was found in a deposit dated to c. AD 663–779. A nearby bone sample dates to c. AD 663–863 (663–779 at 88.8% confidence), and the bone arrowhead from Dariali Fort is likely to be of a similar age.[43]

15.2.2. Everyday tools

These fall into several categories, including iron knife, sickle and adze blades, whetstones, a bone spoon, other assorted bone and metal items, such as handles, rivets, tangs, rods, rivets and 'washers', sherd discs, spindle whorls and small weights.

15.2.2.1. Iron knives, sickle and adze blades [St JS]

Five iron knife blades, an iron sickle blade and an iron adze were found (Figs 15:6–15:7; Table 15:4). The knife blades represent everyday items probably carried by almost everyone in the fort where knives must have been essential everyday implements in daily life, including the preparation of food during meals. They included straight and lightly curved blades: all were broken but were small in size and presumably originally worn in leather sheaths hung from the belt (F.022/123, F.071/587, F.103/820, F.123/1036, M.008/46). All five come from medieval contexts. Three are from living quarters in the casemate: F.123/1036 from late eighth to early tenth century earthen floor F.123, F.103/820 from early to mid-tenth century deposit F.103 and F.071/587 from tenth to fifteenth century (but more likely tenth to eleventh century) deposit F.071. Another (F.022/123) is from c. ninth to early eleventh-century deposit F.022, outdoors north-east of the casemate, and one (M.008/46) is from the seventh to ninth century extramural cultivation horizon M.008 in Trench M. The tangs must have been hafted inside handles but these did not survive. The charcoal evidence from the site indicates that the vicinity was heavily wooded (if perhaps less so in the Early Middle Ages) and suitable locally available species for hafting would have included oak, honeysuckle, beech, lime and ash.[44] However, the absence of any traces of wood in the corrosion products may suggest that they may instead have been made of horn.

The tanged sickle blade, from an eighth or ninth century deposit F.131 in the casemate, originally must have had a

Table 15:3: Bone arrowhead.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D tang*	*Wgt*	*Phase*	*Date*	*Fig.*
Q.028/296	Arrowhead	Bone arrowhead; carved and polished with long pointed tang, tapered shaft and barbs; semi-complete	8.4	1.3	0.4	0.4–0.6	3.8	5a-b	c. late 7th–9th c.	15:4

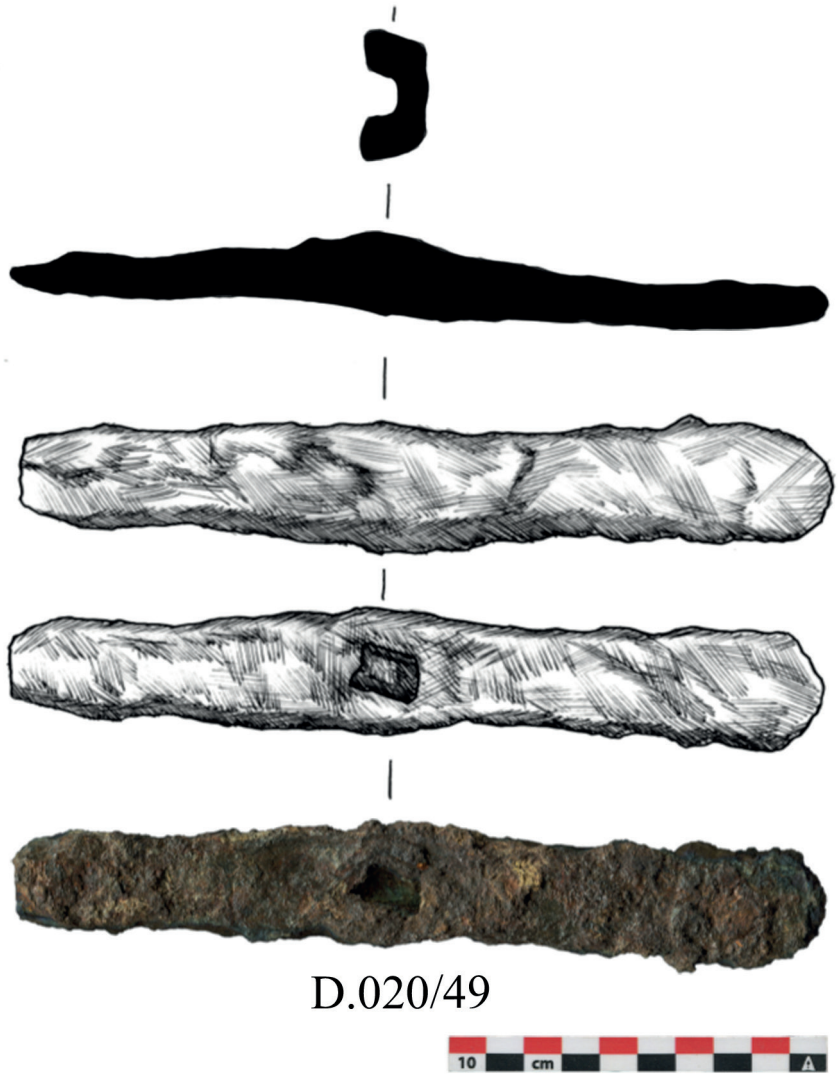


Fig. 15:6: Iron adze.

haft but, like the knife blades described above, there were no traces of wood in the corrosion products on the tang and it may, therefore, have been made of horn or bone (F.131/1118). Tools such as this were probably forged by local blacksmiths and are regular archaeological finds at late antique and medieval sites. They are also evidence for near-site agricultural activity or horticultural activity and there are deep cultivation layers (as encountered in Trenches M and P) on the terrace to the south of the fort. The palynological evidence from a radiocarbon dated pollen core from Stepantsminda Mire indicates an increase in cereal-type and crop weed pollen consistent with a peak in highland agricultural activity between c. 350 and 1000.[45]

A semi-complete double-bladed iron adze head, datable to the first half of the second millennium, was found in Trench D (D.020/49) on Gveleti Fort.[46] In his report on the early medieval metalwork from Nishapur in North-east Iran, Allan remarked that although two iron adze blades were found there, both from the site of Tepe Sabz Pushan,

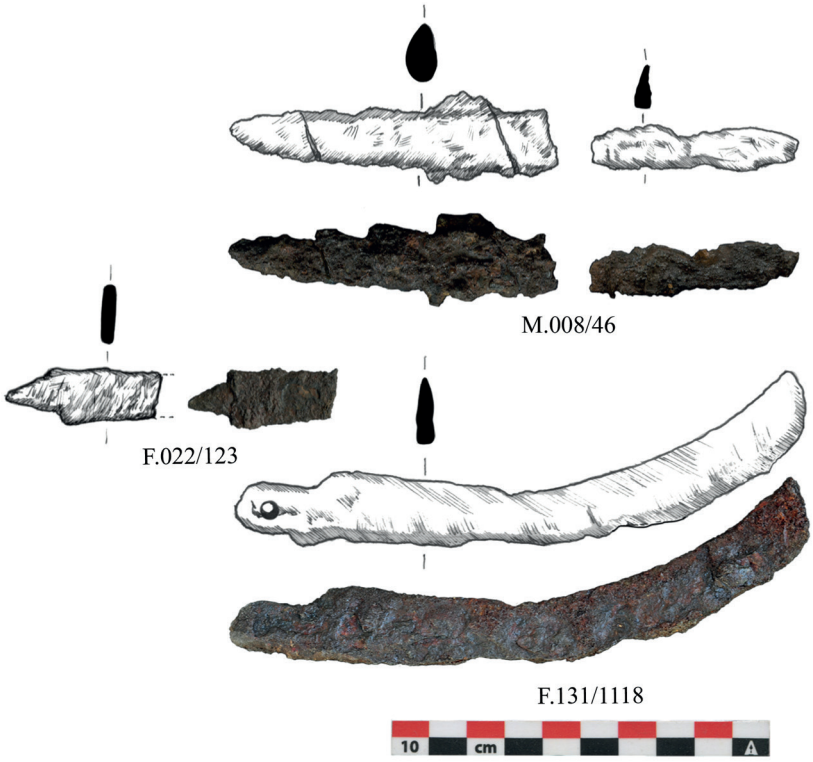


Fig. 15:7: Iron knife and sickle blades.

Table 15:4: Everyday tools.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
D.020/49	Adze	Iron double-bladed adze; narrow blade at one end, the opposite being slightly broader; semi-complete, originally forged onto a rectangular socket (1.5 x 1.2cm) but snapped at the junction	21.6	2 – 3.2 (blades)	1.1	456	6a-b	c.11th–15th c.	15:6
F.022/123	Knife	Iron knife blade; lightly curved blade with blunt back and short tang; upper portion missing	3.9 (1.1 tang)	1.3	0.3	3.6	5b-c	c. 9th–11th c.	15:7
F.071/587	Knife	Small knife with a wide blade, traces of wood from the handle	2	7.5	0.4	14.2	5c-6b	c. 10th–15th c.	n/a
F.103/820	Knife	Iron knife blade; slightly curved blade with blunt back; broken at each end	4.1	2.1	0.7	12.7	5c	c. early–mid 10th c.	n/a
F.123/1036	Knife	Iron knife blade; straight blade with blunt back, tanged; fragment	8 (5.5 tang)	1.6	0.2 –0.4	9.27	5b-c	c. late 8th–early 10th c.	n/a
M.008/46	Knife	Iron knife blade; straight blade with blunt back and pointed tip; fragment	15.7	2	0.5	36	5a-b	c. late 7th–9th c.	15:7
F.131/1118	Sickle	Iron sickle blade; narrow curving blade and blunt back, tanged; semi-complete, tips missing	15.3	1.7 – 2 (blade)	0.5	n/a	5a-b	c. 8th–9th c.	15:7

which the associated pottery and glass date to the tenth and possibly ninth century,[47] only one other excavated medieval example was known to him and that was from the uppermost level of occupation at Shah Tepe in the Gorgan Plain and dates to about the eighth century.[48] Since then, several more have been published from excavated contexts, including isolated examples from twelfth/thirteenth century medieval contexts at Gritille,[49] Aşvan Kale[50] and Tille,[51] all in South-east Anatolia, and Hama in Western Syria,[52] but it is true that such objects are under-represented archaeologically. However, none of these resemble this example, as they are either single-bladed or combined with an axe-blade and the haft continued through the object rather than being contained within a separately forged socket.

15.2.2.2. Whetstones [St JS]

Bladed weapons and tools require regular sharpening if they are regularly used or carefully maintained. It is not surprising to find that whetstones (Figs 15:8–15:9; Table 15:5) were relatively common finds in the fort and were present in Trenches F, P and Q although as many as seven were from disturbed twentieth century contexts. Seven more were from secure medieval contexts, and five of them from early medieval deposits, although only one (F.164/1436) was found within living quarters (F.164 in the casemate). They consist of three types. The commonest were stick-shaped and made from unmodified elongated natural stones (F.003/20; F.017/113; F.037/265; F.027/310; F.070/579; F.118/1093.2; F.164/1436; P.001/5; Q.001/926; Q.001/927). Eight were complete and measured between 7.1 and 14.9 cm in length and the two broken fragments appear originally to have been of similar size. Two others, measuring 7.1 and 9.8 cm in length, were artificially holed at one end and therefore were originally suspended, presumably from the belt and therefore used as personal whetstones (F.001/3; F.016/577). The holes were neatly drilled and one of these had signs of wear around the perforation; as there were no visible traces of metal staining in the holes, they had possibly been held by a thong rather than a metal ring. The third type consisted of unmodified small flat grey stone slabs measuring between 10 and 13.7 cm in length and up to 7.5 cm across (F.095/795; Q.003/591); as they were unholed, like most of the stick whetstones they were presumably either carried in a pouch or satchel or left in convenient locations within the fort where they could have been used by more than one individual.[53]

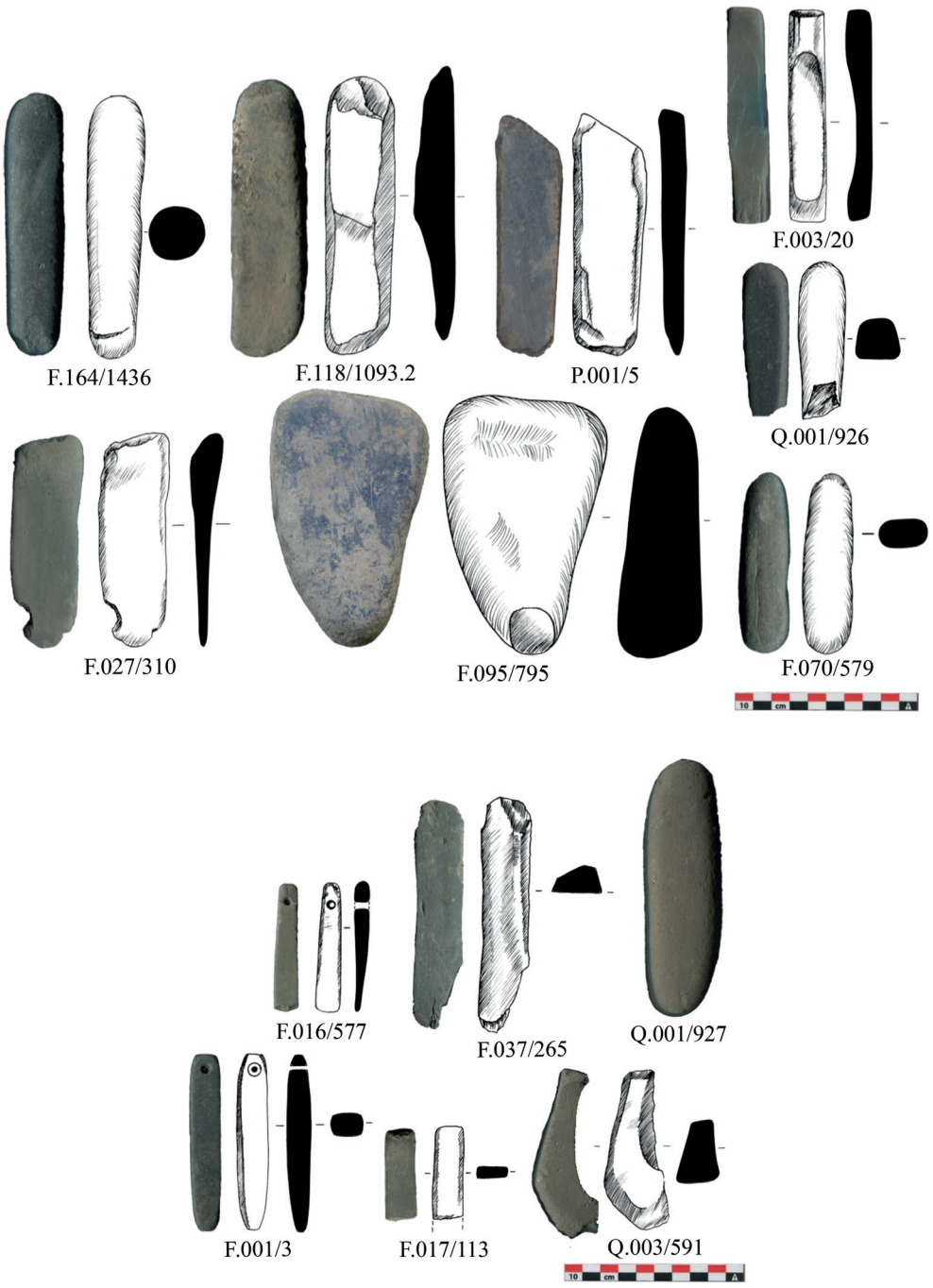
The materials of the different unholed whetstones appear rather similar and may have been locally sourced stones which were procured on an *ad hoc* basis. However, the two complete perforated whetstones appeared rather finer and may have been imported from another region, and it may be significant that these were the only examples which were designed to be slung from the belt. Whetstones appear archaeologically at sites across Eurasia from the third millennium BC onwards as copper alloy and then iron bladed weapons began to be used.[54] They continued to be popular into the medieval period. The possibility of long-distance trade in whetstones across the Near East and Eurasian steppe should not be under-estimated, as most whetstones excavated at medieval sites in England were imported by sea from Scandinavia,[55] and a detailed study of 135 specimens from York showed that 83% were made of schist ('Norwegian Ragstone') whereas the remainder were from sources in Southern Scotland/Cumbria, the Pennines and possibly Wales.[56] Within the Caucasus region, there were doubtless other workshops with access to fine stones and there must have been a particularly heavy demand from the military.[57]

15.2.2.3. Quern stones [EWS, St JS]

Four rotary quern stones were found, only one of them from a well-stratified deposit of the later fourth century in Trench F (Table 15:6). A fragment of a fifth rotary quern was embedded in early medieval paving Q.152, suggesting that the broken piece had been used in the Early Middle Ages or before. It has been left *in situ*.[58] Occupants of the fort appear to have ground grain into flour within the intramural area already in the earliest phase of late antique occupation and perhaps also later within the first millennium.

15.2.2.4. Bone spoon [LCh, St JS]

Medieval food consumption in Transcaucasia, as in the Middle East and Northern Europe, did not involve the cutlery sets with which we are now accustomed. People instead ate with their fingers and used knives to cut their food; bread was used as scoops and forks were largely unheard of. In some cases spoons were used and most of these were probably made of wood or horn, as in medieval Europe or more recent periods, but unfortunately these materials do not survive well.[59] Metal spoons on the other hand generally appear to have been uncommon although plain and decorated metal spoons with various forms of handle and bowl are present in low numbers among excavated collections of medieval metalwork at medieval sites in the Near East, including Hama,[60] Nishapur,[61] and Ghubayra.[62] A copper alloy spoon with an oval bowl and a long handle decorated along the full length with a row of engraved dotted lozenges, and excavated on the citadel at Qasr-i Abu Nasr, may also date to this period.[63] Four undecorated copper alloy spoons were found stored with knives and a collection of glazed pottery bowls and cups in a room in the so-called 'House of Lustres' excavated at Ghazni by the Italian Archaeological Mission to Afghanistan and dated accordingly between the late twelfth and early thirteenth centuries;[64] three of these are currently on display in the Museo Nazional d'Arte Orientale in Rome.[65] Moreover, a number of copper alloy and silver spoons have appeared on the art market in recent decades, usually attributed an eleventh or twelfth century Ghaznavid date.[66]



Figs 15:8–15:9: Whetstones.

At Dariali a single semi-complete bone spoon (Table 15:7) was found in a late seventh or eighth century (period 5a) context in the fort. It was discovered in a small pit (Q.177) that also yielded parts of a fine glass goblet – both evidence for refined dining in the vicinity.[67] The elegant shape and mouldings suggest it is a skeuomorph copying a metal spoon and the care and quality of workmanship implies that it was made in a specialised bone workshop, perhaps in an urban centre, but where this was is unknown and the type of bone from which it was cut is unclear. The spoon may have been used for medicines or cosmetic (powder, grain herbs) owing to its delicate nature and shallow bowl which is also slightly flattened along one edge, perhaps as a result of regular use.

15.2.2.5. Bone tools of everyday use (handles, awl handle and others) [LCh]

Several bone tools were found within Dariali Fort (Figs 15:10–15:11; Table 15:8). One was found in a modern disturbed context and two others recovered

Table 15:5: Whetstones.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D perf.*	*Wgt*	*Phase*	*Date*	*Fig.*
F.001/3	Whetstone	Perforated stick whetstone; modified fine dark grey stone, perforated at one end for suspension; complete	9.8	1.8	1.3	0.4	49.8	7b	c. 20th c.	15:9
F.003/20	Whetstone	Stick whetstone; modified light grey stone, unperforated; complete; truncated at either end; heavy wear and smoothing on either side	11.5	2.1	1.4	n/a	73	7a-7b	c. 15th–20th c.	15:8
F.016/577	Whetstone	Perforated stick whetstone; unmodified light grey stone, perforated at one end for suspension; complete	7.1	1.4	0.8	0.5	12.4	5c-6b	c. 10th–15th c.	15:9
F.017/113	Whetstone	Stick whetstone; unmodified light grey stone, unperforated; incomplete	4.9	1.6	0.7	n/a	13.7	6b-7b	c. 14th–20th c	15:9
F.027/310	Whetstone	Stick whetstone; unmodified greyish stone, unperforated; smoothed on both wide surfaces with numerous linear and transverse scratches; complete, chipped near one end	11.4	3.7	1	n/a	94.5	5c-6b	c. 10th–14th c.	15:8
F.037/265	Whetstone	Stick whetstone; unmodified light grey slate (?), unperforated with smooth surface; complete but chipped at one end	12.3	2.6	1.3	n/a	69.9	5a-b	c. 8th–9th c.	15:9
F.070/579	Whetstone	Stick whetstone; unmodified tabular stone, unperforated; complete, one smoothed surface	10.3	2.7	1.8	n/a	95.3	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:8
F.095/795	Whetstone	Slab whetstone; unmodified dark grey stone, unperforated	13.7	7.5	4.4	n/a	794	4	c. mid 7th–early 8th c.	15:8
F.118/1093.2	Whetstone	Stick whetstone; unmodified greyish stone, unperforated; one smooth surface; complete	14.9	4	2.2	n/a	397	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:8
F.164/1436	Whetstone	Stick whetstone; unmodified dark grey stone, unperforated; complete; smoothed on one surface	14.3	3.1	2.6	n/a	248	5a-b	c. 8th–9th c.	15:8
P.001/5	Whetstone	Stick whetstone; unmodified grey slate; semi-complete, chipped at each end; smoothed top and bottom with numerous linear and transverse scratches	12.1	3.4	0.6	n/a	125	7b	c. 20th c.	15:8
Q.001/926	Whetstone	Stick whetstone; unmodified dark grey tabular stone; one smooth surface with linear and transverse scratches; broken at one end	8.3	2.3	2.3	n/a	99.3	7b	c. 20th c.	15:8

(Continued)

Table 15:5: Whetstones. (Continued)

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D perf.*	*Wgt*	*Phase*	*Date*	*Fig.*
Q.001/927	Whetstone	Stick whetstone; unmodified tabular stone; one smoothed surface; unperforated; complete	14.4	4.1	3.8	n/a	380	7b	c. 20th c.	15:9
Q.003/591	Whetstone	Slab whetstone; unmodified greyish stone with smoothed surfaces; unperforated	10	3.8	4.2	n/a	195	7b	c. 20th c.	15:9

Table 15:6: Quern stones.

Find number	*Object type*	*Description*	*Wgt*	*Phase*	*Date*
F.181/1596	Quern stone	n/a	n/a	3a	c. mid 4th–early 5th c.
Q.002/4	Quern stone	Top of a rotary quern, split in half, flattened on the underside with a hole in the centre	n/a	7b	c. 20th c.
Q.US/473	Quern stone	n/a	1661	n//a	?
Q.US/491	Quern stone	n/a	1602	n//a	?

Table 15:7: Bone spoon.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
Q.157/1055	Bone spoon	Polished bone spoon with a long rounded handle tapering slightly towards both ends with eight sets of regularly spaced paired grooves along the top. At the top it has short squared projections below a broken decorative finial. At the other end, above the bowl of the spoon, it has a short notched square projection around the shaft. The bowl of the spoon is elongated (42 × 18mm) and rounded, and the inside surface is carved with a wavy lattice pattern with small vegetal ornaments formed from three lines within each diamond. The broken part must have been the decorated end of the object, representing a flower or vegetal ornament, but it is very badly preserved	15.9	1.8	0.6	7.8	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:23

from mixed period 3–6 or period 5–6 contexts, but the remainder were firmly stratified in period 5 deposits dating between the late seventh and tenth or early eleventh century, as well as one from a late antique (phase 3) deposit. Only one of these artefacts (F.100/891) came from indoor living quarters (F.100 within the casemate). These objects include different types of handles carved from ribs or long bones. Three were made from caprid ribs, are well-polished, broken at one end and have cut squared notches on both sides at the end (F.092/1268; Q.142/909; Q.027/1135). At least one other bone object also appears to have functioned as a handle: it is a polished caprid metacarpal which was cut flat at each end and cleaned out inside (F.016/1565); a second found in a late antique levelling horizon may have had the same function (F.148/1292). F.088/1568 is a polished caprid metatarsal, cleaned inside, cut flat at one end and broken at the other with a small hole drilled through the cut end. This hole must have had a function, possibly as some form of attachment. F.053/1734 is a scraped and polished object which was cut flat at one end and trimmed at the other. It is made from the tibia of a small carnivore or long winged bird and appears to be the handle of some kind of delicate object.

F.100/891 is a well-polished caprid long bone, possibly a tibia, modified to make an object which was rounded

Table 15:8: Bone tools.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
F.100/891	Artefact	Bone artefact; caprid long bone, possibly a tibia, drilled at one end, chopped flat at one end and riveted; surfaces polished	5.1	2.3	0.2	14.8	5c	c. early–mid 10th c.	15:11
Q.002/384	Awl	Bone awl; polished caprid ulna; pointed end, broken at the other	6.9	2.5	0.7	6.28	7b	c. 20th c.	15:11
F.016/1565	Handle	Bone handle	6.1	1.3	0.8	9.02	5c-6b	c. 10th–15th c.	15:11
F.053/1734	Handle	Bone handle; scraped and polished tibia from a small animal	10	1	0.9	5.7	5c	c. 10th c.	15:10
F.088/1568	Handle	Bone handle; polished caprid metatarsal	9.1	1.6	0.9	11.8	5b-c	c. 9th–early 11th c.	15:10
F.092/1268	Handle	Bone handle	8.5	1.1	0.6	9.3	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:10
F.148/1292	Handle	Bone handle	n/a	n/a	n/a	69.1	3d	c. early 5th–6th c.	n/a
Q.027/1135	Handle	Bone handle; polished caprid rib	7.4	1.7	0.5	3.9	5b	c. late 8th–9th c.	15:10
Q.142/909	Handle	Bone handle; polished caprid rib	7	1.4	0.7	4.9	3c-6b	c. late 4th–15th c.	15:10
F.037/260	Point	Bone point; polished, broken at one end	6.1	0.7	0.5	1.84	5a-b	c. 8th–9th c.	15:11

on top with a transverse oval hole (14 × 20 mm) which seems to have functioned as a hanger or to pass a finger through for better grip or control. At the other end it is cut flat and cleaned out inside with an iron rivet remained perpendicularly for attaching another component. This object may be defined as a handle of some kind of tool. According to a much earlier, ninth to eighth century BC, Cimmerian parallel excavated in 1959 in a *kurgan* near the village of Zil'ne in Simferopol's'kyi Rayon in Crimea, this object could have been used as a whip handle;[68] on the other hand, it may have been a part of a bridle judging by the shape of the object and the size of the hole. Its exact function is therefore uncertain.

There are two more tools in this group. A polished bone point, broken at one end (F.037/260) could have been used for knitting or some such purpose. Q.002/384 is a polished caprid ulna fragment, broken at one end, carved to a point at the other for use as an awl for penetrating leather.

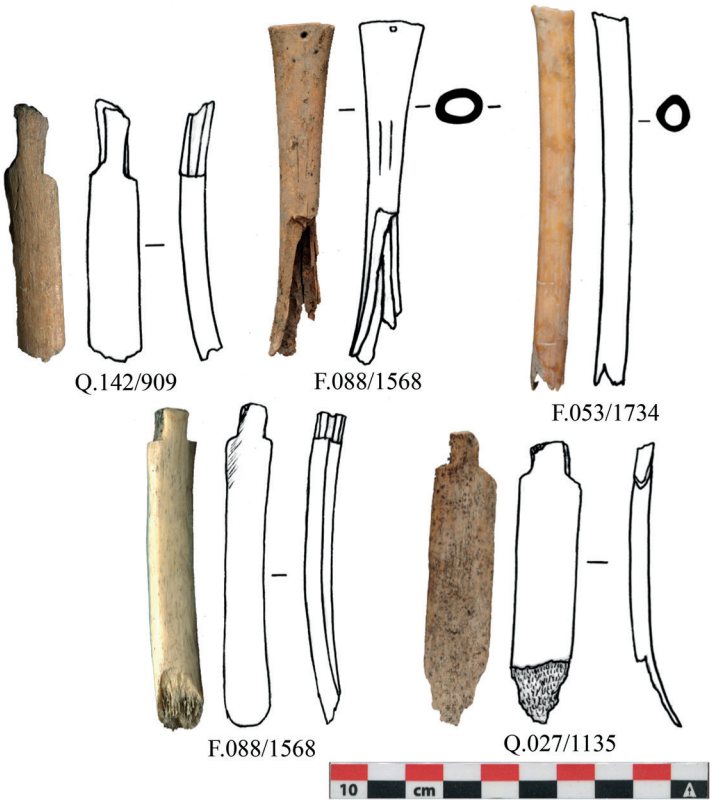
15.2.2.6. Other utilitarian items made of metal [St JS]

A small number of other utilitarian items made of metal were found (Figs 15:12–15:13; Table 15:9). All but two were iron objects and most were found in period 5 contexts in Trench F. These include an iron balance pan handle (F.035/244), found embedded in late eighth to ninth-century levels (F.035) of the large rubbish dump north-east of wall F.013, and three iron handles which originally belonged to small drawers (F.063/511; F.125/1047; Q.027/173); a fourth belonged to a larger handle of the same type (Q.047/398). An iron tang of a blade covered with unidentified wood impressions in the corrosion products was found with two other pieces of corroded iron (F.022/193.1). The remaining iron objects consisted of three broken tangs (F.043/320; F.070/625; F.164/1433), another iron handle (F.016/104), a pointed wedge (F.077/669), a circular-section rivet (F.100/879.2), a tapered pointed item (F.114/987), a flat artefact (Q.126/843) and a point (X.005/29).

A short copper alloy rivet (Q.008/52) and a roughly cast disc-shaped copper alloy 'washer' with a circular hole in the centre (Q.027/175)[69] were also recovered, the former from a modern deposit but the latter from a period 5b deposit. Comparable copper alloy objects were found in early medieval contexts at Siraf, on the Persian Gulf, where they were used as hilt-plates at the junction of the blade end of the handle and the tang of an iron knife.[70] Another 'washer' was made of iron sheet and had a tiny hole perforated through the centre (F.125/1090).

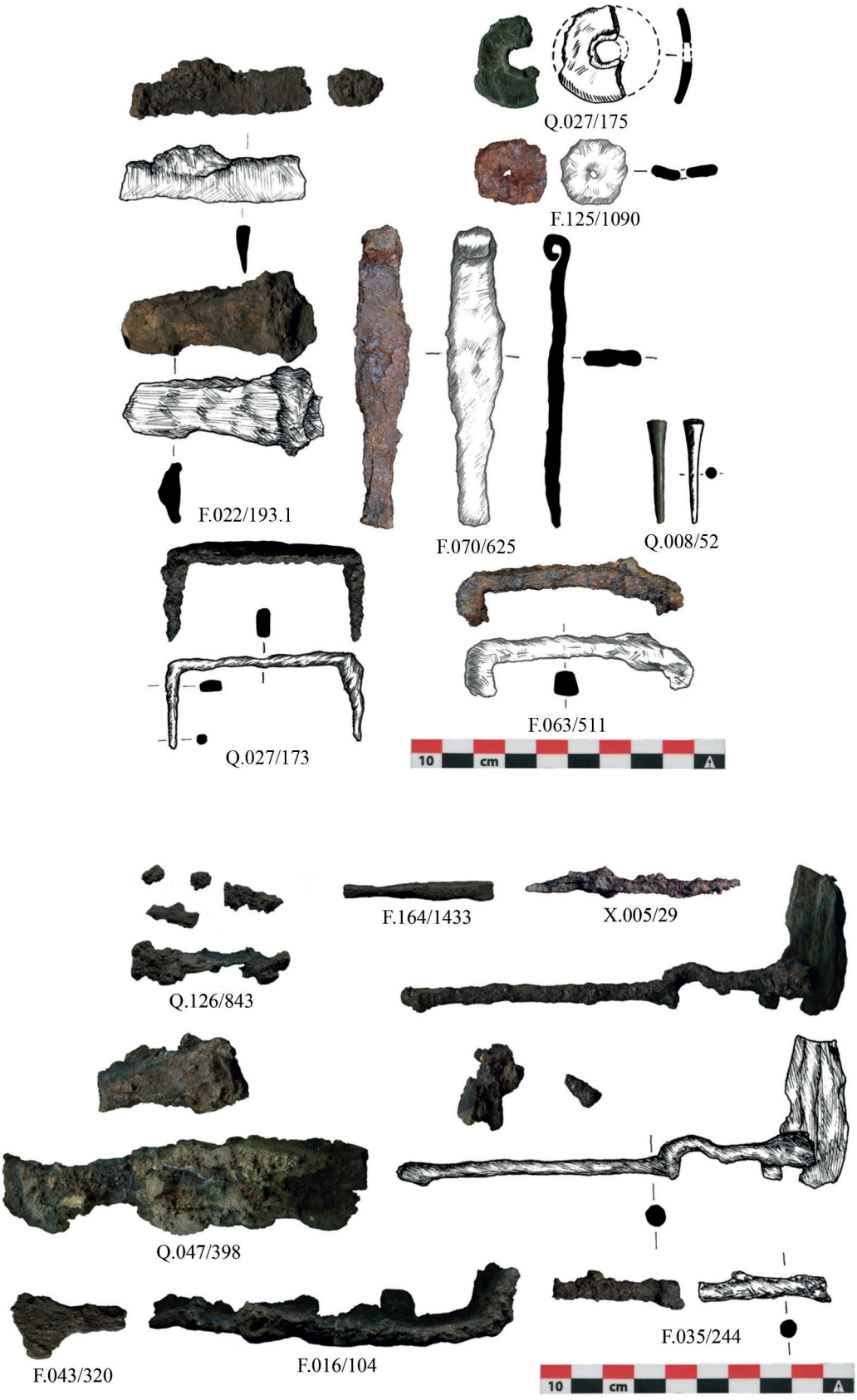
15.2.2.7. Potsherd and unmodified stone discs [St JS]

Modified potsherd discs are a common find at archaeological sites of all periods from Europe to the Near East





Figs 15:10–15:11: Bone tools.



Figs 15:12–15:13: Miscellaneous iron objects.

Table 15:9: Miscellaneous iron objects.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
F.077/669	Artefact	Iron artefact with pointed wedge shape	3.3	1.5	1.2	9.55	5a	prob. mainly 8th c., poss. 8th–early 9th c.	n/a
Q.126/843	Artefact	Iron artefact; flat section; in fragments	n/a	n/a	n/a	8.9	5b-6b	c. late 8th–15th c.	15:13
F.188/1627	Blade	Iron blade; triangular section; fragment	n/a	n/a	0.4	9.23	3a	c. mid 4th–early 5th c.	n/a
F.016/104	Handle	Iron handle; flat, broken at one end	12.2	2.3	0.7	52.9	5c-6b	c. 10th–15th c.	15:13
F.063/511	Handle	Iron drawer handle; complete	7.2	1.8	0.6	20.4	5b-c	c. 9th–early 11th c.	15:12
Q.027/173	Handle	Iron drawer handle; complete	6.5	2.8	0.3	8.74	5b	c. late 8th–9th c.	15:12
Q.047/398	Handle	Iron drawer handle; semi-complete	16	1.5	0.3	n/a	5b	c. late 8th–9th c.	15:13
F.125/1047	Handle	Iron drawer handle; fragmentary	n/a	n/a	0.3	12.4	5b	c. late 8th–early 10th c., prob. late 8th–9th c.	n/a
F.114/987	Point	Iron point; lightly tapered at each end; fragment	4.7	1.3	n/a	8.17	5c	c. late 9th–1st half of 10th c.	n/a
X.005/29	Point	Iron point	6.6	0.7	0.5	3.8	5b-7b	c. 9th–20th c.	15:13
F.100/879.2	Rivet	Iron rivet; circular section shank; bent	n/a	n/a	n/a	n/a	5c	c. early–mid 10th c.	n/a
Q.008/52	Rivet	Copper alloy rivet	3.1	n/a	0.4	2.4	7b	c. 20th c.	15:12
F.035/244	Scales	Iron balance pan handle; thickened terminal, curved mid-section, opposite terminal missing; semi-complete	14	n/a	0.6	36.5	5a-b	c. late 8th–9th c.	15:13
F.022/193.1	Tang	Iron tang; flat with extensive traces of wood corrosion on the surfaces; presumably from a medium/large tool or weapon judging by the relative size	6	3	0.7	15.1	5b-c	c. 9th–11th c.	15:12
F.043/320	Tang	Iron tang; flat	3.7	2.1	0.3	4.82	5c	c. 10th c.	15:13
F.070/625	Tang	Iron tang; rolled over tip at the broader end but lacks cutting edges; semi-complete	9.5	1.8	0.4	20.8	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:12
F.164/1433	Tang(?)	Iron tang(?); rectangular section; slightly tapering, broken at one end	4.9	0.4	0.6	5.5	5a-b	c. 8th–9th c.	15:13
F.125/1090	'Washer'	Iron 'washer'; circular sheet with tiny perforation (D 0.2cm) in the centre	2.2	2.2	0.3	3.23	5b	c. late 8th–early 10th c., prob. late 8th–9th c.	15:12
Q.027/175	'Washer'	Copper alloy 'washer'; roughly cast disc with a circular perforation (D 0.7) in the centre surrounded by a low raised ridge on one side	3	2.3	0.3	7.65	5b	c. late 8th–9th c.	15:12

and Central Asia, and ten were found at Dariali Fort (Fig. 15:14; Table 15:10). They were recovered from Trenches F and Q, seven from contexts ranging from the mid-fourth century to early fifth century (F.177/1718), early to mid-seventh century (F.138/1245), late seventh to fifteenth century (Q.089/940), late eighth to late ninth century (F.036/1232; Q.027/386) and tenth to fourteenth century (F.027/934.1–2); the others were either from a mixed deposit or were unstratified. All had carefully rounded and smoothed edges created by rubbing the previously broken edges (F.027/934.1–2; F.036/1232; F.US/1233; F.138/1245; F.062/1284; F177/1718; Q.027/386; Q.089/940; Q.001/958). They measured between 2.8 and 6.9 cm across and were mostly made from sherds belonging to well-fired plainwares mostly Hard Sandy Orange Grit Tempered Ware (HASOG: five examples) and Cream Coloured Ribbed Ware (CEMRIB: one example), although one was made from a monochrome green glazed bowl and two were made from more friable coarse tempered cooking pot fabrics (GREBS: one example; WHITEC: one example). These latter two examples indicate that the shape of the objects may have been a more important consideration in their production than the durability of the raw material that they were made from. The fabrics resemble the excavated pottery found at the site and it is reasonable to suppose that they were made at the site and modified from the fragments of accidentally broken pots. Several flat circular stone flakes resembling sherd discs were also assigned finds numbers during excavation (Table 15:11), but closer examination showed that none were modified, and although they may have been used in the same manner as the sherd discs, there was no proof that they had the same function.

Many hypotheses have been advanced as to the possible intended function of such sherd discs, ranging from smoothers used in pottery manufacture to tools used in the processing of hides, accounting tokens or stoppers.[71] They are most often interpreted as gaming pieces but as they lack any differentiating marks or colours it is difficult to see how they could have been used in this manner. A quite different hypothesis favoured by this writer is that they were used as reusable toilet wipes and smoothed potsherds intended for this purpose are mentioned in the Babylonian Talmud. Perhaps this hypothesis gains strength in the light of eight of the pieces having been found in outdoor areas. Neither of the two from within the casemate are from a well-stratified domestic context: F.177/1718 is from the fill (F.177) of a foundation trench and F.062/1284 from a deposit (F.062), above the well-dated medieval sequence, of unknown age and significance.

15.2.2.8. Spindle whorls [LCh, St JS]

Spinning thread using a spindle weighted with a circular or, less commonly, a cruciform whorl has its origin in the

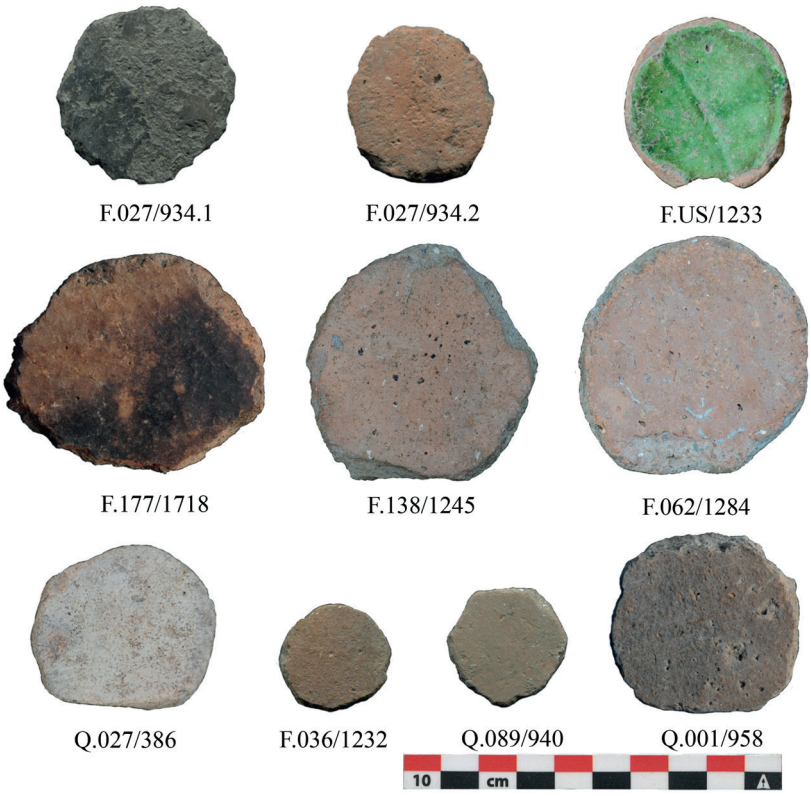


Fig. 15:14: Chipped sherd discs.

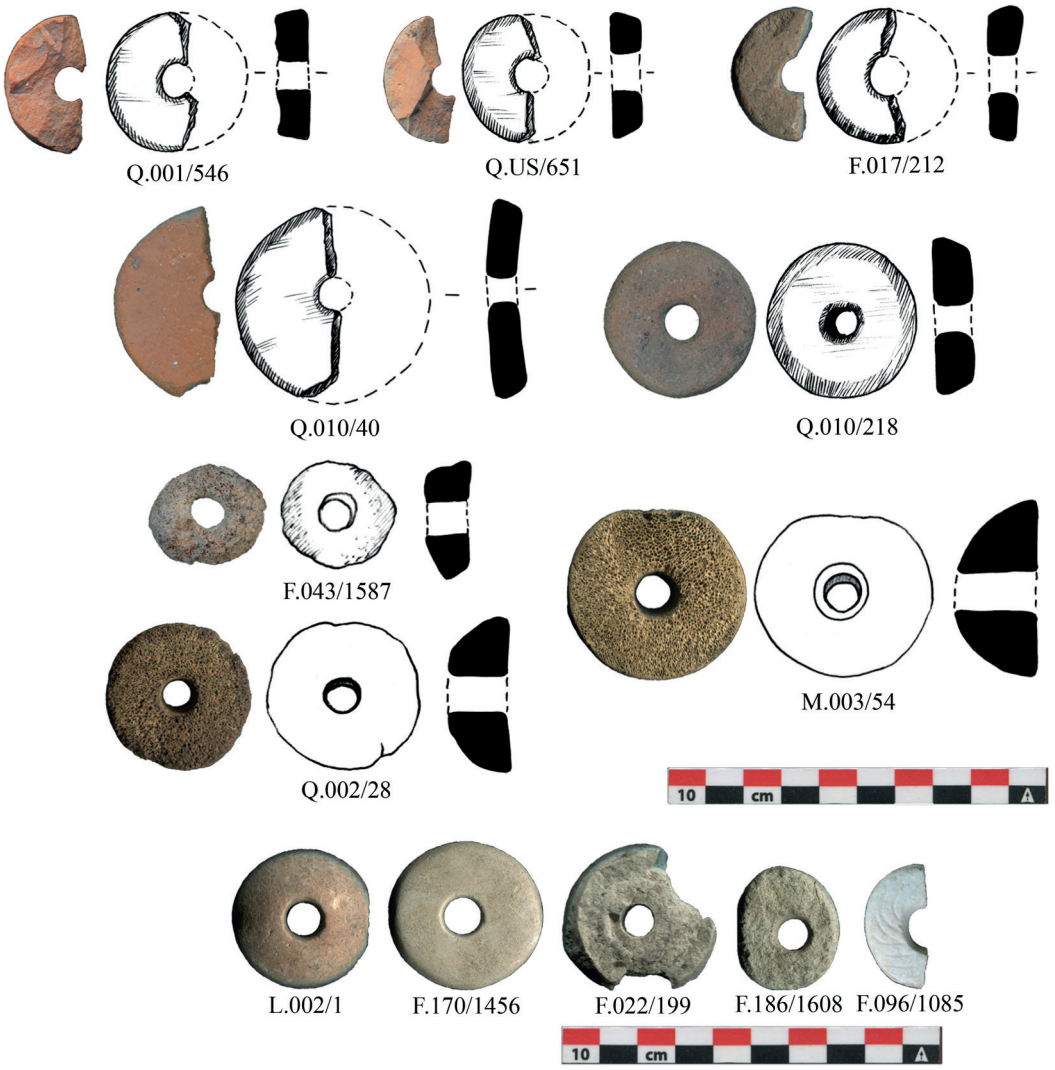
Table 15:10: Chipped sherd discs.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
F.027/934.1	Sherd disc	Modified potsherd; circular with smoothed edges (class: GREBS)	4.9	4.4	0.6	20.8	5c-6b	c. 10th–14th c.	15:14
F.027/934.2	Sherd disc	Modified potsherd; circular with smoothed edges (class: HASOG)	4.3	3.8	1	21.8	5c-6b	c. 10th–14th c.	15:14
F.036/1232	Sherd disc	Modified potsherd; circular with smoothed edges (class: HASOG)	3	3	0.7	7.95	5a-b	c. late 8th–9th c.	15:14
F.062/1284	Sherd disc	Modified potsherd; circular with smoothed edges (class: HASOG)	6.3	5.9	0.9	54.9	5c-7b	c. 10th–20th c.	15:14
F.138/1245	Sherd disc	Modified potsherd; circular with smoothed edges (class: HASOG)	6.6	5.8	1	48	3f	c. early to mid 7th c.	15:14
F.177/1718	Sherd disc	Modified potsherd; circular with smoothed edges (class: CW.N-ID)	6.9	n/a	1.2	6.23	3a	c. mid 4th–early 5th c.	15:14
F.US/1233	Sherd disc	Modified potsherd; circular with smoothed edges (class: MONO.G)	4.4	4.4	0.7	16.5	n/a	?	15:14
Q.001/958	Sherd disc	Modified potsherd; circular with smoothed edges (class: HASOG)	4.9	n/a	0.8	4.34	7b	c. 20th c.	15:14
Q.027/386	Sherd disc	Modified potsherd; circular with smoothed edges (class: CEMRIB)	4.8	4.1	1.8	30.4	5b	c. late 8th–9th c.	15:14
Q.089/940	Sherd disc	Modified potsherd; circular with smoothed edges (class: WHITEC)	2.8	n/a	0.7	3	5a-6b	c. late 7th–15th c.	15:14

Table 15:11: Stone discs.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*
F.033/304.1–2	Natural stone	Unmodified flat circular flake	4.7	4.6	0.8	7.2	5b-c	c. 9th–early 11th c.
F.109/1347.1	Natural stone	Unmodified flat circular flake	2.1	2.1	0.4	3.5	3d	c. early 5th–6th c.
F.109/1347.2	Natural stone	Unmodified flat circular flake	2.2	2.5	0.4	4	3d	c. early 5th–6th c.
F.125/798	Natural stone	Unmodified flat circular flake	2.13	2.63	0.41	5.4	5b	c. late 8th–early 10th c., prob. late 8th–9th c.
Q.099/738	Natural stone	Unmodified flat circular flake	2.42	2.4	0.21	2.4	5b-6b	c. late 8th–early 15th c.
Q.106/684	Natural stone	Unmodified flat circular flake	2.29	2.57	0.39	4	5b-6b	c. late 8th–early 15th c.
Q.106/822	Natural stone	Unmodified flat circular flake	2.03	2.14	0.35	2.1	5b-6b	c. late 8th–early 15th c.

seventh millennium BC in the Middle East. The spindles themselves rarely survive as they were normally made of wood, whereas whorls made of pottery or stone are common archaeological finds. The diameter of the whorl is unfortunately not a guide to determining the size of the spindle as small whorls were often set close to the end of the spindle and secured with a metal pin driven into the end of the wood, nor is the weight a reliable indication for a similar reason. A total of 12 spindle whorls (counting two joining pieces as one) were found in Trenches F, L, M and Q (Figs 15:15–15:16; Table 15:12), and spinning was an activity practised at the fort from at least the late seventh century onwards. The absence from late antique deposits may suggest that textiles were supplied to the garrison then, but we cannot exclude the possibility that the lack of evidence for pre-medieval wool spinning could be related to the overall much smaller number of finds from late antique as opposed to medieval layers.[72] Later wool processing is consistent with herding of sheep/goat being an important part of the local agricultural economy which is independently indicated both by the archaeozoological evidence from Dariali Fort and the palynological data from the core at Stepantsminda Mire which show the presence of coprophilous fungi.[73] However, as the number of spindle whorls found in any one period is no more than four (even if there is a strong likelihood that most or all from poorly-stratified second-millennium deposits are, like the well-stratified pieces, early medieval), it must have been a small-scale activity practised by single individuals rather than being an organised craft. It is worth adding here that there is a tendency in the modern literature to assume that spinning was (or is) women's work but this is not always true, and it is possible that some military



Figs 15:15–15:16: Spindle whorls.

men in the fort may have taken up this activity in order to do running repairs on their clothing or making items of equipment.[74] Alternatively, it is possible that there were some women living in the fort at Dariali and the presence of similar items in Roman forts and fortresses has been argued as evidence for the presence of female camp-followers.[75] The materials and *ad hoc* nature of manufacture of most of the spindle whorls proves that they were locally produced, perhaps reflecting necessity.

Most spindle whorls were made from modified potsherds and therefore resembled small flat discs (F.017/212; F.096/1085; F.186/1608; Q.010/40; Q.010/218 and two joining pieces: Q.001/546; Q.US/651). Three others were carved from bone: two are well-preserved (M.003/54;

Table 15:12: Spindle whorls.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D perf.*	*Wgt*	*Phase*	*Date*	*Fig.*
F.017/212	Spindle whorl	Modified potsherd; flat circular with smoothed edges and circular central perforation	2.1	3.5	0.8	1	7.95	6b-7b	c. 14th–20th c	15:15
F.022/199	Spindle whorl	Fired clay; light grey; lightly domed circular with circular central perforation; fragmentary with most of the upper and lower surfaces missing	4.2	4.2	1.3	0.9	14.3	5b-c	c. 9th–11th c.	15:16
F.043/1587	Spindle whorl	Bone	2.8	2.4	1.1	0.9	6.32	5c	c. 10th c.	15:15
F.096/1085	Spindle whorl	Modified potsherd; light grey; flat circular with smoothed edges and circular central perforation; spiral decoration lightly incised on the upper surface; half preserved	3.2	3.2	1.4	1	7	4	c. mid 7th–early 8th c.	15:16
F.170/1456	Spindle whorl	Stone; light greyish limestone, lightly polished; flat circular with a circular central drilled perforation	4	4	0.9	1.1	21.7	5a-b	c. late 7th–9th c.	15:16
F.186/1608	Spindle whorl	Modified potsherd; flat oval with smoothed edges and circular central perforation	3.1	2.6	0.9	0.8	12.6	5c-6b	c. 10th–14th c.	15:16
L.002/1	Spindle whorl	Stone; pale off-white hard limestone, rounded bicone; polished with a neat circular central drilled perforation	3.5	3.5	1.7	1	20.3	5c-6b (prob. 5c)	c. 10th–15th c. (prob. 10th–early 11th c.)	15:16
M.003/54	Spindle whorl	Bone	5	5	2.3	0.9	23.6	5a-6b, prob. 5a-b	c. 8th–4th c., prob. 8th–9th c.	15:15
Q.001/546	Spindle whorl	Modified potsherd; flat circular with smoothed edges and circular central perforation; joins Q.US/651	1.9	3.5	0.7	1	7.2	7b	c. 20th c.	15:15
Q.002/28	Spindle whorl	Bone	3.7	3.7	1.3	0.8	14.4	7b	c. 20th c.	15:15
Q.010/40	Spindle whorl	Modified potsherd; flat circular with smoothed edges and circular central perforation	4.7	4.7	0.6	0.9	14.3	7b	c. 20th c.	15:15
Q.010/218	Spindle whorl	Modified potsherd; flat circular with smoothed edges and circular central perforation	3.8	3.8	0.7	0.9	21.7	7b	c. 20th c.	15:15
Q.US/651	Spindle whorl	Modified potsherd; flat circular with smoothed edges and circular central perforation; joins Q.001/546	1.4	3.2	0.9	0.9	6.9	n/a	?	15:15

Q.002/28) but the example from Trench F was badly damaged (F.043/1587). All three bone examples are made from the proximal joint section of femurs cut off and ground flat on the underside. Spindle whorls made from animal femurs are widespread at archaeological sites in Georgia and dating from the Early Bronze Age to the medieval period. This kind of bone spindle whorl has parallels from the medieval settlements of Dmanisi (eleventh to thirteenth centuries) and Urbnisi (sixth to eighth centuries).[76] Another was made from light grey fired clay and was circular but heavily fractured and as the upper and lower surfaces are missing it is difficult to reconstruct its original shape (F.022/199). Two slightly larger and heavier examples were carved from pale varieties of hard limestone and were lightly polished: these were either flat or biconical in section and circular in plan (L.002/1; F.170/1456). None had any visible signs of metal staining in the centre but the narrow diameters nevertheless imply that they were mounted on metal pins inserted into one end of the wooden spindle. Moreover, with the exception of the fired clay example, none had any attempt at decoration.

15.2.2.9. Other perforated objects [St JS]

Three other perforated items were found: two were made of stone and come from late antique and early medieval deposits in Trench F (Fig. 15:17; Table 15:13). One consisted of a small flat circular slate disc with an irregular perforation through the centre (F.035/354). The other was a rounded ovoid pebble with a large irregular perforation in the centre. Traces of light wear around one edge imply that it had been suspended from a cord rather like a net weight, and it weighed 30.8 g (F.177/1494). The third was made from a brick material, and was from a mixed modern deposit in Trench Q: its date is unclear (Q.011/1133).

15.2.2.10. Possible hammerstone [St JS]

This compact ovoid object was an unmodified stone with smooth surfaces (Table 15:14); it was ideally suited to be used as a hammerstone or a slingshot although there were no visible signs which could indicate its exact function (F.146/1533).

15.2.3. Chlorite container [St JS]

Six small joining sherds belong to the base of a circular chlorite vessel (Fig. 15:17; Table 15:15) measuring about 30 cm in diameter with vertical walls, light traces of blackened residue on the interior and two concentric horizontal shallow incised lines around the exterior (F.043/1252). Although the preserved portion is small, it most likely belongs to a class known in the modern literature as a cylindrical bowl or, less probably, part of a circular incense-burner or so-called 'hand-warming pan'.[77] The latter often have a combusted patch in the centre which is the result of contact with a slow-burning material such as aromatic resin, and the scientific analysis of charred residue within an incense-burner lid excavated at the c. eighth century site of Unguja Ukuu in Tanzania



Fig. 15:17: Other perforated objects, a possible hammerstone and a chlorite container.

Table 15:13: Other perforated objects.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D perf.*	*Wgt*	*Phase*	*Date*	*Fig.*
F.035/354	Perforated stone	Perforated grey slate; flat circular disc irregular central perforation; complete	2.3	2.2	1.5	0.6	1.04	5a-b	c. late 8th–9th c.	15:17
F.177/1494	Perforated pebble	Perforated pebble; rounded ovoid, possibly naturally holed	3.6	4.4	0.8	0.7	30.8	3a	c. mid 4th–early 5th c.	15:17
Q.011/1133	Perforated object	Perforated object; light grey coarse bricky material; 50% preserved	7	7	3	1.5	62.3	7b	c. 20th c.	n/a

Table 15:14: Possible hammerstone.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
F.146/1533	Hammerstone (?)	Unmodified compact stone; ovoid; complete	5.7	3.2	91.6	5c-6b	c. 10th–14th c.	15:17

Table 15:15: Chlorite bowl.

Find number	*Object type*	*Description*	*D*	*Wgt*	*Phase*	*Date*	*Fig.*
F.043/1252	Chlorite bowl	Circular straight-sided container; friable light green micaceous chlorite with blackened residue on the interior; six small joining fragments	30 (base)	68.5	5c	c. 10th c.	15:17

proved to be copal, an East African resin which has also been identified among the samples excavated at Siraf.[78] However, some cylindrical bowls from Siraf also contain charred residue, and this seems to be the result of their being used as cooking bowls, which are described in Ibn Sayyār al-Warrāq's mid-tenth century Baghdad cookbook as a preferred material because of the supposition that this material did not affect the taste of the food cooked within.[79]

The distinctive crumbly micaceous light green material is typical of one of the varieties of chlorite used to make such vessels during the early medieval period and most probably originates in Arabia where there was a substantial chlorite industry between the eighth and twelfth centuries. The remains of early Islamic mines and workshops have been reported from al-Hawra, Jabal Khubab and Jabal Huray'im in the North-west Hejaz, Wadakh in the Dawadami region of the Central Province of modern Saudi Arabia, Ghuraba in the highlands south-east of Ta'if, Hijla south-east of Abha in the south-western province, and finally al-Rabadhah on the Darb Zubaydah.[80] Cooking bowls and incense burners carved from a similar micaceous light green chlorite have been found at eighth and early ninth century sites in the Bay of Kuwait and the Iraqi Western Desert,[81] both traded along trans-Arabian routes, whereas others made from unspecified varieties of chlorite have been reported at sites along the Red Sea, including Aqaba.[82] Excavations at other sites along the lower Persian Gulf, including Siraf, Kush and Hulayla, have also produced many chlorite vessels and lamps but, where handled by the author, these are usually carved from smooth fine greyish varieties of chlorite which may instead derive from South-east Iran and/or South-east Arabia where there was a long tradition of manufacturing chlorite objects since at least the fifth millennium BC.[83]

A small number of imported chlorite vessels and lamps are also known from Iraq and Syria, but they appear to be rarer as the distance increases from their source; the present example may be the northernmost example found. Further east, in North-east Iran and South-west Central Asia, there are larger quantities, all probably imported from the Mashhad area, as there is an important source of talc there which appears to have been exploited from that period onwards and which continues to be mined for making cooking pots and incense burners.[84]

15.2.4. Gaming pieces (knucklebones and a backgammon counter) [LCh]

One of the commonest bone artefact categories are polished and sometimes drilled knucklebones which were used as gaming pieces (Fig. 15:18; Table 15:16). Playing

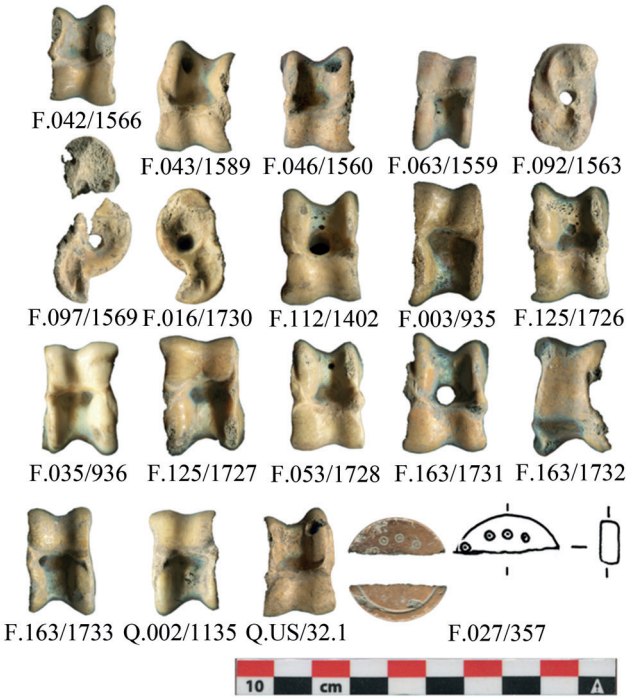


Fig. 15:18: Gaming pieces, including knucklebones.

Table 15:16: Gaming pieces.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
F.027/357	Backgammon counter	Circular flat bone counter; decorated with a concentric row of small dotted rings on the top with a concentric incised line on the underside; partially preserved	0.5	2.6	1.1	2.33	5c-6b	c. 10th–14th c.	15:18
F.001/16	Knucklebone	n/a	3.2	1.6	2	5.9	7b	c. 20th c.	n/a
F.003/935	Knucklebone	n/a	3.5	1.8	1.9	7.76	7a-7b	c. 15th–20th c.	15:18
F.003/1724	Knucklebone	n/a	3.1	2.1	1.8	6.3	7a-7b	c. 15th–20th c.	n/a
F.003/1725	Knucklebone	n/a	4	2.6	2.2	22.5	7a-7b	c. 15th–20th c.	n/a
F.016/1730	Knucklebone	n/a	3.1	1.7	1.1	4.2	5c-6b	c. 10th–15th c.	15:18
F.035/936	Knucklebone	n/a	3	1.7	1.9	7.26	5a-b	c. late 8th–9th c.	15:18
F.042/1566	Knucklebone	n/a	2.6	1.5	1.3	5.21	5c-6b	c. 10th–14th c.	15:18
F.043/1589	Knucklebone	perforated diagonally through one end	2.9	1.8	1.5	7.38	5c	c. 10th c.	15:18
F.046/1560	Knucklebone	perforated diagonally through one end	2.7	1.7	1.5	4.86	5c-6b	c. 10th–14th c.	15:18
F.053/1728	Knucklebone	n/a	2.8	1.8	1.5	7.7	5c	c. 10th c.	15:18
F.063/1559	Knucklebone	n/a	2.5	1.3	1.3	4.35	5b-c	c. 9th–early 11th c.	15:18
F.066/1719	Knucklebone	n/a	3.5	2.3	1.9	11.3	5c	c. 10th c.	n/a
F.072/1720.1	Knucklebone	n/a	3.2	2.1	1.8	9.2	5c-6b	c. 10th–15th c.	n/a
F.072/1720.2	Knucklebone	n/a	2.9	1.8	1.6	6	5c-6b	c. 10th–15th c.	n/a

(Continued)

Table 15:16: Gaming pieces. (Continued)

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
F.092/1563	Knucklebone	perforated through the centre	2.7	1.7	0.8	3.52	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:18
F.097/1569	Knucklebone	perforated through the centre	2.9	1.7	1.2	5.82	4	c. mid 7th–early 8th c.	15:18
F.112/1402	Knucklebone	perforated through the centre	2.8	1.9	1.5	7.3	5b-c	c. late 8th–10th c.	15:18
F.125/1726	Knucklebone	n/a	3.4	2	1.9	8.6	5b	c. late 8th–early 10th c., prob. late 8th–9th c.	15:18
F.125/1727	Knucklebone	n/a	3.3	2.1	1.8	10	5b	c. late 8th–early 10th c., prob. late 8th–9th c.	15:18
F.163/1731	Knucklebone	n/a	3.1	2.3	1.9	8.3	5b-c	c. late 8th–early 11th c.	15:18
F.163/1732	Knucklebone	n/a	3.3	2.1	1.8	9.1	5b-c	c. late 8th–early 11th c.	15:18
F.163/1733	Knucklebone	n/a	3	1.9	1.7	6.7	5b-c	c. late 8th–early 11th c.	15:18
F.196/1723	Knucklebone	n/a	3	2	?	?	5c	c. late 9th–10th c.	n/a
Q.002/1133	Knucklebone	n/a	2.9	1.8	1.6	5.6	7b	c. 20th c.	15:18
Q.007/1076	Knucklebone	n/a	2.7	1.8	1.5	5.3	5b-7b	c. 9th–20th c.	n/a
Q.010/1074.1	Knucklebone	perforated through the top	3.7	2.2	2	10.1	7b	c. 20th c.	n/a
Q.010/1074.2	Knucklebone	perforated through the centre	2.9	2.1	1.7	8.2	7b	c. 20th c.	n/a
Q.141/1130	Knucklebone	n/a	n/a	n/a	n/a	13	5a-7b	c. late 8th–20th c.	n/a
Q.US/32	Knucklebone	perforated diagonally through one end	2.8	1.6	1.4	836.1	n/a	?	15:18
X.004/39	Knucklebone	n/a	n/a	n/a	n/a	3.1	5b-7b	c. 9th–20th c.	n/a
U.005/19	Knucklebone	n/a	3.1	1.8	1.5	5.2	6b	c. late 13th–14th c.	n/a

with knucklebones was a popular game from Antiquity[85] and there are a number of different types of games that they were used for. Knucklebones are common at ancient settlements and retained their popularity into the medieval period. A large number of knucklebones are found in the territory of Georgia in the medieval layers of the settlements at Dmanisi and Urbnisi.[86] As many as 30 knucklebones were recovered from Dariali Fort, as well as one from Gveleti Fort. All but eight were from Trench F, the remainder being from Trenches Q, U and X, and none are from pre-medieval deposits. Seven were found in medieval indoor living quarters in the casemate: six from within the casemate and one from within the F.004 building,[87] the remainder from outdoor areas and disturbed deposits. Some of the outdoor finds were from rubbish deposits, and one is inclined to think that in the inclement climate of the gorge games would have been played indoors more often than outdoors. Of these, 19 were pierced on different sides and these holes must have had a function. At other sites, these holes were filled with metal, presumably to increase the weight of the knucklebone during gaming.[88] However, no traces of metal were present on those from Dariali and the purpose instead may have been to string them together. It should be noted that the vast majority, if not all, of the knucklebones – as with many of the other worked bone artefacts – were recognised during the detailed study of the animal bone assemblage rather than during excavation.

A fragmentary polished bone disc decorated with a row of dotted rings (ring-and-dot) around the top must be part of a backgammon counter (F.027/357). These have not previously been recognised from sites in Georgia, but are occasionally encountered in archaeological contexts in the Middle East where this game is thought to have originated.[89] A rounded bone plate with dotted ring ornaments was found at Dmanisi settlement and is dated to the twelfth and thirteenth centuries, but is of uncertain function.[90] We should add that this type



Fig. 15:19: Ritual bone objects from Dariali Fort and close parallels from Khazar lands, all dating to the eighth or ninth century: a-b: Dariali Fort (F.125/1083 and F.125/1084); c: Sarkel Fort; d-e: Upper Saltovo Cemetery; f: Mayaki Settlement (c-f after Flërova 1997, pls I.1, I.2, I.4 and I.6).

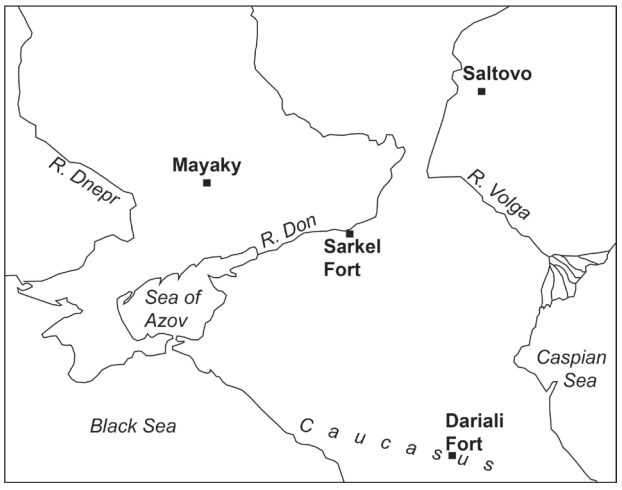


Fig. 15:20: Distribution map: the close parallels for the Dariali ritual bone objects are all from Khazar territory further north.

of dotted ring decoration is typical of bone objects of the medieval period, not only in Georgia but across the Middle East too.

15.2.5. Ritual bone objects ('reliquaries') and the role of the Khazars on the Dariali Pass [LCh]

Two decorated bone objects (Figs 15:19–15:22; Table 15:17) excavated at Dariali Fort deserve particular attention (F125/1083; F.125/1084). Both were made from the limb bones of herbivores, possibly varieties of domestic or mountain goat, but one is much better preserved than the other. The first is a partially preserved polished bone cylinder with elaborate engraved decoration on the exterior and holes perforated through the top and bottom (F.125/1083). These holes are 3 mm in diameter; one is preserved at the top and there are three around the bottom. The decoration is framed by an upper and lower register. The upper register consists of a zigzag line filled with hatched lines above a single straight band. The lower register starts 8 mm from the bottom and consists of a herringbone ornament separated by three horizontal bands. The main register includes geomorphic, zoomorphic and vegetal motifs engraved with a fine (0.5 mm) tool. The upper part of the main register consists of two rows of lozenges joined vertically at the points. Each lozenge has multiple concentric lines drawn within the shape, but one has a crudely drawn depiction of a long-beaked bird with a single standing leg and short hatching on the body denoting feathers. Under this ornament there is the depiction of at least two stylised zoomorphic forms. One is a quadruped with a long neck and snout with a pair of small ears or horns and a single line indicating its tail. Two small projections on the back may represent a saddle, suggesting that it was intended to represent a horse. The

Table 15:17: Ritual bone objects.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D int.*	*Wgt*	*Phase*	*Date*	*Fig.*
F.125/1083	Reliquary	Polished *Bos* femur fragment cut flat, featuring a bird, a horse(?) in a stylised hilly landscape with trees	13.5	3.1	0.3	3	48.37	5b	c. late 8th–early 10th c., prob. late 8th–9th c.	15:19, 15:21, 15:22
F.125/1084	Reliquary	Fragment of another cylindrical bone object, featuring a wild goat	8.5	2.5	0.3	n/a	9.32	5b	c. late 8th–early 10th c., prob. late 8th–9th c.	15:19, 15:21

other figure is a wading bird with a long neck and legs and a long curving beak. This appears to be perched on a tree depicted towards the bottom of the main register. Both creatures have short dashes covering their bodies possibly representing hair or feathers respectively. The lower part of the register consists of five stylised tree forms consisting of multiple concentric lozenges supported on a stalk, composed of three vertical lines. Between the trees there are double curving lines with the bottom section filled with dots, possibly intended to represent hills and features within a landscape. The whole composition seems to be arranged to depict the major divine elements of sky, land and earth.

The second is a small fragment of a cylindrical polished bone artefact with elaborate incised decoration and a 3 mm hole perforated through the top (F.125/1084). The object is likely to have had further holes perforated through the top and bottom. The decoration is similar in style and composition to F.125/1083 with a zigzag line around the top, paired concentric lozenges around the top of the frame and a single preserved zoomorphic form. The creature is a quadruped with a long neck and curving horns, probably representing a goat (*Capra* spp.)[91] with the body and neck filled with short dashes. Below the composition differs slightly but matches the design around the top. A bone object fragment found in Orch'osani settlement (sixth to seventh centuries) shows the closest parallels with those found at Dariali.[92] This was engraved with lines of lozenges forming girdles, between which were representations of a deer and another animal, possibly a lion, in motion. This is unusual for medieval bone artefacts from Georgia that do not normally feature zoomorphic or vegetal motifs. Whilst similar in composition, stylistically the Orch'osani artefact is very different to, and more naturalistic than, those from Dariali Fort and their parallels from Khazar lands.

At first glance, the two decorated bone objects from Dariali may be regarded as handles, as they have holes at both ends, but they show obvious differences with other bone handles of the same period which were either small cylinders, into which a pointed tang could be wedged, or flat side-plates riveted either side of the tang.[93] A more likely alternative interpretation is that they were used as a kind of container with a ritual or cult designation, and this is supported by close parallels identified amongst the material from the Saltovo-Mayatski culture, discussed below.

Similar decorated bone artefacts appear to be especially typical of Khazar culture where they have generally been identified as reliquaries. A reliquary is a receptacle or repository for relics. Relics may be the physical remains of saints, or some objects associated with saints or other religious figures. In our case we adopt a broader definition for the term and 'reliquaries' can be understood as containers for some kind of non-specified religious objects. These may have been important in the traditional beliefs of the Khazars, as shown by Valentina Evgen'evna Flërova.[94] Bone artefacts of a cylindrical shape and engraved ornaments found in the Saltovo-Mayatski culture area and at Sarkel were first identified as the upper part of wineskins (*bota* bags).[95] The same kind of bone objects have also been attributed to the Avars and identified as storage boxes for herbs, salt or ointment.[96] Such objects could be hung on a string with the two holes at either end. Leather, bone or wood could be attached from the bottom with a threaded string or studs attached through the drilled holes.[97] There is only one known case where the contents of such a receptacle have been recorded and these were identified only as small, corroded iron objects.[98] The grave in which it was found was dated to the Early Middle Ages. Similar bone objects were used by the Alans during the eighth and ninth centuries. More recent ethnographic parallels for such objects have also been observed in Ossetia.[99] In the Saltovo-Mayatski culture, these types of decorated bone objects are mostly found in graves, usually near the upper torso or beside the belt of the deceased. There are no known metal or wooden equivalents. As Flërova has argued, these objects may have been intended as 'reliquaries', *i.e.* receptacles for safekeeping objects of ritual significance or personal value, which were perhaps owned by heads of household or individuals of important religious status. Such objects may have been passed from one generation to the next. Perhaps it was in cases where there was no immediate heir that the 'reliquary' was buried





Figs 15:21–15:22: Ritual bone objects.

with the owner.[100] A similar interpretation could apply to the decorated bone object from Dariali Fort although in this case the objects do not come from a funerary context, but we cannot rule out the possibility of some other process of structured deposition or discard – or that the owners left them in the fort, whilst engaged elsewhere, but never returned. It is worth adding that bone objects with ornaments of animals and vegetal elements are not characteristic of archaeological materials of medieval Georgia (the cited artefact from Orch'osani forming an exception to the rule).

The closest parallels for the decorated bone artefacts come from the Khazar Khaganate, specifically from the Saltovo-Mayatski culture which was the early medieval culture of the Pontic steppe region located roughly between the Don and the Volga Rivers. During the ninth century the Saltovo-Mayaki culture was closely associated with the Khazar Khaganate, and archaeological sites from this period are one way that historians track the geographic extent of Khazar influence. The Saltovo-Mayatski culture also shares features with the Alanian medieval culture.

Bone production appears to have been an important industry within the Saltovo-Mayatski culture, judging by the high concentration of bone artefacts. Decorated with zoomorphic ornaments, these have been discovered in the settlements of Sarkel and Mayaki, in the Upper Saltovo Cemetery and at several other sites.[101] The schematic depictions of animals and birds and the technique of filling their body with dots and small indirect lines, friezes ornamented with geometric patterns, plants depicted by the geometric figures and the small holes at either end of the objects, closely resemble the style of those found at Dariali and all date to the same period of the eighth and ninth centuries. We can, therefore, assume that the decorated bone artefacts from Dariali Fort were imported from the north as a result of some form of relationship with the Khazars.

The historical context in this period is very important. In AD 627 the Khazars appeared for the first time in the territory of Georgia, with the support of the Roman/Byzantine army, and conquered Tbilisi the following year. At the beginning of the eighth century, Arab forces seized territory in Georgia and henceforth the Khazars were fighting against the Arabs for supremacy in Transcaucasia. During these wars, the Khazars and Arabs used the Derbent and Dariali 'Gates' to cross the Caucasian Mountains. Having already reached Dariali in AD 724 and captured the fort in c. AD 727, in AD 728/729 the Arabs went north through Dariali Gorge to fight the Khazars but were forced to retreat because of heavy rainfall.[102] According to Mas'udi, Dariali Fort was then under the control of Muslims from around this time for over two centuries.[103] In AD 730 they again crossed the Dariali Pass and conquered the Khazar city of al-Beida but in the same year the Khazars crossed the Caucasus Mountains and attacked the Arabs in the territory of modern Azerbaijan.

In c. AD 735 Marwan ibn Muhammad campaigned in the territory of Georgia. Georgian historical sources recount that he conquered the Dariali and Derbent Passes which may indicate that in c. AD 735 the Arab garrison did not control Dariali Fort and Marwan ibn Muhammad had to fight for it in order to recapture it,[104] although a temporary loss of the fort is hard to reconcile with Mas'udi's belief that the descendants of the garrison established by Maslama in the later AD 720s (or early AD 730s at the latest) still held the fort in the tenth century.[105] In AD 737 Marwan ibn Muhammad crossed the Dariali and Derbend Passes and attacked the Khazar Khaganate. It was the last major Arab expedition in the Northern Caucasus.[106] Later on, the Khazars appeared in the territory of Georgia again and in AD 762 or 764 they conquered Tbilisi for a second time.[107] We should also note that the Georgian written sources report that in c. 779/780 the Duke of Kartli, Nerse, escaped from Arab-controlled Tbilisi and went to the Khazar Khaganate through Dariali Gorge where he asked the Khazarian Khagan for refuge.[108] The fact that the Duke was able to escape via Dariali again indicates that it may not have been controlled by Arab forces at this time. The historical sources clearly attest that the Khazars crossed Dariali Gorge during their wars against the Arabs. The sources do not confirm that the Khazars ever occupied Dariali Fort, but this does not disprove that a Khazar force might have stayed at the fort for a period of time, *e.g.* to safeguard an invasion army's safe return via the gorge to the Northern Caucasus.

To understand why these similar two receptacles, probably for the safekeeping of objects of ritual significance or personal value, were deposited at Dariali Fort, it is worth noting that they were found, in a well-dated cultural layer, within the casemate. This suggests that they were no random losses by travellers. As already pointed out, these objects probably had special ritual significance for the Khazars and, as unparalleled elsewhere, are unlikely to have held similar importance for other ethnic groups. The religious significance of these bone objects, and also the fact that two of them have been found together, suggests that the receptacles found at Dariali Fort were owned by Khazars who were based at Dariali Fort at the time. It is possible that their presence was connected with one of the recorded Khazar incursions into the territory of Georgia via the Dariali Gorge – the most viable route across the Caucasus. Perhaps they had overpowered the forces controlling the fort or found some other way to obtain their submission or collaboration. It seems possible that during such an invasion, Khazar troops may have been stationed at Dariali Fort in order to secure their compatriots' safe return to the north.

The objects probably belonged to one or more individuals of Khazar origins who stayed at Dariali and brought their personal 'reliquaries' with them. Is it possible that these bone objects were acquired by means of trade, bearing in mind that residents of Dariali Gorge must have had mercantile relations with their northern neighbours? Such a hypothesis seems unlikely, in light of the likely religious designation of the objects, important for the Khazars only, and their lack of intrinsic value. These finds are important for a study of the history of the Dariali Pass during the late eighth or ninth century.

15.2.6. Beads [AG]

Beads made of glass and semi-precious stones are a significant group of artefacts. Beads are amongst the oldest types of personal jewellery. Agate, carnelian, rock crystal and semi-precious stone beads occur as early as the third millennium BC on sites in Georgia (at Kvatskhela and Amiranis Gora), and beads remained popular into the Late Middle Ages.[109] However, unlike the earlier material, beads of the early and high medieval periods in Georgia have not yet been systematically studied and this makes research more challenging. Furthermore, beads featuring in Georgian and Russian publications are often reproduced as low quality images which complicates the task of finding exact parallels amongst published finds assemblages. The beads found at Dariali Fort, as well as the nearby cemetery described below,[110] are made of semi-precious stones (carnelian, banded chalcedony, rock crystal), jet, coral and glass, and the latter include monochrome and polychrome eye beads and some have a metal lining. The material and physical properties of the beads were identified with the aid of a binocular Leica microscope.

A small number of beads (35) was found in Trenches F, M, Q and X. Two are made of carnelian but the rest are polychrome and monochrome glass. The low number contrasts with that from the cemetery, described below, where as many as 163 glass and stone beads were found. The reason for the contrast in number of beads from funerary and non-funerary contexts may partly reflect the fact that excavation techniques used in the Dariali Fort mostly relied on picks and shovels, with selective flotation only (due to the lack of flowing water on the fort), and there is a high probability that many beads were missed.

Carnelian

Two shapes of carnelian beads are represented (Table 15:18). The first is a spherical bead (X.004/32), which is the most common form of carnelian beads from the Dariali Cemetery.[111] Similar beads were found at the Mamisondon Cemetery which was dated to the seventh to eighth centuries.[112] The second type is a well-polished cylindrical orange carnelian bead which had been bidirectionally drilled (F.102/809).

Monochrome glass

Most of the monochrome glass beads found in the fort are opaque green, blue or multi-coloured (Table 15:19). Type I are drawn beads: two are green and one is blue (F.027/279; Q.011/117; Q.065/453). The beads are cut from tubes that have been pulled or drawn out from a hollow gather of

Table 15:18: Carnelian beads.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
F.102/809	Bead	Carnelian bead; orange; cylindrical, bidirectionally drilled and carefully polished	0.9	0.5	0.35	5c	c. 10th c.	15:41
X.004/32	Bead	Carnelian bead; orange; spherical	0.5	0.6	0.36	5b-7b	c. 9th–20th c.	15:41

Table 15:19: Monochrome glass beads.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
F.027/279	Bead	Glass bead; yellow weathering; drawn	0.3	0.3	0.03	5c-6b	c. 10th–14th c.	15:41
Q.011/117	Bead	Glass bead; turquoise; drawn	0.2	0.3	0.05	7b	c. 20th c.	15:41
Q.065/453	Bead	Glass bead; green; drawn	0.2	0.3	0.03	5b	c. late 8th–9th c.	15:41

glass and usually heated to round them off.[113] This process is called 'drawing' and resulting beads are described here as 'drawn beads'. The small drawn beads made by this industry have been called Indo-Pacific beads. They may have been the single most widely traded item in history and are found from the islands of the Pacific to Great Zimbabwe in Southern Africa. Indo-Pacific beads, as defined by Peter Francis, are rarely more than 5 mm in diameter. They are round, oblate, discoid, tubular or other shapes. They were made in a limited range of colours, with various hues: opaque reddish brown, orange, yellow, green and black. Semi-translucent greens and blues, and translucent amber and violet. Indo-Pacific beads became the most common type in the maritime trade of Asia for two millennia.[114] While the drawn glass beads from Dariali are stylistically equivalent to Indo-Pacific beads, it is perhaps misleading to refer to them directly by this term as they are unlikely to have originated within that region and another more local source seems more likely, but compositional analyses have not been undertaken on these or the other glass beads.

In addition, a total of 24 micro-beads were found on Dariali Fort (Table 15:20), all recovered as a result of flotation of soil for environmental remains, rather than discovered during manual excavations. All were made by drawing opaque green, blue, black or multicoloured glass. Similar micro-beads have been identified in the Mamisondon Cemetery which was dated to the seventh to eighth centuries.[115] At Dariali, they seem to have been in circulation from the fifth to the mid-tenth centuries, judging by the periods of the contexts where they were found. No similar beads were recovered from Dariali Cemetery, but the reason for this difference is unclear. It is worth noting that Grave G4 (with 161 beads) dates to the late tenth or early eleventh century, later than any of the tightly dated bead-bearing deposits on the fort. Had micro-beads gone out of fashion by then or did the group of probable northerners (represented by Graves G4 and G9, the later a probably male inventory, devoid of beads) follow different customs or use other sources of supply? Only late ninth or tenth century Grave AB1, with a mere two (non-micro) beads, could chronologically overlap with the latest undisturbed deposit on the fort (F.093) to have yielded a micro-bead.[116]

Glass 'melon' bead

One fragmentary colourless example of this distinctive form was found in an early medieval context (Table 15:21).

Polychrome glass 'eye'

Polychrome mosaic 'eye' beads belong to a separate group of glass beads and two of these were found (Table 15:22). The first was from an early medieval context in Trench F and is a spherical blue 'eye' bead with blue spots in brownish-white circles intersecting each other (F.037/257). The second one was from Trench M, located on the terrace at the foot of Dariali Fort, and is also from a deposit belonging to the later first millennium (M.003/26), if perhaps continuing into the earlier second millennium.[117] It is turquoise with blue spots in intersecting brownish-white circles. Both were broken and this might explain their discard. 'Eye' beads are amongst the commonest type of ancient polychrome beads. They were considered effective amulets for warding off the evil eye. In the territory of the Central Caucasus, glass 'eye' beads first occur in the fifth century BC.[118] Similar beads have also been found at Kazbegi but date there to the first and second centuries.[119] They are also found in medieval cemeteries at Rustavi, Ertso and Ujarma.[120] They also occur in Dariali Gorge from the cemetery at Gigias Satibi (of the seventh-eighth centuries)[121] and in the Northern Caucasus at the Borisovski Cemetery.[122] The two beads from Dariali date probably to the eighth or ninth centuries.

Glazed composition

A single glazed composition (so-called 'faience') bead (F.022/120) was found during cleaning of a late first millennium context in Trench F (Table 15:23). This material

Table 15:20: Glass micro-beads.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
F.092/1531	Bead	Glass micro-bead; fragmented	n/a	n/a	n/a	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:41
F.093/1735	Bead	Glass micro-bead; blue	0.2	0.3	n/a	5c	c. early–mid 10th c.	15:41
F.129/1184	Bead	Glass micro-bead; spherical multicoloured with blue, yellow and white colours; type III	0.6	0.8	0.65	3e	c. 6th–early 7th c.	15:41
F.138/1736	Bead	Glass micro-bead; circular	0.2	0.3	n/a	3f	c. early to mid 7th c.	15:41
F.164/1431	Bead	Glass micro-bead; opaque green; fragment; type IV	0.5	0.7	0.13	5a-b	c. 8th–9th c .	15:41
F.169/1467	Bead	Glass micro-bead; flattened circular opaque blue; type II	0.3	0.5	0.09	3d-5b	c. 5th–9th c.	15:41
Q.011/336	Bead	Glass micro-bead; black	0.2	0.2	n/a	7b	c. 20th c.	15:41
Q.027/1142.1	Bead	Glass micro-bead; spherical	0.5	0.7	0.17	5b	c. late 8th–9th c.	15:41
Q.027/1142.2	Bead	Glass micro-bead; flattened circular light blue	0.1	0.2	n/a	5b	c. late 8th–9th c.	15:41
Q.031/337	Bead	Glass micro-bead; fragmented	n/a	n/a	n/a	3d-5b	c. 5th–9th c.	15:41
Q.031/1136.1	Bead	Glass micro-bead; circular	0.2	0.4	<0.01	3d-5b	c. 5th–9th c.	15:41
Q.031/1136.2	Bead	Glass micro-bead, circular	0.3	0.4	0.06	3d-5b	c. 5th–9th c.	15:41
Q.031/1140.1	Bead	Glass micro-bead; circular; opaque green	0.3	0.3	n/a	3d-5b	c. 5th–9th c.	15:41
Q.031/1140.2	Bead	Glass micro-bead; circular; opaque green	0.2	0.3	n/a	3d-5b	c. 5th–9th c.	15:41
Q.031/1140.3	Bead	Glass micro-bead; circular; opaque green	0.2	0.3	n/a	3d-5b	c. 5th–9th c.	15:41
Q.031/1140.4	Bead	Glass micro-bead; circular; opaque green	0.2	0.3	n/a	3d-5b	c. 5th–9th c.	15:41
Q.031/1140.5	Bead	Glass micro-bead; circular; opaque green	0.2	0.3	n/a	3d-5b	c. 5th–9th c.	15:41
Q.031/1140.6	Bead	Glass micro-bead; circular; black	0.3	0.4	0.03	3d-5b	c. 5th–9th c.	15:41
Q.031/1140.7	Bead	Glass micro-bead; fragmented	n/a	n/a	n/a	3d-5b	c. 5th–9th c.	15:41
Q.031/1140.8	Bead	Glass micro-bead; fragmented	n/a	n/a	n/a	3d-5b	c. 5th–9th c.	15:41
Q.061/1139	Bead	Glass micro-bead; multi-coloured	0.3	0.4	0.04	3a-f	c. 4th–7th c.	15:41
Q.062/1138	Bead	Glass micro-bead; flattened circular; opaque green	0.2	0.4	0.03	5b	c. late 8th–9th c.	15:41
Q.062/1141	Bead	Glass micro-bead; circular	0.2	0.3	n/a	5b	c. late 8th–9th c.	15:41
Q.076/632	Bead	Glass micro-bead; spherical; fragment; type V	0.5	0.5	0.01	5b-6b	c. 9th–15th c.	15:41

Table 15:21: Glass melon bead.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
X.006/50	Bead	Glass melon bead; colourless; fragment; type VI	1.5	1.6	3.02	5b-c	c. late 8th–10th c.	15:41

Table 15:22: Glass 'eye' beads.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D perf.*	*Wgt*	*Phase*	*Date*	*Fig.*
F.037/257	Bead	Glass 'eye' bead; spherical; blue with blue spots in intersecting brownish-white circles; half preserved	1.7	2.2	n/a	0.6	4.99	5a-b	c. 8th–9th c.	15:41
M.003/26	Bead	Glass 'eye' bead; spherical; turquoise with blue spots in intersecting brownish-white circles; half preserved	1.7	2	4	0.5	5.13	5a-6b, prob. 5a-b	c. 8th–14th c., prob. 8th–9th c.	15:41

Table 15:23: 'Faience' bead.

Find number	*Object type*	*Description*	*L*	*W*	*D perf.*	*Wgt*	*Phase*	*Date*	*Fig.*
F.022/120	Bead	Glazed composition bead; spherical; blue	1.2	1.3	0.1	1.39	5b-c	c. 9th–11th c.	15:41

Table 15:24: Segmented gilded beads.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
F.170/1463	Bead	Bead	1.1	0.5	0.2	5a-b	c. late 7th–9th c.	15:41
Q.076/1137	Bead	Bead (found in flotation)	0.5	0.3	0.09	5b-6b	c. 9th–15th c.	15:41

Table 15:25: Items of personal adornment (group = chemical composition group for glass bangles, identified by Yoshinari Abe and Ryuji Shikaku[1]).

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D int. (% pres.)*	*Wgt*	*Phase*	*Date*	*Fig.*
F.001/36	Bangle	Glass bangle; plain drawn with triangular section; dark blue; fragment (group B-1)	3.4	0.9	0.3	6 (17.5%)	2.58	7b	c. 20th c.	15:27
F.022/131	Bangle	Copper alloy bangle; plain; cast with circular section; fragment	4.2	0.3	0.4	6 (22.5%)	4.76	5b-c	c. 9th–11th c.	15:26
F.036/355	Bangle	Copper alloy bangle; hammered sheet with flat section and slightly wider terminals; complete	6.5	0.5	0.1	1 (100%)	4.12	5a-b	c. late 8th–9th c.	15:26
F.043/338.1	Bangle	Glass bangle; plain with triangular section; streaky blue; fragment (group B-1)	3.5	0.6	0.4	5 (22.5%)	1.71	5c	c. 10th c.	n/a
F.043/338.2	Bangle	Glass bangle; plain with circular section; dark, possibly blue; fragment (group B-4)	4.4	0.5	0.5	7 (20%)	2.76	5c	c. 10th c.	15:27

(Continued)

Table 15:25: Items of personal adornment (group = chemical composition group for glass bangles, identified by Yoshinari Abe and Ryuji Shikaku). (Continued)

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D int. (% pres.)*	*Wgt*	*Phase*	*Date*	*Fig.*
F.091/732	Bangle	Glass bangle; plain with circular section; dark with red streaks; fragment (group B-4)	3.8	0.6	0.6	7 (17.5%)	2.91	5c	c. 10th c.	15:27
F.091/980	Bangle	Iron bangle; twisted with open terminals; complete but in six fragments	6.5	7.2	0.3	6 (100%)	10.43	5c	c. 10th c.	15:26
F.100/862	Bangle	Glass bangle; plain with circular section; dark; fragment (group B-4)	5.5	0.6	0.6	7 (26%)	4.75	5c	c. early–mid 10th c.	15:27
F.114/905	Bangle	Glass bangle; twisted with circular section; dark olive green; fragment (group B-6)	3.7	0.4	0.4	6 (22.5%)	1.38	5c	c. late 9th–1st half of 10th c.	15:27
F.164/1437	Bangle	Glass bangle; twisted with circular section; semi-transparent green; fragment (group B-3)	3.4	0.6	0.6	5 (20%)	1.86	5a-b	c. 8th–9th c.	15:27
Q.008/208	Bangle	Glass bangle; plain twisted with circular section; dark blue; fragment (group B-1)	4	0.5	0.5	8 (17.5%)	1.97	7b	c. 20th c.	15:27
Q.045/352	Bangle	Copper alloy bangle; plain; cast with circular section; fragment	4	0.4	0.4	6 (24%)	3.6	4–5a	c. mid 7th–8th c.	15:26
Q.076/1145	Bangle	Glass bangle; plain drawn with circular section; dark with red streaks; fragment (group B-1)	1.4	0.6	0.6	n/a	1.08	5b-6b	c. 9th–15th c.	15:27
F.104/872	Buckle	Iron belt buckle; complete	3.7	2.8	0.4	n/a	9.96	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:26
F.022/135	Comb	Bone comb; fragment of a twofold comb with two-pointed teeth remaining on one side	5.3	3.5	0.4	n/a	4.91	5b-c	c. 9th–11th c.	15:24
F.022/217	Comb	Iron comb; semi-complete but teeth missing and tips damaged	12	4.7	0.2	n/a	29.3	5b-c	c. 9th–11th c.	15:25
F.027/1717	Comb	Bone comb; broken pointed tooth, slightly flattened at one end	4.1	0.5	0.3	n/a	0.7	5c-6b	c. 10th–14th c.	15:24

(Continued)

Table 15:25: (Continued)

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D int. (% pres.)*	*Wgt*	*Phase*	*Date*	*Fig.*
F.037/255	Comb	Bone comb; broken off teeth of a comb, slightly flattened at one end	5.5	0.6	0.4	n/a	1.44	5a-b	c. 8th–9th c.	15:23
F.063/516	Comb	Bone comb; broken pointed tooth, slightly flattened at one end	4	0.6	0.4	n/a	1.1	5b-c	c. 9th–early 11th c.	15:23
F.070/676	Comb	Bone comb; broken pointed tooth, slightly flattened at one end	4.5	0.4	0.3	n/a	0.82	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:23
F.070/1561	Comb	Bone comb; broken pointed tooth, slightly flattened at one end	3.8	0.4	0.2	n/a	0.92	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:23
F.121/1120	Comb	Bone comb	2	3	0.5	n/a	4.7	5c	c. late 9th–10th c.	15:24
Q.027.2/147	Cosmetic applicator	Copper alloy applicator/spoon; cast; lightly thickened tip (D 0.3cm) and a rounded scoop (W 1 x L 1.2cm) below a simple moulding at the other; complete	12	0.3 (shank)	0.3 (shank)	n/a	8.47	5b	c. late 8th–9th c.	15:25
F.071/563	Finger ring	Glass finger ring (or possibly a bangle); circular; dark brownish; fragment	1.2	0.5	0.2	2 (22.5%)	0.23	5c-6b	c. 10th–15th c.	15:27
Q.031/204	Finger ring	Glass finger ring; circular with small transverse flattened blob imitating a small protruding bezel; dark; complete	1.7	1.7	0.2	1.1 (100%)	0.75	3d-5b	c. 5th–9th c.	15:27
Q.136/922	Finger ring	Glass finger ring; circular with elongated flattened bezel; dark brown; fragment	2.2	2.2	0.4	1.5 (50%)	1.17	5b-6b	c. late 8th–15th c.	15:27
F.125/1213	Pendant (?)	Iron pendant (?); comma-shaped with a convex exterior and concave back	2.9	1.9	0.1	n/a	2.18	5b	c. late 8th–early 10th c., prob. late 8th–9th c.	15:24
F.125/1214	Pendant	Shell with drilled perforation; half preserved	1.7	4	0.2	n/a	6.54	5b	c. late 8th–early 10th c., prob. late 8th–9th c.	15:25
Q.027/383	Pendant	Polished *cervus elaphus* (red deer) tooth	n/a	n/a	n/a	n/a	n/a	5b	c. late 8th–9th c.	15:24

(Continued)

Table 15:25: Items of personal adornment (group = chemical composition group for glass bangles, identified by Yoshinari Abe and Ryuji Shikaku). (Continued)

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D int. (% pres.)*	*Wgt*	*Phase*	*Date*	*Fig.*
F.125/1048	Pin	Copper alloy pin; cast; circular section shank; semi-complete, missing the head	7.6	0.4	0.4	n/a	6.48	5b	c. late 8th–early 10th c., prob. late 8th–9th c.	n/a
M.008/47	Pin	Iron pin; coiled head (L 1.1 x W 1cm); complete	5.2	0.5	0.4	n/a	3.62	5a-b	c. late 7th–9th c.	15:24
N.001/4	Pin	Bone pin; pointed tip and simple spatulate head; complete	6.7	0.7	0.1	n/a	1.4	7b	c. 20th c.	15:23
F.072/702	Razor	Iron razor (?), flat section	7.5	2	0.9	n/a	57	5c-6b	c. 10th–15th c.	n/a
F.164/1412	Razor	Iron razor blade; missing the upper portion	4.7	1.2	0.4	n/a	6.72	5a-b	c. 8th–9th c.	15:24
Q.076/1075	Razor	Bone razor case and handle	4.4	1.2	0.2	n/a	1.1	5b-6b	c. 9th–15th c.	15:24

[1] See chapter 14.

of jewellery is characteristic of medieval Georgia. Blue glazed composition beads form one of the most important groups of medieval beads in Georgia. Simple cylindrical beads of this material have been found at Dmanisi, Tbilisi, Ujarma and Rustavi, all dating to the twelfth to thirteenth centuries.[123] The same types of beads are known to have been popular in Armenia at this time.[124] It is possible that they were locally made.

Gilded glass

Segmented gilded beads have been found within Dariali Fort in two medieval deposits and in Grave AB1 in the cemetery (Table 15:24).[125]

15.2.7. Other items of personal adornment [LCh, St JS, EWS]

Personal appearance is a key defining feature of culture and personal identity. Items of clothing do not survive in the fort at Dariali and there is no direct evidence for the personal appearance of the many individuals who lived there, although a few small pieces of leather were found in one of the graves in the cemetery, discussed below.[126] However, isolated finds of discarded items of personal adornment provide some hints and indicate that certain people paid attention to their appearance through the use of cosmetic, shaving, combing and wearing finger rings and bangles (Figs 15:23–15:27; (Table 15:25). These finds point to a mixed gender population in the fort, at least during period 5, and this is confirmed by the physical anthropological evidence from the nearby cemetery of the same period as this contained a population of men, women and children.[127]

15.2.7.1. Cosmetic applicator

A small cast copper alloy cosmetic applicator was found in Trench Q; it had a slightly swollen tip at one end and a rounded scoop at the other (Q.027.2/147). It belongs to a widely distributed type These objects were relatively common and widely made and used in the early Islamic period judging by finds from across the Middle East from North Africa to Iran.[128]

15.2.7.2. Razors

A semi-complete tanged blade of a small cut-throat iron razor was also found (F.164/1412) and a fragmentary slightly curving bone plate belongs to one half of the handle of such an object (Q.076/1075). This was flat and polished along the exterior but left rough on the back, and was carved with an intersecting double dotted ring design with the dots pierced completely through and the slightly curving alignment of this pattern respected that of the edge. A second possible iron razor blade was also found (F.072/702). The presence of razors suggests that there may have been an attempt at male facial grooming although they could have been used by women, particularly as hairy legs are frowned on in Judeo-Muslim tradition and famously regarded in some of the tales

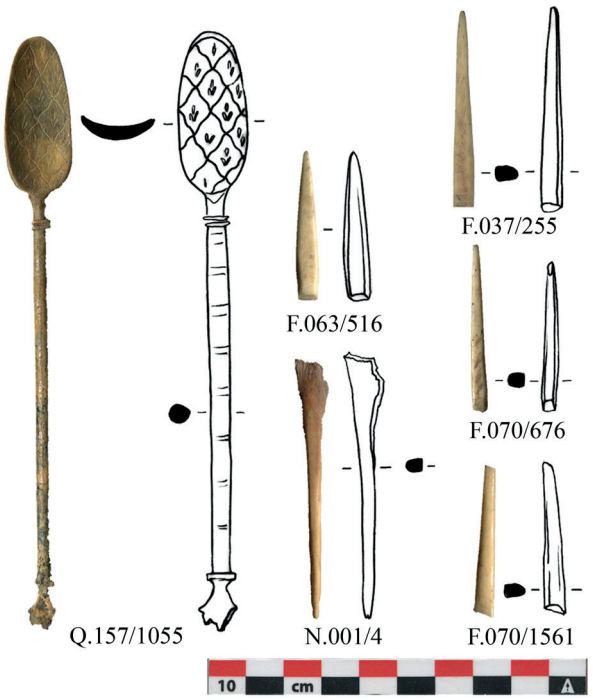


Fig. 15:23: Bone spoon and miscellaneous objects of personal adornment.



Fig. 15:24: Miscellaneous objects of personal adornment.

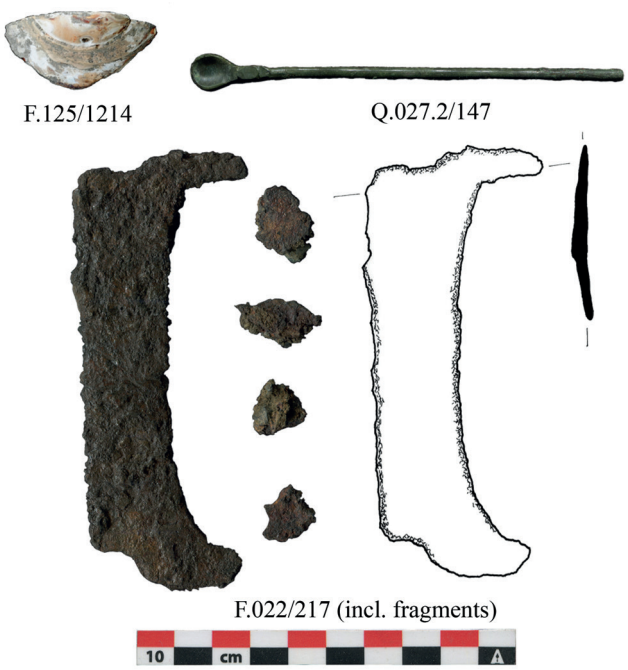


Fig. 15:25: Miscellaneous objects of personal adornment.

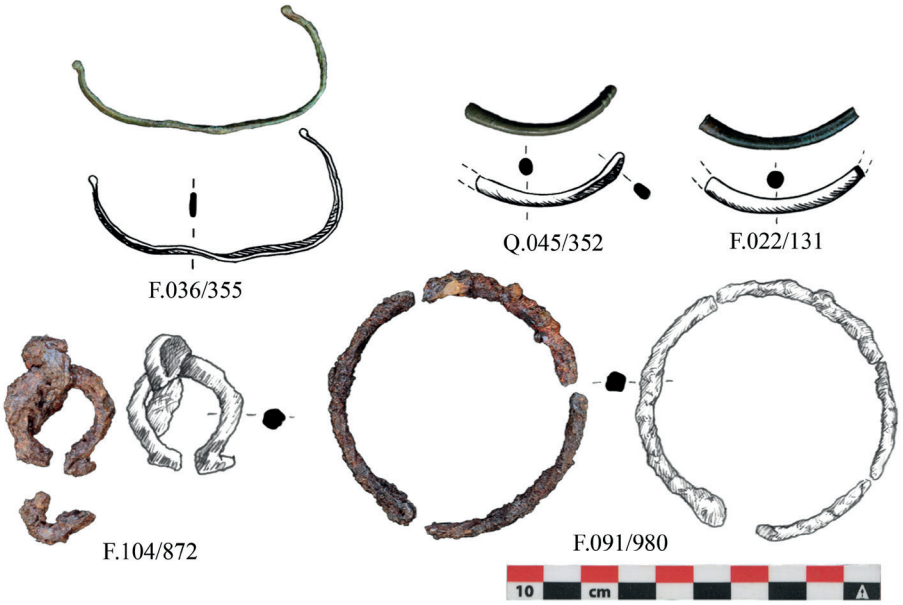


Fig. 15:26: Bangles and a belt buckle.



Fig. 15:27: Bangles and rings.

surrounding the legendary meeting of Bilqis with King Solomon as a sign that Bilqis was a lilith demon whose true character could only be revealed by inspecting her legs.[129]

15.2.7.3. Combs

A number of personal adornments were found within the fort, including an iron comb (F.022/217) and two one-piece double-sided comb fragments (F.022/135; F.121/1120) and several broken teeth belonging to combs (F.037/255; F.063/516; F.070/676; F.070/1561; F.027/1717), mostly from layers dating to the eighth to tenth centuries.[130] F.121/1120 is a polished comb fragment with two pointed teeth remaining on one side and base of fine teeth broken off on the other side; the second is poorly preserved and the teeth are broken off (F.022/135). One-piece, double-sided bone combs are relatively common in medieval layers at sites in the Caucasus. Double-sided one-piece bone combs have parallels with a wooden example found in a Christian shrine at Targim in Chechnya-Ingusheti (North Caucasus) which is dated to the thirteenth to fifteenth centuries.[131] The same kind of bone comb is found in a late medieval crypt in Chechnya in the Northern Caucasus.[132]

15.2.7.4. Pendants

Q.027/383, from late eighth or ninth-century deposit Q.027, is a polished *cervus elaphus* (red deer) tooth which was broken at the top. It has a slightly different colour at the broken end suggesting that originally it may have been set in a metal mount and suspended as a pendant or amulet. Tooth pendants are relatively common in Antiquity and from the territory of Georgia animal tooth pendants have been documented from second to third century graves in the Urbnisi Cemetery.[133]

A fragmentary comma-shaped iron object with a convex exterior and concave back probably constitutes one half of a hollow object of the same form, most likely part of a hollow pendant (F.125/1213): plain and decorated crescentic hollow pendants found at Tepe Sabz Pushan and Qanat Tepe at Nishapur were made of copper alloy.[134] Is this an import from Islamic lands? If so, it is interesting that it was found in the same context as the carved bone Khazar-style receptacles described above[135] – possible evidence for the multicultural milieu prevailing at the strategic stronghold at the time? A fragmentary drilled shell pendant was also found in this deposit (F.125/1214).

15.2.7.5. Pins

Three complete and fragmentary pins were found. One was carved from bone, had a simple triangular spatulate head and measured 6.7 cm in length (N.001/4). Found in the topsoil in Trench N on Gveleti Fort, it is possible that it dates back to the early modern (mid-fifteenth to mid-seventeenth century) main period of occupation within this trench.[136] It has its parallels with a pin found at Dmanisi medieval settlement, which is dated to the eleventh to thirteenth centuries.[137] Another was made of iron and had a simple coiled head and a circular section shank (M.008/47, from a late seventh to ninth-century extramural deposit in Trench M). A third was cast from copper alloy but the head is missing (F.125/1048, from a late eighth to ninth-century indoor deposit in the casemate). All were relatively short and their modest appearance suggests that they had been used to secure clothing, rather than ostentatious women's hairdos, and could have been used by either gender.

15.2.7.6. Finger rings [AG, FM]

At least some individuals in the fort wore simple personal ornaments in the form of finger rings and bangles. Three finger rings were recovered from the excavation at the fort, all were made of glass and two of these were complete. The first of these was a small item in a dark fabric (Q.031/204), consisting of a circular hoop with a small blob on the apex which imitated the small protruding bezel of a metal ring, and resembles a type found in the cemetery, discussed below.[138] The second is a larger ring (Q.136/922), which could have easily fitted an adult. Only half of this ring is extant and it is broken (shorn through the profile on one side); the fabric is a translucent vivid amber brown and resembles amber or carnelian; the extant part contains no bezel. The third was fragmentary and was made of a very dark amber coloured material (F.071/563). It has been identified as a flat segment of a probable finger ring with no bezel, rather than part of a bangle, based on its thickness. This ring is much thinner than the others leaving more space and making it suitable for a larger digit.

The first glass finger ring was very small and was either worn above the top joint of the little finger or was worn by a child. The latter interpretation is compatible with the discovery of such a ring in Grave E2, a collective grave (of the late seventh or, more probably, eighth century), which was proved to contain the remains of four children, aged nine months, one year, two years and three years, as well as an adult woman, aged 25–35 and a probable male, aged 20–24, based on physical anthropological analysis. The human remains were not in anatomical context, and it is not possible to assign the ring found amongst the mixed-up remains to a specific individual, but it is likely to have belonged to one of the children.[139]

It is not surprising that rings are attested in the finds from Dariali as they are one of the earliest and most widespread items of personal ornamentation in Georgia.[140] The fabric of such rings varies: from organic materials (bone, ivory, shell), to metal (gold, bronze, copper, iron), stone and glass (similar to the examples from Dariali Fort). Glass rings appear in archaeological contexts in Georgia initially at Mtskheta-Samtavro (dated to the first to fourth centuries)[141] and Urbnisi (second to third century) Cemeteries where they are represented

in low quantities compared to other finds.[142] However, coloured glass rings become widespread on the territory of Eastern Georgia from the sixth to eighth centuries (Rustavi, Urbnisi, Mtskheta-Samtavro, Jinvali, Lower Alevi, Gveleti, Nastakisi and Kartana).[143] These belong to a group of bezel rings, which include three main types: rings with a flat bezel (as in the small complete ring from Trench Q: Q.031/204), rings with a transverse flattened blob (such as in the Dariali example from Trench E: E.010/53) and rings with a coloured bezel. It is thought that coloured and black glass rings from the sixth century were produced locally.[144]

The largest number of glass rings ever found in Georgian archaeological contexts date from the eighth and ninth centuries and come from the Orbeti glass workshop. These rings are significantly larger and carry a high socket for a setting. The highest concentration of Orbeti type glass rings, 20 in total, occurred in the Dariali Gorge from the cemetery at Gigias Satibi.[145] Glass beads of the Orbeti type found in this cemetery emphasise the close relationship between this mountainous area and the Kartli region.[146] Orbeti-type rings are also attested in the assemblages of the Nastakisi Cemetery as well as the settlements of Uplistsikhe, Areshi and Nokalakevi.[147] According to Dolaberidze, Orbeti type items do not appear after the High Middle Ages (eleventh to thirteenth centuries), although a few glass rings of the eleventh to thirteenth centuries are found in Zhinvali, Dmanisi and Tbilisi. They are made of blue opaque glass and belong to the so-called group of bezel rings.[148]

Despite the fact that the later Orbeti type of glass rings closely resemble the rings of the sixth to eighth centuries (with a flat bezel and later with a small transverse flattened blob imitating a small protruding bezel) the glass ring from Grave E2 in the Dariali Cemetery (E.010/53) is likely of the earlier type. The context from which it was found dates to the late seventh or, more probably, eighth century and will be discussed further below.[149] The glass ring from Trench Q is, however, from above the stone lining (Q.059) of the large pit (Q.176), containing material from the seventh to late eighth or ninth century from its fill and so probably dates a bit later.[150] It is also typologically slightly different with a higher set bezel, in keeping with the Orbeti type. This evidence suggests that the ring from Trench Q dates to the time the Orbeti workshop was in operation and the ring from Trench E to the period before.

High quantities of glass rings are found in the Northern Caucasus at Chmi, Balta, Khuban, Qamunda, Mamisondon etc.[151] Ugrelidze believes that such glass rings were exported from Kartli to the central regions of the Northern Caucasus. Glass rings found in Alan graves of the Northern Caucasus (sixth to ninth centuries) are very similar to the rings which come from the Orbeti workshop. There are similar examples from the Dargavs Catacombs.[152] It is noteworthy that no glass jewellery production workshop has been found in the territory of the Northern Caucasus and the likelihood of these being imports manufactured in Georgia is high.[153]

15.2.7.7. Bangles [AG, FM]

Some individuals in the fort wore bangles. Of the well stratified pieces, one was found in a period 4–5a context (late seventh to eighth centuries), two in 5a-5b contexts (eighth to ninth centuries), one in a 5b-c context (ninth to tenth or early eleventh centuries) but most (six) in period 5c contexts (of the tenth century). Many were glass and they were found in Trenches F and Q. These were monochrome and where the colours could be seen were dark with red streaks, dark olive green and two varieties of dark blue. Four were drawn with circular sections (F.043/338.2; F.091/732; F.100/862; Q.076/1145), three were twisted (Q.008/208; F.114/905; F.164/1437) and two had triangular sections (F.001/36; F.043/338.1). The interior diameters of all but one could be measured and ranged between 5 and 8 cm. Those of 5–6 cm internal diameter may have been worn by children and/or individuals with very narrow wrists, bearing in mind that they had to be wider than the wearer's hand.

Glass bangles have been recovered in significant numbers from excavations in the east of Georgia, including the sites of Dmanisi, Rustavi, Tbilisi, Orbeti, Bolnisi, Natbeuri, Shenako and Zhinvali. The earliest of these were recovered from contexts dating between the sixth and eighth centuries, namely from the Rustavi Settlement and Cemetery and Kartana Cemetery.[154] Glass bangles became widespread in the eighth and ninth centuries, when they were produced at Orbeti and were made of twisted coloured glass.[155] Amongst the glass bracelets found in the territory of Georgia, Dolaberidze distinguishes four group of bangles as follows:

- glass bangles with a plain circular section (such as F.043/338.2, F.091/732, F.100/862, Q.076/1145);
- bangles with a flat inner convex upper surface (either plain or inlaid) or ribbed;
- bangles with a flattened triangular section (*e.g.* F.001/36, F.043/338.1);
- twisted glass bangles with a circular section (*e.g.* Q.008/208, F.114/905, F.164/1437).[156]

This first group (those with a plain round section) and the fourth group (those made of twisted glass) were popular throughout the entire medieval period in Georgia. However, the bangles with a triangular section, which are often inlaid or ribbed, and of a high quality of fabric are dated between the ninth and eleventh centuries and do not appear later.[157] Of those recovered from Dariali bangles belonging to the first two types come from contexts dating to the tenth century or later and those belonging to the last type date from the eighth or ninth century (in the case of Q.008/208 this is likely redeposited).

From the twelfth century onwards, glass bangles are manufactured with a plain circular section with threads of different fabric creating a white or a colourful interwoven cord effect.[158] In fact, during the eleventh to thirteenth centuries the manufacture of glass bangles in Georgia reached its peak and it is interesting that no examples of this type or period were found at Dariali Fort.[159] These later bangles are the most commonly attested type of personal ornament from that time period and are found in a wide variety of shapes and colours.[160] During this later period, bangles are still manufactured in Orbeti, but a workshop at Natbeuri becomes increasingly prominent.[161] None of these high medieval bangles has been found at Dariali, unsurprising as we found no evidence for any occupation at Dariali Fort or Cemetery in the High Middle Ages (mid-eleventh to thirteenth centuries), and late medieval activity on the fort was on a much-reduced scale, in comparison with the first millennium.

Of course, glass bangles are also attested in the grave assemblages from Azerbaijan, Armenia and the Northern Caucasus. In the Northern Caucasus, glass bracelets are most commonly found in graves dating to the ninth century.[162] As with other glass finds, it is thought that, from the ninth to the fourteenth centuries, bangles made of glass (and glass jewellery in general) were exported from Georgia to the Northern Caucasus.[163]

Analysis by Yoshinari Abe and Ryuji Shikaku succeeded in shedding light on the glass fabric of all glass bangles mentioned above. It produced some interesting findings, namely that four different fabric groupings could be identified (B-1, B-3, B-4 and B-6) and that these are of the broader group of fabric with a high aluminium content (B).[164] For comparison, it is interesting that there were few glass vessels with the composition B-1 and none with the B-6 fabric. Thirteen per cent of the sampled glass vessel assemblage are made up of fabrics in composition B-3 and B-4.[165] This implies that the workshops making these vessel types also produced glass bangles.

The glass vessels in the B-3 fabric type are made from green (especially green streaked with other colours), amber and thin blue-green material. The bangle of B-3 composition has a circular section and is twisted: F.164/1437. The colour of this item is a very bright aqua-turquoise.

Glass vessels in B-4 fabric are mostly brightly coloured blue and blue-green in colour. Most of them belong to typologies attested in the territory of modern Georgia and share forms and decorations with those vessels with a composition that it likely to be from Georgia – perhaps suggesting that B-4 bangles were also manufactured in this part of Transcaucasia. All B-4 bangles (F.043/338.2, F.091/732 and F.100/862) have a plain circular section. The appearance of the fabric of these bangles is very dark and shiny, almost metallic.

The B-1 composition is found amongst both bangles and vessels. In the latter assemblage, it is associated with the red-opaque vessels and their potential re-working. Bangles in B-1 composition have a plain circular section (Q.076/1145), a flattened triangular section (F.001/36 and F.043/338.1) and a twisted circular section (Q.008/208). They are predominantly bright blue in colour.

That compositional type B-6 is not attested in the glass vessel assemblage, perhaps suggesting that any local workshops specialising in the manufacture of bangles perhaps did not produce vessels, or that bangles in this composition were imported from elsewhere in the Caucasus, Anatolia or the Levant. The one bangle (F.114/905) in B-6 composition (a dark fabric) is twisted with a circular section.

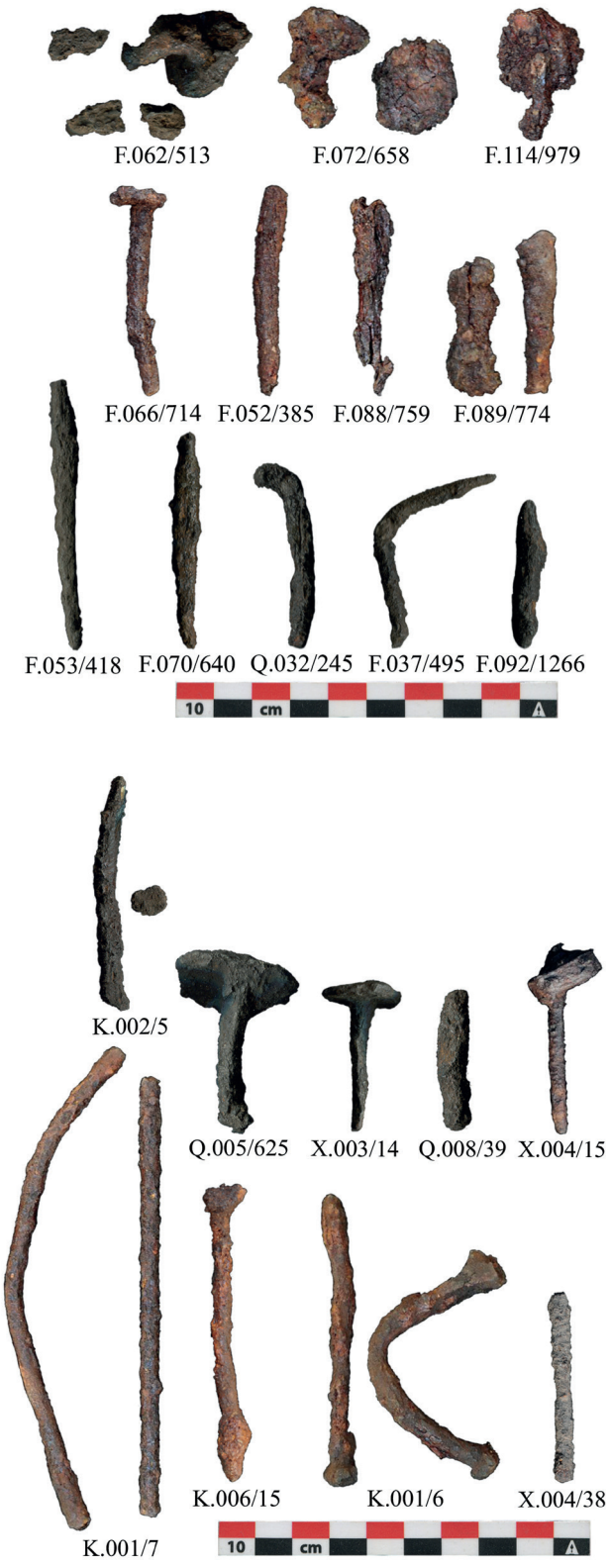
There were also a small number of metal bangles. Two were cast from copper alloy, circular in section and undecorated: their internal diameters were 5 and 6 cm respectively (F.022/131; Q.045/352); one was from a period 5b–c context, the second from a period 4–5a context, thus dating to the ninth to early eleventh century and mid-seventh to eighth centuries respectively. A third copper alloy bangle was made of copper alloy sheet (0.5 cm wide and 0.1 cm thick), had slightly thickened terminals and was opened up and then discarded as it perhaps no longer fitted the wearer (F.036/355); it was found in a period 5a-b deposit dated to the later eighth to ninth century. Finally, a twisted iron bangle with open terminals had a similarly small diameter to the other examples (F.091/980); it was found in a period 5c deposit dated to the tenth century and resembles one found in a grave in the contemporary cemetery, discussed below. The final item of personal apparel was a small iron buckle belonging to a belt (F.104/872), probably lost in the eighth century.

15.2.7.8. Bell [EWS]

F.183, a filled-up trench of the late seventh to ninth century (also containing a redeposited late antique bone sample and perhaps other redeposited finds of phase 3) yielded a spherical object of c. 21 mm diameter made of thin copper alloy sheet (F.183/1510). Significantly, it was recovered with a small stone inside, making it a near certainty that it was a bell (Table 15:26). This is the earliest bell from

Table 15:26: Copper alloy bell.

Find number	*Object type*	*Description*	*W*	*Wgt*	*Phase*	*Date*
F.183/1510	Copper alloy bell	Spherical object of c. 2.1cm diameter made of thin copper alloy sheet, recovered with a small stone inside, suggesting it was a bell.	2.1	<1	5a-b	c. late 7th–9th c.



Figs 15:28–15:29: Nails and rods.

Table 15:27: Nails.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
E.001/24,1	Nail	Iron nail; domed sub-rectangular head with short square section shank; complete	4.4	2.8 × 1.1 (head)	0.4 (shank)	9.82	7b	c. 20th c.	n/a
F.037/495	Nail	Iron nail; bent, circular section shank, broken at the junction with the head	5.2	n/a	0.6	3.67	5a-b	c. 8th–9th c.	15:28
F.052/385	Nail	Iron nail; circular section shank, broken at the junction with the head	5.4	n/a	0.7 – 0.9 (shank)	5.4	7a-b	c. 15th–20th c.	15:28
F.053/418	Nail	Iron nail; circular section shank, broken at the junction with the head	7.3	n/a	0.7 (shank)	6	5c	c. 10th c.	15:28
F.062/513	Nail	Iron nail; thick flat rectangular head with bent circular section shank	2.5	3.6 × 2 (head)	n/a	17.82	5c-7b	c. 10th–20th c.	15:28
F.066/714	Nail	Iron nail; flat circular head with circular section shank; complete	5.3	1.7	0.6	8.51	5c	c. 10th c.	15:28
F.070/640	Nail	Iron nail; circular section shank, broken at the junction with the head	5.9	0.8	0.7	4.37	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:28
F.072/587.2	Nail	Iron nail; circular section shank; fragment	1.2	2.9 (head)	0.7	4.2	5c-6b	c. 10th–15th c.	n/a
F.072/642	Nail	Iron nail; circular section shank, missing the head	4.9	n/a	0.7	2.77	5c-6b	c. 10th–15th c.	n/a
F.072/658	Nail	Iron nail; flat circular head with bent circular section shank	4	2.6 (head)	1	16.81	5c-6b	c. 10th–15th c.	15:28
F.088/753.1	Nail	Iron nail; circular section shank	n/a	n/a	n/a	n/a	5b-c	c. 9th–early 11th c.	n/a
F.088/759	Nail	Iron nail; circular section shank	5	1.1	0.5	6.34	5b-c	c. 9th–early 11th c.	15:28
F.089/774	Nail	Iron nail; circular section shank plus iron lump	n/a	n/a	n/a	14.43	5c	c. 10th c.	15:28
F.092/1266	Nail	Iron nail; circular section shank; semi-complete, missing the head, bent	4	n/a	0.4 (shank)	1.78	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:28
F.100/879.1	Nail	Iron nail; circular section shank, broken at the junction with the head; plus 2 other fragments	n/a	n/a	n/a	n/a	5c	c. early-mid 10th c.	n/a
F.102/808	Nail	Iron nail; circular section shank, 2 fragments	4.5	1	0.5	3.79	5c	c. 10th c.	n/a
F.104/868	Nail	Iron nail; circular section shank with traces of wood; complete	6.5	1.1	0.5	17.51	5a	prob. mainly 8th c., poss. 8th–early 9th c.	n/a
F.112/900	Nail	Iron nail; circular section shank, broken at one end	4.1	n/a	0.9	6.14	5b-c	c. late 8th–10th c.	n/a
F.114/979	Nail	Iron nail; flat circular head with circular section shank, fragment	3.5	2 (head)	0.4 (shank)	10.07	5c	c. late 9th–1st half of 10th c.	15:28

(Continued)

Table 15:27: Nails. (Continued)

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
F.119/1013	Nail	Iron nail; bent with circular section shank, missing the head	6.4	2 (head)	0.5	9.81	5c	c. late 9th–10th c.	n/a
F.120/1043.1–2	Nail	Iron nail; circular section shank; fragmentary	4.2	0.9	0.6	2.59	5b-c	c. late 8th–early 10th c.	n/a
F.123/1046	Nail	Iron nail; six fragments	n/a	n/a	n/a	12.32	5b-c	c. late 8th–early 10th c.	n/a
F.130/1126	Nail	Iron nail; flat oval head, broken at the junction with circular section shank	2.7	3.4 (head)	n/a	19.2	3d-5b	c. 5th–9th c.	n/a
F.131/1134	Nail	Iron nail; circular section shank; fragments x 2	n/a	n/a	n/a	3.78	5a-b	c. 8th–9th c.	n/a
K.001/6.1–2	Nail	Iron nails; circular section shanks	7.6 5.1	n/a	0.7 0.9	7.86 12.01	7b	c. 20th c.	15:29
K.002/5	Nail	Iron nail; circular section shank, broken at each end, with wood remains	6.7	n/a	0.7	5.7	7a-b	c. 15th–20th c.	15:29
K.006/15	Nail	Iron nail; circular section shank with an oval cylinder around the upper end; complete	7.6	n/a	0.6	8.96	7a-7b	c. 15th–20th c.	15:29
Q.005/625	Nail	Iron nail; flat oval head with circular section shank, broken at the tip	4.6	n/a	n/a	22.2	5c-6b	c. 10th–15th c.	15:29
Q.008/39	Nail	Iron nail; circular section shank; semi-complete, missing the head, straight	3.8	n/a	0.4 (shank)	3.25	7b	c. 20th c.	15:29
Q.032/245	Nail	Iron nail; circular section shank; semi-complete, missing the head, bent	5	n/a	0.6 (shank)	4.6	3a-5b	c. 4th–9th c.	15:28
X.003/14	Nail	Iron nail; flat circular head with circular section shank; complete	4	2.1 (head)	0.3 (shank)	8.6	5b-7b	c. 9th–20th c.	15:29
X.004/15	Nail	Iron nail; circular section shank with partially preserved head	4.8	1.4 (head)	0.3 (shank)	9	5b-7b	c. 9th–20th c.	15:29
X.004/38	Nail	Iron nail; semi-complete, missing the head	4.9	n/a	0.4 (shank)	2.7	5b-7b	c. 9th–20th c.	15:29

our excavations. Three further bells, all intact, were found in Grave G4.[166]

15.2.8. Building materials [St JS, SP]

Some of the finds belong to this category, namely nails, brick, tile, mortar and daub. Only the nails are described in this section, whilst ceramic building material is examined separately below.[167]

Nails

A number of short iron nails were found in Trenches E, F, K and Q (Figs 15:28–15:29; Table 15:27). One had a flat circular head and a broken shank which had the appearance of having been pulled out of a piece of wood and bent in the process (F.114/979). The remainder consisted of shanks with circular sections which often sheared at the forged junctions with the heads but the longest preserved examples only measured 7–8 cm in length.

15.2.9. Other artefacts [St JS]

Three small sub-rectangular grey slate sheets with a single hole through the centre of each were found in Trenches F, Q and V (Table 15:28). One measured between 4.4 and 5.9 cm across and although initially recorded as a spindle whorl is too irregular in shape to have functioned properly as such; an alternative suggestion that it might have been a loom weight is rendered equally improbable as its weight of 17.5 g was insufficient for that purpose. It perhaps instead was used like a washer in an object made of composite materials (Q.099/663). The other two were slightly larger, measuring 8 cm and 9 cm across respectively and

Table 15:28: Other artefacts.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D perf.*	*Wgt*	*Phase*	*Date*	*Fig.*
F.016/141	Perforated slate	Trimmed slate disc with hole in the centre	9	6.4	1	2	84	5c-6b	c. 10th–15th c.	15:17
Q.099/663	Perforated slate	Grey slate; oval with hole in the centre	5.9	4.4	0.3	n/a	17.5	5a-6b	c. 8th–14th c.	n/a
V.006/14	Perforated slate	Grey slate; flat oval with small bidirectionally drilled circular hole through the centre; complete	8	6.7	1.2	0.7	107.7	6a-7b	c. 11th–20th c.	15:17

Table 15:29: Miscellaneous bone objects.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
F.049/1729	incised rib	Polished caprid rib with three parallel incised lines	3.1	1.6	0.2	1.7	7a-7b	c. 15th–20th c.	15:30
F.033/583	perforated bone	Polished scapula implement with seven preserved holes of different sizes drilled through the end	12	7.7	0.3	20.88	5b-c	c. 9th–early 11th c.	15:31
Q.020/1134	perforated bone	Worked *bos cubo navicular* with a hole drilled through the centre; the hole is wider on one side and narrows on the other	5.3	4.7	2.8	40.06	5b-7b	c. late 8th–20th c.	15:30
Q.027/385	perforated bone	First phalange with three holes drilled through each end and one side	4.2	1.5	1.1	4.98	5b	c. late 8th–9th c.	15:30
F.063/536	perforated vertebra	Shark or ray vertebra with a 3mm hole pierced through the centre, polished on the sides	3.5	3.3	1.4	11.51	5b-c	c. 9th–early 11th c.	15:30



Fig. 15:30: Miscellaneous bone objects.



Fig. 15:31: Bone object.

may have had a different function although they are too small to have been roofing slates (F.016/141; V.006/14).[168]

15.2.10. Lithic

Two pieces of obsidian debitage were recovered, one from Dariali Fort (F.046/507) and a small flake from Trench A near Gveleti Cemetery (A.001/6); a single flint flake was also found on Dariali Fort (Q.089/1073).

15.2.11. Other bone objects [LCh, St JS]

The functions of some objects could not be determined with certainty and these included five worked bone artefacts found within the fort (Figs 15:30–15:31; Table 15:29). A polished caprid rib with three parallel incised lines may have been used as a fitting or part of an unidentified object of composite materials (F.049/1729). Another was a worked *bos cubo navicular* with a hole drilled through the centre (Q.020/1134). The hole is wider on one side and narrows on the other side. We do not know of any local parallels for this item and it may have been produced locally and have been used as part of a tool or other composite object.

The function of a shark or ray vertebra (F.063/536) with a 3 mm hole pierced through the centre, polished on the sides is equally unclear. Perhaps it formed part of a necklace. Fish bones with a hole drilled through the centre are also found on Neolithic sites in Georgia[169] and Armenia,[170] but the present example is an exotic species, thought to have originated in the Persian Gulf. It seems most unlikely to have been an export in its own right and instead probably represents a personal item obtained in or close to that region which was worn as a pendant and brought by its owner to Dariali.[171] The deposit where the vertebra was found dates to the ninth to eleventh centuries, and it is intriguing that another such vertebra measuring 19.8 mm across was found during the Japanese excavations in layer 1 of Mound 2 in Area D of the coastal Persian Gulf site of Jazirat al-Hulayla in modern Ras al-Khaimah, which mainly dates to the seventh/eighth and ninth centuries.[172] Found some 1.20 m outside (south-west of) the F.004 building, embedded in a rubbish disposal layer (F.063), and 19 cm deeper than radiocarbon sample F.063/548 of c. 896–1030, the vertebra from Dariali was probably lost or discarded in the ninth or tenth century by one of the inhabitants. Perhaps the exotic possession had arrived with the new garrison in the eighth century and handed down from generation to generation, possibly a newcomer brought it in the ninth or tenth century.[173]

A lightly polished scapula perforated with multiple holes of different sizes around the rounded end is of uncertain function: although broken, it appears to have had a row of small holes measuring 0.4 cm across along the outer edge with two or more larger holes, up to 0.8 cm across, as a second line below (F.033/583). It is uncertain what this was. Repeatedly drilled long bones with rows of circular holes ranging from about 0.5 cm to 1.5 cm in diameter are attested from medieval sites in England and thought to be the discarded waste products from the making of gaming-pieces, buttons or beads.[174] A cow scapula found at the Roman fort at Segontium (Caernarfon) in Wales bore extensive traces of working in a similar manner as a series of circles had been removed using a centre-bit with an extended centre point: the size of the removed discs would have been 2.5 mm thick and about 13 mm across.[175] Another possibility is that this scapula was part of a larger object of composite materials.



Fig. 15:32: Miscellaneous metal objects.

Table 15:30: Miscellaneous metal objects.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D*	*Wgt*	*Phase*	*Date*	*Fig.*
F.053/420	Artefact	Iron artefact; flat; fragment	n/a	n/a	n/a	n/a	4.99	5c	c. 10th c.	n/a
F.072/713	Artefact	Iron artefact; hollow roll at one end, circular shank, broken at the other	4.3	0.9	0.4	n/a	4.96	5c-6b	c. 10th–15th c.	n/a
F.088/753.2	Artefact	Iron artefact; hemispherical convex and resembling a clapper	3.6	>4,7, c. 8.2	0.3	n/a	140.2	5b-c	c. 9th–early 11th c.	15:32
F.104/940	Artefact	Iron artefact; pointed oval sheet, semi-complete	3.6	3.4	0.2	n/a	8.07	5a	prob. mainly 8th c., poss. 8th–early 9th c.	n/a
X.004/34	Artefact	Iron curb bit; flat with loop at each end; complete	11	1.06	n/a	n/a	31.2	5b-7b	c. 9th–20th c.	15:32
F.066/651	Fitting	Copper alloy fitting; cylinder; fragment	2.1	1.8	0.1	n/a	2.14	5c	c. 10th c.	15:32
F.062/529	Plate	Iron plates x 2; flat sheet	4 & 3.7	1.8 & 1.8	n/a	n/a	23.81	5c-7b	c. 10th–20th c	15:32
F.114/986	Plate	Iron plate; flat curvilinear	2.9	3.7	1.1	n/a	20.15	5c	c. late 9th–1st half of 10th c.	n/a

(Continued)

Table 15:30: Miscellaneous metal objects. (Continued)

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D*	*Wgt*	*Phase*	*Date*	*Fig.*
E.001/24.2	Sheet	Iron sheet; curving profile; fragment	5.2	2.5	0.1	13 (10%)	11.83	7b	c. 20th c.	n/a
F.056/1253	Socket	Iron socket; sheet bent to form a half-cylinder; complete	3.1	1.4	0.1	n/a	6.2	6b	c. late 13th–14th c.	15:32
F.022/193,2	Strip	Iron strip; plain flat; fragment	5.8	1.5	0.2	n/a	6.16	5b-c	c. 9th–10th c.	n/a
F.037/481	Strip	Iron strip; plain flat; fragment	4.2	1.4	0.6	n/a	7.35	5a-b	c. 8th–9th c.	15:32
F.037/494	Strip	Iron strip; plain flat; complete	6	1.1	0.6	n/a	6.4	5a-b	c. 8th–9th c.	15:32
F.043/367	Strip	Iron strip; plain flat	4.9	0.9	0.4	n/a	5.11	5c	c. 10th c.	15:32
F.043/384	Strip	Iron strip; plain flat; complete	6.2	1	0.3	n/a	11.44	5c	c. 10th c.	15:32
F.089/1178	Strip	Iron strip; plain flat	5	0.7	0.3	n/a	3.49	5c	c. 10th c.	n/a
F.104/821	Strip	Iron strip; plain flat; complete	6.2	1	0.5	n/a	5.91	5a	prob. mainly 8th c., poss. 8th–early 9th c.	15:32
F.112/1396	Strip	Iron strip; plain flat; fragments	3.4, 2.4 & 1,7	0.7, 0.7 & 0.5	n/a	n/a	5.85	5b-c	c. late 8th–10th c.	15:32
F.112/1403	Strip	Iron strip; plain rectangular; fragment	3.5	1.1	0.3	n/a	4.41	5b-c	c. late 8th–10th c.	15:32
F.125/1089	Strip	Iron strip; plain flat, short	5.2	1.2	1	n/a	9.8	5b	c. late 8th–early 10th c., prob. late 8th–9th c.	n/a
K.001/3	Strip	Silver strip; long plain sheet strip; three joining fragments; possibly a flattened sheet bangle or overlay	6.4	0.8	0.1	n/a	3.18	7b	c. 20th c.	15:32
Q.020/130	Strip	Iron strip; plain flat, lightly curved; fragment	5.8	1	0.3	n/a	9.23	5b-7b	c. late 8th–20th c.	15:32
F.043/322	Tack	Iron tack; fragment	2.5	0.6	0.3	n/a	0.76	5c	c. 10th c.	15:32
F.106/867	Tack	Iron tack	2	0.5	0.3	n/a	0.48	5a-c	c. late 7th–early 11th c.	n/a

A fifth worked bone object is a first phalanx with three holes drilled through each end and one side (Q.027/385). According to parallels found on the territory of Georgia, drilled phalanges were used as pendants[176] or gaming pieces.[177] However, as the phalanx from Dariali Fort is drilled through two sides in three different places we can assume that it must have had a different function, and rather than being a gaming piece or item of personal adornment it may have been used as part of a composite material object of unknown function.[178]

15.2.12. Other metal objects [St JS]

A small number of pieces of metalwork cannot be attributed to any of the main categories discussed and are mostly of unidentified function. They are tabulated for the sake of completeness (Fig. 15:32; Table 15:30).

15.2.13. Metal sheet

A small number of small pieces of metal sheet were found, five copper alloy and seven iron (Fig. 15:33; Table 15:31). Excluding two iron fragments from period 7b, all but one

Table 15:31: Pieces of metal sheet.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
F.037/383	Sheet	Copper alloy sheet; fragment	3.5	2.6	0.8	7.53	5a-b	c. 8th–9th c.	15:33
F.046/469	Sheet	Iron sheet; small fragment	2.9	2.1	n/a	8.68	5c-6b	c. 10th–15th c.	15:33
F.063/512	Sheet	Copper alloy sheet; semicircular and deliberately folded in half; complete	1.3	1.2	0.1	1.15	5b-c	c. 9th–early 11th c.	15:33
F.100/859	Sheet	Iron sheet; fragment	3.6	3.1	0.6	12	5c	c. early–mid 10th c.	n/a
F.109/1338	Sheet	Copper alloy sheet; fragment	1.2	1.4	0.1	1.1	3d	c. early 5th–6th c.	15:33
F.112/1404	Sheet	Iron sheet; fragment	1.8	1.7	0.2	1.9	5b-c	c. late 8th–10th c.	n/a
F.118/1034	Sheet	Copper alloy sheet; fragment	1.5	1.2	0.1	0.47	5a	prob. mainly 8th c., poss. 8th–early 9th c.	n/a
F.122/1037	Sheet	Copper alloy; 3 fragments	n/a	n/a	0.1	3	5b	c. late 8th–early 10th c., prob. late 8th–9th c.	n/a
Q.011/101	Sheet	Iron sheet; fragment	3.5	2.8	0.1	9.22	7b	c. 20th c.	n/a
Q.111/813	Sheet	Iron sheet; fragment	2.6	2	0.2	4.8	5b-6b	c. 9th–15th c.	15:33
Q.139/911	Sheet	Iron sheet; curving section with a handle-like termination set at right angles at one end; fragment	4.1	1.3	0.2	7.08	5b-6b	c. 9th–15th c.	15:33



Fig. 15:33: Pieces of metal sheet.

of these come from periods 5 or 5–6; the exception is a fragment of copper alloy sheet from period 3d.

15.2.14. Unidentifiable metal lumps

A small number of unidentifiable small heavily corroded iron lumps were recovered: almost all were from Trench F but a small number were from Trench Q (Table 15:32). A tiny number of copper alloy flecks were also recovered from Trench F, all from two contexts and dating to period 3: the numbers may be statistically invalid but they add to the impression that copper alloy was more common in period 3 and was gradually replaced by iron from period 5 onwards.

15.2.15. Vitreous materials and metal working

Fragments of vitrified clay, evidently exposed to higher temperatures than normally reached in ovens or fireplaces, suggest that metal-working was taking place on Dariali Fort in the Early Middle Ages and probably already in Late Antiquity and that the garrison was able to repair and produce weaponry and equipment (Table 15:33).[179]

15.2.16. Modern materials [FM, SP]

A small number of finds from the topsoil and disturbed uppermost contexts on Dariali Fort, Gveleti Fort (Trench C) and the vicinity of Gveleti Cemetery (Trench A), reflect modern activity (Table 15:34).[180] Some of this was military: five spent cartridges belonged to AK47 Kalashnikovs and another consisted of a rifle casing dated 1916.[181] A film canister from Trench O with messages in Russian of 1964 and the 1980s was perhaps the most unusual recent find.[182] Other finds derive from modern drinking culture and include a vodka bottle,[183] shot glasses and other modern bottle or container glass. The most commonly attested type was a mould-pressed mass-produced bottle in a thick colourless to blue fabric (A.003/4; Q.037/511, four pieces; Q.037/244; likely also Q.115/772, V.001/1). Two such examples were made in a blueish green fabric (Q.130/811, under a disturbed context with modern material; Q.008/250, five pieces). A dark green bottle in three fragments and three other sherds of colourless glassware were found in Trench W. Small glass beakers for drinking neat spirits were the second most recognisable object: one is a faceted-style glass with rectangular faces in a very thick and colourless fabric, now with a frosted appearance (C.001/2.1–2; C.001/9 is probably a fragment of the same vessel). Another is a short glass which is rounded and smooth on the outside, made in a colourless fabric (Q.008/238.1). Other fragments include blue/green glass (C.001/2.3; Q.008/238.2–5) and a piece in a thick translucent green fabric (T.002/1). A very small triangle of thick light turquoise glass completes the inventory of modern glass (X.003/13).

Table 15:32: Metal lumps.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*
F.005/44	Lump	Iron lump	1.7	2	1.3	8	7a-7b	c. 15th–20th c.
F.020/148	Lump	Iron lump	1.8	2.5	0.9	4	6b	c. 14th–early 15th c.
F.022/195	Lump	Iron lump	2	1.2	0.2	1.15	5b-c	c. 9th–11th c.
F.022/198	Lump	Iron lump	4.6	1.8	1.2	9.57	5b-c	c. 9th–11th c.
F.043/368	Lump	Iron lump	4.4	1.3	0.2	4.47	5c	c. 10th c.
F.046/469	Lump	Iron lump	3	2.5	1.5	8.68	5c-6b	c. 10th–14th c.
F.062/502	Lump	Iron lump	2.4	2.1	1.6	11.09	5c-7b	c. 10th–20th c.
F.066/650	Lump	Iron lump	3.7	3.1	2.7	21.4	5c	c. 10th c.
F.072/731	Lumps	Iron lumps × 3	6.4	0.9	0.4	2.03	5c-6b	c. 10th–15th c.
F.109/1342	Fleck	Copper alloy fleck	n/a	n/a	n/a	1	3d	c. early 5th–6th c.
F.109/1345	Fleck	Copper alloy fleck	0.7	0.3	n/a	<0.5	3d	c. early 5th–6th c.
F.112/1398	Lump	Iron lump; cylindrical with forked end	4.2	0.8	0.8	10.12	5b-c	c. late 8th–10th c.
F.114/988	Lump	Iron lump	2.7	1.1	0.3	0.63	5c	c. late 9th–1st half of 10th c.
F.114/1014	Lump	Iron lump	5.6	1.8	n/a	21.11	5c	c. late 9th–1st half of 10th c.
F.114/1127	Lumps	Iron lumps × 8	n/a	n/a	n/a	22.34	5c	c. late 9th–1st half of 10th c.
F.131/1101	Lumps	Iron lumps × 3	n/a	n/a	n/a	2.47	5a-b	c. 8th–9th c.
F.137/1172	Lump	Iron lump	4.4	3.2	n/a	29.72	3a-5c	c. 4th–early 11th c.
F.137/1176	Lump	Iron lump	4.4	3.4	n/a	27.48	3a-5c	c. 4th–early 11th c.
F.149/1582	Fleck	Copper alloy fleck	n/a	n/a	n/a	<0.5	3c	c. late 4th–mid 5th c.
F.183/1509	Lump	Iron lump	3	1	1	3.8	5a-b	c. late 7th–9th c.
Q.132/827	Lumps	Iron lumps × 5	n/a	n/a	n/a	8.9	3a-5b	c. 4th–9th c.
Q.153/964	Lumps	Iron lumps × 3	n/a	n/a	n/a	2.9	3a-5a	c. 4th–8th c.

Table 15:33: Vitreous material.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*
Q.058/468	Crucible	Fired clay crucible fragment (70mm original diameter)	4.1	3.5	0.7	13.5	5b	c. late 8th–9th c.
F.027/157	Vitreous material	Slag	n/a	n/a	n/a	151	5c-6b	c. 10th–14th c.
F.046/508	Vitreous material	Fired clay lump/slag	n/a	n/a	n/a	184	5c-6b	c. 10th–14th c.
F.052/397	Vitreous material	Vitrified clay	n/a	n/a	n/a	n/a	7a-b	c. 15th–20th c.
F.070/662	Vitreous material	Glassy vitreous material with high silica content/slag	n/a	n/a	n/a	19	5a	prob. mainly 8th c., poss. 8th–early 9th c.
F.070/665	Vitreous material	Glassy vitreous material with high silica content/slag	n/a	n/a	n/a	7	5a	prob. mainly 8th c., poss. 8th–early 9th c.
F.149/1595	Vitreous material	Vitrified clay	n/a	n/a	n/a	11	3c	c. late 4th–mid 5th c.
F.191/1631	Vitreous material	Vitrified clay	n/a	n/a	n/a	121.3	3c	c. late 4th–early 5th c.
F.199/1696	Vitreous material	Vitreous material	n/a	n/a	n/a	35.2	5a-c	c. 8th–10th c.
Q.001/782	Vitreous material	Vitrified clay	n/a	n/a	n/a	44.8	7b	c. 20th c.
Q.001/909	Vitreous material	Vitrified clay	n/a	n/a	n/a	2.6	7b	c. 20th c.
Q.132/821	Vitreous material	Vitreous material	n/a	n/a	n/a	1718	3a-5b	c. 4th–9th c.
U.004/14	Vitreous material	Vitrified clay furnace lining	n/a	n/a	n/a	<0.5	6b-7b	c. 13th–20th c.

Table 15:34: Modern artefacts.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
C.001/7	Bolt	Metal bolt and tube	n/a	n/a	n/a	101	7b	c. 20th c.	n/a
F.001/4	Bullet casing	Bullet casing from Kalashnikov	n/a	n/a	n/a	10	7b	c. 20th c.	n/a
F.001/30	Bullet casing	Bullet casing from Kalashnikov	n/a	n/a	n/a	11	7b	c. 20th c.	n/a
F.005/73	Bullet casing	Bullet casing	n/a	n/a	n/a	5	7a-7b	c. 15th–20th c.	n/a
P.001/4	Bullet casing	Bullet casing	n/a	n/a	n/a	9.8	7b	c. 20th c.	n/a
P.002/11	Bullet casing	Bullet casing	n/a	n/a	n/a	9.3	7b	c. 20th c.	n/a
Q.129/799	Bullet casing	Rifle shell casing inscribed 'ЛІ 916': produced in Luhansk in 1916	1.4	5.3	1.4	9.5	7b	c. 20th c.	3:51
Q.037/244	Glass bottle	Sherd; light blue	n/a	n/a	n/a	n/a	7b	c. 20th c.	n/a
Q.037/511	Glass bottle	Thick modern glass belonging to a large factory produced bottle, with ridges from mass manufacture – blue green; four pieces	n/a	n/a	n/a	n/a	7b	c. 20th c.	n/a
Q.115/77.2	Glass bottle	Bottle glass; probably blue to colourless	n/a	n/a	n/a	n/a	7b	c. 20th c.	n/a
Q.130/811	Glass bottle	Glass bottle; large piece of transparent blue green glass, mass produced	n/a	n/a	n/a	n/a	7b	c. 20th c.	n/a
A.003/4	Glass vessel	Glass vessel	n/a	n/a	n/a	10	7b	c. 20th c.	n/a
C.001/2	Glass vessel	Glass vessel	n/a	n/a	n/a	78	7b	c. 20th c.	n/a
C.001/9	Glass vessel	Glass vessel	n/a	n/a	n/a	24	7b	c. 20th c.	n/a
Q.008/238	Glass vessel	Shot glass	n/a	n/a	n/a	73.3	7b	c. 20th c.	n/a
Q.008/250	Glass vessel	Bottle glass	n/a	n/a	n/a	106.3	7b	c. 20th c.	n/a
T.002/1	Glass vessel	Bottle glass body fragment	n/a	n/a	n/a	3.8	7b	c. 20th c.	n/a
V.001/1	Glass vessel	Vessel glass	n/a	n/a	n/a	n/a	7b	c. 20th c.	n/a
W.001/2	Glass vessel	Bottle glass	n/a	n/a	n/a	247.3	7b	c. 20th c.	n/a
X.003/13	Glass vessel	Vessel glass; light turquoise; very small triangle of thick glass	n/a	n/a	n/a	n/a	5b-7b	c. 9th–20th c.	n/a
A.001/1	Nail	Iron nail	n/a	n/a	n/a	2	7b	c. 20th c.	n/a
F.001/33	Nail	Iron nail	n/a	n/a	n/a	5	7b	c. 20th c.	n/a
F.001/430	Plate	Flat piece	n/a	n/a	n/a	381	7b	c. 20th c.	n/a
K.001/7.1	Rod	Iron rod; circular section; complete, maybe fragment of large nail	12	n/a	0.5	11.73	7b	c. 20th c.	15:29
K.001/7.2	Rod	Iron rod; circular section; complete, maybe fragment of large nail, bent	13	n/a	0.5	14.14	7b	c. 20th c.	15:29
C.001/3	Tube	Iron tube	n/a	n/a	n/a	11	7b	c. 20th c.	n/a
Q.008/234	Tube	Two condensed milk tubes	n/a	n/a	n/a	41.2	7b	c. 20th c.	n/a

15.3. Finds from the cemetery

The development and characteristics of the cemetery are discussed separately,[184] but it is worth reiterating here that radiocarbon dates indicate the earliest graves have been located in the area closer to the fort, excavated in Trench E, and these date to c. 671/770–778/988, probably the eighth to ninth or tenth century. The graves excavated in Trench AB and G date to c. 885/977–974/1021 and c. 770/942–988/1035 respectively, probably the ninth to late tenth or early eleventh century – starting and ending later than Trench E, but potentially overlapping. The cemetery may have spread gradually outwards or perhaps consisted of more than one burial ground which expanded and merged. Most of the graves did not contain any objects but two each from Trenches E and G, and one from Trench

AB, did. Most of these came from the burials of a young individual with numerous beads and items of jewellery (Grave G4, filled by G.013) and an armed young person (Grave G9, filled by G.020) nearby.

15.3.1. Military equipment of the young individual (presumed male) from Grave G9 and from disturbed layers

The young 'warrior' in Grave G9 was the only individual amongst the small number of excavated burials to have weapons as grave goods. Whilst anthropologically unsexed, the grave inventory is typically male, and we assume therefore he was a young man: a sword on his right (south) side and three arrowheads or, more probably, the remains of arrows whose shafts have disintegrated without leaving any visible traces. He was aged between 15 and 20 years when he died and a radiocarbon date on a fragment of his bones places it between 975–1029.[185]

15.3.1.1. Sword [EWS, St JS]

This sword (G.020/13), made of high-quality crucible steel,[186] is one of the most important finds from these excavations and represents a significant addition to the small corpus of early medieval swords from this region (Figs 15:34–15:36; Table 15:35). It is important, as it comes from a closely dated context and proves the continuity of straight double-edged blades with a new type of suspension system as late as the tenth or beginning of the eleventh century when curved sabres were already in widespread use.

The sword is catalogued in detail below and is 93 cm long and weighs 767 g, not counting an additional 41 g of iron fragments and 139 g of iron sheath fittings. Its blade measures 79 cm in length and 4.5 cm in width. It has been restored by Nino Kamkamidze. The tang continued into the hilt and was secured onto a hollow pommel; the central section of the hilt was wood but the lower portion, directly above the crossbar guard, was covered with sheet metal. The guard itself was of composite construction. Curving downwards, and with spherical terminals, the cross-guard offered some protection for the sword-bearer's hand and arm.[187] Parts of the sword sheath survived too, and from the tip of the chape to the top of the hilt the sword measured 108.5 cm. The wood is awaiting identification but the lining inside the scabbard of a late Sasanian sword from Dailaman was scientifically analysed and shown to be a species of the genus *Pistacia*, a medium density wood which is durable and, according to one nineteenth century source, was 'prized in Iran and Afghanistan for making agricultural implements, spoons and other objects'.[188]

Of particular interest is the well-preserved suspension mechanism of the sword. There were two D-shaped loops, 3.1 cm inner and 7.3 cm outer diameter (1.2 cm thick and projecting by 4.6 cm), 26 cm apart (centre to centre), facing the burial. Parts of the iron strips attached to the front of the sheath holding them in place also

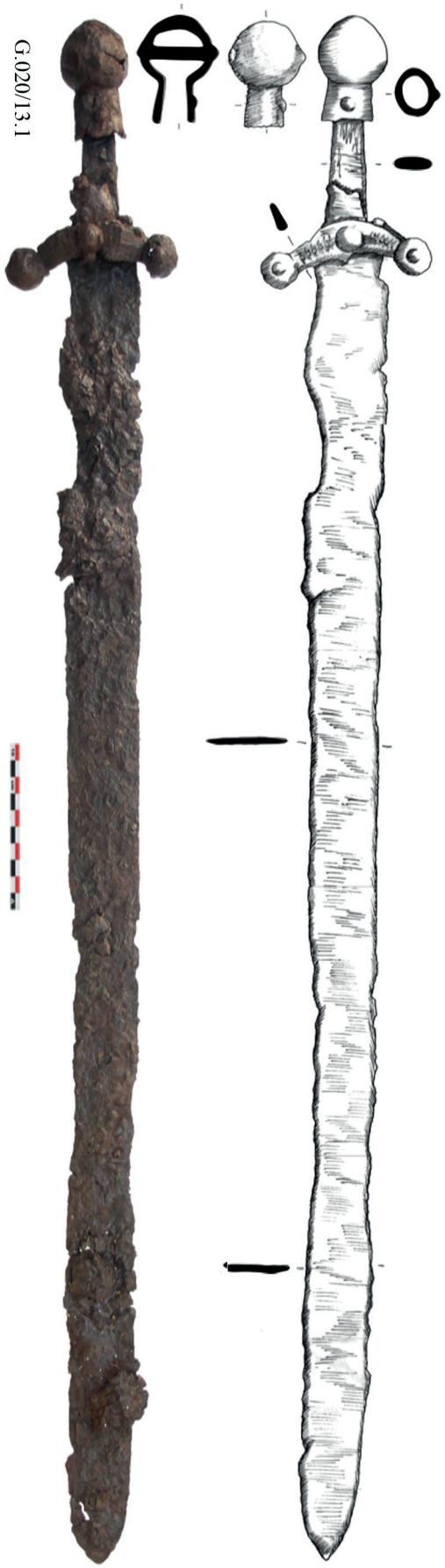


Fig. 15:34: The iron sword.

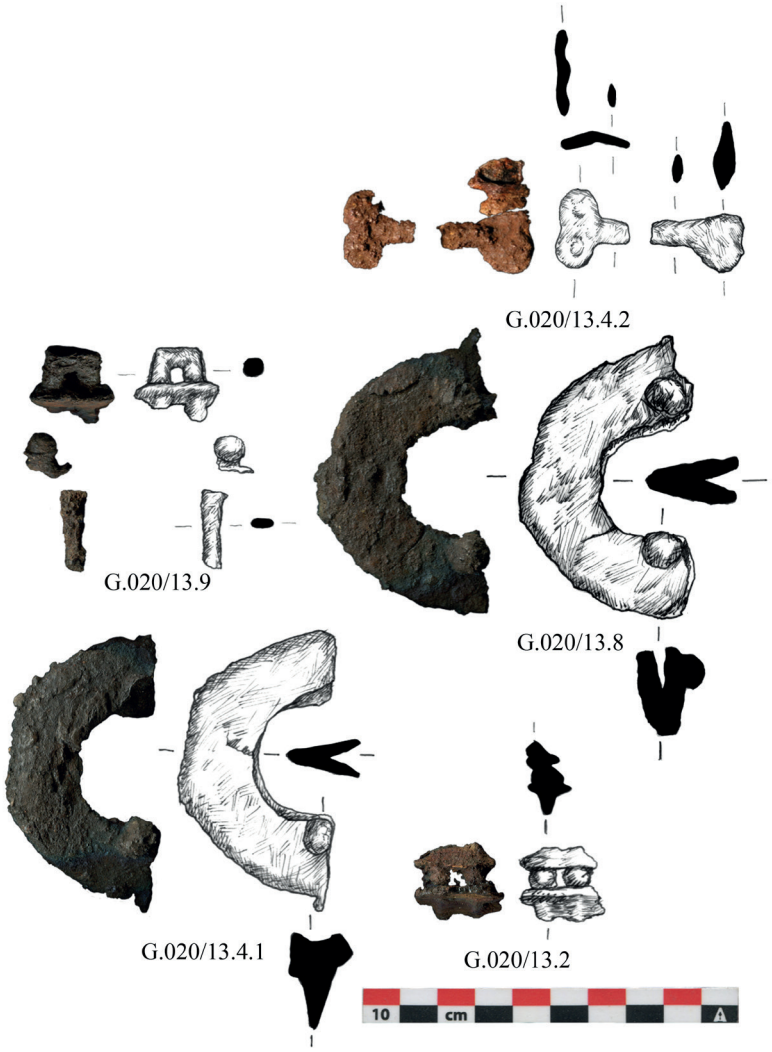


Fig. 15:35: Iron elements of the sheath and suspension mechanism of the sword.

survived.[189] This type of suspension mechanism already had a tradition of about half a millennium by the time our sword was placed in Grave G9. Swords with similar, then P-shaped, suspension attachments first emerged in Sasanian Iran and the steppe world during the second half of the sixth century.[190] Twenty-eight or more late Sasanian double-edged straight swords with P-shaped mounts, usually sheathed in silver (occasionally gold) scabbards are known from different collections: although none come from archaeological excavations, reports indicate that most, if not all, come from commercially excavated graves in the Dailaman region of North-west Iran.[191] A representation on a gilt silver plate suggests that this type of sword suspension continued into the eighth century. Archaeometallurgical analysis of one of the late Sasanian blades in the British Museum proved it to be crucible steel and this is currently the earliest attestation of a highly specialised technology which was described by early Islamic writers from the ninth century onwards,[192] and the archaeological remains of crucible steel workshops using a carburisation technology (rather than co-fusion technology as suggested in some literature) has been identified in a belt stretching from Chachak in Southern Iran to Merv, Termez and Akhsiket in Central Asia.[193]

Straps were originally attached to these P-shaped and later D-shaped suspension attachments and loops, and are depicted in wall-paintings and on stone reliefs from across Central Asia and neighbouring territories. A similar suspension system was used for both swords and curved single-bladed sabres which were invented in about the seventh century.[194] Such a suspension at an oblique angle would have allowed the sword- or sabre-bearer to draw his weapon marginally faster, a seemingly small development of weapon design, yet one which could have made the difference between life and death. Further advantages included that the mechanism

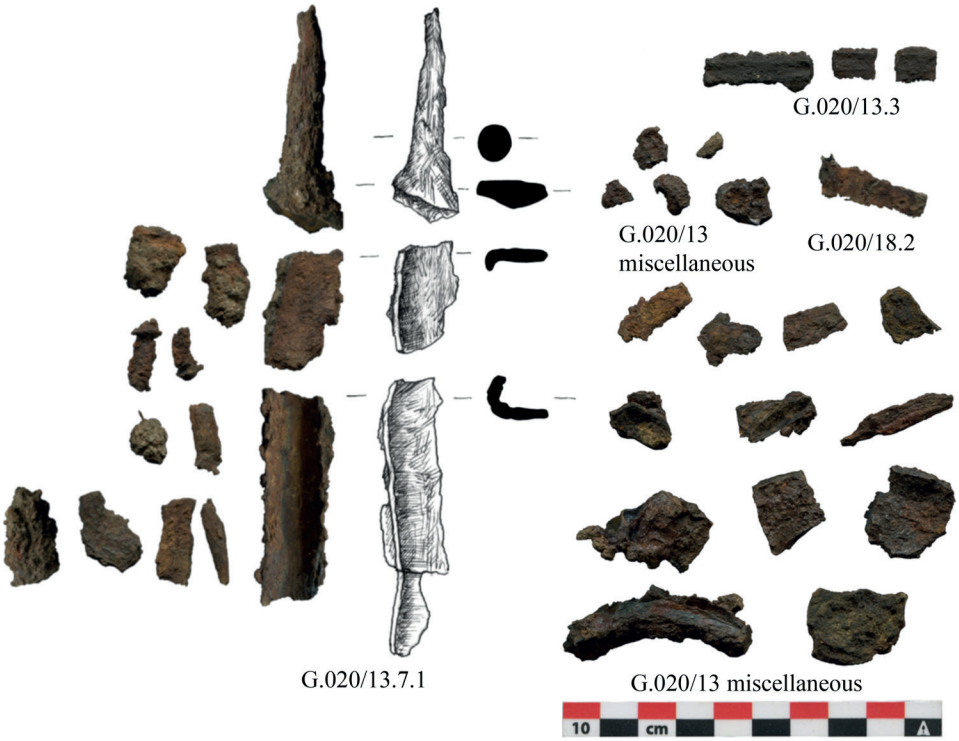


Fig. 15:36: Iron elements of the chape (G.020/13.7.1), sheath and suspension mechanism of the sword.

appears to have been sturdy, simple and probably durable, and that the side and angle of suspension could easily be adapted to the needs of a warrior.[195] It is thus little surprise that this innovation spread rapidly across the steppes of Eurasia, where we witness such major migrations in the Early Middle Ages, and soon was adopted in territories from China to Northern Europe, as shown by surviving weapons in their sheaths, as well as works of art.[196] Worth noting in particular are swords and sabres with similar suspension mechanisms from the graves of the eighth to ninth centuries in the Dargavs Burial Ground in the Northern Caucasus, approximately 20 km north-west of Dariali Fort as the crow flies.[197] A c. ninth century sword with a 71.5 cm long single-edged blade with a similar suspension mechanism has also been excavated in a 'low level' at Tepe Madraseh at Nishapur,[198] evidence to suggest that weapon typology provides no decisive clues as to the bearer's origins, even if David Alexander's hypothesis that it belonged to a Turkic warrior in Islamic services[199] may well be true. A stone stela from Southern Kazakhstan dating to the ninth to eleventh centuries, and thus contemporary with the warrior in Grave G9, provides a graphic illustration of the diagonal suspension of a sword placed in a sheath with similar D-shaped suspension loops.[200] The Avar migration brought sheaths with this suspension mechanism to the Central Danube.[201] By contrast, the suspension mechanism via P- or D-shaped attachments and loops does not appear to have spread beyond the steppe world into Europe, and we are not aware of any examples from the north-west of the continent.[202] Not just the wide geographic spread, but also the long survival of this small innovation in weapon design is testimony to it evidently being considered to be advantageous in steppe warfare. Mounted warriors in particular often having to act with greater speed than foot-soldiers, whilst not always having both hands free for weapon handling, would have benefited even more from being able to draw their sword or sabre rapidly. It is thus no surprise that the garrison at the Dariali Pass, at the edge of the steppe world and Transcaucasia, followed the general trend in weapon design. This is also true for other elements of the weapon: the knobbed crossbar guard is also found on other bladed weapons from eighth to tenth century Northern Europe.[203]

Whilst parallels for the suspension mechanism have been found far afield, notably in the steppe world, a close parallel for the sword itself comes from Khevsureti in the Georgian Caucasus, not far east of Dariali Gorge. Unfortunately, nothing appears to be known about the archaeological context, and we are not aware of any elements of the sheath having been recovered. The sword itself, notably the pommel and curved cross-guard is similar if not identical to the weapon from Grave G9. In his important typological study of this weapon, Mamuka Tsurtsumia proposed a late eleventh to early twelfth

Table 15:35: Iron sword.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
G.020/13 (Grave G9)	Sword	Iron sword (G.020/13.1; miscellaneous fragments: G.020/13.6); straight double-edged blade with a pointed tip, gently tapering from a maximum width immediately below the shoulder to the top of the tip; the shoulders were slightly rounded and the straight flat tang was largely intact and capped with a large hollow pointed oval pommel forged onto a short oval cylinder which were secured onto the tang by two transverse round-headed iron rivets (D 0.7cm), one passing through the pommel and the other 1.5cm below. There are extensive remains of wood within the pommel which also has extensive remains of cloth impressions in the corrosion on the top and extending onto the cap. The crossbar guard was formed by three sections of iron (W 1.8cm), two forming the guard itself and the third at right angles running parallel with the blade and secured with a round-headed iron rivet (D 1.5cm); a hollow spherical ball (D 2.5cm) was added at either end of the guard creating a total L of 10.5cm. A pair of semi-circular or D-shaped suspension loops (G.020/13.4.1: upper, and G.020/13.8: lower suspension loop) were originally attached to the scabbard; each measured 7.3cm long x 4.6cm across x 1.2cm thick, had flaring V-sections containing traces of wood, and each was held in place with a pair of circular-headed rivets (D 0.8cm). Various other elements of the sheath and suspension mechanism (G.020/13.2, G.020/13.3, G.020/13.4.2 found broken next to the upper suspension loop on top of the sheath, G.020/13.5, G.020/13.9 and G.020/18.2) were recovered, as well as the chape (G.020/13.7.1).	93 (whole sword) 79 (blade below cross-guard) 80.5 (blade minus tang and pommel) 8.5 (tang) 4.1 (pommel) 2.8 (pommel cylinder)	4–5 (blade) 1.8 (tang) 4 (pommel) 2 x 2.5 (pommel cylinder)	0.3 (blade) 0.3 (tang)	767g (plus 41g fragments, plus 139g iron fitting of sheath)	5c	c. 975–1029	15:34–15:36

century date, mainly on the basis of similarities with swords in depictions of this period.[204] This is possible, although there is no reason why it could not be contemporary with the Dariali sword which was evidently buried in the late tenth or early eleventh century. The same author also draws attention to the hollow oval pommel on that sword and similar examples found in a grave at Garabonc-I in Hungary, Pliska in Bulgaria and a battlefield site at Drastar, all of which date to the ninth and tenth centuries, and suggested that they represent a type widespread in the Byzantine and Islamic worlds that also influenced the weapon design of the Khevsureti sword. The Dariali sword is some 9 cm shorter and 202 g lighter than its counterpart from Khevsureti. Despite such differences, the Khevsureti sword provides a close parallel and proves that the Dariali sword was not unique in the area. Whether these weapons were imported, locally produced, if perhaps inspired by prototypes from the steppe world or carried by migrants, invaders or mercenaries, it is of great interest that a similar weapon found its way into more remote regions of the Caucasus. Whatever population movements or cultural influences led to burials

in the Nordic style at Dariali Fort around AD 1000, such weaponry did not remain confined to the strategic Transcaucasian traffic highway.

15.3.1.2. Arrowheads [EWS, St JS]

Three rhomboid tanged iron arrowheads were found in Grave G9, directly associated with the young male(?) burial (Fig. 15:37; Table 15:36). One (G.020/16) is up to 20 mm wide, c. 6–7 mm thick and 91 mm long (the tip, 49 mm and the tang, 42 mm); another (G.020/18.1) is up to 21 mm wide, also c. 6–7 mm thick, but only 73 mm long (the tip, 37 mm, the tang, 36 mm). A third (G.020/13.7.2) was recovered with the chape of the sword (G.020/13.7.1). It was broken, but survived to a length of 82 mm, the tang measuring 35 mm and the tip 47 mm (and probably slightly longer originally). The tip and tang were 6–7 mm thick, and the tip survived to a width of up to 19 mm. One wing is preserved to its full width (c. 11 mm from the axis), suggesting that the arrowhead was originally 22 mm wide. These flat leaf-shaped iron arrowheads have also parallels in the north, such as at the fortified settlement of Chertova Gorodishcha in the Upper Oka Basin, where this type was used in the eighth and ninth centuries. Whilst this settlement was destroyed in the early tenth century, the type (no. 43) remained in use elsewhere up to the thirteenth century[205] and is similar in shape and dimensions to Medvedev's type 32 of the twelfth and thirteenth centuries.[206] Similar arrowheads in association with similar bladed weapons occur also in graves of the North-west Caucasus in the late twelfth to thirteenth centuries[207] and in the Northern Caucasus from the tenth or eleventh to twelfth[208] and in the thirteenth to fifteenth centuries.[209] This type of arrowhead was also in use south of the Caucasus, and occurs in an eleventh to thirteenth century cemetery at Rustavi.[210] No remains of a bow were found, suggesting that, if it has been amongst the grave goods, it had been made of wood or that those elements made of bone or horn, not uncommon in other North-east European burials of the later first millennium with arrowheads,[211] had disintegrated due to the generally poor preservation of these organic materials.

The location of the arrowheads from Grave G9 is worth noting. There is nothing to suggest that the arrowheads, with or without their shafts, had been in a quiver. A quiver itself would have disintegrated, often leaving no traces. In the eighth or ninth century graveyard of Bol'she-Tiganskiĭ, 11 burials, all male, contained arrowheads, eight, remains of bows and just four elements of quivers. These were small iron or copper alloy loops and in one case an iron hook.[212] Interestingly, at this graveyard arrowheads appear to occur in small clusters, aligned parallel to each other and to the long axis of the graves, their number varying between three and ten each.[213] These observations all add strength to the assumption that each male warrior had been equipped with a small number of arrows, inserted with their shafts into quivers. By contrast, the young male in Grave G9 had no more than three iron arrowheads in his final resting place, found spread over some 50 cm. Two of them were immediately next to the individual's right leg, the third under the chape of his sword. Is it possible that they were not grave goods, but that he had been attacked and that the tips of the arrows were still sticking in his leg at the time of burial? Such a hypothesis might not only explain their position, but also the fact that they cannot have retained more than a stump of their wooden shaft, if any at all, to judge by their oblique angle and distance to the stone slabs lining the grave. Yet, whilst tempting, such a hypothesis seems improbable. Notably the arrowhead (G.020/16) next to the lower leg survived unbroken to its full length of 91 mm and could easily have been removed. Furthermore, apart from the odd angle and distance to each other, the location of the arrowheads is not unusual.[214] The sword had quite clearly been placed intentionally in the grave, and warriors at the time were often equipped with a combination of long-range and close-combat weapons, *i.e.* a sword or sabre and archery gear. That the deceased



Fig. 15:37: Iron arrowheads from Grave G9.

Table 15:36: Iron arrowheads.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D tang*	*Wgt*	*Phase*	*Date*	*Fig.*
G.020/13.7.2 (Grave G9)	Arrowhead	Iron arrowhead; flat leaf, tanged; incomplete	≥8.2 (3.5 tang)	≥1.9, c. 2.2	0.7	0.7	12.1	5c	c. 975–1029	15:37
G.020/16 (Grave G9)	Arrowhead	Iron arrowhead; flat leaf, tanged; complete	9.1 (4.2 tang)	2	0.7	0.3	12.51	5c	c. 975–1029	15:37
G.020/18.1 (Grave G9)	Arrowhead	Iron arrowhead; flat leaf, tanged; complete	7.3 (3.6 tang)	2.1	0.7	0.6	12.06	5c	c. 975–1029	15:37
G.US/14	Arrowhead	Iron arrowhead; bifurcated fork tip with long circular section shank; semi-complete	11	3.8	0.4	0.6	26.52	n/a	?	15:38
G.US/15	Arrowhead	Iron arrowhead; rectangular section narrow pointed bolt with tapering tang; complete	7.7 (2.9 tang)	0.8	0.4	0.1 –0.5	8.03	n/a	?	15:38

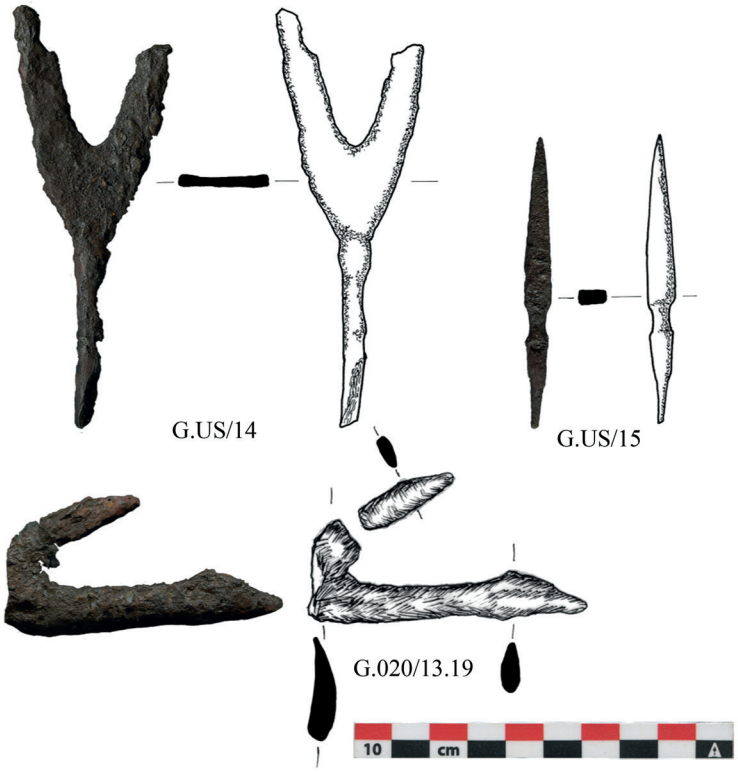


Fig. 15:38: Iron arrowheads from disturbed layers in Trench G and a fire striker from Grave G9.

had been provided with arrowheads, rather than arrows with shafts, placed haphazardly in the grave, is possible, but unlikely, and the same applies to potential deliberate (ritual?) breakage of the shafts, notably as no other grave goods had been deliberately damaged in this or the other burials. More probably, we are dealing with later dislocation of the grave goods, maybe after the wooden shaft had partially or completely rotted, *e.g.* via water infiltrating into the grave.[215]

Another arrowhead with a large bifurcated forked tip was found south of the unexcavated north-westernmost grave in the trench (G.US/14) and belongs to a type which occurs in burials in the Northern Caucasus from the eighth or ninth century onwards and was also used in

Transcaucasia (Fig. 15:38; Table 15:36).[216] This type of arrowhead is generally considered to have been used for shooting small game or birds rather than a weapon but a Sanskrit text known as *Dhanurveda Samhita* intriguingly refers to how an archer using a 'two bladed arrow with the little curved fist … cuts off the enemy's arrows with the help of his own arrows': whether this is the same sort is uncertain however.[217] A third type of arrowhead resembling a bolt (G.US/15) was found when cleaning the topsoil in Trench G. It is 77 mm long and 4 mm thick. The tip is 48 mm long and up to 8 mm wide, the tang is 29 mm long and up 7 mm wide. These two pieces of weaponry are evidence for disturbance and suggest that some other male garrison members at the time will have been buried with their weaponry too.

15.3.2. Beads [AG]

Six complete and one disturbed burial were excavated in Trench G, some 400 m south of Dariali Fort, not counting an eighth partially excavated grave. Two of these contained grave goods and one of these (Grave G4) contained as many as 161 glass and stone beads, in addition to other items (Figs 15:39–15:41). This grave belonged to a 7–10 year old adolescent of undetermined gender and dates to 988–1150 (most probably AD 988–1030s).[218] Beads of similar types are found widely in Northern Europe.[219] The large number is not unusual for female graves, but even male graves can contain beads; at the late-eighth to mid-ninth century cemetery of Bol'she-Tiganskiĭ female graves contained 30–150 beads and one had over 700 beads.[220] The only other grave to contain beads is another child grave, Grave AB1. It is earlier than Grave G4, dating to c. 885–977. There were just two beads found near (south-east of) the skull.[221] Already in the early 1960s, one glass bead was found in a grave excavated at the time.[222] Further beads, including one of carnelian, were found in a trial trench, but not from a grave context.[223] The beads from the two grave assemblages in Dariali Cemetery have been classified into groups and sub-groups according to material.

Carnelian

There were 24 carnelian beads among the grave goods (Table 15:37). Carnelian has always been a popular material for making beads, as discussed earlier, and the oldest carnelian beads found in Georgia date as early as the beginning of the third millennium BC and come from Urbnisi.[224] The beads from Grave G4 vary in size and shape and range from orange to red in colour. All are plain and no etched carnelian beads were found. Eight different shapes were distinguished, as described below.

- Type I: spherical beads, represented by 14 examples. The beads are made of semi-transparent and opaque orange and reddish carnelian. All of them are quite well-polished. The beads vary in size (G.013/40; 46; 48; 67; 69; 80; 90; 92; 95; 97; 100; 112; 124; 134). Spherical beads are most common. This type of bead does not belong to any particular period or territory. Similar beads, dating to the eleventh to thirteenth centuries, have been found at the archaeological sites of Dmanisi and Rustavi.[225]
- Type II: flattened circular beads (G.013/118; 122). Two of these were within the grave assemblage. This is quite a widespread form of bead. It is also found at Dmanisi and Rustavi, dating to the eleventh to thirteenth centuries,[226] and at Dolochopi Cemetery where it dates to the tenth to thirteenth centuries.[227]
- Type III: faceted octagonal cylindrical beads. Three examples were found in the grave (G.013/24; 37; 39). Similar beads have also been found at Dmanisi and Rustavi, but belong to a later phase (twelfth to fourteenth centuries).[228] This type of bead was also popular in Armenia, Russia and across the Middle East.[229]
- Type IV: orange faceted hexagonal cylindrical bead (G.013/44).
- Type V: red-orange faceted truncated biconical bead (G.013/119). Parallels have been found in twelfth to thirteenth century levels at Dmanisi and Rustavi.[230]
- Type VI: red-orange cornerless cube (G.013/26). Parallels have been found in twelfth to thirteenth century levels at Dmanisi and Rustavi.[231]
- Type VII: red-orange fang-shaped pendant (G.013/102).
- Type VIII: red-orange drop-shaped multifaceted bead (G.013/117). A bead of similar shape has also been found in the so-called Dolochopi Cemetery which dates between the tenth and thirteenth centuries.[232]

In all cases the drilling was done from both sides. Most materials, including quartzes, need to be drilled from two sides in order to prevent the distal side from being split by the drill as it approaches the edge. The question remains as to the source of the carnelian. Modern mineralogists argue that the Arabian and Indian Peninsulas provided the main source of carnelian.[233] According to the eighteenth-century author Vakhusht'i of Kartli,[234] carnelian is found locally within Georgia and this is confirmed by geological surveys which indicate abundant carnelian pebbles in the Middle Miocene conglomerates (Chokrakian stage) of the Georgian inner massif.

Banded Chalcedony

Two banded chalcedony beads and a pendant were found with the burial (Table 15:38). They have different forms. Type I is a brownish faceted hexagonal cylindrical bead with white wavy veining (G.013/29). Type II is a brown rounded flattened bead with white veining (G.013/28). Type III is a polished brown chalcedony pendant with white veining (G.013/128). The principal sources of chalcedony in Georgia are the Akhaltsikhe and Ajameti deposits.[235] The oldest chalcedony bead found in Georgia

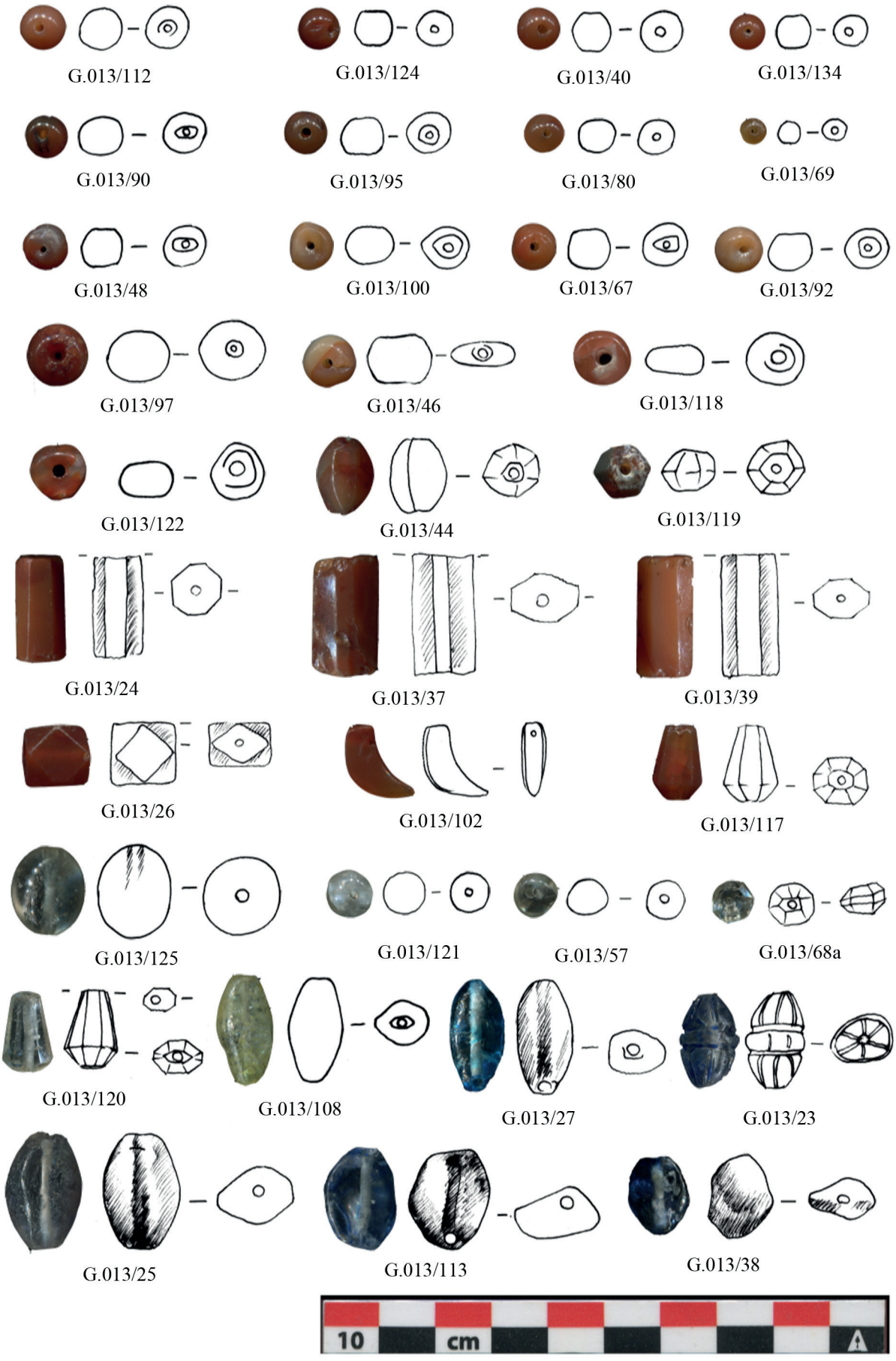


Fig. 15:39: Beads from Grave G4.

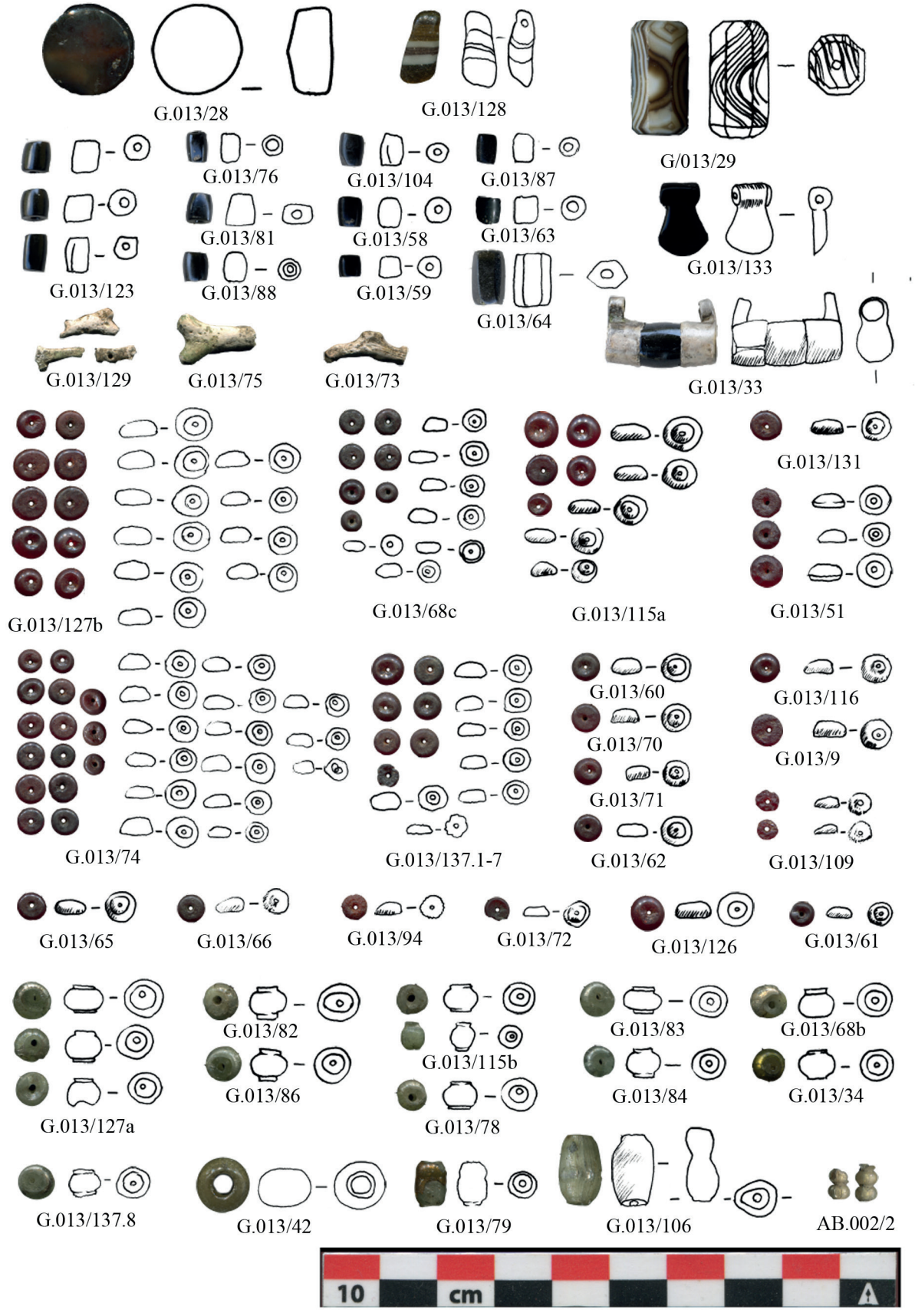


Fig. 15:40: Beads from Graves G4 and AB1.

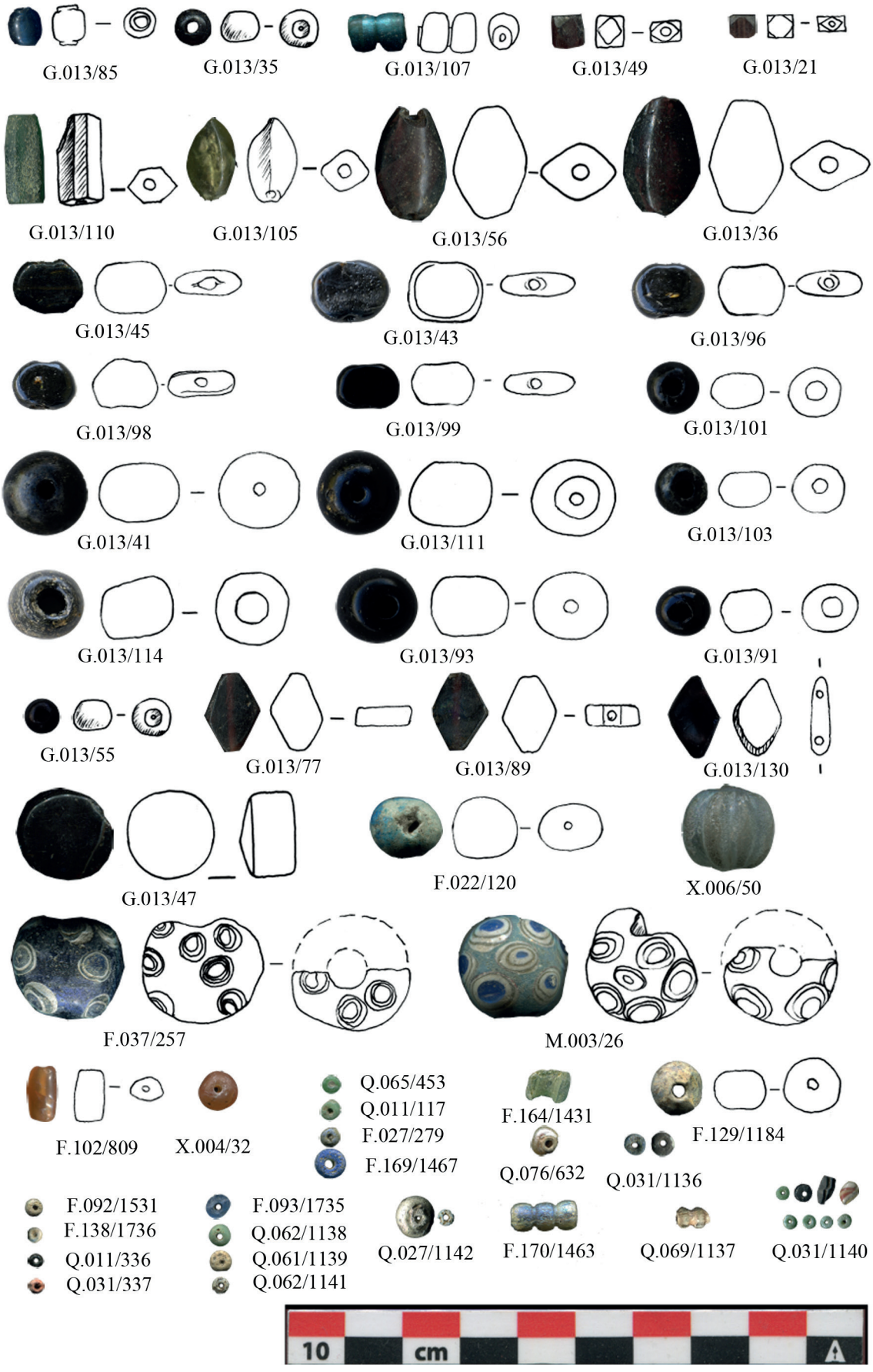


Fig. 15:41: Beads from Grave G4 as well as site finds.

Table 15:37: Carnelian beads.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
G.013/24 (Grave G4)	Bead	Faceted octagonal cylindrical bead	1.9	0.9	2.63	5c	c. 988–1035	15:39
G.013/26 (Grave G4)	Bead	Cornerless cube	1.1	1.1	1.98	5c	c. 988–1035	15:39
G.013/37 (Grave G4)	Bead	Faceted octagonal cylindrical bead	2.1	1.2	3.56	5c	c. 988–1035	15:39
G.013/39 (Grave G4)	Bead	Faceted octagonal cylindrical bead	2.1	0.7 & 0.9	2.87	5c	c. 988–1035	15:39
G.013/40 (Grave G4)	Bead	Spherical carnelian bead	0.7	0.8	0.53	5c	c. 988–1035	15:39
G.013/44 (Grave G4)	Bead	Faceted hexagonal cylindrical bead	1.4	1	1.71	5c	c. 988–1035	15:39
G.013/46 (Grave G4)	Bead	Spherical carnelian bead	0.8	1	0.95	5c	c. 988–1035	15:39
G.013/48 (Grave G4)	Bead	Spherical carnelian bead	0.7	0.8	0.64	5c	c. 988–1035	15:39
G.013/67 (Grave G4)	Bead	Spherical carnelian bead	0.7	0.8	0.69	5c	c. 988–1035	15:39
G.013/69 (Grave G4)	Bead	Spherical carnelian bead	0.4	0.5	0.12	5c	c. 988–1035	15:39
G.013/80 (Grave G4)	Bead	Spherical carnelian bead	0.6	0.7	0.39	5c	c. 988–1035	15:39
G.013/90 (Grave G4)	Bead	Spherical carnelian bead	0.7	8	0.51	5c	c. 988–1035	15:39
G.013/92 (Grave G4)	Bead	Spherical carnelian bead	0.7	0.7	0.69	5c	c. 988–1035	15:39
G.013/95 (Grave G4)	Bead	Spherical carnelian bead	0.7	8	0.57	5c	c. 988–1035	15:39
G.013/97 (Grave G4)	Bead	Spherical carnelian bead	0.7	0.8	1.51	5c	c. 988–1035	15:39
G.013/100 (Grave G4)	Bead	Spherical carnelian bead	0.7	0.8	0.62	5c	c. 988–1035	15:39
G.013/102 (Grave G4)	Pendant	Fang-shaped carnelian pendant	1.3	1.4	0.82	5c	c. 988–1035	15:39
G.013/112 (Grave G4)	Bead	Spherical carnelian bead	0.9	1.1	0.67	5c	c. 988–1035	15:39
G.013/117 (Grave G4)	Bead	Drop-shaped multifaceted bead	1.3	0.9	1.26	5c	c. 988–1035	15:39
G.013/118 (Grave G4)	Bead	Flattened circular carnelian bead	0.6	1	0.77	5c	c. 988–1035	15:39
G.013/119 (Grave G4)	Bead	Faceted truncated biconical bead	0.7	0.9	0.85	5c	c. 988–1035	15:39
G.013/122 (Grave G4)	Bead	Flattened circular carnelian bead	0.7	1	1	5c	c. 988–1035	15:39
G.013/124 (Grave G4)	Bead	Spherical carnelian bead	0.7	0.8	0.5	5c	c. 988–1035	15:39
G.013/134 (Grave G4)	Bead	Spherical carnelian bead	0.6	0.6	0.33	5c	c. 988–1035	15:39

dates as early as the beginning of the third millennium BC.[236] Chalcedony beads were not as common as other types of stone beads or seals in the territory of Georgia and only five were found in the Dmanisi Settlement, dating to the eleventh to thirteenth centuries.[237] Moreover, chalcedony beads were not common in the cemeteries of the Central and Northern Caucasus. Deopik suggests that beads made of chalcedony found in Georgia were imported from Iran.[238]

Rock crystal

Five rock crystal beads were found in Grave G4 (Table 15:39). Three of these belong to Type I, are transparent and spherical (G.013/57; 121; 125). Type II is transparent, faceted and biconical (G.013/68a). Type III is transparent, faceted and drop-shaped (G.013/120). Rock crystal exploitation in Georgia dates back to the Bronze Age.[239] Rock crystal beads have also been found elsewhere in Central Caucasian graves, including catacomb burial grounds of Chmi, Rutkhi, Ladzi and Dzirgvisi.[240] Rock crystal beads have also been found in cemeteries in the Northern Caucasus dating to the fourth and fifth centuries.[241] A significant number of single crystals and clusters of mountain crystals occur in the gorges formed by the River Tergi and its tributaries. These beads therefore may have been made locally.

Jet

Some of the beads from Grave G4 were made from jet (Table 15:40). The most common of these were small cylinders. Eleven belong to Type I (G.013/58; 59; 63; 76; 81; 87; 88; 104; 123.1–3). Some have tapering truncated ends and similar beads are known from the town of Dmanisi.[242] Type II is an intriguing black axe-head-shaped pendant (G.013/133). No parallels have been identified for this and one wonders whether it was purely decorative or if it had an apotropaic meaning. Type III (G.013/33) is a black oval pendant with silver attachments. Type IV (G.013/64) is a black faceted hexagonal cylinder.

Table 15:38: Banded chalcedony beads.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
G.013/28 (Grave G4)	Bead	Brown bead with white vein of rounded-flattened shape	1.6	0.8	2.24	5c	c. 988–1035	15:40
G.013/29 (Grave G4)	Bead	Brownish faceted hexagonal cylindrical bead with white wavy veining	2	1.1	4.33	5c	c. 988–1035	15:40
G.013/128 (Grave G4)	Pendant	Brown chalcedony pendant with white veining	0.6	1.3	0.49	5c	c. 988–1035	15:40

Table 15:39: Rock crystal beads.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
G.013/57 (Grave G4)	Bead	Spherical rock crystal	0.7	0.8	0.55	5c	c. 988–1035	15:39
G.013/68a (Grave G4)	Bead	Faceted biconical rock crystal	0.6	0.8	0.39	5c	c. 988–1035	15:39
G.013/120 (Grave G4)	Bead	Faceted drop-shaped rock crystal	1.4	0.9	1.01	5c	c. 988–1035	15:39
G.013/121 (Grave G4)	Bead	Spherical rock crystal	1.6	1.3	3.69	5c	c. 988–1035	15:39
G.013/125 (Grave G4)	Bead	Spherical rock crystal	0.8	0.9	0.78	5c	c. 988–1035	15:39

Table 15:40: Jet beads.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
G.013/33 (Grave G4)	Pendant	Oval pendant with silver attachment	1.9	0.9	1.67	5c	c. 988–1035	15:40
G.013/58 (Grave G4)	Bead	Cylindrical jet bead	0.5	0.4	0.06	5c	c. 988–1035	15:40
G.013/59 (Grave G4)	Bead	Cylindrical jet bead	0.4	0.4	0.05	5c	c. 988–1035	15:40
G.013/63 (Grave G4)	Bead	Cylindrical jet bead	0.5	0.4	0.07	5c	c. 988–1035	15:40
G.013/64 (Grave G4)	Bead	Faceted hexagonal cylinder; black	1	0.7	0.53	5c	c. 988–1035	15:40
G.013/76 (Grave G4)	Bead	Cylindrical jet bead	0.5	0.4	0.05	5c	c. 988–1035	15:40
G.013/81 (Grave G4)	Bead	Cylindrical jet bead	0.5	0.5	0.07	5c	c. 988–1035	15:40
G.013/87 (Grave G4)	Bead	Cylindrical jet bead	0.5	0.4	0.06	5c	c. 988–1035	15:40
G.013/88 (Grave G4)	Bead	Cylindrical jet bead	0.5	0.4	0.06	5c	c. 988–1035	15:40
G.013/104 (Grave G4)	Bead	Cylindrical jet bead	0.6	0.4	0.06	5c	c. 988–1035	15:40
G.013/123.1 (Grave G4)	Bead	Cylindrical jet bead	0.4	0.5	0.07	5c	c. 988–1035	15:40
G.013/123.2 (Grave G4)	Bead	Cylindrical jet bead	0.5	0.5	0.08	5c	c. 988–1035	15:40
G.013/123.3 (Grave G4)	Bead	Cylindrical jet bead	0.6	0.4	0.08	5c	c. 988–1035	15:40
G.013/133 (Grave G4)	Pendant	Axe-head-shaped jet pendant	0.9	1.3	0.24	5c	c. 988–1035	15:40

Jet was widely used as an adornment in Georgia and its exploitation has a long tradition beginning as early as the seventh century BC.[243] Layers of jet occur naturally in Eastern and Western Georgia at Gelati, Tkibuli, Gori, Tianeti, Gombora and Dusheti, and it is, therefore, possible that all of the jet items found here were locally sourced.[244] Jet beads are most common in the Early Middle Ages, and continued to be worn during the eleventh and twelfth centuries. Elsewhere in Georgia, medieval jet beads have only been found at Dmanisi and Rustavi.[245] Beads found on the archaeological sites of this period tend to be of small or even miniature size.[246]

There are other sources of jet in the world. According to al-Biruni, the best quality jet came from the town of Tus in Khurasan, and this must have been the source of the early medieval spherical and tear-shaped jet beads decorated with red painted stripes reported from the nearby city of Nishapur.[247] Writing in the tenth century, Tha'alibi added that the 'specialities of Tus include jet, a unique product which is exported to all parts of the world,

and the white stone of which cooking-pots, frying-pans and censers are made,' suggesting that this was, therefore, the source of both the jet gaming-pieces and talc cooking pots excavated in ninth century contexts at Merv.[248] India, Syria and Andalusia also produced jet. However, again according to al-Biruni, jet was not particularly popular in the Orient in the medieval period and beads made of this material were considered the lowest quality adornments.[249]

Coral

Five of the beads from Grave G4 were made of pinkish coral (G.013/73; 75; 129.1–3: Table 15:41). Coral has been valued and worn as jewellery since the Palaeolithic period, but the oldest coral beads found in Georgia come from the Bronze Age cemetery at Mtskheta.[250] During the medieval period, pinkish coral beads have been found at Dmanisi and Tbilisi.[251] The source of the coral is thought to have been the Mediterranean and imported to Georgia.[252]

Glass

Within the territory of Georgia, glass beads appear from the first half of the third millennium BC onwards at Qvatskhela and Amiranis Gora. Glass bead manufacture and, generally, glass production techniques improve in Late Antiquity and the Early Middle Ages and it is from these periods that the highest concentration of beads are found in cemeteries and settlements. Most of the monochrome glass beads found in the grave are transparent but a small number are opaque (Table 15:42).

- Type I: a transparent green oval bead with ribbing along its long axis (G.013/105).
- Type II: an opaque green faceted hexagonal cylindrical bead (G.013/110).
- Type III: an opaque blue barrel-shaped bead (G.013/85).
- Type IV: a segmented turquoise bead (G.013/107). Beads of similar shape have been found at Dmanisi and belong there to the twelfth to thirteenth centuries.[253]
- Type V: a small violet spherical bead. Similar beads are very common (G.013/35). They are represented at Dmanisi, Tbilisi, Ujarma, Bolnisi and Rustavi and date to the eleventh to twelfth centuries.[254]
- Type VI: spherical black beads of different sizes (G.013/41; 55; 91; 93; 101; 103; 111; 114).
- Type VII: flattened oval dark yellowish-brown beads (G.013/43; 45; 96; 98–99).
- Type VIII: dark red flat rhomboid beads and a pendant (G.013/77; 89; 130).
- Type IX: dark red lenticular beads (G.013/36; 56).
- Type X: dark red cornerless cubes with streaks (G.013/21; 49).
- Type XI: a dark brown round tabular bead (G.013/47).
- Type XII: opaque reddish-brown flat to circular beads, probably glass. There are 62 examples in total (G.013/9; 51.1–3; 60–62; 65–66; 68c.1–7; 70–72; 74.1–15; 94; 109.1–2; 115a.1–5; 116; 126, 127b.1–10; 131; 137.1–7).

Gilded glass

Metal-lined beads belong to a separate group among the glass beads (Table 15:43). Type I are tiny, flattened spheres (G.013/34; 68b; 82; 83; 84; 86; 78; 115b.1–2; 127a.1–3; 137.8). One of them is of spherical shape too, but much larger (G.013/42) and two are oval (G.013/79; 106). Segmented gilded beads have been found within Dariali Fort (Q.076/1137)[255] as well as in the cemetery (AB.002/2.1–2). Metal-lined beads have a wide distribution in the Caucasus. Such beads were produced in Alexandria in Egypt already in the fourth century BC. Later, they became popular in territories far beyond Egypt.[256] The production technique of the beads remained the same from the Hellenistic to the medieval periods.

Several varieties of gilded beads occur in the Caucasus. These type of beads are represented in the Mamisondon Cemetery in Ossetia.[257] The same type of bead has been found in a twelfth century layer at Dmanisi,[258] as well as in Samtavro Cemetery dating as early as the first to third centuries.[259] In the first century, it was also found at Dedoplis-Gora.[260] Deopik points out that gilded beads are widespread amongst Caucasian beads of the eighth and ninth centuries. Nevertheless, he does not consider them to be local products but instead to be imports from Alexandria.[261] Gilded beads are distributed from Europe (including Poland, Bulgaria, the Czech Republic and Slovakia) to the Caucasus, Central Asia and India and date from the first to ninth centuries.[262]

Glazed quartz [AG, St JS]

Six glazed quartz beads have been found in Grave G4 (G.013/23; 25; 27; 38; 108; 113: Table 15:44).

Table 15:41: Coral beads.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
G.013/73 (Grave G4)	Bead	n/a	1.4	0.6	0.16	5c	c. 988–1035	15:40
G.013/75 (Grave G4)	Bead	n/a	1.3	1	0.08	5c	c. 988–1035	15:40
G.013/129.1 (Grave G4)	Bead	Fragmentary bead	0.8	0.4	c. 0.15	5c	c. 988–1035	15:40
G.013/129.2 (Grave G4)	Bead	Fragmentary bead	0.6	0.2	c. 0.15	5c	c. 988–1035	15:40
G.013/129.3 (Grave G4)	Bead	Fragmentary bead	0.7	0.4	c. 0.15	5c	c. 988–1035	15:40

Table 15:42: Glass beads.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
G.013/9 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.14	5c	c. 988–1035	15:40
G.013/21 (Grave G4)	Bead	Red cornerless cube	0.4	0.5	0.11	5c	c. 988–1035	15:41
G.013/35 (Grave G4)	Bead	Spherical glass bead	0.5	0.6	0.19	5c	c. 988–1035	15:41
G.013/36 (Grave G4)	Bead	Red lenticular bead	2.1	1.3	2.42	5c	c. 988–1035	15:41
G.013/41 (Grave G4)	Bead	Spherical black glass bead	1.1	1.4	3.04	5c	c. 988–1035	15:41
G.013/43 (Grave G4)	Bead	Flattened oval glass bead	1.1	1.3	0.82	5c	c. 988–1035	15:41
G.013/45 (Grave G4)	Bead	Flattened oval glass bead	0.9	1.2	0.69	5c	c. 988–1035	15:41
G.013/47 (Grave G4)	Bead	Round tabular bead	1.5	1.6	3.87	5c	c. 988–1035	15:41
G.013/49 (Grave G4)	Bead	Red cornerless cube	0.6	0.5	0.17	5c	c. 988–1035	15:41
G.013/51.1 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.14	5c	c. 988–1035	15:40
G.013/51.2 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.1	5c	c. 988–1035	15:40
G.013/51.3 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.1	5c	c. 988–1035	15:40
G.013/55 (Grave G4)	Bead	Spherical bead	1.2	1.6	4.19	5c	c. 988–1035	15:41
G.013/56 (Grave G4)	Bead	Red lenticular bead	2	1.3	2.52	5c	c. 988–1035	15:41
G.013/60 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	<0.5	5c	c. 988–1035	15:40
G.013/61 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	0.07	5c	c. 988–1035	15:40
G.013/62 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.1	5c	c. 988–1035	15:40
G.013/65 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.1	5c	c. 988–1035	15:40
G.013/66 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.11	5c	c. 988–1035	15:40
G.013/68c.1 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.08	5c	c. 988–1035	15:40
G.013/68c.2 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.09	5c	c. 988–1035	15:40
G.013/68c.3 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.11	5c	c. 988–1035	15:40
G.013/68c.4 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.09	5c	c. 988–1035	15:40
G.013/68c.5 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.1	5c	c. 988–1035	15:40
G.013/68c.6 (Grave G4)	Bead	Flat circular red glass bead	0.3	0.3	0.05	5c	c. 988–1035	15:40
G.013/68c.7 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	0.05	5c	c. 988–1035	15:40
G.013/70 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.12	5c	c. 988–1035	15:40
G.013/71 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.1	5c	c. 988–1035	15:40
G.013/72 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	0.05	5c	c. 988–1035	15:40
G.013/74.1 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.1	5c	c. 988–1035	15:40
G.013/74.2 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.11	5c	c. 988–1035	15:40
G.013/74.3 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.13	5c	c. 988–1035	15:40
G.013/74.4 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.11	5c	c. 988–1035	15:40
G.013/74.5 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	0.06	5c	c. 988–1035	15:40
G.013/74.6 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.09	5c	c. 988–1035	15:40
G.013/74.7 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.07	5c	c. 988–1035	15:40
G.013/74.8 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.09	5c	c. 988–1035	15:40
G.013/74.9 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	0.07	5c	c. 988–1035	15:40
G.013/74.10 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.12	5c	c. 988–1035	15:40
G.013/74.11 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.11	5c	c. 988–1035	15:40
G.013/74.12 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.09	5c	c. 988–1035	15:40
G.013/74.13 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.1	5c	c. 988–1035	15:40
G.013/74.14 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	0.05	5c	c. 988–1035	15:40

(Continued)

Table 15:42: Glass beads. (Continued)

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
G.013/74.15 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.04	5c	c. 988–1035	15:40
G.013/77 (Grave G4)	Bead	Flat rhomboid bead	1.4	0.9	0.7	5c	c. 988–1035	15:41
G.013/85 (Grave G4)	Bead	Blue barrel-shaped	0.7	0.6	0.27	5c	c. 988–1035	15:41
G.013/89 (Grave G4)	Bead	Flat rhomboid bead	1.3	1	0..66	5c	c. 988–1035	15:41
G.013/91 (Grave G4)	Bead	Spherical bead	0.7	0.9	0.58	5c	c. 988–1035	15:41
G.013/93 (Grave G4)	Bead	Spherical bead	1.1	1.4	2.63	5c	c. 988–1035	15:41
G.013/94 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	0.06	5c	c. 988–1035	15:40
G.013/96 (Grave G4)	Bead	Flattened oval glass bead	0.9	1.2	0.67	5c	c. 988–1035	15:41
G.013/98 (Grave G4)	Bead	Flattened oval glass bead	0.8	1.1	0.53	5c	c. 988–1035	15:41
G.013/99 (Grave G4)	Bead	Flattened oval glass bead	0.8	1.1	0.51	5c	c. 988–1035	15:41
G.013/101 (Grave G4)	Bead	Spherical bead	0.6	0.9	0.57	5c	c. 988–1035	15:41
G.013/103 (Grave G4)	Bead	Spherical bead	0.6	0.9	0.57	5c	c. 988–1035	15:41
G.013/105 (Grave G4)	Bead	Green oval bead	1.5	1	0.89	5c	c. 988–1035	15:41
G.013/107 (Grave G4)	Bead	Segmented bead	1	0.7	0.62	5c	c. 988–1035	15:41
G.013/109.1 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	0.04	5c	c. 988–1035	15:40
G.013/109.2 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	0.03	5c	c. 988–1035	15:40
G.013/110 (Grave G4)	Bead	Green faceted hexagonal cylindrical	1.6	0.7	1.46	5c	c. 988–1035	15:41
G.013/111 (Grave G4)	Bead	Spherical bead	1.1	1.4	3.07	5c	c. 988–1035	15:41
G.013/114 (Grave G4)	Bead	Spherical bead	1.1	1.3	2.17	5c	c. 988–1035	15:41
G.013/115a.1 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.2	5c	c. 988–1035	15:40
G.013/115a.2 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.18	5c	c. 988–1035	15:40
G.013/115a.3 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.14	5c	c. 988–1035	15:40
G.013/115a.4 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.15	5c	c. 988–1035	15:40
G.013/115a.5 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	0.07	5c	c. 988–1035	15:40
G.013/116 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.12	5c	c. 988–1035	15:40
G.013/126 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.19	5c	c. 988–1035	15:40
G.013/127b.1 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.11	5c	c. 988–1035	15:40
G.013/127b.2 (Grave G4)	Bead	Flat circular red glass bead	0.7	0.7	0.17	5c	c. 988–1035	15:40
G.013/127b.3 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.18	5c	c. 988–1035	15:40
G.013/127b.4 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.18	5c	c. 988–1035	15:40
G.013/127b.5 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.19	5c	c. 988–1035	15:40
G.013/127b.6 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.11	5c	c. 988–1035	15:40
G.013/127b.7 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.16	5c	c. 988–1035	15:40
G.013/127b.8 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.11	5c	c. 988–1035	15:40
G.013/127b.9 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.13	5c	c. 988–1035	15:40
G.013/127b.10 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.14	5c	c. 988–1035	15:40
G.013/130 (Grave G4)	Pendant	Flat rhomboid pendant	1.4	0.8	0.61	5c	c. 988–1035	15:41
G.013/131 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.13	5c	c. 988–1035	15:40
G.013/137.1 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.13	5c	c. 988–1035	15:40
G.013/137.2 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.11	5c	c. 988–1035	15:40
G.013/137.3 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.11	5c	c. 988–1035	15:40

(Continued)

Table 15:42: (Continued)

Find number	Object type	Description	L	W	Wgt	Phase	Date	Fig.
G.013/137.4 (Grave G4)	Bead	Flat circular red glass bead	0.6	0.6	0.15	5c	c. 988–1035	15:40
G.013/137.5 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.1	5c	c. 988–1035	15:40
G.013/137.6 (Grave G4)	Bead	Flat circular red glass bead	0.5	0.5	0.09	5c	c. 988–1035	15:40
G.013/137.7 (Grave G4)	Bead	Flat circular red glass bead	0.4	0.4	0.04	5c	c. 988–1035	15:40

Table 15:43: Gilded glass beads.

Find number	Object type	Description	L	W	Wgt	Phase	Date	Fig.
G.013/34 (Grave G4)	Bead	Flattened spherical gilded bead	0.5	0.6	0.18	5c	c. 988–1035	15:40
G.013/42 (Grave G4)	Bead	Transparent spherical shaped gilded bead	0.7	1	0.73	5c	c. 988–1035	15:40
G.013/68b (Grave G4)	Bead	Flattened spherical gilded bead	0.5	0.6	0.22	5c	c. 988–1035	15:40
G.013/78 (Grave G4)	Bead	Flattened spherical gilded bead	0.4	0.6	0.15	5c	c. 988–1035	15:40
G.013/79 (Grave G4)	Bead	Oval gilded bead	0.8	0.6	0.34	5c	c. 988–1035	15:40
G.013/82 (Grave G4)	Bead	Flattened spherical gilded bead	0.5	0.7	0.24	5c	c. 988–1035	15:40
G.013/83 (Grave G4)	Bead	Flattened spherical gilded bead	0.4	0.6	0.17	5c	c. 988–1035	15:40
G.013/84 (Grave G4)	Bead	Flattened spherical gilded bead	0.4	0.5	0.14	5c	c. 988–1035	15:40
G.013/86 (Grave G4)	Bead	Flattened spherical gilded bead	0.5	0.6	0.23	5c	c. 988–1035	15:40
G.013/106 (Grave G4)	Bead	Oval gilded bead	1.2	0.8	0.68	5c	c. 988–1035	15:40
G.013/115b.1 (Grave G4)	Bead	Flattened spherical gilded bead	0.4	0.6	0.13	5c	c. 988–1035	15:40
G.013/115b.2 (Grave G4)	Bead	Flattened spherical gilded bead	0.5	0.4	0.1	5c	c. 988–1035	15:40
G.013/127a.1 (Grave G4)	Bead	Flattened spherical gilded bead	0.4	0.7	0.22	5c	c. 988–1035	15:40
G.013/127a.2 (Grave G4)	Bead	Flattened spherical gilded bead	0.4	0.6	0.19	5c	c. 988–1035	15:40
G.013/127a.3 (Grave G4)	Bead	Flattened spherical gilded bead	0.4	0.5	0.17	5c	c. 988–1035	15:40
G.013/137.8 (Grave G4)	Bead	Flattened spherical gilded bead	0.4	0.6	0.2	5c	c. 988–1035	15:40
AB.002/2.1 (Grave AB1)	Bead	Segmented gilded bead	0.6	0.4	0.1	5c	c. 885–977	15:40
AB.002/2.2 (Grave AB1)	Bead	Segmented gilded bead	0.5	0.3	0.09	5c	c. 885–977	15:40

Table 15:44: Glazed quartz beads.

Find number	Object type	Description	L	W	Wgt	Phase	Date	Fig.
G.013/23 (Grave G4)	Bead	Blue glazed quartz; oval	1.7	1.1	1.89	5c	c. 988–1035	15:39
G.013/25 (Grave G4)	Bead	Pinkish glazed quartz; ellipsoid	2.1	1.4	3.7	5c	c. 988–1035	15:39
G.013/27 (Grave G4)	Bead	Blue glazed quartz; ellipsoid	2	0.8	2.4	5c	c. 988–1035	15:39
G.013/38 (Grave G4)	Bead	Blue glazed quartz; ellipsoid	1.4	1.2	1.39	5c	c. 988–1035	15:39
G.013/108 (Grave G4)	Bead	Yellow glazed quartz; oval	2	0.9	2.39	5c	c. 988–1035	15:39
G.013/113 (Grave G4)	Bead	Dark blue glazed quartz; ellipsoid	1.8	1.4	2.7	5c	c. 988–1035	15:39

- Type I: oval blue glazed quartz with carved decoration (G.013/23).
- Type II: transparent yellow glazed oval quartz bead with longitudinal ribs (G.013/108).
- Type III: transparent bright blue, dark blue and pinkish glazed ellipsoid quartz beads (G.013/25, 27, 38, 113).

According to archaeological finds, glazed quartz was popular in Georgia during the early and high medieval period. Glazed quartz beads are found in Rustavi, Dmanisi and Sioni and date to the twelfth to thirteenth centuries.[263] Other parallels of these glazed quartz beads are known from Armenia and the Middle East.[264]

These are made of milky quartz and usually splashed with bright blue glaze whereas dark blue and yellow glazed quartz beads are less common. This technique was employed to imitate amethyst, aquamarine or other precious stones.[265] This type of bead manufacture probably derives from the experimentation which began in the tenth century to make artificial opaque white glass and stone-paste bodies from finely ground quartz mixed with liquid glass and refined clay. These beads belong to a type popularly known as 'Tears of Christ' among bead collectors and have been known from the Iranian art market for some decades. They are roughly shaped to a flattened, spherical or oblate form and splashed with a partial blue or green glaze which has often largely worn away. In some of the popular literature these beads have been ascribed a Sasanian, Parthian or even earlier date. However, in a comprehensive review of the archaeological evidence for Sasanian beads, it has been demonstrated that none have been found in archaeological contexts or single-period assemblages of this period.[266] Two amulets in the form of reclining lions which were made using this technique were offered for sale in auction in London. Several glazed quartz pendants were found in the excavations at Nishapur, where they were tentatively identified as eleventh or twelfth century local products, and the more recent archaeological finds of examples from Seljuk contexts at Merv confirms this.[267]

15.3.3. Other objects from the graves

15.3.3.1. Finger rings [AG, FM]

Four of the metal finger rings were made of copper alloy and consisted of simple plain circular bands (Fig. 15:42; Table 15:45). The internal diameters of these ranged from 1.5 to 2.4 cm and their discovery in collective graves in Trench E is consistent with the smaller rings being worn by children rather than adults.

Three copper alloy rings were recovered in Trench E, Grave E3. These are all of slightly different shapes and sizes. E.019/44 has an oval shaped profile with an oval bezel in the centre; E.019/59 has a circular shank and squarish section but no bezel and E.019/55 also has a squarish profile. Excavations of graves in 1962 unearthed two copper alloy rings, one of them with a large bezel and one a twisted wire ring without a bezel.[268] A black glass finger ring (E.010/53) was found in Grave E2, dating to c. AD 671–770. Several similar black glass finger rings were found in the Gigias Satibi Cemetery north of Dariali Fort, which based on two pierced half dirhams, was occupied in the early ninth century, but may, of course, already have been used before.[269]

15.3.3.2. Bangles [AG, FM]

Two bangles, one of dark blue glass and the other of twisted iron, were found in separate contexts in Trench G (Figs 15:42–15:43; Table 15:46). The twisted iron bangle

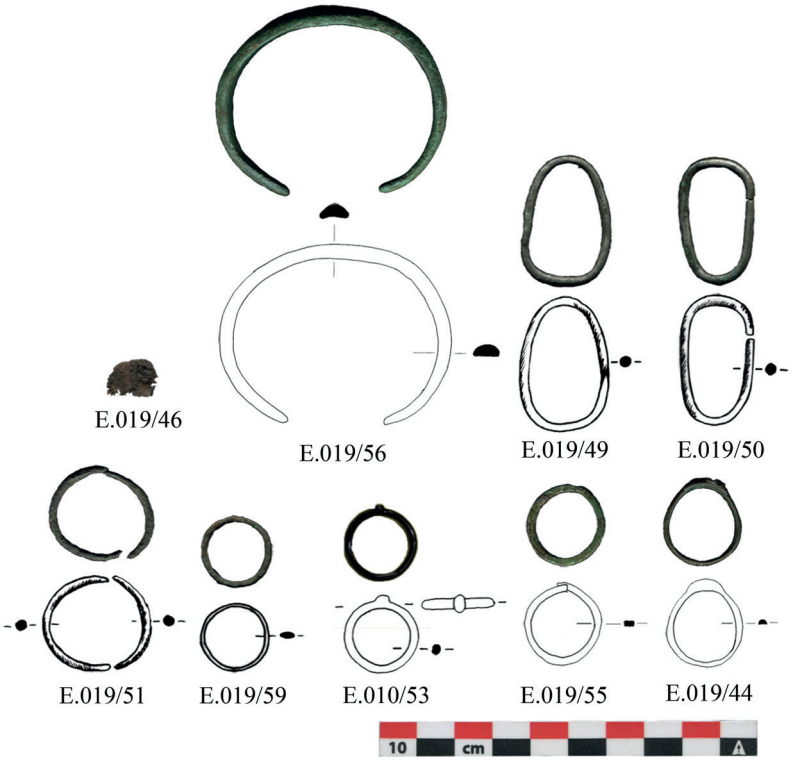


Fig. 15:42: Bangle and finger rings.

Table 15:45: Finger rings.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D (int.)*	*Wgt*	*Phase*	*Date*	*Fig.*
E.010/53 (Grave E2)	Finger ring	Glass finger ring; circular with small transverse flattened blob imitating a small protruding bezel; black; complete	2	1.9	0.2	1.5 (100%)	0.54	5a	c. 671–770	15:42
E.019/44 (Grave E3)	Finger ring	Copper alloy finger ring with oval bezel	2.4	2.1	0.15	1.8 (100%)	1.78	5a-c	c. 778–988	15:42
E.019/51 (Grave E3)	Finger ring	Copper alloy finger ring; plain circular hoop; two joining fragments	2.6	2.6	0.1	2.4 (100%)	1.15	5a-c	c. 778–988	15:42
E.019/55 (Grave E3)	Finger ring	Copper alloy finger ring; complete with a large detached bezel (not illustrated)	2.1	2.1	0.25	1.6	1.71	5a-c	c. 778–988	15:42
E.019/59 (Grave E3)	Finger ring	Copper alloy finger ring; plain circular hoop; complete	1.8	1.8	0.15	1.5	1.48	5a-c	c. 778–988	15:42

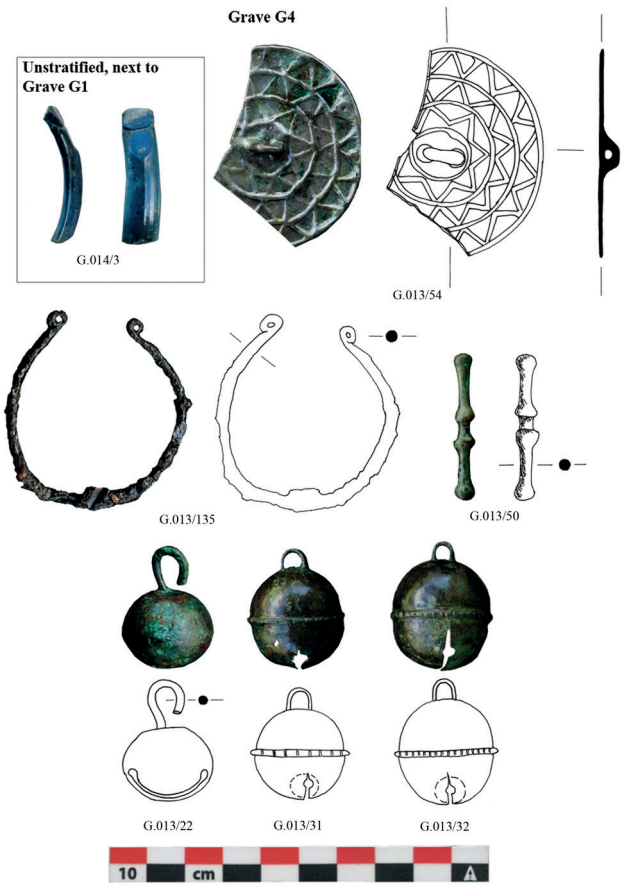


Fig. 15:43: Bangles, bells, a toggle and a broken mirror.

Table 15:46: Bangles (group = chemical composition group for glass bangles, identified by Yoshinari Abe and Ryuji Shikaku[1]).

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D int. (% pres.)*	*Wgt*	*Phase*	*Date*	*Fig.*
E.019/56 (Grave E3)	Bangle	Copper alloy bangle, plain	6.2	4.9	0.4	5.4 (100 %)	24.2	5a-c	c. 778–988	15:42
G.013/135 (Grave G4)	Bangle	Iron bangle; twisted with coiled ring loop on each terminal; complete but in two fragments	5.1	4.7	0.3	4.5 (100%)	5.42	5c	c. 988–1035	15:43
G.014/3 (next to Grave G1)	Bangle	Glass bangle; plain drawn with triangular section; dark blue; fragment, broken at flattened junction (group B-1)	3.6	0.8	0.3	7 (17.5%)	2.94	5a-c	c. 777–971	15:43

[1] See chapter 14.

resembles another found in the fort in a contemporary period 5c context dated to the tenth century (F.091/980). The glass bangle found next to Grave G1 (G.014/3) is similar to the two triangular section bangles (one in dark blue and the other in streaky blue fabric) coming from the fort (F.001/36, and F.043/338.1) and discussed above.[270] The composition of bangle G.014/3, also manufactured in fabric of a blue colour, was analysed, revealing that, like some of the other blue fabrics, it belongs to the B-1 group, which is typical for Eastern Anatolia and the Black Sea region.[271] The F.043/338.1 example comes from a context dating to the tenth century, and the blue example above came from the soil around/between the slabs of Grave G1. This grave could be dated around 777–971 thus probably to the ninth to tenth century which is consistent with the stylistic dating discussed above and the evidence of the examples from the Fort.

The iron bangle (G.013/135) comes from the grave of the child (Grave G4) which contains a great number of beads and other items of personal adornment. Its location within the grave, around poorly preserved long bone fragments c. 50–60 cm below the skull, suggests the individual may have worn it on the wrist.[272] The bangle terminates in spirals and is decorated with a bezel like shape in the centre. In Trench E, Grave E3 a copper alloy bangle (E.019/56) was recovered. This example tapers towards the ends. A broadly similar copper alloy bracelet, with a narrower opening, was found in another grave in 1962.[273] A probable fragment of a bangle was also found elsewhere in the extramural area, but not from within a grave.[274]

The bangles and rings from the graves in Trench G generally recall the assemblages in the Dargavs Catacombs but the rings (especially the copper alloy examples) are very similar to those recovered in the stone cists of Mamisondon Cemetery.[275] In the Mamisondon assemblages silver and copper alloy earring hoops are also common.

15.3.3.3. Mirror [FM, EWS, St JS]

A small silver mirror (G.013/54) was found in a grave belonging to the seven to ten year old individual (based on the grave-goods, thought to be a girl) in Grave G4 (Fig. 15:43; Table 15:47); a radiocarbon date based on a sample taken from her bones gave a calibrated date of 988–1150 (probably c. 988–1035).[276] Small circular polished metal mirrors with a low perforated handle on the reverse appear in the Islamic lands and were inspired by a Chinese design. Those found in archaeological contexts include two from Nishapur, one decorated on the reverse with a running hare design and the other with a repeating six-petal rosette pattern.[277] They were popular across Eurasia too and another with a repeating four-petal design on the back was found in a Kipchak burial in the Southern Urals and dated to the thirteenth or fourteenth century. The mirror represented here with a raised radial design on the back appears to be a widespread and common type amongst grave assemblages in the Northern Caucasus and is a local type. Some parallels are centuries earlier than Grave G4,[278] which may suggest that, as in the case of some forms of beads, fashion remained remarkably similar over a long period, or that the piece had been a heirloom. That it was broken, might add strength to the latter hypothesis. There are many parallels for this type of object from the Dargavs Catacomb complex which date variously from the eighth to the sixteenth century but show signs of continued use as late as the twentieth century.[279] The earliest objects attested there which date to the eighth and ninth centuries have been argued as belonging to the Alan/Khazar culture.[280] There is one mirror, almost identical to that from Grave G4 (Trench G) in Dariali, coming from Catacomb 76, where it is part of a wider assemblage including one other mirror which is broken, many bells, a sword, belts and buckles and several other items of personal adornment.[281]

Table 15:47: Silver mirror.

Find number	*Object type*	*Description*	*L*	*W*	*Wgt*	*Phase*	*Date*	*Fig.*
G.013/54 (Grave G4)	Mirror	Silver mirror with moulded geometric decoration and small loop handle on the back; complete	5.5 (95%)	5.5 (65%)	15.26	5c	c. 988–1035	15:43

Table 15:48: Copper alloy bells.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
G.013/22 (Grave G4)	Copper alloy bell	Spherical bell with suspension hook at the top and slit at the bottom and a small stone inside	3.2	2.3	2.3	7.8	5c	c. 988–1035	15:43
G.013/31 (Grave G4)	Copper alloy bell	Oval bell with suspension loop at the top and slit at the bottom, notches in relief in the middle and a small stone inside	3.1	2.6	2.5	6.9	5c	c. 988–1035	15:43
G.013/32 (Grave G4)	Copper alloy bell	Oval bell with suspension loop at the top and slit at the bottom, notches in relief in the middle and a small stone inside	3.3	2.6	2.6	9.1	5c	c. 988–1035	15:43

Table 15:49: Fragments of a studded leather garment from Grave G4.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*Wgt*	*Phase*	*Date*	*Fig.*
G.013/5 (Grave G4)	Leather	Leather fragment with fine silver chain	2.6	2.2	0.1	0.6	5c	c. 988–1035	15:44–15:45
G.013/6 (Grave G4)	Rivet	1 copper alloy rivet	0.4	0.4	0.1	0.1	5c	c. 988–1035	15:44
G.013/30 (Grave G4)	Rivets	73 copper alloy rivets	0.3–0.5	0.3–0.5	0.1	11.6 (combined)	5c	c. 988–1035	15:44
G.013/52 (Grave G4)	Leather	Leather fragment	n/a	n/a	n/a	n/a	5c	c. 988–1035	n/a
G.013/53 (Grave G4)	Leather	Leather fragment	2.1	1.6	0.4	0.3	5c	c. 988–1035	15:44
G.013/132 (Grave G4)	Leather and rivets	29 copper alloy rivets, 6 of them still attached to leather (or fabric)	11.3 (leather), 3.0 (leather with rivets), 0.4 (rivets)	3.8 (leather), 1.2 (leather with rivets), 0.4 (rivets)	0.1	4.8 (combined)	5c	c. 988–1035	15:44
G.013/137.9 (Grave G4)	Leather	Leather fragment	n/a	n/a	n/a	2	5c	c. 988–1035	n/a

15.3.3.4. Bells [FM, EWS]

Of particular interest are three small bells found in G4 (G.013/22; G.013/31; G.013/32), all still functioning and producing a sound when shaken (Fig. 15:43; Table 15:48). Based on their location in the grave, they were part of a long breast necklace with numerous beads.[282] In cemeteries of the tenth to thirteenth century from the Upper Volga region, bells could form part of necklaces or attached to, or suspended from, the burial dress, the belt or wrist bands.[283] Small copper alloy bells occur frequently amongst grave-goods during the early to high and late medieval periods in the Caucasus and Europe,[284] even as far west as modern Austria, Hungary[285] and Croatia.[286] An apotropaic function has been suggested for bells from Avar graves, and they are more common in female than in male graves.[287] An additional bell was found in a non-funerary context in deposit F.183.[288] Bells of identical appearance to those in Dariali are attested in the Dargavs Catacombs in great numbers.[289] The bells and other grave goods from Grave

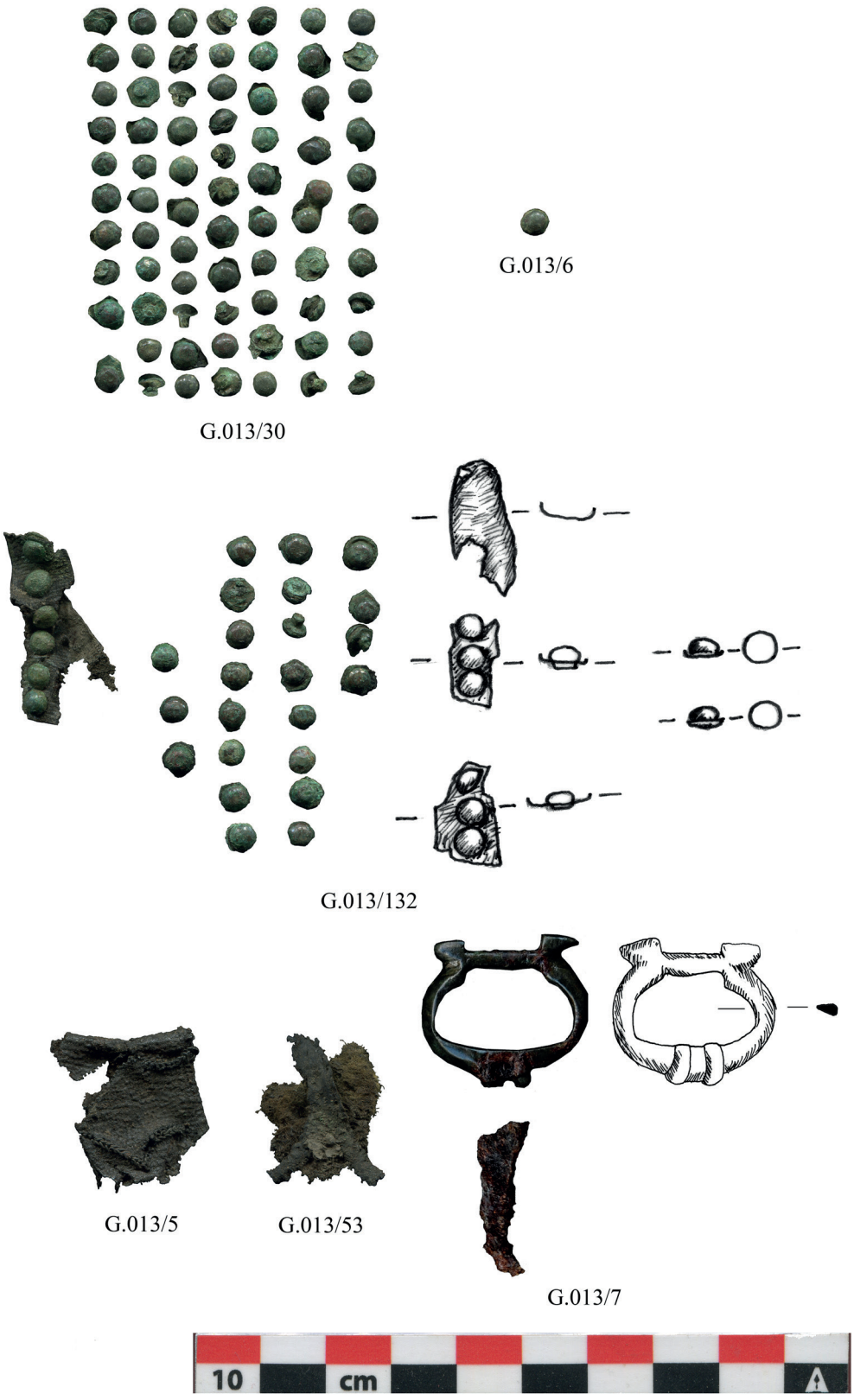


Fig. 15:44: A copper alloy buckle with an iron tongue and fragments of a studded leather dress from Grave G4.



Fig. 15:45: Fragment of leather garment with fine silver chains (G.013/5) from Grave G4.

G4, just as the weapons from Grave G9, are distinctly northern in tradition. They point to northern burial customs and material culture having made inroads at Dariali around the turn of the millennium.

15.3.3.5. Copper alloy rivets and leather [FM, EWS]

One hundred and three very small copper alloy rivets are extant from Grave G4 (Fig. 15:44; Table 15:49). These have an exact parallel in the material coming from the Dargavs Catacombs, especially Catacomb 67, where bells (albeit of different shapes than ours), beads, bracelets, hoops and mirrors form part of the overall assemblage.[290] As six of the bronze rivets from the Dariali Cemetery still remain attached to leather (or fabric) we can gain an insight into how these items were intended to work together as fastenings in the form of buttons or studs. Two more distinct pieces of this leather (or fabric) survived from Grave G4, one piece appears to be folded with a thick edge on one side (hence the garment was fastened when the child was buried). It is decorated with a very small fine silver chain (G.013/5); this is possibly a metal or a crocheted chain made from a sturdy and possibly metallic, yarn later attached to the garment, probably to join pieces together (Figs 15:44–15:45; Table 15:49). The fact that so little of the leather (or textile) was recovered, but so many rivets were, implies that the conditions were not suitable for the survival of this fragile material. The rivets and leather (or other fabric) were recovered from below the skull area near to the chest or shoulder region above the bracelets, belt buckles and rings, implying that they were part of some kind of (likely hard wearing) garment rather than a head covering or shroud.

15.3.3.6. Other grave goods [EWS, FM, St JS]

A series of further utilitarian and decorative items were amongst the grave goods (Figs 15:38, 15:42–15:44 and 15:46; Table 15:50). These include a fragment of an iron sheet (E.019/46) and a pair of plain silver hoops (E.019/49–50) from Grave E3. The extensive inventory of Grave G4 contained a copper alloy belt buckle with an iron tongue (G.013/7), a pair of connected iron shanks, perhaps tweezers (G.013/20) and a bone toggle, stained green by contact with copper alloy (G.013/50). Grave G9 yielded an iron fire striker (G.020/19). An interpretation as an iron hook (for a quiver?) is worth considering too, but the object bears closer resemblance to fire strikers.

15.4. Conclusion

The purpose of an archaeological finds report is not simply to produce a catalogue of what was found but attempt to explore ‘the relationship between artefacts and the identity

and status of the people who lived and worked on the sites on which they were found.'[291] Regardless of date, region or culture, archaeological evidence is fundamental in offering insights into the range of materials used in daily life and closer analysis of the artefacts themselves allow conclusions to be drawn about the society in which they were employed. Material culture is sensitive to fashion, technological change and trade but at certain times and places it can be conservative, nor do all artefact typologies evolve at the same rate. Dariali is a good example of this phenomenon. The excavated finds assemblage is small, yet sufficiently well recovered and quantified to give interesting insights into early medieval life in this strategic part of the Caucasus. As the fort and neighbouring cemetery are located at a hugely important pass connecting the Northern and Southern Caucasus, it is clear that the finds assemblage ought to be a barometer of the extent of influences passing through this region.

In the present case, the level of finds recovery was generally good but some small artefacts were probably not recovered in the case of those contexts excavated by pick and shovel, and this is supported by the fact that all of the smallest beads were recovered from flotation rather than hand recovery. The vast majority of finds come from early medieval contexts dating to the mid-seventh to late tenth or early eleventh century. In contrast, the quantity of finds from the preceding late antique (fourth to mid-seventh century) or subsequent late medieval (fourteenth to fifteenth century) periods is minute, and in many categories, they are simply not represented at all. The dominance of the Early Middle Ages was almost certainly even greater than the above tables imply, as most second millennium bulk deposits are disturbed and likely to contain predominantly redeposited earlier material.

Looking at the assemblage as a whole, it shows some surprising features. There are decorated bone objects, thought to have been reliquaries, which are most closely paralleled from Khazar sites and strongly suggest that at one phase at least some of the occupants were from that region. The medieval bead assemblage from Dariali is similar to that from contemporary sites in the Caucasus, Transcaucasia, Northern and Eastern Europe, the Mediterranean and parts of Asia. This observation points to the existence of a trade network linking Dariali with territories far afield, even if some beads may have been produced locally. Some of the beads represented are known to have been remarkably long-lived with origins in the pre-Christian era. Deopik argues that glass beads were more widely produced in the Northern Caucasus in the eighth and ninth centuries, whilst stone beads diminish in numbers.[292] Large quantities of glass beads were found amongst the grave goods of medieval burials in Georgia, and it is perfectly possible that most of these could have been locally produced.



Fig. 15:46: Possible tweezers from Grave G4.

Table 15:50: Other grave goods.

Find number	*Object type*	*Description*	*L*	*W*	*Th*	*D int.*	*Wgt*	*Phase*	*Date*	*Fig.*
E.019/46 (Grave E3)	Iron sheet	Fragment	1.4	1	0.2	n//a	0.9	5a-c	c. 778–988	15:42
E.019/49 (Grave E3)	Silver hoop	Complete	3.4	2.3	0.25	1.8	1.98	5a-c	c. 778–988	15:42
E.019/50 (Grave E3)	Silver hoop	Complete	3.4	2	0.25	1.5	2.06	5a-c	c. 778–988	15:42
G.013/7 (Grave G4)	Copper belt buckle with iron tongue	Complete	2.6	2.2	0.3	n//a	6.18	5c	c. 988–1035	15:44
G.013/20 (Grave G4)	Pair of connected iron shanks: tweezers?	Largely complete	9.5	1.2	0.3	n//a	11.06	5c	c. 988–1035	15:46
G.013/50 (Grave G4)	Green-stained bone toggle	Complete	3.9	0.3–0.6	0.3–0.6	n//a	3.23	5c	c. 988–1035	15:43
G.020/19 (Grave G9)	Iron fire striker?	Hook-shaped object, complete	7.4	3	n/a	n//a	19	5c	c. 975–1029	15:38

On the other hand there are joining fragments of a single small Arabian chlorite cooking bowl or incense burner which was excavated in a tenth century context. Chlorite containers of these shapes were invented in Arabia and continued to be popular for the first five centuries of the Islamic period. Small numbers were traded along the Red Sea or overland across Arabia and entered the Levant and Iraq, but they become less common as the distance increases from their source. In North-east Iran, this cooking tradition seems to have inspired a local stone-carving industry at Tus, near Nishapur, and this continued during the same period, exporting its wares deeper into Central Asia where they have been found in the Merv and Bukhara Oases. The stone used there was talc and very different to that used for the distinctively micaceous green container from the Dariali Fort and this closely resembles examples excavated at Hira in the Iraqi Western Desert and Kadhimah in the Bay of Kuwait, in both cases imported from Central Arabia. This may be the northernmost known example of an early medieval object of this type and perhaps represents a personal possession of a garrison member from the Arabian Peninsula.

Other objects have local parallels or are unique. The latter applies to an extremely elegant and distinctive carved bone spoon found in a context dated to the late seventh or eighth century: it is unlikely to have been whittled locally, but where it was made is unknown. On the other hand, it seems that many of the glass bangles and rings are found north of Dariali (especially in the graves of the Dargavs Catacombs for example) although we know they are likely made in Georgia to the south of the pass and are found in the south and west of the territory of Georgia too. This evidence suggests that Dariali was an important stop along the road for goods travelling between the Kartli regions and the territory of the Alans/Khazars.

The evidence from Grave G4 (close parallels between the mirror, the bells, beads, rings, buckle etc.) seems to indicate that the child buried there shared material culture with the individuals buried in the Dargavs Catacombs. This may mean this child was an Alan and that some of these people were present at the fort (and probably living there). Perhaps the fort was staffed by local individuals, supplementing or replacing an earlier partially Islamic garrison. It is conceivable that the people who lived in the region surrounding Dariali at that time shared traditions with the Alans. The grave goods from Trench E also share a strong commonality with the goods coming from the Mamisondon grave assemblages, suggesting a connection in a slightly earlier period across the Northern Caucasus.

A small number of spindle whorls found in contexts dating from the later seventh century or early eighth century onwards implies that some individuals were spinning although it is unclear whether these were men or women. Some of these were or could have been locally made and mostly fashioned from broken potsherds. In a few cases, however, they were made from modelled fired clay, bone or lightly polished limestone, and some of these may be imports, as there was no evidence for the working of these materials at Dariali Fort. Somewhat surprisingly, however, there were none of the small lathe-turned bone spindle whorls with dotted circle decoration or decorated cast lead examples with moulded decoration which are typically found at late antique and early medieval sites from the Near East to Central Asia.[293] These were probably the products of specialised bone-carving workshops located in urban centres and their absence implies a difference in supply. There are also none of the small cast copper alloy fittings which are found at early medieval sites such as Nishapur.[294] The extent to which these absences reflect functional or cultural differences is unclear.

There is a reasonable amount of metal, almost exclusively iron, but with a possible hint of slightly greater use of copper alloy in period 3. The metal objects were mostly functional tools or weapons and had been hand forged. It is possible that these were made in foundries elsewhere and supplied to the garrison and other inhabitants, as no evidence for smithing hearth bottoms were found in the present excavations (but only a small part of the fort was excavated and any extramural metalworking sites could easily be buried under later cultivation layers or rockfall). Whether or not there was any local production of metal tools and weapons, the Dariali Fort was undoubtedly mostly, if not always, carefully integrated into a wider military supply network which may account for the majority of the needs of the occupants. The number of whetstones from all periods implies that edged tools and weapons were regularly honed. That a single grave (G9) has, in terms of weight, yielded vastly more iron weaponry than all other trenches combined (and even numerically almost as much) should remind us that larger metal objects, such as sabres and swords, were not normally lost, let alone discarded. Even the number of small arrowheads found is negligible. No doubt the garrison was much more heavily armed than the odd loss implies, and it was only towards the end of the fort's main phase of occupation that a change in burial traditions makes weapons more visible. Another feature of the assemblage is the relatively small quantity of sheet metal which suggests that there was little use of the beaten metalware cooking pots and other shapes familiar from Nishapur[295] or more recent traditional bazaars across the region. The frequency of pottery, most of which belonged to cooking pots and closed forms used for storage or transport, suggests that these types of metalwares were not used.

Heavily dominated by objects of the final third of the first millennium, the finds assemblage provides major insights into everyday life, fashion, and defence at Dariali Fort in the Early Middle Ages. Perhaps most significantly, it demonstrates how interconnected this strategic outpost was with both, the northern steppe world and Transcaucasia and the wider Near East in the south.

Table 15:51: Slag analysed.

Find number	*Description*	*Wgt*	*Phase*	*Date*
F.027/157	Several pieces of dense, iron rich slag. Basal curvature and the presence of a meniscus would seem to indicate the slag formed in a small furnace or hearth.	151	5c-6b	c. 10th–14th c.
F.046/508	Light, highly vesicular slag. Probable significant iron content	184	5c-6b	c. 10th–14th c.
F.070/662	Glassy slag with high silica content. Interaction zone between vitrified silicate (interpreted as hearth lining), charcoal and slag has been preserved. Indeterminate composition and function.	19	5a	prob. mainly 8th c., poss. 8th–early 9th c.
F.070/665	Glassy slag with high silica content.	7	5a	prob. mainly 8th c., poss. 8th–early 9th c.

15.5. Appendix: Slag from the Dariali Fort

Scott Stetkiewicz

A small number of slag fragments from Trench F on Dariali Fort were macroscopically assessed (Table 15:51). The two largest fragments (F.027/157) are in fact a single piece, which when pieced together form a portion of a typical iron smithing plano-convex hearth bottom. The vesicular texture of F.046/508 is common in bloomery iron smelting, as is the mottled grey and black colouring, indicating possible primary iron production taking place in the vicinity of the fort. The interaction layers visible within F.070/662 point to an intentional firing of that material, although it does not appear to be ferrous in nature. Therefore, despite the small sample size, there is evidence for at least one (if not two) stages of iron manufacture being carried out at Dariali Fort.

While the evidence for pyrotechnological activity on site is interesting to note, other important factors must also be taken into consideration. Context F.027 represents what seems to be a refuse deposit, and F.046 is interpreted as infill between structures. F.070 is one of the lowest and earliest deposits within the intramural rubbish heap in Trench F. There is no *in situ* corroboration of the metallurgical evidence (*i.e.* furnaces, hearths, and other associated metallurgical features). Moreover, if metallurgy at an appreciable scale was taking place on site, a far greater number of slag finds would be expected. The samples analysed, as well as all fragments of metal slag found, date to the medieval occupation of the fort. We may be sure that in the early medieval era, probably from the eighth to at least the tenth century (phase 5a-c), ferrous metallurgy was taking place in or around the fort. No metal slag has been identified in certain deposits of phases 3 or 4, and whilst F.027 and F.046 may contain late medieval (phase 6) material, there is far more evidence for tenth-century (phase 5c) activity across the fort. Worth noting is also a crucible fragment from Q.058, part of the fill of the stone-lined pit in Trench Q, probably of phase 5b (late eighth or ninth century).[296] It would seem unusual for slag to be brought up to the fort simply to be used as construction packing, and so ferrous metallurgy would seem to have been carried out within the main fortifications. However, the scale of production, quality of iron being produced, and provenance of resources are impossible to theorise without further samples or analytical work. If in pre-medieval times, when we generally see little intramural rubbish disposal, metal was produced and repaired exclusively in the extramural area is open to debate.

Notes

1 With chemical compositional classification of glass bangles by Yoshinari Abe and Ryuji Shikaku.

2 See chapter 6.7.

3 See chapter 2.4.5. One in 48 samples was demonstrably centuries older than the deposit it was found in – too small a number for calculating a reliable ratio of centuries-old material in medieval deposits, but almost certain not to be above a single-digit percentage figure.

4 See chapters 2.2.2–2.2.6.

5 During the excavations, a preliminary finds database was developed by Seth Priestman and a system implemented whereby each find, whether artefactual or environmental, was given a long number which is prefixed by the trench and context, and this system is followed throughout this report for the sake of consistency. The species of worked bone artefacts were identified by Marjan Mashkour and her team (Roya Khazaeli, Homa Fathi, Sarieh Amiribeirami and Delphine Decruyenaere), the finds were drawn by Emzar Lomtadze and photographs taken by Fiona Mowat, Rosalind MacDonald, Seth Priestman, Lana Chologauri and Eberhard W. Sauer. This report is jointly authored. Lana Chologauri [LCh] was responsible for writing the worked bone artefacts, Ana Gabunia [AG] wrote up the beads and pendants, Fiona Mowat [FM] added to the descriptions of the other personal ornaments and finds from the cemetery, Seth Priestman [SP] tabulated the building materials and vitreous materials, Eberhard W. Sauer [EWS] wrote up the arrowheads, provided the comparative analysis for the sword, the phasing/dating attributions and some of contextual interpretation of the finds, and St John Simpson [St JS] compiled the remainder and brought these contributions together following a short visit during the 2017 study season in Tbilisi. Initials indicate the main authors of sections, but all authors of

chapter 15 also made contributions to sections other than those specifically attributed to them.

6 K'ereselidze 1978, 5.
7 See chapters 13–14.
8 See chapters 2–3.
9 See chapters 4–5 and 7–9.
10 See chapter 6.
11 See chapter 15.3.
12 Kolyakov 1979.
13 Simpson and Pankova 2017, 208.
14 Simpson and Pankova 2017, 216, nos 130–33; Dandamaev 1982.
15 Rausing 1967, 110–11; Khudyakov 1991; MacGregor 1985 155–58.
16 Gadzhiev and Magomedov 2008, 284, 297 fig. 11.4–5.
17 Miller *et al.* 1986, 187; Loades 2016.
18 McEwen 1978.
19 These are too numerous to list but a synthesis of kurgan sites between the Caspian and Aral Seas showed how they were buried with quivers of iron trilobate arrows in mounds at Kulkuduk, Tumek-Kičidžk and Tuzgyr (Wegener 2010, 64, pls 64.A9–10, 90.A1–6, 93.B3–10).
20 Simpson 1997, 344–45. The pieces found in a YuTAKE excavation in Merv/Gyaur-Kala were attributed by the excavator, Z.I. Usmanova, to the Parthian period (Usmanova 1963), but re-analysis of the other finds suggests that this workshop is slightly later and the associated finds of smithing slag and location at the foot of the citadel and close to the north gate of the lower city suggest it may have been an armourer's workshop. Judging by the published drawing, as many as three composite bows of this type were interred with the high-status male buried in Grave 1 at Tillya Tepe; he was also interred with a long sword and a dagger in a highly decorated four-lobed scabbard, and the remains of a horse was added. The plates from ed-Dur were found in a grave with the remains of a quiver of iron trilobate arrows (Haerinck *et al*. 1991, 41, 45–46). A bow was found in a grave at Yrzi, near Baghouz (Rausing 1967, 105, fig. 22). The bone plate found in the 1932 season of British Museum excavations at Nineveh was not initially recognised as belonging to a bow and was registered in error as a 'weaving tool' (BM 1932,1212.1199/138666); its exact context is not clear but it was found at a depth of -7 feet below datum in Pit NN above the Assyrian Temple of Nabu in the centre of the mound of Kuyunjik, and there are extensive other remains of the Partho-Roman period at the site, including graves (Curtis 1976), locally made pottery and figurines, imported eastern sigillata and Roman glassware, coins and a Roman auxiliary badge (Reade 1998).
21 Brosseder 2015, 229, fig. 11.
22 Coulston 1985; Hellmuth Kramberger 2016, 46–50; Riesch 2017; Zanier 1988.
23 Balfour 1921, 305–06 with fig. 14.
24 MacDonald 1934, 282–85, figs 39–40; Robertson *et al.* 1975, 24–27, 56, fig. 18, nos 8–10. These had been pierced at the top with a hole, through which had been passed a round-headed copper alloy rivet or iron nail, possibly intended for suspension of the bow when not in use. See also Holder 1982, 21, 31, 117; Spaul 2000, 408–09.
25 Haynes 2013, 135–42.
26 Zanier 1988; Sauer 2001, 33–36, with references.
27 Rausing 1967, 65–69, 100–02, figs 25–27; Riesch 2017; Stade 1933; Walke 1965, 152, pl. 105, nos 25–31; Zanier 1988, 8–9.
28 Eckinger 1933.
29 Stade 1933, 111; Werner 1932.
30 Nash-Williams 1932, 94–96, with fig. 42; Boon 1972, 54, fig. 30, no. 12.
31 Sinauridze 1967.
32 *E.g.* Borisenko *et al.* 2006, 110–12, 124 fig. 1; Chudjakov 2006; Stark 2008, 158–59, 534 fig. 68.
33 See chapter 15.3.1.2.
34 Simpson *et al*. forthcoming a.
35 Allan 1982, 108, no 205.
36 Simpson *et al*. forthcoming b.
37 Simpson forthcoming 2020.
38 Bishop and Coulston 2006, 88–89, 134, 136, 166–67; James 2004, 191–208; Yadin 1963, pl. 25; Yadin 1966, 57, 96; Yadin 1971, 88; Zanier 1988.
39 Ts'itlanadze 1977, 99–100, 107 fig. 10.1.
40 Ts'itlanadze 1971, 67.
41 Found at 9.50 m east, 3.20 m north, 1.31 m below the benchmark.
42 Chik'oidze 1988, fig. 35.13.
43 See chapters 3.4.3–3.4.4.
44 See chapter 22.1.
45 See chapters 5 and 22.3.
46 See chapters 8.3 and 8.8.
47 Allan 1982, 56, 107, nos 202–03; cf. Kröger 1995, 15–16, 30 on the dating based on the glassware.
48 Arne 1945, 333, fig. 678, pl. 82.
49 Redford *et al*. 1998, 162–63, fig. 4.3D.
50 Mitchell 1980, 233, fig. 118, no. 35, axe-adze.
51 Moore 1993, 131, fig. 69, no. 100.
52 Ploug *et al*. 1969, 62–63, fig. 23.5.
53 Ten elongated nodules were assigned finds numbers during excavation as they were originally believed to be whetstones (F.002/140.1–3; F.005/54; F.005/72.1–2; F.006/40; F.022/121; F.109/1339; Q.111/910). However, there were no signs of modification or wear to support this interpretation and they have, therefore, been omitted from the catalogue.
54 There are too many to cite but some early occurrences in Mesopotamia include one example from a late third millennium BC grave at Tello (Cros 1910, 141).
55 Moore 1978.
56 Ottaway and Rogers 2002, 2793–97.
57 Excavations at the Roman legionary fortress at Usk produced evidence for their manufacture from a local type of fine-grained purplish-red sandstone or siltstone (Manning *et al.* 1975, 257–63).
58 See chapter 3.4.8.
59 The equivalent medieval English situation is reviewed by Margeson (1993, 136–37); see also Ottaway and Rogers (2002, 2803–05, fig. 1387).
60 Ploug and Oldenburg 1969, 67–71, figs 26.4–6, 27.1–2.
61 Allan 1982, 50, 90–91, nos 116–19.
62 Bivar *et al.* 2000, 102–04, pls 63–65.
63 Whitcomb 1985, fig. 61.o.
64 Scerrato 1959, 49.

65 IsIAO, inv. nos 8356/8357 (viewed on exhibition, 2014: I am very grateful to Dr P. Piacentini for kindly guiding me around these displays on this occasion).
66 Simpson *et al*. forthcoming c.
67 See chapters 3.3 and 13.
68 Reeder 1999, 104–05, no. 3.
69 We considered the possibility that the semicircular metal disk (Q.027/175) formed a fragment of a Central Asian coin with a hole, a possibility first suggested by Ketevan Gotsiridze. See Zeĭmal' (1999, 196, 200, 366, pl. 122.1–15) for coins with square holes, some of similar diameter, some smaller, of the fifth-eighth centuries. Illustrated specimens are complete, as opposed to our halved/fragmented find. Coins from Samarkand and Tocharistan of the seventh-eighth centuries, often feature a short legend. Renewed examination under oblique side light suggests that the piece from Dariali has a circular hole (like some of the smaller specimens, up to c. 26 mm), but not a square hole, like some of the specimens of similar diameter to ours (29.5 mm) – perhaps also further traces of letters or symbols, but so faint that reading them is a matter of speculation. See also Fedorov (2016, 191–92 with figs 9–11) on seventh-eighth-century coins with square holes from Penjikent. Rather than the only coin from Dariali Fort, the piece is probably just a washer.
70 Simpson *et al*. forthcoming d.
71 Simpson *et al*. forthcoming a.
72 See chapter 25.3.5.
73 See chapters 21 and 22.3.4.
74 In his description of Arabs in the marshes of Southern Iraq between 1968 and 1990, Ochsenschlager (2004, 218) describes how 'men usually make slings, gun belts, and cord for binding, tethering, carrying and so forth' whereas the women 'mostly sew clothes, embroider blankets, and weave such things as bags and pillows', and 'men and boys are most often seen spinning when shepherding animals at pasture'.
75 Spindle whorls have been found at Roman forts in Britain, including late antique Portchester Castle (Cunliffe 1975, 262, 264 fig. 139.331–32), Segontium (Casey and Davies 1993, 208–09 fig. 10.22, nos 501–509, mostly from fourth-century contexts), South Shields (Allason-Jones and Miket 1984, 334, 338–39) and Usk (Manning *et al*. 1975, 251–54, with at least two spindle whorls found in pre-Flavian military contexts, but the majority, in later non-military layers). Spindle whorls are a common find on many Iron Age and Roman settlements in Europe; see, for example, Wheeler and Wheeler 1936, 181, pl. LV,B.1–4 and Frere 1984, 110–11, with fig. 49.22 on finds from Verulamium.
76 K'ereselidze 1978, 39–40, pl. XII–10–12, II–3, 5, 7, 10.
77 Simpson 2018b; Hallett 1990, 45–47, pls 12–15 (cylindrical bowls), 41–44, pls 8–11 (incense-burners).
78 Crowther *et al*. 2015; cf. Hallett 1990, 42 who first observed this feature on examples excavated at Fustat, Aqaba and Siraf and suggested the same cause.
79 Nasrallah 2007, 85; Simpson 2018b.
80 Hallett 1990, 4–6.
81 Le Maguer forthcoming; Simpson 2018b.
82 Hallett 1990, 60–64.
83 Simpson 2018b. There are also major sources of chlorite in the Sa'adah region of Northern Yemen and the Mashhad area of North-east Iran but the material from both is a consistent fine light grey talc: it was used from the ancient South Arabian period up to recent times in Yemen (Weir 2017) but the Iranian source only appears to have been exploited during the medieval period (Simpson 2018b).
84 Simpson 2018b; Saparov and Torgoev 2015; there is also an important source in the Sultanuizdag Mountains in Chorasmia but that appears only to have been exploited from the twelfth century onwards.
85 See, for example, Sabori *et al.* 2016.
86 K'ereselidze 1978, 79–82, pls X, knucklebone IV–9,11, XXXIX–10, XXII–6.
87 Casemate: F.125/1726, F.125/1727, F.112/1402, F.066/1719, F.072/1720 and F.072/1721; F.004 building: F.196/1723.
88 Holmgren 2002, 213.
89 Contadini 1995.
90 K'ereselidze 1978, 44, pl. III-2.
91 It is not possible to tell if the abstract carved image features a *Capra aegagrus*, a *Capra caucasica* or a large domestic male goat (*Capra hircus*) (Marjan Mashkour, pers. comm.).
92 Orjonik'idze 2014, 209–10, pl. III-5.
93 MacGregor 1985, 167–70.
94 Flërova 1997, 60–61.
95 Flërova 1997, 59–60.
96 Flërova 1997, 60.
97 Flërova 1997, 60, citing Kamenetskiĭ I.S. and Savchenko E.I., 1982 = Каменецкий, И.С. and Савченко Е.И., 1982. 'Отчет Лабинского отряда за 1982 г. (Могилльник Мощевая Балка) (Report of Labinsk squad in 1982 (Cemetery Moshevaia Balka))', Архив ИА РАН. Р-1. N.9105–9107. а-и, at 19, pls 1230, 1232, 1238, III: N105.
98 Flërova 1997, 60.
99 Flërova 1997, 60.
100 Flërova 1997, 61.
101 Flërova 1997, 60.
102 Tabari 2.1506 = trans. Blankinship 1989, 45; cf. Artamanov 1962, 211.
103 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 157; Baladhuri 210 = trans. Hitti 1916, 328–29; Artamanov 1962, 211. See also chapter 25.5.2, with further sources.
104 *Kartlis Tskhovreba/Life of Kartli* 234 = trans. Thomson 1996, 241 = ed. Q'aukhchishvili 1955, 234; cf. Bosworth 1978, 344; Minorsky and Bosworth 1986, 488.
105 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 157; see also chapter 25.5.2.
106 Melikishvili 1973, 289–90; Kartlis Tskhovreba/Life of Kartli 234 = trans. Thomson 1996, 241 = ed. Q'aukhchishvili 1955, 234.
107 According to the *Kartlis Tskhovreba/Life of Kartli* 249–50 = trans. Thomson 1996, 256, the Khazars attacked Georgia in the 760s. During this incursion they kidnapped Shushan, the sister of Juansher, the duke of Kartli. According to an alternative hypothesis, this incursion occurred later, in

799/800. This suggestion seems improbable, as the duke of Kartli at that time was Ashot I Kurapalates.
108 Iovane Sabanisdze, *The Martyrdom of St Abo* = trans. Lang 1956, 118 = ed. Q'ubaneishvili 1946, 61.
109 Javakhishvili and Ghlont'i 1962, 41–42.
110 See chapter 15.3.2.
111 See chapter 15.3.2.
112 Mastykova 2010, 435.
113 Francis 2002, 11.
114 Francis 2002, 19.
115 Mastykova 2010, 430–31.
116 See chapters 6.4–6.5 and 15.3.2.
117 See chapters 5.2 and 11.11.
118 Ts'itlanadze *et al.* 1998, 77
119 Ts'itlanadze *et al.* 1998, 77.
120 Ts'itlanadze *et al.* 1998, 77.
121 Ts'itlanadze *et al.* 1998.
122 Deopik 1959, 57.
123 Dolaberidze 1985, 61.
124 Babaĩan 2008, 123.
125 See chapter 15.3.2.
126 See chapter 15.3.3.5.
127 See chapters 6 and 19.
128 The following list of site occurrences gives a flavour of the range of findspots although this is far from exhaustive: Nessana (Colt 1962, 53, pl. XXIII.5–6), Hama (Ploug *et al*. 1969, 62–66, fig. 24), Rāya (Kawatoko and Shindo 2009, col. pl. 5.7), Rayy (Allan 1976, vol. I: 342; vol. II: 802), Samarra (DGA 1940, vol. II: pl. 142), Siraf (Simpson *et al*. forthcoming d) and Shanga (Horton 1996, 362, fig. 279.a–d). The type continues at least until the twelfth or thirteenth century judging by one example found at Aşvan Kale (Mitchell 1980, 239, fig. 125: 103), and various sites on the East African coastal sites, including Gedi, Kilwa, Manda and Ungwana (Horton 1996, 362).
129 Lassner 1993, 83–84. The tenth century author Tha'alibi (= trans. Bosworth 1968, 40) states that because of the 'thick growth of hair on her legs', Solomon ordered her to use a depilatory: this is the earliest written reference to hair removal in this manner.
130 This terminology follows that of MacGregor (1985, 73–96), who states that composite combs made of separate side, end and tooth plates, secured together with rivets, were an entirely North European development of the late Roman Iron Age (MacGregor 1985, 74). This is not entirely correct, however, as five wooden composite combs, one decorated with gold overlays, were found in different graves in the seventh century BC Scythian tomb at Arzhan-2 in the Tuva region of Southern Siberia (Čugunov *et al*. 2010, 66, 75, 78, 82, fig. 64, pls 62.12, 69.6, 80.4, 82.1, 89.6, 90.6, 93.4, 109.1–3).
131 Muzhukhoev 1980, 177–84, pl. 4.12.
132 Umarov 1976, pl. 2.2.
133 K'ereselidze 1978, 62–63, pls XXXIX–8, VIII–8,11.
134 Allan 1982, 70–71, nos 62–64.
135 See chapter 15.2.5.
136 See chapter 8.4.
137 K'ereselidze 1978, 76, pl. XIII–11.
138 See chapter 15.3.3.1.
139 See chapter 6.3.
140 Dolaberidze 1967, 166.
141 Ivashenko 1980, 99; Manjgaladze 1985, 89, fig. 521.
142 Apkhazava 1988, 109.
143 Chkhat'arashvili 2014, 70.
144 Chkhat'arashvili 2008, 73–74.
145 Ts'itlanadze *et al.* 1998, 75. This cemetery was not very far from Dariali Fort: see chapter 6.1.
146 Lomtatidze 1973, 539.
147 Chkhat'arashvili 2008, 73.
148 Dolaberidze 1967, 186.
149 See chapter 15.3.3.1, cf. 6.3.
150 Q.031/204 was found 9.60 m NE, 9.71 m NW, at -1.40 m. The location suggests that a seventh to ninth-century date is most probably, even if some of Q.031 might be earlier.
151 Mamaev 2010, 398, table 184.18.
152 Dzattiaty 2014a: see the assemblage of Catacomb 17, for example, which includes several examples of such rings: one of uneven shape and a high bezel, a smaller ring with a rounder bezel and an example with no bezel. Catacomb 62 includes a ring, a twisted glass bracelet and a bell.
153 Ugrelidze 1961, 12.
154 Chkhat'arashvili 2014, 71.
155 Ugrelidze 1961, 10.
156 Dolaberidze 1969, 98–115.
157 Chkhat'arashvili 2014, 71.
158 Chkhat'arashvili 2014, 72.
159 Dolaberidze 1969, 101.
160 The majority are made of a black glass, but green, dark and light blue, yellow, dark red opaque or transparent fabrics are also popular. Some of them are inlaid (black with colorful spots) and sometimes the glass is decorated with an applied cord in a white or coloured fabric: see Chkhat'arashvili 2014, 72.
161 The bracelets manufactured in Natbeuri, at the end of the thirteenth century to the beginning of the fourteenth century are deemed to be quite poor quality in Georgian glass literature; these are mainly black bangles with a plain round section (some decorated with notches) or made by twisting the fabric, see Ugrelidze 1963, 64–65.
162 Dolaberidze 1973, 49.
163 Dolaberidze 1973, 45–46.
164 See chapter 14.
165 See chapter 13.2.
166 See chapter 15.3.3.4.
167 See chapter 17.
168 See also chapter 24.2.7 on the use of slate for roofing.
169 Mindia Jalabadze, pers. comm.
170 Badalyan *et al*. 2010.
171 Dr Marjan Mashkour, pers. comm. Two centrally holed sea-urchins were found in layer 1 on Mound 1 and layer 3 of Mound 2 (Area D) at the seventh/eighth to ninth century Persian Gulf coastal site of Jazirat al-Hulayla in Ras al-Khaimah (Sasaki and Sasaki 1996, pl. 81, 94–270; Sasaki 1996, 185, pl. 33, 94–835).
172 Sasaki 1996, pl. 38, 94–936.
173 See chapter 2.4.3.
174 MacGregor 1985, 101.
175 Casey and Davies 1993, 206, fig. 10.21, no. 484.
176 K'ereselidze 1978, 62, pl. VIII-9.
177 Furtwängler *et al.* 2008, 88, pl. 33, no. 17.

178 Sheep/goat and pig carpals drilled through the centre which have been found at Iron Age to medieval sites in England are thought to have been used as toggles (MacGregor 1985, 102–03).
179 See chapter 15.5 for analysis of selected samples.
180 X.003 is the third spit from the top and the deepest in this trench on the fort's western slope, full of material dumped here by the occupants, to have yielded a modern object: see chapter 4.2.
181 See chapter 3.6.
182 See chapter 4.3.
183 See chapter 7.
184 See chapter 6.
185 See chapter 6.4.
186 See chapter 16.
187 See also Shpakovsky and Nicolle 2013, 24.
188 Lang and Simpson in press; see Townsend *et al*. 1980, 495.
189 See chapter 6.4 and 16 for *in situ* photographs of the sword with the remains of its sheath, chape and suspension mechanism.
190 Bálint 1978; Farrokh 2017, 101–04; Farrokh *et al.* 2018, 37–38, 136–41 figs 35–38; Masia 2000; Moshtagh Khorasani 2006, 89–97, 418–21; Nickel 2002, 121, pls X.56–61; Overlaet 1982. See also Kazanski 2013, 780, 781 fig. 7.4 for a mid-sixth to mid-seventh-century sword with P-shaped fittings.
191 Lang and Simpson in press; a 42 cm long fragmentary tanged double-edged blade of the same type, but missing any signs of a scabbard was found in a drain at Tepe Madraseh at Nishapur (Allan 1982, 108–09, no. 209).
192 Lang *et al.* 1998; cf. Hoyland and Gilmour 2006.
193 Alipour and Rehren 2014; Simpson 2001; Alipour *et al.* 2011.
194 Bálint 1978, 184–86; Borisenko *et al.* 2006, 117; Golubev 2015; Stark 2008, 155–56; cf. Gorelik 2002, 129, dating the introduction to the eighth century, cf. 131, 133, 137. See Makarova and Pletneva 2003, 266 pl. 99.39 for a similar D-shaped suspension loop attributed to the eleventh to thirteenth centuries.
195 Cf. Bálint 1978, 182–83.
196 Amartuvshin and Badma-Oyu 2016, 136 fig. 114; Bálint 1989, 31–33, with figs 11–12, 265, fig. 131; Brinker and Goepper 1980, 292, 294–97, no. 72; Gorelik 2001; 2002, 133, pls XI.1–2, XI.6–7, XI.10–12, XI.15–16; Khalikova 1976, 163, fig. 4.21, 164, fig. 5.22; cf. Khudiakov 1986, 191–92; Koch 1999, 574, pl. 73, 575–78, pl. 74.1, 578–79, pl. 74.2–3, 581–82, pl. 75, 581, no. 45, 589, fig. 5, 590; Koch 2006; Kochkarov 2008; Konikov 2016, 47; Kouznetsov and Lebedynsky 1997, 77; Kuznet͡sov 1961, 78 fig. 11, 91 fig. 19, 110–15, cf. 129 (tenth/eleventh–twelfth-c. sabres from the Northern Caucasus, with D-shaped, if typologically less close suspension loops; kind reference Dr Irina Shingiray); Shirakihara 1978; Shpakovsky and Nicolle 2013, 25 pl. A; Stark 2008, 153–54, 475, fig. 9d, 514, figs 48c-h, 530, fig. 64, 531, fig. 65, 532, fig. 66c, 562, fig. 96a; Stöllner and Samašev 2013, 950, fig. 639; Trousdale 1975, 83–84 with fig. 64; cf. Bemmann 2012, 162 for a stela possibly showing a suspended sword.
197 Dzattiaty *et al.* 2018, 327 fig. 1, 328. (We are very grateful to Dr Irina Shingiray for providing us with a copy of this edited volume.)
198 Allan 1982, 56–57, 108–109, no. 208; Hoyland and Gilmour 2006, 60, fig. 13a: the diameter and spacing of the loops is similar to those of the sword sheath from Grave G9; cf. Alexander 2015, 144–47, no. 54 (with different spacing of the loops); Sarraf 2002, pls XII.26, XII.103. The end of the blade is slightly curved, hence was classed as a 'sabre' by Sarraf.
199 Alexander 2015, 146.
200 Stöllner and Samašev 2013, 936, fig. 608; cf. Borisenko *et al.* 2006, 128, fig. V, Gille 1859, 230, Koch 2006, 220, fig. 24, Kubarev and Bazylchan 2013, 857, fig. 8, Stark 2008, 153, 509, figs 43a, 43c, 511, figs 45a–c, 531, fig. 65b, 533 fig. 67, 556, figs 90h, 90i–j, 559, fig. 93a, 560 figs 94a-d and Zakharow and Arendt 1935, 33–34 with fig. 18, 36, fig. 19, pl. III.4 for stelae of human figures bearing similarly suspended bladed weapons.
201 Garam *et al.* 1975, 329 fig. 6.68.1, 334, 341, 343; Stephenson 2006, 94 fig. 79; Zakharow and Arendt 1935, 19–22 with figs 6–8, pls II-III, VI, VIII.
202 Cf. Menghin 1983.
203 Golubev and Golubeva 2012, 49 fig. 6; Iotov 2008, especially 330, 331, figs 3–4.
204 Tsurtsumia 2015, 159–65; Davit Naskidashvili, pers. comm.
205 Proshkin 2013, 64, 66 fig. 1.15, 67, 72–73; Medvedev 1966, 66–67. See also Shpoli͡anskiĭ 2017 for numerous tenth to twelfth-century parallels from the surroundings of Suzdal, east of Moscow.
206 Medvedev 1966, 62–63, pl. 20.19.
207 Uspenskiĭ 2013, 89 fig. 3.
208 Kuznet͡sov 1961, 71–72 with fig. 8, cf. 78 fig. 11, 91 fig. 19, 110–15, 129 (kind reference Dr Irina Shingiray).
209 Muzhukhoev 1980, 181–82 (kind reference Dr Davit Mindorashvili and Lana Chologauri); Mot͡si͡a 2017, 29.
210 P'ach'ik'ashvili 2014, 158.
211 *E.g.* Khalikova 1976, 173, cf. 160 fig. 2a.20, 163 fig. 4.20.
212 Khalikova 1976, 173, 160 fig. 2b.15, 164 fig. 5.15. G.020/19 from Grave G9 might be an iron hook, but bears closer resemblance with fire strikers.
213 Khalikova 1976, 173, 160 figs 2a.14–19, 2b11–14.
214 At Bol'she-Tiganskiĭ, they also tended to be next to the left or right of the deceased and sometimes, as in the case of Grave G9, next to a bladed weapon, *i.e.* sabres at Bol'she-Tiganskiĭ: Khalikova 1976, 172–73, 160 figs 2a-b.
215 A possible explanation for the unexpected orientation of the arrowheads proposed by Annamaria Diana.
216 See Dzattiaty *et al.* 2018, 327 fig. 1.40, 330, Dzattiaty and Uspenskiĭ 2016, 160, 163, fig. 5.132–33, 166 and Uspenskiĭ 2013, 89 fig. 3.7 for parallels. P'ach'ik'ashvili 2014, 158 provides a further parallel from an eleventh to thirteenth century cemetery, and Shpoli͡anskiĭ 2017, 15, fig. 5.13, 159 a tenth to twelfth century parallel found south of Suzdal; see Makarova and Pletneva 2003, 266 Pl. 99.21 for a parallel attributed to the eleventh to thirteenth centuries. See Muzhukhoev 1980, 181–82 for tenth to thirteenth century parallels (kind reference Mindorashvili and Chologauri) and Vinograd *et al.* 2002, 94, 112 fig. 13.6

for an example attributed to the thirteenth-fourteenth centuries. This type of arrowhead was widespread in the Middle Ages in the steppes, the Caucasus and Transcaucasia. Parallels are also on display in museums in Georgia, *e.g.* at Kutaisi and at Mestia. See Dostiyev 2012, 37 for an eleventh to twelfth-century example from Shamkir in Azerbaijan.

217 Loades 2016, 65.
218 See chapter 6.4 and 6.7.
219 *E.g.* Abramova 1997, *passim*; Belavin and Krylasova 2012, especially inset Д; Garam *et al.* 1975, 40 fig. 16, 269 fig. 14; Kazanski and Mastykova 1999, 534 fig. 7, 558, 560–61 with figs 22–23, 562; *id.* 2003, 25, 31, 93; Kuzina 2016; Nikitina *et al.* 2018; Terekhova 2013, especially pl. III.5, cf. p. 59, a carnelian bead similar to find G.013/26 from Grave G4; Zhilina 2017.
220 Khalikova 1976, *passim*, especially 164–65. See also Stepanova 2017, 80, 92, 101, 108, 111, 113, 115, 122–23, 128, 131, 134, 137, 142, 148, 153, 155, 157, 165, 195 fig. 13, 205–85 figs 19–179, 316–70 *passim* on beads of a variety of materials from cemeteries in the Upper Volga region of the tenth to thirteenth centuries.
221 See chapter 6.5.
222 Ts'itlanadze 1971, 67.
223 Ts'itlanadze 1977, 98, 107 fig. 10.12–13.
224 Javakhishvili and Ghlont'i 1962, 41–42.
225 Dolaberidze 1985, 75.
226 Dolaberidze 1985, 75.
227 Mamiashvili 2015, 34, table VI, picture 5, 122.18.
228 Dolaberidze 1985, 76.
229 Dolaberidze 1985, 76.
230 Dolaberidze 1985, 77.
231 Dolaberidze 1985, 77.
232 Mamiashvili 2015, 34, table VI, 5.
233 Dolaberidze 1985, 80.
234 Vakhusht'i = ed. and trans. Brosset 1842, 174–75 = ed. Lomouri and Berdzenishvili 1941, 233–35.
235 Zukhbaia and Poporadze 1998, 231.
236 Urbnisi 1953, 41–42.
237 Dolaberidze 1985, 81.
238 Deopik 1963, 140.
239 Zukhbaia and Poporadze 1998, 221.
240 Ts'itlanadze *et al.* 1998, 75.
241 Deopik 1959, 51.
242 Dolaberidze 1985, 91.
243 Rekhviashvili 1959, 273–84; 1971, 21–25; Gagoshidze 1981, 27.
244 Tvalchrelidze 1959, 60.
245 Dolaberidze 1985, 91.
246 Dolaberidze 1985, 91.
247 Jenkins and Keene 1982, 30–32.
248 Tha'alibi = trans. Bosworth 1968, 133–34.
249 Al-Biruni = trans. Belenit͡skiĭ 1963, 187.
250 Zukhbaia and Poporadze 1998, 266.
251 Dolaberidze 1985, 94.
252 Dolaberidze 1985, 93.
253 Dolaberidze 1985, 48; see also 45–46 on glass beads in general.
254 Dolaberidze 1985, 47.
255 See chapter 15.2.6.
256 Alekseeva 1978, 27.
257 Mastykova 2010, 429.
258 Dolaberidze 1985, 55.
259 Ivashenko 1980, 134.
260 Furtwängler *et al.* 2008, 168.
261 Deopik 1959, 57.
262 Dolaberidze 1985, 56.
263 Dolaberidze 1985, 83.
264 Dolaberidze 1985, 65.
265 Dray and Myers 1946, 57.
266 Simpson 2003, 68.
267 These will be published in a forthcoming monograph in preparation by one of the present authors [St JS] on medieval Merv.
268 Ts'itlanadze 1977, 99, 107 fig. 10.8.
269 Ts'itlanadze *et al.* 1998; cf. chapter 6.1.
270 See chapter 15.2.7.7.
271 See above section 15.2.7.7.
272 See chapter 6.4, with fig. 6:47.
273 Ts'itlanadze 1971, 67 and 1977, 99, 107 fig. 10.7. See also See Kazanski and Mastykova 1999, 556 fig. 20.10 for a bronze bracelet of broadly similar shape from Mirny 1, Grave 1.
274 Ts'itlanadze 1977, 99, 107 fig. 10.4.
275 Published by Albegova and Vereshchinskiĭ-Babaĭlov 2010.
276 See chapters 6.4 and 6.7.
277 Allan 1982, 72–73, nos 76–77.
278 Abramova 1997, *passim*, especially 132–33; Aĭbabėin 2013, 288, 309, fig. 4.2; Kazanski and Mastykova 1999, 547, fig. 14.19, 554: from Grave 3 at Gilyatch, attributed to the fifth to sixth centuries; Khaĭredinova 2015, with fifth century parallels; Kuznecov 2000, especially 155, 160 fig. 6, 173, fig. 19, 178; Malashev *et al.* 2015, 224 fig. 20.4, 243 fig. 45.16, 257 fig. 60.1, 258 fig. 61.7, 288 fig. 94.1, 326 fig. 134.10, 338 fig. 147.7, 375 fig. 185.6, 390 fig. 202. See also Dzattiaty and Uspenskiĭ 2016, 153, fig. 3.22, 155, fig. 4.38, 158, fig. 4.109–11 for less close parallels.
279 Dzattiaty 2014a; Dzattiaty and Uspenskiĭ 2016.
280 Dzattiaty 2014a, 6–7; Dzattiaty and Uspenskiĭ 2016, 161–66.
281 Dzattiaty 2014a, 217, pl. 188. Catacomb 16 also includes a similar but not identical mirror illustrated in Dzattiaty 2014a, pl 32. This mirror has three decorated bands. Again the assemblage also includes many of the other finds we have from our grave: beads, belt buckles and many bell pendants. This Catacomb appears to have held the remains of three individuals (perhaps two adults and a child). Further parallels come from Catacomb 2 (Dzattiaty 2014a, pl. 17): same pattern but one less band; with different patterns in Catacombs: 6 (Dzattiaty 2014a, pl. 21a), 7 (Dzattiaty 2014a, pl. 22), 9 (Dzattiaty 2014a, pl. 24), 11 (Dzattiaty 2014a, pl. 26: perhaps broken), 15 (Dzattiaty 2014a, pl. 23), 18 (Dzattiaty 2014a, pl. 36), 71 (Dzattiaty 2014a, pl. 153), 73 (Dzattiaty 2014a, pl. 168), 75 (Dzattiaty 2014a, pl. 167) and more.
282 See chapter 6.4.
283 Stepanova 2017, 80, 92–93, 102, 105, 107–09, 112, 114, 131, 153–54, 158, 170–71, 184 fig. 2, 197 figs 14.1–1, 222 figs 52–53, 223–24 figs 55–56, 229 fig. 66, 243 fig. 95, 246 fig. 100, 247 fig. 102, 258 fig. 125, 266 fig. 141, 285 figs 178–79, 316–70 *passim*.

284 See Nikitina *et al.* 2016, especially 126 with fig. 4 and Nikitina *et al.* 2018, especially 200 fig. 1, 202 fig. 2, for tenth to eleventh century parallels from the Anatkasy Burial Ground, c. 10 km south-east of Novocheboksarsk, and Belavin and Krylasova 2012, especially 137–39, 171 fig. 60.14–30 for high medieval bells from a cemetery north of Perm; cf. Dobroli͡ubskiĭ 1982, 36–37 for a small bronze bell from a thirteenth or fourteenth century grave, similar to those from Grave G4; Zaĭt͡seva and Saprykina 2014, pl. XIV.30, cf. 193, 198 on a circa eleventh to fourteenth century parallel from Yaroslavl. See Khalikova 1976, 165 fig. 6.26 for a very small bell. Cf. Bálint 1989, 246, fig. 116.13; Dzattiaty and Uspenskiĭ 2016; Zábojnik 2015, 149, 166, pl. V.7/3. See Makarova and Pletneva 2003, 443 Pl. 157.29 for a parallel attributed to the twelfth to thirteenth centuries. For less close parallels from Asia (Begram in Afghanistan and Nishapur in Iran), see Ghirshman 1946, 57, 204, pl. XXXVII B. G. 489 and Allan 1982, 27–28, 60–61 nos 3–5.

285 Pomberger and Stadler 2018; Zakharow and Arendt 1935, 17 with fig. 5.3–4. See also *ibid.*, fig. 5.1–2 for possible parallels to G.013/50

286 Petrinec 2009, 164–66.

287 Pomberger and Stadler 2018.

288 See chapter 15.2.7.8.

289 For parallels specifically from Dargavs Catacombs, see Catacomb 2 assemblage including 5 such bells (see Dzattiaty 2014a, 70–71), many beads and necklaces, rings, glass vessels and a mirror. See also Catacombs 8 and 15 (Dzattiaty 2014a, pl. 23) for further bells, the latter also with beads and a belt buckle. 4 large and 3 small bells were found in Catacomb 16 (Dzattiaty 2014a, pls 30; 31); 3 in Catacomb 17 (Dzattiaty 2014a, pl. 35); 7 in Catacomb 19 (Dzattiaty 2014a, pl. 39); cf. Dzattiaty 2014a, no. 70, pl. 1187 for large and several small bells.

290 Dzattiaty 2014a, pl. 136.

291 Ottaway and Rogers 2002.

292 Deopik 1959.

293 Bone spindle whorls with dotted decoration: Simpson *et al.* forthcoming b; decorated lead spindle whorls: represented from excavations at Nishapur and Rayy (Allan 1976, vol. I, 380, vol. II, 860–61, fig. 94, type C/4) and at least as far west as Corinth, where a mould was found in early medieval layers (Davidson 1952, 304, pl. 125, no. 2633).

294 Allan 1982.

295 Allan 1982, 78–81, nos 93–99.

296 Identified by St John Simpson; see chapter 15.2.15.

16

The sword from Grave G9 in the cemetery south of Dariali Fort: analytical and technological study and assessment

Brian Gilmour

16.1. Introduction and preliminary description

The young adult excavated in Grave G9 of the cemetery was buried with an intact iron sword – which forms the subject of this report and which had been laid along his right hand side (Fig. 16:1).

In total the sword is 93 cm long, the blade measuring 79 cm in length and 4.5 cm at its widest point (Figs 16:2–16:3).[1] Although the blade looks parallel sided it actually tapers slightly down its length. The cross-guard is made of iron and has a distinctive down-curving shape, and this cross-guard has a ball-shaped terminal at either end. In date the sword cannot be much later than *c.* AD 1000 given that the radiocarbon date for the skeleton is within the last quarter of the tenth and the first quarter of the eleventh century.[2] When buried the sword was still encased in its scabbard (now completely decayed) to which two very distinctive D-shaped suspension mounts (still in place when uncovered) were attached.

The remains of a chape were still attached to the lower end of the decayed remains of the scabbard. The sword, plus the three arrowheads found nearby, may all be indicative of the rank of the young person buried here. The significance and style of the suspension mounts and hilt and their bearing on the possible identity of this young man(?) are further considered in the discussion section below.



Fig. 16:1: Grave G9 under excavation showing the sword lying at the right hand side of the (supine) but poorly preserved skeleton of a young individual (probably male based on the grave goods), all being watched by a modern Georgian border guard.

16.2. Analysis and technology of the sword blade

In ideal circumstances it is preferable to X-ray a very corroded sword blade like this so as to assess the extent and variability of metallic survival before any sampling work is carried out, so as to be able to select the sampling site where the metal survives best (assuming it survives at all which is not always the case). This was not possible here so a small hand-held metal detector was used to carry out an overall (free-form) survey of metallic survival in this blade. From this it was clear that, towards the tip, between about a quarter and a third of the blade was totally



Fig. 16:2: A detailed view of the sword in situ shown with its D-shaped suspension mounts uppermost.



Fig. 16:3: The sword after restoration showing the symmetrical, straight, double edged form of the blade, the down curving cross-guard with its ball-shaped terminals. Also clearly visible is the mainly spheroidal but very slightly elongated form of the pommel to which is attached an iron socket that would have fitted over and held the end part of the hilt grip, made of wood but now decayed. Restored and photographed by Nino Kamkamidze.

corroded with virtually no metal surviving at all. It was also clear that progressively more metal survived towards the hilt where the blade was at its thickest.

Following this survey, a half section sample (hence representative of the structure as a whole, this being a double-edged sword) was cut from the blade near the hilt and this was prepared, polished and etched revealing a distinctive blue-etched macrostructure reminiscent of flowing water as is visible here across the surviving section (Fig. 16:4). The metal survival is good enough so that we can be sure that the structure we see here in section would have been the same across the complete blade. Given suitable polishing and etching this structure would have given rise to a 'watered' pattern on the surface, a pattern that is common amongst surviving post-medieval sword blades in this wider region from the Eastern Mediterranean eastwards to Central Asia and south to the Indian Subcontinent, and there are many Georgian examples in the collection of the Georgian National Museum.

This is a significant structure and is the first important indication that what we are looking at here is an early crucible steel sword blade, and it also tells us that this is also almost certainly made of a variant of watered crucible steel. The 'flowing water' effect is described by early written sources and this example and its wider context is further considered in the discussion section below. The 'flowing water' effect is a distorted dendritic structure which can only have originated in a form of steel made as a liquid, that is crucible steel.

A typical dendritic structure would be formed during the solidification of a binary (two-metal) alloy when the part of the alloy with the higher melting point has a tendency to solidify first and, therefore, the alloy slowly becomes enriched with the lower melting point alloy. Solidification takes place at point sources throughout the bulk liquid and these sources branch out to give a Christmas tree-like effect throughout the metal. If an unaltered casting like this is sampled, polished and etched then the distinctive branching pattern is revealed. When a cast piece like this is then heated and forged the dendritic pattern progressively disappears except under certain circumstances where the structure can persist. A case in point – which is likely to be the case here (and we will find out once we are able to carry out the particular elemental mapping necessary) – is where a molten steel alloy contains a small alloying proportion of phosphorus which (unlike carbon) is not very mobile in the iron/steel matrix and therefore even when the metal is forged from an ingot/bar to form the blade the dendritic structure persists, albeit in a distorted form.

Linear forging – which of course will be the case for a long narrow object like a sword blade – of a relatively phosphorus-rich steel may result in the persistent presence of a distorted dendritic pattern where the linear stretching of the dendrites gives rise to a more layered pattern as

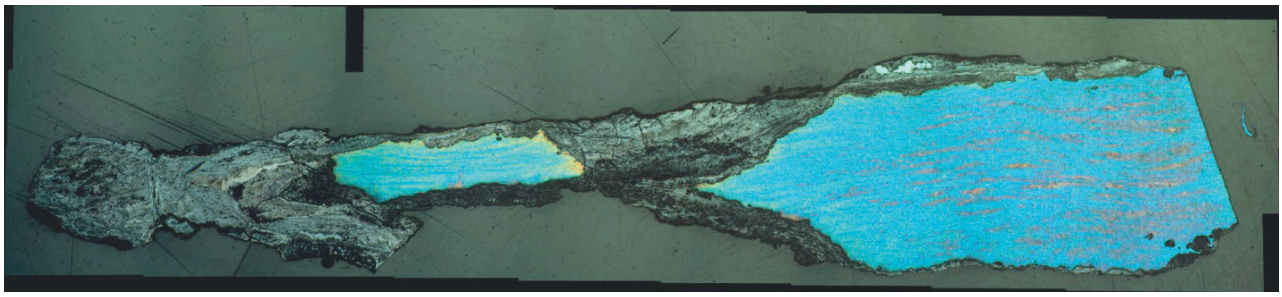


Fig. 16:4: Photomacrograph – put together as a photo-mosaic of many smaller photomicrographs – showing the structure visible in section after polishing and etching (with 2% nital). The flowing, watery 'pattern' is likely to be a relic dendritic structure the orientation and the form being the direct result of the linear forging of the hot metal during the final smithing of the blade (The sample measures 25mm in length, thus giving a magnification as shown here of × 6.4).

we see in this case. After the polishing and etching of the finished sword blade this would in turn have resulted in a decorative 'watered' pattern on the surface. This is not the only mechanism for achieving a decorative watered pattern in a sword made of crucible steel, but it is certainly one of them and has been shown to be the case for a much later Indian dagger blade where a very similar distorted dendritic macrostructure was found.

Elemental mapping by electron-probe micro-analysis of a section from this dagger blade showed the apparent layered structure to consist of alternate phosphorus-rich and phosphorus-poor layers.[3] As soon as is possible the Dariali sword section will be mapped in this way but even before this phosphorus variability is strongly suspected to be the source of the pattern in this case. For many watered crucible steel blades (smaller artefacts or even armour sometimes) the watering – alternate light/dark effect is the result of a variable, linear dispersion of cementite (iron carbide) particles segregated into layers, but this is clearly not the case for the Dariali sword blade where dendritic phosphorus segregation – subsequently distorted by a series of forging cycles to produce the shape of the sword blade – is almost certainly the origin of the watered pattern.

On this same section at higher magnification the layered macrostructure can no longer be seen and a completely different structure becomes visible (Fig. 16:5a-b). Both images show a partially spheroidised (annealed) steely groundmass while the upper image (a) also shows a more easily recognisable hyper-eutectoid steel structure of very pale cementite (iron carbide) needles here in a partially spheroidised pearlitic groundmass with a scattering of small, very pale spheroidal cementite particles also visible. Both images show some dark grey, partly flattened non-metallic inclusions, consisting of manganese sulphide, scattered unevenly through the steely matrix but many more are visible in the lower image (b). These non-metallic inclusions were provisionally identified by eye, but examination of these using a scanning electron microscope (SEM) confirmed them to consist of manganese sulphide. The presence of these is another indicator that the ferrous metal of this sword blade consists of crucible steel.

It is clear from the structure visible here that not only does this sword blade consist of a hyper-eutectoid crucible steel but also that the structure we now see – at both low and high magnification – is the result of repeated cycles of very careful forging (that is smithing) at a low enough temperature for aspects of the original cast structure (of the starting ingot) to persist. The steely groundmass – the more-or-less irresolvable (at least optically) grey background matrix of the steel – no longer consists of the pearlite it once would have done but this has partially decomposed to become the more granular structure we see in the images visible here (in Fig. 16:5). To retain this structure the smithing must have occurred at a sufficiently low temperature (around 650˚C, estimated by eye as a dull red heat) for the pearlitic structure not to re-dissolve (as it would at higher temperatures) but simply to decompose slowly.

An approximation based on the overall structure would suggest a carbon content for the steel of this blade of around 1.5%. The presence of the cementite (iron carbide) needles in some parts of the blade – as shown here (Fig. 16:5a) indicates the smithing may have been slightly too high in places resulting in some of the original carbide having dissolved and (on cooling) to have re-precipitated as the needles observed.

16.3. Discussion and conclusion

It is clear from the results of the analytical investigation reported above that the young person buried in Grave G9 was interred with a watered crucible steel sword. Many examples of watered crucible steel swords, daggers and other artefacts – generally dating from the sixteenth century onwards – have found their way into various museums and arms and armour collections, including that of the Georgian National Museum, but little of this kind of ferrous metalwork has been examined

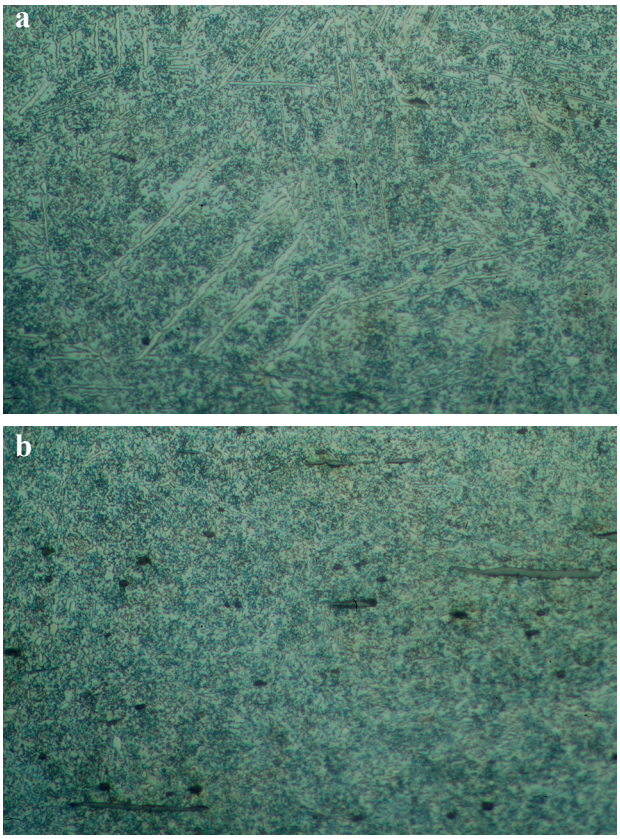


Fig. 16:5: Microstructure visible at higher magnification on different parts of the same section of the blade the macrostructure of which is visible above (in Fig. 16:4). Note the cementite (iron carbide) needles visible in the upper image (a) and the greater concentration of manganese sulphides, the small partly flattened grey inclusions visible the image below (etched with 2% natal, the field of view in each case being 0.25 mm representing a magnification here of x 320).

metallographically. For this reason, few earlier crucible steel objects have been recognised let alone studied in detail, despite the fact that various production centres are known from written sources to have existed in the ninth century in the wider Middle East, Central Asia and the Indian Subcontinent.[4]

A further clue as to the origin of this sword are the two distinctive D-shaped suspension loops on the scabbard which are very similar to the suspension loops found on the scabbard of the (probable) ninth century sword, a slightly curved, single edged weapon (sometimes referred to as a sabre) found during excavations at Nishapur, Northern Iran in 1939 and now in the Metropolitan Museum in New York.[5] This is unlike the more P-shaped suspension loops found on late Sasanian and early Islamic Iranian swords.[6] A close parallel of the Nishapur sword was found in the Altai Mountains much further to the north-east. Other examples are known from the Northern Caucasus and Russia and these would appear to date to the later eighth or ninth centuries.[7] No metal survives in the Nishapur sword although a sample from the blade has been examined metallographically and found to contain the relic structure indicating it to have been made of a hyper-eutectoid crucible steel closely similar to that found on the Dariali sword.[8]

The inspiration behind the Nishapur type of sword, and the D-shaped form of suspension loops may, therefore, have originated in the Altai mountain region and their occurrence in the North Iranian and Caucasian regions has been associated with westward Avar migrations. The hilt fittings of the Dariali sword, however, are similar to another double-edged long sword, one found in Khevsureti, the North-east Caucasian region of Georgia. Both swords have downturned cross-guards with ball-shaped terminals although these are less pronounced in the case of the Khevsureti sword. The latter seems likely to have come from a grave, although it appears to have been a chance find, the burial circumstances presumably being unknown, or at least unrecorded. This is not independently dated but the author suggested that this form of cross-guard is likely to be a late eleventh or early twelfth century development,[9] but it is clear from the Dariali sword that it must be earlier as the latter is most likely to date to the last half of the tenth century and cannot be much later given the dating of the burial and it seems distinctly possible that these swords may be more or less contemporary, as well as being found not far apart, the Khevsureti mountain range being only a few dozen kilometres south-east of the Dariali Pass.

It seems possible that the distinctive form of sword hilt fittings found on both the Dariali and Khevsureti swords should be viewed as typically Georgian, or perhaps they represent a more widely occurring regional fashion, although this needs further discussion. The suspension loops for the Dariali sword, however, appear to be of a similar type to those found on the Nishapur sword although this is about 100 years earlier. If the Nishapur sword and its suspension mounts are to be linked with Avar migrations and these are the same Avars who ended up as one of the leading tribal groups in Dagestan, across the Caucasus Mountains to the north-east, then perhaps this is a guide as to the origin of the sword suspension mounts, and possibly also the scabbard and blade. One could envisage that the sword may have been re-hilted south of the Caucasus in Georgia.

As yet there is no evidence that crucible steel sword blades were forged in the Caucasus region although four examples, of varying dates, have been identified during the metallographic examination of 18 sword (and other) blades found in the Kislovodsk area of the Northern Caucasus region of South Russia. Two of these were much earlier (third/fourth century) and were interpreted as being from Alan burials. A third was the fragment of a sword blade found in a seventh century horse burial, also identified as being of Alan origin, while the fourth was a complete single-bladed sword (or sabre) identified as

being late eleventh century and belonging to the Saultovo Mauaskaya culture associated with pre-Mongol Khazar Turks.[10]

So far it would seem that the suspension loops – and possibly the blade metal also – of the later tenth century (?) Dariali sword are best compared to the (100 year older) Nishapur sword with its possible Avar associations. As to the possible origin of the crucible steel for both the Dariali and Nishapur swords there are no known crucible steel making centres of any date west of the Caspian Sea, but the Transoxiana region north of the River Oxus and east of the Caspian Sea is a real possibility (although at that time the River Oxus may have emptied into the Aral Sea further to the north-east). This appears to have been a major crucible steel producing and sword smithing area as described by Ya'cub al-Kindi in the earlier ninth century although Kindi describes these as 'Salmani (or Sulaymani)' swords.[11] Kindi also says that the steel was brought into this region from elsewhere, most probably from known steel making areas such as the Ferghana Valley further to the north-east in the Central Asian mountain regions where steel-making between the ninth and twelfth centuries has been identified.[12] The Transoxiana region was made famous by the city of Samarkand but approximately 200 km west lies the city of Bukhara which was still known as a crucible steel sword manufacturing centre in the early nineteenth century when it was described as such by the Russian Second Captain Massalski.[13]

Overall it is, therefore, possible that the watered steel sword blade and its scabbard were a product of the crucible steel industry of Transoxiana although it is also possible that it was re-hilted in Georgia. Where this leaves us as regards the identity of the sword bearer is uncertain but, given that this burial has been carried out in the manner of a pagan rite, could the young man(?) buried here conceivably have been a mercenary of Avar descent (from the Avar region of what is now Dagestan, not far away on the north-west side of the Caucasus Mountains, close to the Caspian Sea), someone possibly employed by the defence force manning this strategic crossing point into Transcaucasia across the Caucasus Mountains in *c*. AD 1000?

Notes

1 See chapter 15.3.1.1.
2 See chapter 6.4.
3 Gilmour 1996, 131, figs 13–14.
4 Hoyland and Gilmour 2006.
5 Allan 1982, 109.
6 As in Hoyland and Gilmour 2006, fig. 11. See also chapter 15.3.1.1.
7 Allan 1982, 57.
8 Hoyland and Gilmour 2006, figs 13a-b.
9 Tsurtsumia 2015, 159–65; cf. chapter 15.3.1.1.
10 Feuerbach 2005, 28–35.
11 Hoyland and Gilmour 2006, 55, fig. 8.
12 Papachristou and Swertschkow 1993, 122–31.
13 See Allan and Gilmour 2000, 535–39 for a transcription of this account.

17

Ceramic building materials from Dariali Fort

Seth M.N. Priestman

Modest quantities of ceramic building materials (CBM) occur within the excavated sequences from the top of Dariali Fort from Trenches F and Q, but not from elsewhere in the areas excavated below the fort or from Gveleti. It is evident that some limited parts of the internal architecture of the fort were constructed from fired clay components. It appears that ceramic materials were mostly used for surface linings, water conduits and possibly in some places for roofing.[1] The fact that bricks and tiles were used at all as part of the construction is potentially significant, as stone and wood would have been far more readily available and fired materials are likely to have required a relatively high energy expenditure, particularly in transportation costs depending on where they were produced. As with pottery vessels, the likelihood is the ceramic production and firing took place in centres outside the gorge itself, although there are suitable clay deposits not far from the fort.[2]

CBM materials were recovered and processed in a variety of different ways. An attempt has been made to standardise the recording and to collate the information on the occurrence of CBM within the excavations (Table 17:2). Some pieces were separated out at the point of recovery and assigned separate find numbers. A significant proportion were bagged together with the ceramic vessel fragments and these pieces have been separated and recorded at a later stage. It should be borne in mind that for this second category the same find numbers apply to CBM as those associated with bulk lots of pottery recorded elsewhere. In a small number of cases where there was a particularly heavy concentration of similar looking CBM in a single context, the fragments were recorded on site. All other pieces were returned from the field for processing. In light of the bulky nature of CBM finds and their repetitive nature, most of the assemblage was discarded once they had been recorded. A sample of the different types of CBM was retained for reference purposes. The exception to this is ceramic water pipe fragments, all of which have been retained as their differentiation from certain ceramic vessel forms is not always obvious.

Five main categories of CBM were distinguished[3] (Fig. 17:1; Table 17:1):

1 Plain brick or tile fragments; most appear to be long and relatively flat with a slightly convex form.
2 Flattened slightly convex form with squared sides and deep groves on the top, possibly to produce a slip free surface.
3 Flattened slightly convex form with squared sides and deep thumb impressions along opposing sides and top; the function of this category is not clear.
4 Tile fragments with a more refined and dense fabric. Flattened forms often with a folded edge and a reddish slip covering one surface.
5 Pipe fragments; tubular elements with a thick wall produced in the same coarse orange fabric as HASOG vessels. Some pieces have a projecting collar at one end to stabilise the junction between pipe segments.

The distribution of CBM within the phased sequence from Dariali Fort is potentially informative. The most suitable location for examining issues of usage and chronology is the deep sequence from Trench F. At least at a superficial level it appears that the vast majority of CBM is associated with the occupation of the fort in phase 5 (late seventh/early eighth–tenth/early eleventh centuries) with only minimal quantities represented from the earlier occupation in phases 3 and 4 (late fourth–mid-seventh centuries) (Fig. 17:2).

The overall concentration of brick and tile fragments within the phase 5 from the Trench F sequence is clear, but these data need to be considered more carefully. From the analysis of the pottery assemblage, and all of the other finds categories, it is clear that phase 5 is associated with a major upsurge in the volume of all forms of material

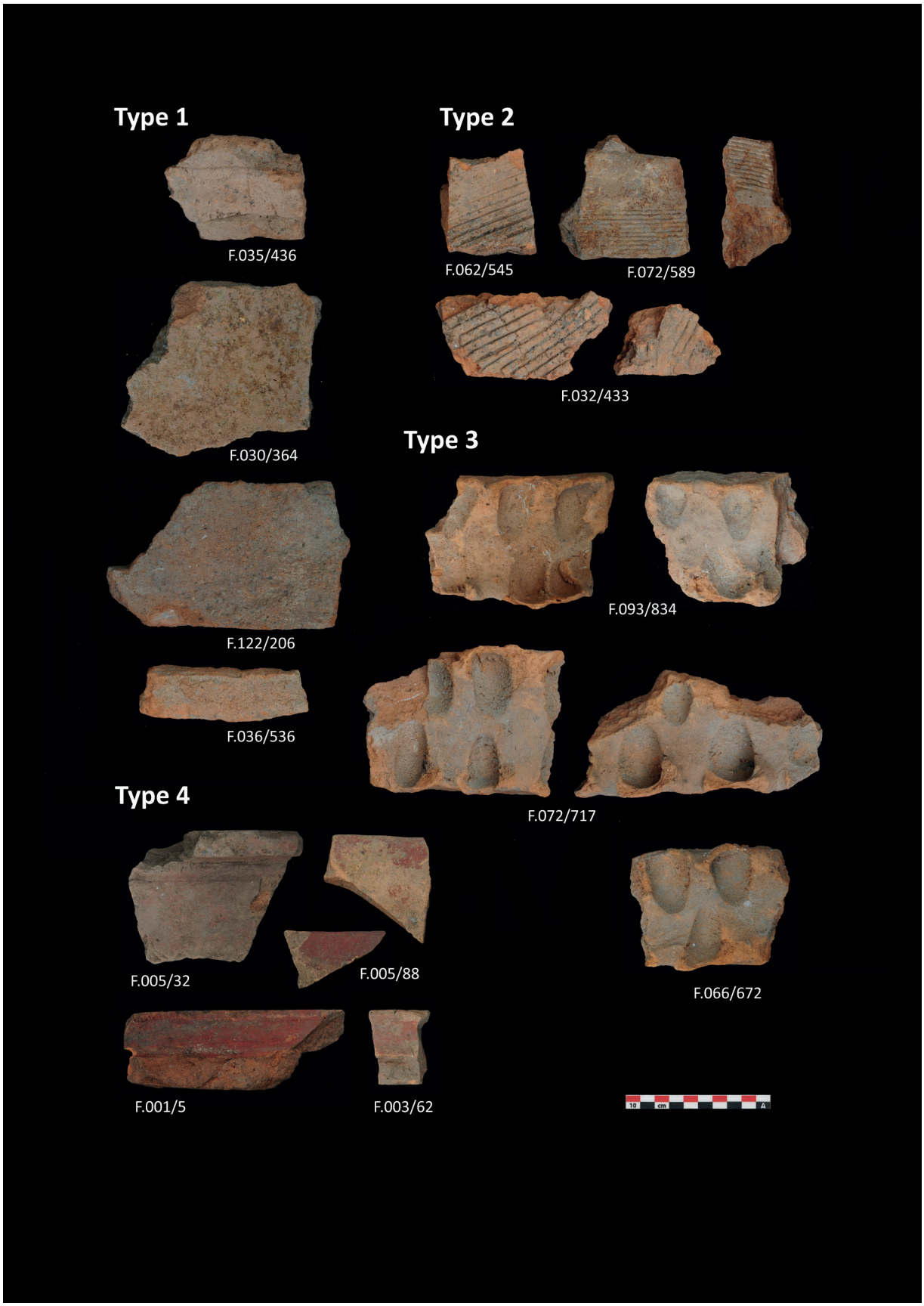


Fig. 17:1: Main categories of CBM in the Dariali Fort assemblage. Type 1= plain; Type 2 scored surfaces; Type 3 = thumb impressed; Type 4 = tiles with red slip; Type 5 = water pipes (not illustrated).

Table 17:1: Distribution of the five different CBM types through the phased sequence from Trench F showing values by weight in kilos.

Phase	*3a: M-L 4th*	*3c: L 4th-M 5th*	*3d: M 5th-6th*	*3e: M-L 6th*	*3f: E-M 7th*	*4: M 7th-E 8th*	*5a: L 7th-E 9th*	*5a-b: L 7th-9th*	*5b: L 8th-9th*	*5b-c: L 8th-10th*	*5c: L 9th-10th*	*6b: L 13th-E 15th*	*7: M 15th-21st*	*Totals*
Type 1	0.08	0.06	0.73	0.01	0.77	0.55	17.08	12.67	0.05	18.36	14.56	0.22	6.52	71.66
Type 5			0.51				0.59	1.07		1.53	0.16	0.20	0.42	4.50
Type 4							0.81	0.08	0.03	0.10	0.09		1.95	3.06
Type 2										0.45	10.53		0.80	11.78
Type 3										0.82	0.63		0.81	2.26
Totals	0.08	0.06	1.24	0.01	0.77	0.55	18.48	13.81	0.08	21.26	25.97	0.42	10.49	93.25

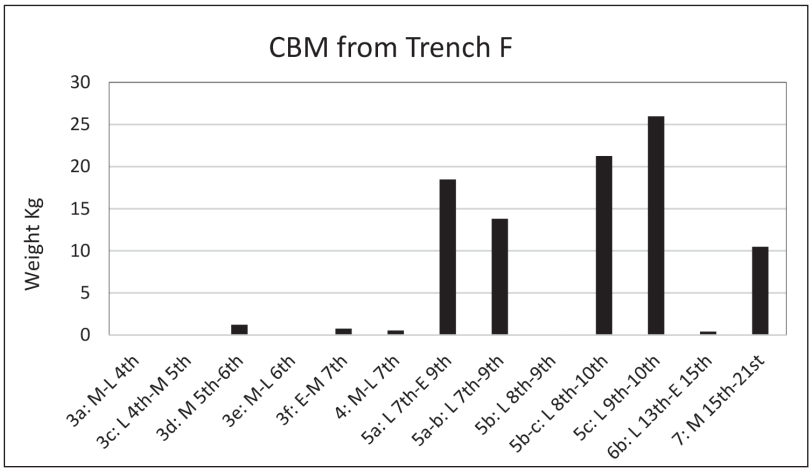


Fig. 17:2: Aggregate weight in kilos of brick and tile fragments (all types) through the phased sequence from Trench F.

deposition, potentially connected with significant changes in the pattern of site use.[4] The increase in CBM within the phase simply tracks the overall pattern of rubbish disposal and deposit accumulation. An alternative way to consider the information and to check whether the use of CBM is especially pronounced in any given phase is to consider the aggregate weight of CBM as a proportion of all fired clay materials, *e.g.* in comparison to the occurrence of pottery vessel fragments (Fig. 17:3).

The distribution of CBM by phase as a proportion of all fired clay materials presents a picture that is not as clear or easy to interpret. The small quantities of material associated with the earlier occupation of the fort means that even the presence of one or two brick fragments, or the occurrence of an especially large piece, is likely to change the ratio of CBM to pottery quite dramatically and this potentially accounts for the fluctuating proportion through phases 3–4. What is clear is that there does appear to be an appreciable use of CBM during the late antique occupation. The data from phase 5 are more robust and throughout most of this phase the occurrence of CBM mostly remains at a relatively consistent level of between 15–25% of the weight of all fired clay materials. phase 5b is the only anomaly. Unfortunately, no clear information emerges that might point to a specific horizon for the use of these materials as part of the construction process. Some further clarity is provided where the separate categories of CBM are individually presented (Table 17:1). Almost all of the early examples of CBM are of the generic plain squared brick or tile type (Type 1). Most of the other categories are clearly associated with the occupation of the site in phase 5 with clay pipes (Type 5) first represented in phase 3 and roofing tiles (Type 4) first represented from phase 5a (late seventh to early ninth century) and the scored and thumb impressed bricks (Types 2 and 3) probably first appearing in phase 5c (late ninth–tenth/early eleventh centuries). Ceramic water pipes are potentially of significant interest as they were probably connected with the provision of a flowing water supply to the fort.[5]

The use of the CBM and the recorded presence of this object class through the phased sequence provides a further useful dimension both in our chronological understanding of the site occupation, and in our appreciation of the built environment within Dariali Fort. Although the

Table 17:2: All brick and tile fragments by count and weight (in kilos) from the excavations of Trenches F and Q from Dariali Fort.

Context	Phase	Type 1		Type 2		Type 3		Type 4		Type 5	
		Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight
F.001	7b	18	2.25			1	0.01	8	0.59	1	0.23
F.002	7a-b	8	0.21			2	0.05	9	0.27		
F.003	7a-b	38	1.83			6	0.42	3	0.19	1	0.19
F.005	7a-b	2	0.33					4	0.44		
F.006	7a-b	3	0.16								
F.011	5c-6b	3	0.18								
F.012	6b-7b	4	0.15					1	0.15		
F.015	6b-7b	2	0.06								
F.016	5c-6b	15	0.97					4	0.19		
F.017	6b-7b	3	0.04					1	0.02		
F.022	5b-c	10	1.98					1	0.04		
F.027	5c-6b	41	4.26							1	0.73
F.028	6b-7b	3	0.08								
F.029	6b-7b	6	0.27								
F.032	5b-c					25	0.79				
F.033	5b-c	8	0.68					1	0.01		
F.035	5a-b	27	3.47					1	0.01		
F.036	5a-b	37	4.78					2	0.06	4	0.16
F.037	5a-b	28	2.80								
F.042	5c-6b	11	0.28			2	0.02				
F.043	5c	22	1.18								
F.046	5c-6b	30	1.66								
F.048	7a-b	3	0.09	2	0.32	2	0.33	5	0.41		
F.049	7a-b	1	0.18					1	0.05		
F.052	7a-b	29	1.46	4	0.48						
F.053	5c	38	4.51			3	0.12				
F.056	6b	2	0.22							1	0.20
F.062	5c-7b	8	0.29	1	0.10	18	1.02				
F.063	5b-c	104	10.54								
F.065	5b-c	21	1.21								
F.066	5c	58	2.92	22	2.74	11	0.39				
F.067	5c-6b			6	0.88						
F.070	5a	82	9.43					4	0.31		
F.071	5c-6b					14	0.42	1	0.13		
F.072	5c-6b	91	2.76	16	2.22	4	0.39				
F.075	5c	3	0.14								
F.077	5a	16	1.83								
F.078	5a-b	15	1.41								
F.086	5a	3	0.04								
F.088	5b-c	35	2.94					1	0.05		
F.089	5c	8	0.62								
F.091	5c	47	2.42	15	2.04	2	0.13				
F.092	5a	3	0.78							2	0.20
F.095	4	3	0.02								

(Continued)

Table 17:2: (Continued)

Context	Phase	Type 1		Type 2		Type 3		Type 4		Type 5	
		Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight
F.096	4	4	0.09								
F.097	4	2	0.44								
F.098	5c	1	0.45	11	3.25						
F.100	5c	25	1.52	17	2.51						
F.102	5c	4	0.49							2	0.16
F.104	5a	10	1.87					2	0.11		
F.106	5a-c	12	0.51								
F.109	3d	4	0.22								
F.112	5b-c	32	1.00	1	0.14						
F.113	5a	15	1.47								
F.114	5c	5	0.17								
F.117	3d	1	0.07								
F.118	5a	15	1.66					1	0.40	7	0.40
F.119	5c	2	0.05								
F.125	5b	3	0.05					1	0.03		
F.127	3c	1	0.03								
F.129	3e	1	0.01								
F.134	3f	9	0.19								
F.138	3f	19	0.58								
F.148	3d	1	0.03								
F.149	3c	3	0.03								
F.150	5b-c	3	0.00							9	1.53
F.156	3c-d	6	0.13								
F.157	5a-b	3	0.04							1	0.43
F.158	3d	11	0.14								
F.163	5b-c			4	0.31	1	0.02				
F.164	5a-b	5	0.05					1	0.00		
F.169	3d-5b	1	0.18					2	0.72	2	0.43
F.170	5a-b	2	0.10							1	0.14
F.177	3a	6	0.08								
F.178	3c	5	0.15								
F.183	5a-b	1	0.01							3	0.34
F.196	5c	1	0.08					1	0.09		
F.206	3d									3	0.51
Q.001	7b	52	3.35					7	1.16	4	0.28
Q.002	7b	15	0.96			1	0.01	1	0.18		
Q.003	7b	4	0.36							3	0.31
Q.004	5b	16	1.09								
Q.005	5c-6b	15	0.94			2	0.02	1	0.06		
Q.007	5b-7b	6	0.19			3	0.08	2	0.16		
Q.008	7b	13	0.64					1	0.12	7	0.93
Q.010	7b	1	0.03			2	0.02	2	0.15		
Q.011	7b	20	1.19					1	0.13	19	2.01
Q.012	5a-b	6	0.07								
Q.014	5b-6b	3	0.13	4	0.87						

(Continued)

Table 17:2: All brick and tile fragments by count and weight (in kilos) from the excavations of Trenches F and Q from Dariali Fort. (Continued)

Context	Phase	Type 1		Type 2		Type 3		Type 4		Type 5	
		Count	Weight	Count	Weight	Count	Weight	Count	Weight	Count	Weight
Q.016	5b-c	37	9.52								
Q.019	5a-7b	2	0.11					1	0.10		
Q.020	5b-7b	4	0.06					1	0.02	12	1.24
Q.027	5b	17	1.79					12	1.23	29	2.80
Q.037	7b	5	0.13								
Q.071	5c-7b	3	0.04								
Q.072	5b-6b	17	0.67					1	0.07		
Q.074	5b-c	47	3.89					2	0.28	2	0.13
Q.075	5b-7b	8	0.21					1	0.19	2	0.27
Q.076	5b-6b	29	1.79					1	0.02		
Q.085	5b-c									1	0.03
Q.086	5b-c	5	0.18								
Q.088	5b-c									2	0.12
Q.089	5b-6b	19	0.37								
Q.090	3a-5c	6	0.08								
Q.093	5b-c	1	0.20								
Q.098	5b-6b	13	0.73								
Q.099	5b-6b	3	0.34					1	0.15		
Q.101	5b-6b	1	0.69								
Q.103	3c-6b	1	0.03								
Q.106	5b-6b	3	0.16								
Q.111	5b-6b	9	0.32								
Q.113	5b-c	1	0.37					2	0.71		
Q.114	5b-7b	5	0.18								
Q.115	7b	3	0.15								
Q.116	5a-6b	12	0.15								
Q.117	5a-6b	16	0.19								
Q.120	5b	3	0.11								
Q.122	6b-7b	13	0.89								
Q.125	3a-5b	5	0.02								
Q.127	5b-6b					1	0.02				
Q.128	5a-7b	3	0.17								
Q.136	5b-6b	1	0.08								
Q.137	3a-e	1	0.08								
Q.138	2-5c	2	0.15								
Q.139	5b-6b	9	0.54								
Q.141	5a-7b									1	1.53
Q.142	3c-6b							1	0.04		
Q.151	5a-7b	2	0.07								
Q.154	5b	2	0.24								
Q.158	5b-6b	4	1.43								
Q.159	5b-6b	5	0.57								
Q.165	4-5a	2	0.43								
Q.166	4-5a	1	0.03								

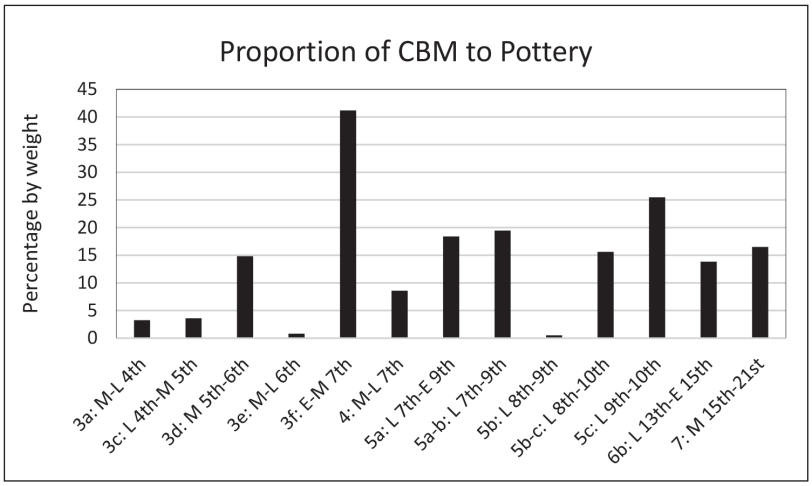


Fig. 17:3: Aggregate weight of CBM by phase from Trench F as a proportion of all fired clay materials.

precise usage of the different types of fired clay surfacing materials is not yet known, they appear to be potentially connected with specific functional components of the site that merit further research and investigation. At least some of these components appear to be clearly associated with a late phase in the main occupation of the site, *i.e.* the period from the late ninth–tenth/early eleventh centuries.

Notes

1 See also chapter 24.2.7 on the use of slate for roofing.
2 See chapters 9.1 and 11.1.3.
3 I am extremely grateful to Fiona Mowat for her assistance in developing the brick and tile typology and sorting and recording this object class.
4 See chapters 11 and 25.5.4.
5 See chapter 4.5.

18

Mortars from Dariali Fort and nearby fortifications

J. Riley Snyder and Martina Astolfi

18.1. Introduction

The Dariali Gorge in modern Georgia has played an important strategic role for millennia. Fortification structures have been built, rebuilt and expanded from Antiquity through the medieval period. Recent excavations carried out by the Universities of Tbilisi, Edinburgh and Durham have uncovered a plethora of information pertaining to the chronology of the defensive building programme, especially in Late Antiquity and beyond. In order to shed more light on this building programme, mortar samples were collected from stone masonry structures around Dariali Gorge. These samples come from defensive structures and associated housing, likely dating from the late fourth to fifth or sixth century, in Trenches F and Q as well as upstanding walls beyond the areas excavated (Fig. 18:1).

The aim of this research is to provide further details about the construction of the Dariali Gorge defences through petrographic and chemical analysis of mortars. This can provide information on building and material technologies that can rarely be seen by the naked eye. The recipes and raw materials of mortars can help reveal the extent to which local, as opposed to more distant, resources were exploited, how reliance on resources changed over time and how this may be related to shifting political influences. Similarly, the methods of mortar production are captured in the matrix of these mortars, attesting to aspects of construction such as urgency or the technical ability of the builder.

18.2. Materials and methods

Samples of mortar were collected from stone masonry structures (Fig. 18:2) during the 2015 and 2016 field seasons.[1] Eighteen samples came from various sites throughout the Dariali Gorge (labelled as 'Misc.': Table 18:1) while the rest came from selected structures within Dariali Fort (Fig. 18:1). Eighteen samples were collected from wall F.013, most likely dating to the late fourth or early fifth century based on radiocarbon dating.[2] Nine samples were collected from a pillar (F.082), part of a porticus which runs parallel to F.013, is later than wall F.013 and probably dates between the early fifth and early sixth century.[3] The outer wall (F.004) of an interior building, yielded five samples likely dating to the fifth (or possibly sixth) century.[4] Finally, a single sample came from the outer wall (Q.096) of a large internal building, not independently dated, but probably late antique as well.[5]

Out of 52 collected samples, 30 samples were selected for analysis. Those chosen represent all of the structures from which samples were collected and in the case of F.013, F.004, and F.082, a wide vertical and horizontal distribution of sampling locations over each feature. Only a portion of these samples were prepared and processed for optical and chemical analysis to ensure that any future analytical techniques can be applied if needed. The aim of this study is to identify and compare the makeup of these mortar samples by collecting and interpreting both qualitative and quantitative data. First, samples were prepped for X-ray fluorescence (XRF) by pulverising a 10 mm diameter subsample to <50 µm. The resulting loose powder was placed in sample cells and analysed using a Niton FXL Field X-ray Lab.

Petrographic analysis was performed on polished sections of 27 of the 30 samples due to three samples being too small for both petrography and XRF analysis. Subsamples measuring between 10 and 20 mm in diameter were cast in epoxy resin and cut and polished on a single surface. Photomicrographs were taken using a Leica DM1750 M materials analysis microscope. In addition to qualitative observations, photomicrographs were used to

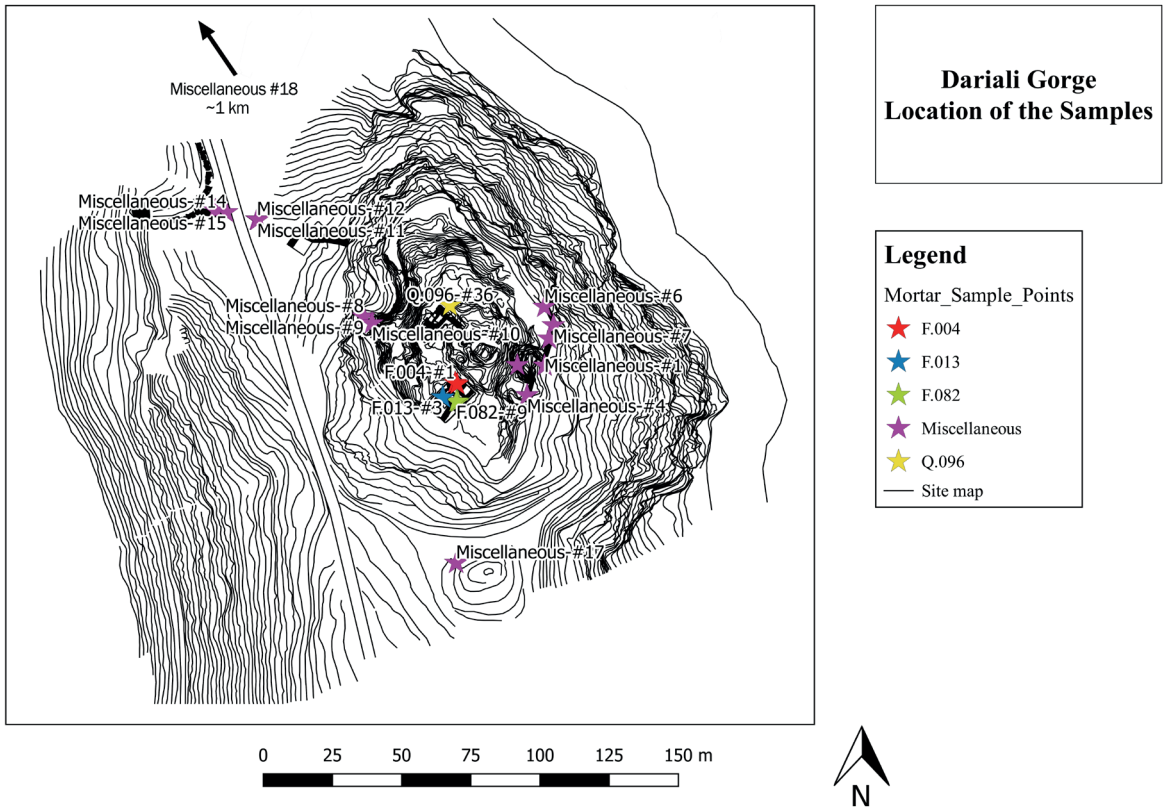


Fig. 18:1: Map of mortar sample collection sites, plotted onto laser scanning map by Malkhaz Datukishvili and Giorgi Kvaratskhelia by Lucia Michielin et al. *Sample Misc. 18 comes from the north face of the walls around Bakht'ari ridge-top fort, roughly 1 km NNW of Dariali Fort.*



Fig. 18:2: Sampling locations F.013, F.082 and F.004 from Dariali Fort.

Table 18:1: Collection locations of miscellaneous samples.[1]

Sample no.	*Date*	*Monument, sample location*	*UTM*	*Group*
1	07/08/2015	Outer fort wall (thick section), E of fort, E face, base of wall	38T 0469402, 4731808	1
2	07/08/2015	Outer fort wall (thick section), E of fort, W. face, below floor ledge	c. 38T 0469402, 4731818	3
3	07/08/2015	Collapsed outer wall	c. 38T 0469392, 4731808	3
4	07/08/2015	Outer fort wall (thin section), SE of fort, W. face, lower sample	38T 0469403, 4731798	3
5	07/08/2015	Outer fort wall (thin section), SE of fort, W. face, upper sample	38T 0469403, 4731798	2
6	08/08/2015	Outer fort wall (thick section), E of fort, top of wall	38T 0469300, 4731782	3
7	08/08/2015	Outer fort wall (thick section), E of fort, W. face, base of wall	38T 0469335, 4731814	3
8	08/08/2015	Tower, W of fort, inside face, upper sample	38T 0469343, 4731823	1
9	08/08/2015	Tower, W of fort, inside face, mid sample	38T 0469339, 4731828	1
10	08/08/2015	20th c.(?) military trench, near ancient tower, within the fort, near W walls	38T 0463335, 4731829	1
11	08/08/2015	Road-blocking wall, W of fort, E of track, N face, upper sample	38T 0469310, 4731853	3
12	08/08/2015	Road-blocking wall, W of fort, E of track, N face, lower sample	38T 0469310, 4731853	3
13	08/08/2015	Road-blocking wall, W of fort, E of track, N face, mid sample	38T 0469310, 4731853	2
14	08/08/2015	Road-blocking wall, W of fort, W of track, N face, lower sample	38T 0469299, 4731855	3
15	08/08/2015	Road-blocking wall, W of fort, W of track, N face, mid sample	38T 0469299, 4731855	3
16	08/08/2015	Road-blocking wall, W of fort, W of track, N face, upper sample	c. 38T 0469295, 4731855	1
17	08/08/2015	Tower on outcrop S of fort, at Trench L	38T 0469379, 4731738	3
18	08/08/2015	Wall on ridge c. 1 km N of fort, near Trench Y[2]	38T 0469942, 4732655	3

[1] There is photographic documentation of the location of the samples. This is not reproduced here, as no sufficiently clear patterns emerged. Some of the UTM coordinates, based on handheld GPS measurements, are evidently a few metres out. The map (Fig. 18:1) is based on laser scanning by Malkhaz Datukishvili and Giorgi Kvaratskhelia. Samples have been plotted based on the relative GPS position and photographic documentation.

[2] See chapter 7.

perform optical granulometry using JMicroVision image analysis software.

18.3. Results

18.3.1. Petrographic analysis of polished sections

F.013

Three samples analysed in detail (F.013, samples 1, 3 and 9)[6] contain schist, hornblende, and feldspar of a different range of colours (green, black, dark brown, brownish–red, yellowish) in addition to aggregate of silica and lime. Some of the grains present features such as clearly visible laminated crystallisation, microfissuring and partial calcitic ingrowth. The predominant grain shape is rounded, although there are some instances of defined cleavage. The average diameter of the grains varies from 2.2 mm for the largest grain to 69 μm for the smallest and is characterised by a moderately ranged distribution.

Overall, the very fine-grained binding matrix is composed of whitish-grey calcium carbonate (Fig. 18:3), uniform and well mixed with numerous fine grains of various sizes, which makes the overall matrix very compact, and few pores.

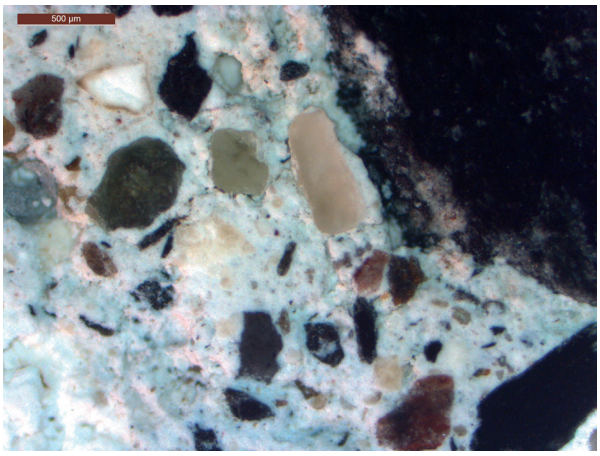


Fig. 18:3: Photomicrograph of mortar matrix of F.013, sample 3 (scale: 0.5mm; photo: Astolfi 2017).

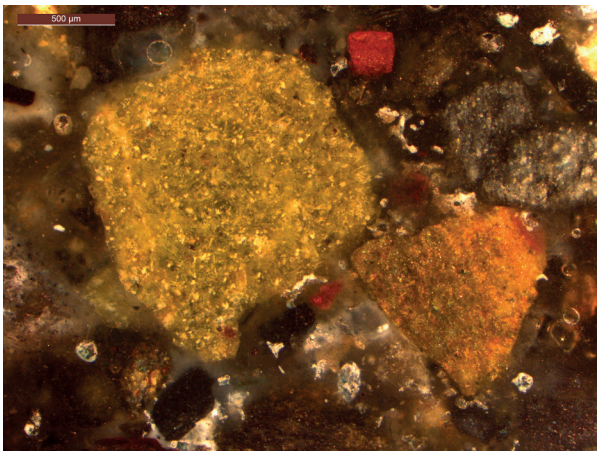


Fig. 18:5: Photomicrograph of mortar matrix of F.082, sample 7 (scale: 0.5mm; photo: Astolfi 2017).

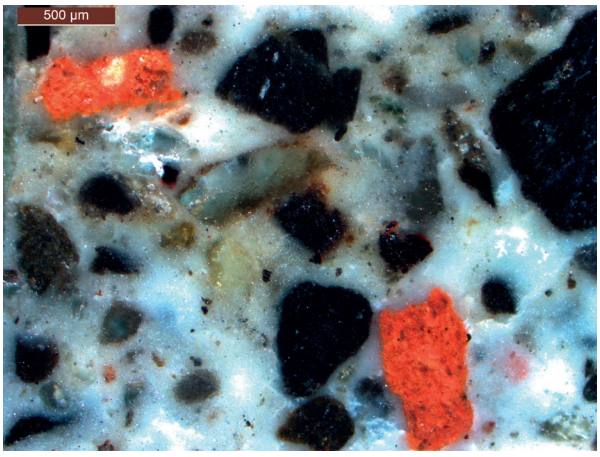


Fig. 18:4: Photomicrograph or mortar matrix of F.082, sample 3 (scale: 0.5mm; photo: Astolfi 2017).

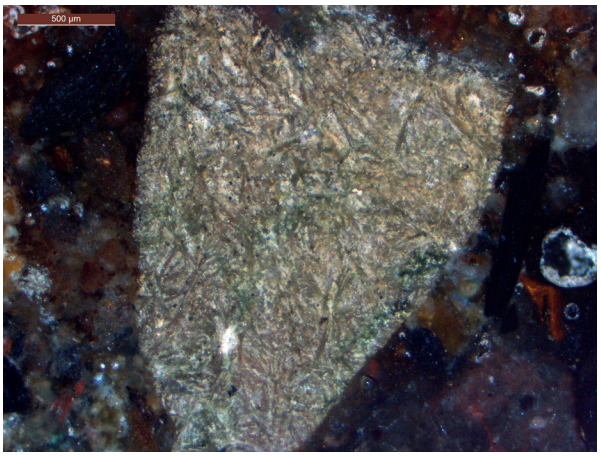


Fig. 18:6: Photomicrograph of green lamellar biotite from F.004, sample 1 (scale: 0.5mm; photo: Astolfi 2017).

F.082

The aggregate of samples F.082, samples 3, 7 and 9 contain trace amount of igneous and metamorphic rocks well spread out in the mortar matrix. In this group it has been possible to identify many small fragments of dark-brown biotite and hornblende along with bigger brownish–orange and yellowish schists, red quartz monzonite, and a phenocryst olivine. In F.082, sample 9, a pale beige, partially-burnt calcitic inclusion is clearly evident, which differentiates itself from the uniform white colour of the matrix. The roundness of the grains from F.082 samples seems to fall within the well-rounded and rounded categories, appearing more weathered than samples from F.013. The range of grain sizes is very high with the largest grain being 4.9 mm in diameter while the smallest is 199 µm. The aggregate is evenly distributed and very compacted, which makes the mortar of a higher quality.

In this case, the matrix colour changes considerably in the samples since in F.082, samples 3 and 9, it is more whitish (Fig. 18:4) while in sample 7 it is dark–brown (Fig. 18:5). This might reflect the use of different limestones or the collection of the finely-crushed aggregates from several sources. In F.082, samples 3 and 9, the lime matrix appears well mixed, uniform and more distributed than in sample 7. The fine and coarse grains are well distributed throughout the sample and there is little evidence of medium to large pores. The matrix of sample 7 is characterised by roughly mixed coarse-grained inclusions.

F.004

The grains used as additives are fragments of igneous and metamorphic rocks, mostly basaltic hornblende that ranges from dark–brown to green. Sample 1 from F.004 shows a clear example of a lamellar biotite characterised by basal cleavage while sample 4 includes a very large pebble of chlorite.

All the aggregate grains are rounded or well rounded and the distribution of the grain size has a wide range from a maximum of 2.5 mm (Fig. 18:6) to a minimum of 27 µm.

In sample 1 the binder is greyish–brown with a coarse–grained matrix, not very uniform and slightly porous.

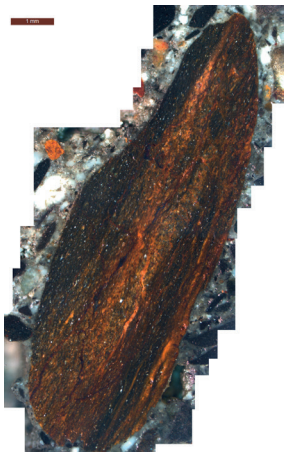


Fig. 18:7: Photomicrograph of large piece of dark brown basalt from Misc. sample 8 (scale: 1mm; photo: Astolfi 2017).

Sample 4 presents a similar poorly mixed, coarsely grained and porous binder but is more greyish-white in colour.

Miscellaneous samples

The aggregate varies in some samples, but most are composed of a variety of metamorphic and igneous rocks of various sizes. The most frequent additives in the mix are hornblende and biotite in different colours (from dark brown to dark green) together with many small and medium pieces of white feldspar, red and yellowish mica schist, and orange and green silicates. The grains are well rounded in the majority of the samples except for a semi-angular orange grain of quartz monzonite in sample 3. Looking at the distribution of grain size it is possible to say that overall the miscellaneous samples are well sorted with the largest grain measuring 22 mm (Fig. 18:7) while the smallest is 64 μm (fine-grain schist from sample 6) and this reflects a moderate gap in the size range.

The matrix in most of the samples presents a moderate level of porosity with small pores distributed in the binder and the colour is between greyish-buff to off white. Samples 1, 8, 9, 10 and 16 (group 1) are characterised by a coarse-grained matrix, quite porous, very friable and not very uniform. In contrast, samples 5 and 13 (group 2) are mixed with a medium coarse-grained matrix, containing grains slightly smaller in size and a low porosity.

Samples 2, 3, 4, 6, 7, 11, 12, 14, 15, 17 and 18 (group 3) present a fine, compacted binder with little porosity. The overall matrix consists of uniform fine grains that are well distributed throughout the samples. There is no obvious correlation between monument and the type of mortar used, with all three groups represented in the road-blocking wall[7] west of the fort.

Q.096

This represents a mixture of a very fine and coarse-grained aggregate of igneous and metamorphic rocks. It is possible to identify clear grains of hornblende, biotite and rhyolite with a range of colours from dark grey to reddish orange. The distribution of grain size varies little amongst most of the grains, apart from a few larger pieces of basalt. The largest grains measure from 2.3 mm to 1.8 mm while the fine grains have a diameter of approximately 122 μm. The typical grain shape is quite angular. The matrix is pale white in colour, not very uniform and smooth since the aggregate is coarse grained with numerous medium size grains and medium porous.

18.3.2. XRF Analysis

Results from XRF analysis indicate that all samples from Dariali Gorge have similar chemical composition with varying degrees of magnitude (Fig. 18:8). The main components of these mortars are oxides of calcium, silica (~30% and ~13% respectively) with small proportions (<5%) of oxides of potassium, aluminium, tin and iron. Sulphur, magnesium, manganese, chlorine and phosphorus are common and make up less than 1%.

Much of the fluctuation in intensity between samples may be considered against the ratio of aggregate to binder in each sample. Producing a subsample for XRF analysis considers only a small fraction of the overall mortar matrix, making it increasingly likely to get larger aggregate pieces that make up more of the sample volume. For instance, the values of the chemical components in F.004, samples 4 and 1 differ considerably but show no demonstrable difference on the polished section (Fig. 18:9). The spectra values of samples Misc. 2, 3, 4, 6, 7, 11, 12, 14, 15, 17 and 18 have slightly different concentrations of silicon and calcium which seems to match the differences found through microscopic analysis.

Two particular samples indicate a marked change in intensity of certain elements that are not evident in petrographic analysis. All samples contain trace elements (~0.1%) of manganese except for in F.004, sample 1, which contained ten times the mean value and over four times that of the next highest sample. Similarly, very small quantities of sulphur were identified in all samples but sample Misc. 12 had six times the mean value and six times that of the next highest. This is, by far, the most distinct sample, also showing a low concentration of calcium but an extremely high percentage of silicon compared to the other samples (Fig. 18:10).

The presence of aluminium oxide (Al_2O_3) and silicon dioxide (SiO_2) coincides with the metamorphic and igneous aggregate found in the polished sections of all samples. These compounds are typical findings within both ancient and modern hydraulic mortars and cements, resulting from the addition of highly reactive pozzolanic additives such as volcanic ash or ceramics.[8]

18.4. Discussion

The local geology of the Dariali Gorge is made up almost entirely of these felsic rock formations, consisting of diorite

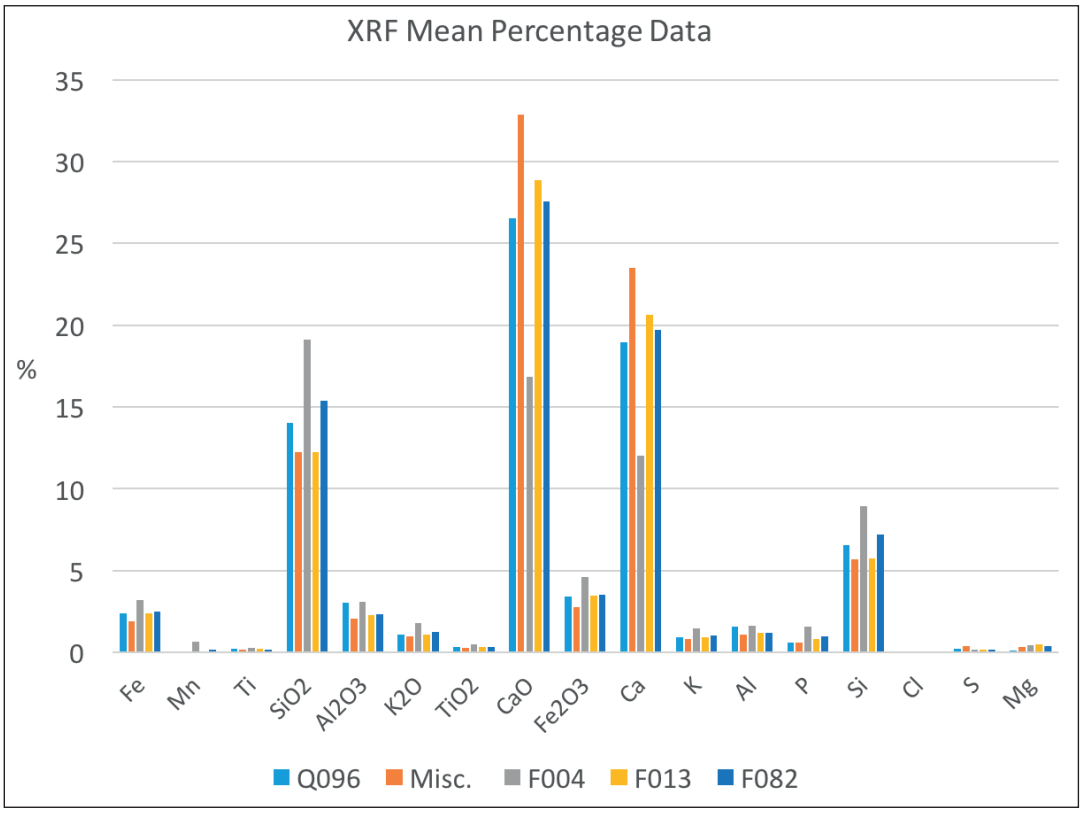


Fig. 18:8: Mean percentage data obtained from spectra of all samples from Dariali Gorge.

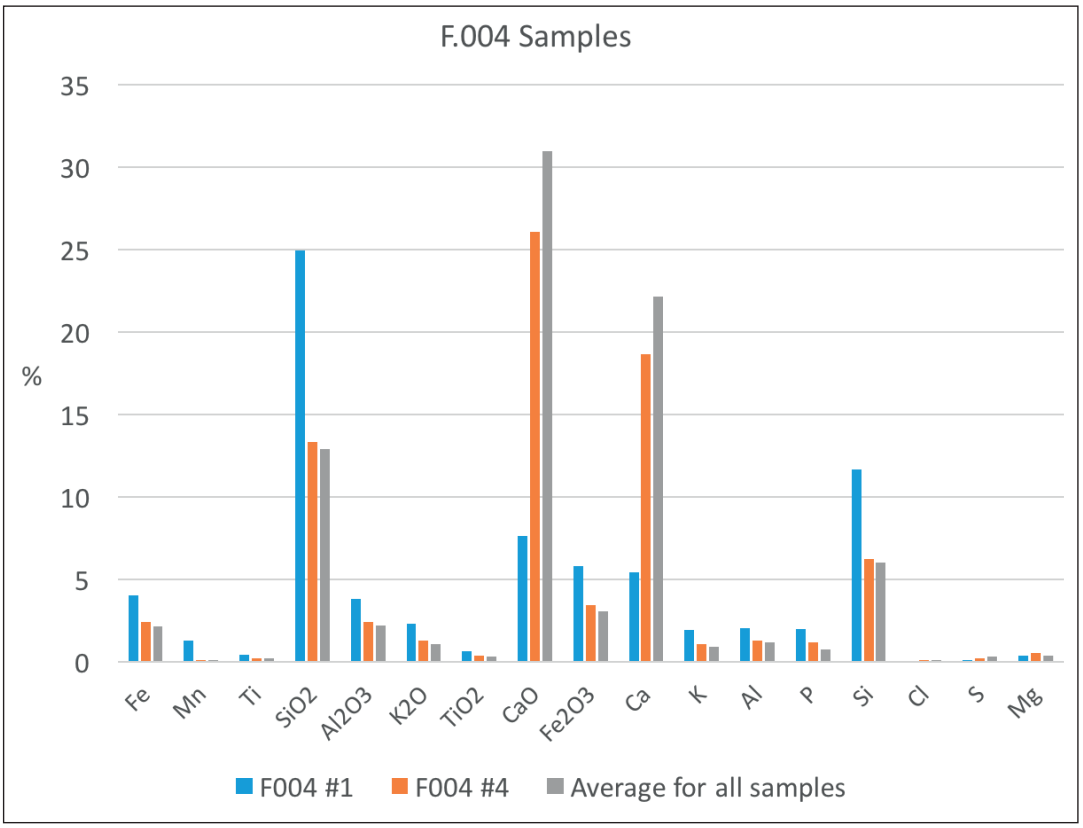


Fig. 18:9: Percentage data obtained from spectra of F.004 samples compared to the overall average percentage of each component for all samples analysed in this study.

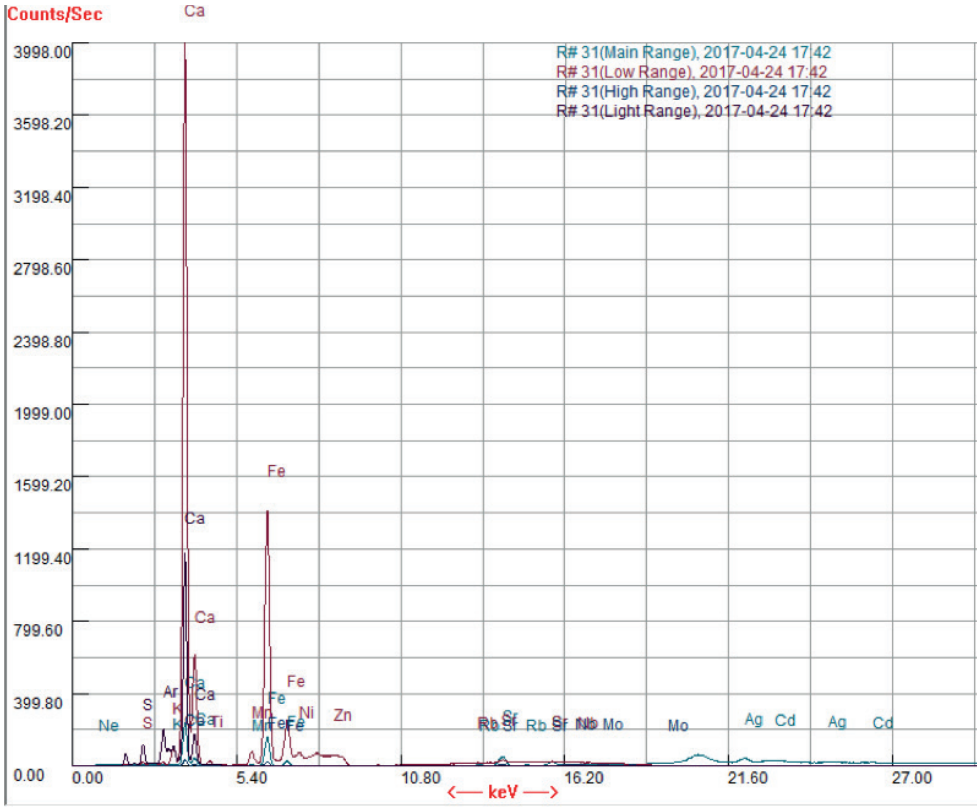


Fig. 18:10: XRF spectra for Misc. sample 12.

and adamellite.[9] The fluvial and fluvioglacial sediments of the river bed consist of the groundmass of these minerals,[10] particularly feldspar, hornblende, rhyolite and biotite. Based on our careful examination of polished sections of the mortar specimens taken from Dariali Fort, it is now clear that local raw materials were used in the production of mortar. The aggregate appears to be composed of both fine- and coarse-grained metamorphic and igneous aggregate with larger pebble inclusions of the same materials. The rounded nature (Fig. 18:11) of many of the aggregate inclusions suggests that these materials were collected from areas of regular runoff or stream beds where weathering occurs.

Mortars from Antiquity to the Middle Ages generally relied upon reactive additives to produce high quality mortars. These materials, known as pozzolana, contain highly reactive aluminosilicates that produce a strong water-resistant mortar when mixed with slaked lime.[11] Arguably, the most famous pozzolana is the volcanic ash from the Bay of Naples, attested by Vitruvius[12] and Pliny the Elder,[13] that produced the renowned Roman concrete.[14] In other cases, crushed ceramic materials were used to produce similar waterproof mortars (Fig. 18:12) in areas where natural volcanic materials were absent.[15] Based on the analyses carried out in this study, it is not possible to say with certainty whether reactive aluminosilicates were present in the volcanic aggregate materials incorporated into the mortar mixes. However, the presence of rhyolite suggests it is highly possible that the aggregate material mixed with lime could have been partly pozzolanic, lending strength and water resistance to the mortar.

The calcium carbonate binder is characterised by a range of colours from whitish grey to brownish grey with a well-mixed and compacted mortar matrix. It was rare to find large granules of underhydrated lime or under-burnt limestone, possibly indicating that the lime was not dry slaked, whereby water is added to burnt lime at the time of mixing the mortar. The provenance for the calcium carbonate materials used to produce the lime is unknown as the immediate environs do not feature limestone or marble outcrops. However, it is likely that the Pass Subzone of the Kazbegi-Lagodekhi Zone, roughly 25 to 30 km to the south of Dariali Gorge, could be one source of limestone.[16]

Comparisons of the mortar samples using the petrographic and XRF data show that, while there are slight differences in the lime matrix colour, aggregate distribution and grain size, there are no demonstrable differences in the type of raw materials being used. In terms of XRF results, F.082, sample 7, F.004, sample 1, and Misc. sample 16 show the most similarities with F.013, sample 16 and Misc., sample 3 also showing similar concentrations. Both XRF results and petrographic analysis corroborate that samples taken from wall F.013 show no major anomalies with only shifts in the concentration of calcium and silica, indicating that these samples were most likely produced with the same methods and raw materials.

Sample Misc. 18 came from a separate sampling area[17] but shows no anomalies and matches the average spectra reading from XRF analysis. Through the microscope, Misc. 2, 3, 4, 6, 7, 11, 12, 13, 14, 15, 17 and 18 all seemed to be quite similar and, despite varying XRF values, they

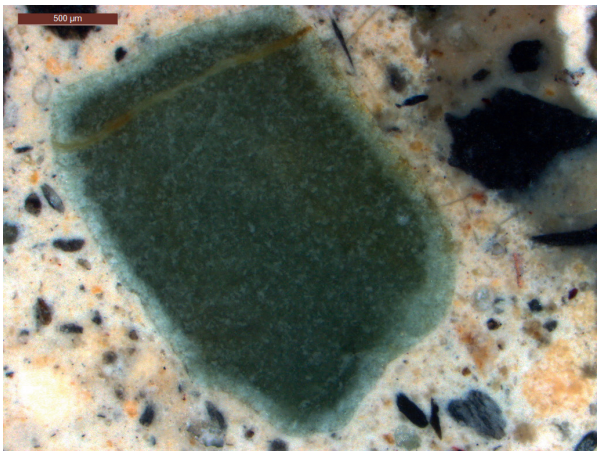


Fig. 18:11: Photomicrograph of Misc. sample 11 with large rounded granule with smaller grains ranging in angularity (scale: 0.5mm; photo: Astolfi 2017).



Fig. 18:12: Mortar sample with crushed brick dust and aggregate inclusions from a small fort along the Anastasian Wall (also known as the Long Wall of Thrace) in modern Turkish Thrace (Photo: Snyder 2009).

had a similar chemical makeup. In some cases, these differences might reflect that samples have been taken from structures over a wider geographical area, and as consequence there could be multiple sources of the raw aggregate with slight varying concentrations of minerals. However, this does not account for Misc. sample 12 that comes from the base of the north face of the eastern road blocking wall. Despite being the most distinct sample according to XRD results, petrographic analysis of the samples taken from middle and top levels of the same wall (Misc. samples 13 and 14) reveal a structure that gives no clear indication of variation.

18.5. Conclusion

This mortar analysis has provided some important information regarding the construction of masonry defensive structure in late antique Dariali Gorge. Due to the relatively strong nature of these mortars – discovered through preparing samples for XRF analysis – as well as the fact that these masonry structures have survived for c. 1,600 years, it was clear that these were produced with high quality materials and technical expertise. Most mortars had a finely mixed matrix, homogenous binder, and few large pores, indicating that the many processes of preparing lime, selecting aggregate, and mixing the mortar were done with great care.

It is clear that inclusions in all of the mortar samples analysed in this study indicate that local raw material resources coming from the igneous and metamorphic local geology were utilised for aggregate. While sources of limestone or marble for the production of lime have not been identified in this study, it was likely brought in through the valley to the south.

It may also be a happy coincidence that the local geology consists of important minerals that possibly aid in the strengthening and water-proofing qualities of lime-based mortars. However, it is more likely that the builders of the fortifications in Dariali Gorge, who could not rely on ceramic pozzolana like so many other regions in Late Antiquity, were aware of the benefit of using the local materials. They differ in this respect from other large fortification projects, like the sixth-century Long Wall of Thrace that relied upon great quantities of crushed brick and tile to be shipped up to 60 km from Constantinople.[18] Of course, overland transport of similar materials across Europe's highest mountain range would have been much more costly, and there may have been no viable alternative to the use of local raw materials. Whatever the case may have been, strong and consistent mortar batches were produced, providing the means to fortify and control such an important strategic location.

Notes

1 Most samples were taken and their location recorded by David Greenwood, as well as a few by Eberhard Sauer.
2 See chapter 2.2.1 for the location of the samples.
3 See chapter 2.2.4.
4 See chapter 2.2.8.
5 See chapter 3.2.3.
6 See chapter 2.2.1 for the location of the samples.
7 See chapter 4.4.
8 Hewlett 1998.
9 Okrostsvaridze and Tormay 2015.
10 Gaprindashvili and Gaprindashvili 2015.
11 MacLaren and White 2003.
12 Vitruvius, *De Architectura* 2.6.1
13 Plinius Secundus, *Naturalis historia* 35.47.1
14 Lancaster 2005.
15 Zendri *et al.* 2004.
16 Mauvilly *et al.* 2015. Evidence from archaeological investigations (Gambashidze and Gogochuri 2007) around Sakire, west of Tbilisi, indicate that this area had been a centre of lime production since the High Middle Ages, even supplying villages over 40 km away, suggesting that such practices could have been taking place in villages close to Dariali Gorge.
17 See chapter 7.
18 Snyder 2016.

19

Human skeletal remains

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19.1. Introduction

The present study outlines the anthropological results, following the examination of the human skeletal remains retrieved during the excavations carried out in 2013 and 2016 from the burials in the cemetery at Dariali Fort.[2] The graves were earth-cut, with stone-lined vertical sides and covered with stone slabs. In Trench E, the human skeletal material of different individuals was found disarticulated and commingled, which points towards consistent re-use of the graves for secondary/multiple burials.[3] Trench G, by contrast, produced anatomically connected individual inhumations with no signs of commingling and/or redeposition, with the exception of Grave Context G3, which was disturbed, and Grave G10, which was only partially excavated, and whose top soil produced dental material representing three sub-adult individuals.[4] Furthermore, near the cliff edge above the River Tergi/Terek, east of Trench G, out-of-context and scattered parts of a young adult's skull were recorded when first visiting the site on 17 April 2013. They belonged to an individual whose grave was heavily disturbed due to earlier earth-moving operations.[5] In Trench AB we found five primary, individual inhumations and nothing suggested secondary deposition. All individuals were children and displayed uniform burial positions.

Standard anthropological and palaeopathological examination was undertaken on the skeletal material retrieved to evaluate the mortality and morbidity of the individuals with the following objectives:

- Reconstruct the demographic profile of the available human skeletal sample by analysing biological indicators of sex, age and stature, and skeletal anomalies.
- Explore the range and extent of pathological conditions in the sample.
- Compare these parameters with those established for the skeletal remains of other groups similar in chronology and ancestry, if possible.

19.2. Methodology

The human skeletal material recovered was examined in accordance with the guidelines outlined in Brickley and McKinley,[6] Mays *et al.*[7] and the *Standards for data collection from human skeletal remains* for complete skeletons and commingled human skeletal remains.[8] This involved laying the skeletal remains in correct anatomical position and completing an inventory regarding:

1. the completeness and the state of preservation of each skeletal element;
2. indications of biological sex and age;
3. observations on non-metric traits, pathological lesions, stature and ancestry.

Standard demographic/anthropometric parameters (Minimum Number of Individuals (MNI), sex and age) were determined first, as they provide the essential context for any further analysis. Each skeletal and dental element was also inspected for the identification of possible indicators of pathological conditions and non-metric traits.

In an effort to minimise post-excavation damage and degradation, the osteological material was manually cleaned with soft brushes and delicate instruments, after it had dried out and without the aid of water.[9] In order to avoid contamination, stainless steel dental tools and sterile gloves were used during the excavation, analysis, inventory and sampling of the skeletal material. Observations were made under normal light conditions and LED lamps without the aid of microscopy.

The condition of the majority of the skeletal remains was recorded as poor, according to the level of fragmentation

and surface preservation of the bones, following procedures as outlined in Buikstra and Ubelaker.[10] The completeness of the skeleton was estimated as a percentage, represented by (1) = >75%, (2) = 25–75% and (3) = <25%.

Age was mostly estimated based on dentition,[11] since most of the appropriate skeletal elements were not available due to taphonomic processes. The epiphyseal fusion method[12] was employed where possible (Graves E2, G1, G6 and G9) and the auricular surface deterioration method[13] was used on the female adult individuals (Graves E2 and G2). Age groups were assigned following the categorisation introduced by Buikstra and Ubelaker, notably: infants (0–3 years), children (3–12 years), adolescents (12–20 years), young adults (20–35 years), middle adults (35–50 years), and, whilst not present in the sample, old adults (50+ years).

In the majority of cases, no skeletal pathology or bony abnormality was observed. However, when identified, evidence of skeletal or/and dental pathology, trauma or/and non-metric traits was recorded, following Buikstra and Ubelaker[14] and the Edinburgh Unit for Forensic Anthropology system.[15] Stature estimation and ancestry evaluation was not possible on the majority of the individuals, due to the state of preservation of the skeletal elements. It was only Graves E2, G1 and G6 that retained skeletal elements appropriate for stature estimation, and E2 alone produced sufficient evidence for ancestry evaluation, based on the cranial characteristics of the young adult female individual.[16]

Dentition was recorded separately using inventory guidelines outlined in Buikstra and Ubelaker. Records on dental age were taken by employing Brothwell's[17] and Lovejoy's Dental Attrition Method,[18] Smith's Dental Wear Method,[19] Schour and Massler's Chart of Human Dentition Development[20] and Hillson's and Ubelaker's Tooth Eruption Diagrams.[21] Records on dental non-metric traits were taken following the Edinburgh Unit for Forensic Anthropology system and methods outlined in Scott and Scott and Turner.[22] Traits were scored on the basis of absence (score = 0)/presence (score = 1) and unobservable (score = 9), and the percentages reflect the observed over the observable; that is the number of elements and individuals who display the characteristic over the number of elements and individuals that do not display this characteristic or whose preservation did not allow scoring. Where possible, the dentition of each individual was assessed for the expression of 39 dental (crown and root) traits. The analysis was performed by different observers under good lighting and 10x hand lenses. For the majority of the dentition, which was recovered loose and not in association with alveolar bone, the frequency of dental traits was calculated according to the *tooth count method*, in which the trait expression is recorded on all teeth, whether right or left.[23] The *individual count method* was used on teeth found in associated alveolar bone to assign each individual expression or no expression of the observed traits. According to this method, the antimere exhibiting the highest grade of trait expression is assigned to the individual. This method assigns each individual a phenotypic value that is considered to best represent the individual genotype.[24]

Due to the small sample size, the low levels of preservation and the high degree of fragmentation, many pathological conditions were impossible to observe, limiting the scope of statistical analysis. Basic statistical analysis was, however, employed for the estimation of mean age-at-death, mortality curves and the prevalence of observed pathology.

19.3. Taphonomy and state of preservation

'Taphonomy' derives from the Greek words '*ταφος (taphos)*' = burial and '*νομος (nomos)*' = law: the study of the laws of burial. More specifically, taphonomy studies the processes that affect the decomposition, dispersal, erosion, burial and re-exposure of organisms at and after death.[25] Those processes cause sampling biases and/or differential state of preservation. Taphonomic processes alter both the external appearance of bone tissue as well as the composition of organic matter.

Acidic environments create an ideal situation for the conversion of a major component of bone, hydroxyapatite, into another mineral, brushite,[26] that takes up more space and has the potential to cause bone tissue to crack.[27] Acidic soils produce more extensive damage, because the dissolution of minerals in the bone is faster. The impact of micro-organisms might as well be enhanced by the presence of roots and their secretions, which are able to decalcify bone.[28] Micro-organisms and roots leave a distinctive pattern on the surface of the bone, which appears as channels or turf-shaped grooves and may cause the complete disintegration of hard tissues.[29] Alkalic soils favour microbial attack resulting in degradation of the bone tissue. Furthermore, due to the low infiltration capacity, water stagnates on the soil easily, thus producing a humid environment, which is disastrous to the bone, causing loss of the organic components and biomolecular degradation. Soil can also jeopardise the state of preservation of skeletal remains by means of its pressure. The impact of such pressure is usually more pronounced in sub-adult bones, which are not fully mineralised,[30] and can also dramatically affect the commingling of human remains, especially in mass burials.[31]

In the case of the Dariali burials, the combined effects of high acidity and humidity in the soil, and root secretions have evidently led to severe degradation, even destruction, of bone tissue. The majority of the skeletal material recovered was found to be in a poor state of preservation. Trench E's skeletal material was far worse preserved than that retrieved from the burials in Trench G. This is probably related to the microenvironment of the burials in Trench

E, as well as the post-mortem handling of the skeletal material in the Early Middle Ages due to the custom of collective burial. Trench G's graves were, in relation to the top of the stone lining, on average shallower than the ones in E, and filled with much less soil, thus perhaps less susceptible to long-standing humidity.

19.4. Biological sex, age, ancestry and stature

A skeletal assemblage of at least 36 individuals was recovered from the three trenches (including Grave G10), and one further individual was identified from the scattered assemblage retrieved from what was a possibly disturbed grave east of Trench G, not counting skeletal material in the grave unearthed during construction works in 2014.[32] As far as the age distribution is concerned, ages range from approximately 6–9 months[33] to a maximum of 35–45 years,[34] with the mean age-at-death for adult individuals being 27 years[35] and for sub-adult individuals, 7–8 years.[36] The mortality curve suggests high levels of child mortality, with the young adult category (20–35 years) represented only by a few individuals and middle adulthood (35–50 years) only by two (Fig. 19:1).[37]

Trench E's assemblage consisted of a total of 21 individuals; two young adult female individuals (Grave E2, 25–35; Grave E3, 20–30 years), two adult probable male individuals (Grave E2, 20–24 years; Grave E3, 30–40) and 17 young individuals of indeterminate sex. One of them fell in the young adult age category between 20–30 years, one died aged between 18 and 24 years, three fell in the 16–20 years category and one of them, in the adolescence category between 12 and 18 years, whilst eleven of them were infants and children with an age range from 6–9 months to 8 years. Dental attrition,[38] development[39] and eruption[40] were mostly employed to estimate the age on this assemblage.

Trench G's human skeletal material consisted of a total of ten individuals; two probable young male individuals (one in G1 and one in G3, both aged 15–20 years), one middle-aged male individual (35–45 years), one young adult female individual (21–30 years), one child (7–10 years), one adolescent initially aged 15–20 years (but most probably 15–17 years) and one individual of indeterminate sex and age, probably a subadult, judging by the size of the available skeletal elements (Grave G8). Scattered dental material was retrieved from the top filling of Grave G10, from which three sub-adult individuals aged 6–9 months, 2 years and 12 years were identified. This grave was, however, not further excavated due to time constraints. Thus, the information on the MNI is indeed only the minimum, whilst we have no information on sex and pathology.

Fragmented cranial and dental elements were retrieved from a possibly slate-lined grave to the east of Trench G and close to the edge of the terrace above the Tergi, disturbed through modern earth-moving operations.[41] Analysis of the disturbed assemblage indicates one young adult individual of indeterminate sex, of possibly 18–24 years of age.

Trench AB's skeletal sample consisted of five individuals, all children.[42] The skeletal remains were all in poor condition and no complete long bones were available to measure. Due to the lack of metric data and the fact that all five burials contained both deciduous and permanent dentition, ageing estimations were based on tooth development according to the Ubelaker diagram.[43] Additionally, a fusion chart from Scheuer and Black[44] on vertebral fusion timings was employed on the skeletal remains from Burial AB3. The biggest obstacle to the analysis of this skeletal material was that many permanent

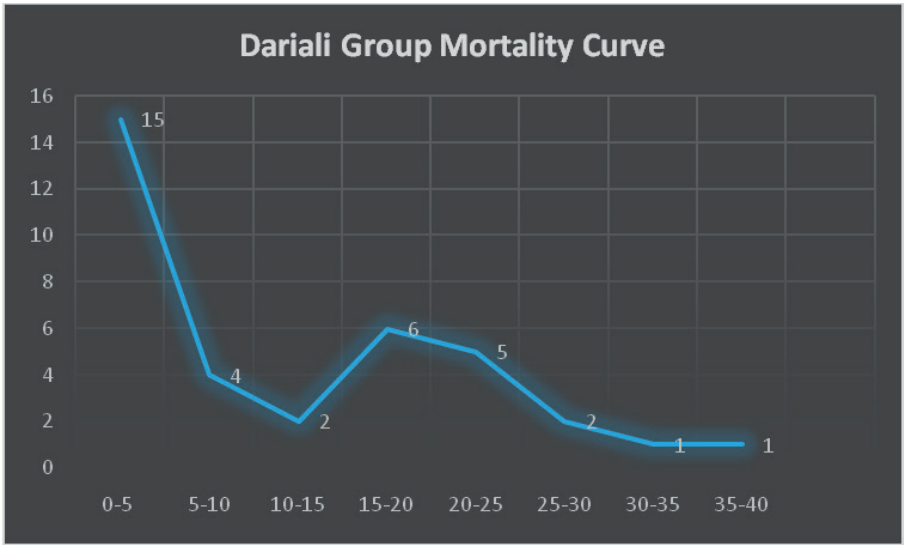


Fig. 19:1: Mortality curve for Trenches E, G and AB. The y-axis refers to number of individuals; the x-axis refers to age in years, in 5 years spans. Note that the sample size is small and that the spatial separation between child and adult plus adolescent burials means that the figures may not be representative of the population as a whole.

teeth had broken roots, which made ageing more problematic, but not impossible. Age estimates for all five burials ranged from 3 to 11 years. Burial AB3 contained a fragmented second cervical vertebra (axis or C2), which displayed partial dentoneurocentral fusion (clear fusion line), and an unfused dens, thus strongly supporting our dental age estimate. Sex determination was not feasible, due to the young age of the individuals analysed. While there have been recent advances in methods developed to determine biological sex on subadults, it is still highly problematic. Additionally, the poor preservation of the remains would provide further obstacles in sex determination, even if highly accurate methods of subadult sex estimation are available.

Stature estimation and ancestry evaluation was, in the majority of cases, not possible for the reasons already mentioned. Graves E2, G1 and G6, however, provided substantial information for stature estimation.[45] Details regarding sex and age distribution, pathology, non-metric traits and trauma percentages are listed below (see Tables 19:1–19:4).

In the skeletal sample retrieved from the Dariali Cemetery, the female individual from Grave E2 displayed craniofacial morphological criteria indicative of possible Asian descent. In particular, round orbits and prominent cheekbones as well as a flat frontal bone and complex cranial sutures.[46] The cranium did not display signs of artificial deformation, a common practice of populations inhabiting the neighbouring regions, such as the Sarmatians, Alans and Huns, which gained popularity between the fourth and seventh centuries AD (the so-called 'Migration Period') in Georgia, notably Mtskheta.[47]

A number of dental non-metric variations was also recorded in individuals from other graves (Graves E3, E4, G2 and G3). According to literature, these traits are found to be much more common amongst human populations of Asian-derived ancestry, rather than those of European- and African-derived ancestry.[48] Percentual differences in the occurrence of these variations make it possible that individuals displaying those traits could be biologically affiliated to the former populations, but they are not considered to be solid indicators of biogeographical ancestral background.

The term 'ancestry' is often encountered in the anthropological[49] and forensic literature in order to refer to the geographic region or regions where one's biological ancestors lived.[50] As it is rarely defined as a term, its use in assigning affinity to population groups has spurred heated debates because it is often perceived as synonymous with 'ethnicity' and/or 'race.' 'Ethnicity' is employed frequently in the context of cultural anthropology and denotes groups that share a common identity,[51] culture and/or language.[52] It is often based on religion, beliefs, and customs as well as memories of migration or colonisation. In its core, however, ethnicity depends on context as well as self-identification and ascription by others.[53]

Though, biologically, 'race' was initially employed to describe human biological variation it has been applied to various contexts from geography to genes and language and evolved into a term culturally charged that refers to skin colour, culture, socio-economic status and/or other physical, genetic or behavioural characteristics, with the concept of superiority and/or homogeneity serving as its central notion. In order to make it clear that their research does not promote such notions, physical/biological anthropologists employ the term of 'ancestry' and made an official statement through the American Association of Physical Anthropologists that 'pure races, in the sense of genetically homogenous populations do not exist in the human species.'[54] As Kennedy[55] observes, there are no real divisions in the human species; only frequencies of phenotypic characters, which may be high in some populations, while in others they may be rare or absent. Thus, 'genetic differences between populations commonly consist of differences in the frequencies of all inherited traits…'[56] The distribution of these phenotypic characters may be limited to certain geographical areas. In an effort to make geographic population affiliations easier to observe and record in the anthropological field, these phenotypic characters are assigned to biogeographic populations. The objective for the anthropologist is to determine the biogeographic population group that a skeleton belongs to, employing objective, biological criteria. In the human skeleton, craniofacial morphology is considered to be the most reliable indicator of such phenotypic characteristics mainly due to the heritability of craniofacial morphology,[57] though dental non-metric traits have also been addressed as strongly reliable indicators mainly due to their association with the presence of alleles and chromosomal loci.[58]

In the case of the Dariali garrison, we are facing a possibly complex and diverse group of people, given the fact that a garrison would usually be made up of individuals from different backgrounds that would identify themselves in different ways. Furthermore, Dariali Fort was under the control and/or influence of different political entities over the centuries, a fact that is perhaps reflected in diverse groups inhabiting it. Under that light, the authors cannot make comments on the ethnicity of the individuals, although different cultural practices in the burial customs point towards possible diverse cultural backgrounds. At the same time, they do not draw conclusions on the biological affinity of the individuals. Rather, they employ comparisons with published research to evaluate possible patterns of variation among biogeographic populations. The terms 'Asian' and 'Asian-derived' are accepted in the scientific literature and only serve as 'labels of convenience' for the purpose of identifying human skeletal remains. They are employed in order to cover a vast geographic region, since no exact geographic

Table 19:1: Summary of results.

Criteria	*Trench E*	*Trench G*	*East of Trench G*	*Trench AB*
MNI	21	10 (including G10)	1	5
Preservation	Very poor	Fairly good to poor	Fairly good	Very poor
Sex	2 adult females or probable females, 2 adult males or probable males; 17 IN	1 female and 3 probable male or male individuals; 3 IN + 3 IN from G10	1 IN	5 IN
Age range	From 1.5 to 35 years	From 6–9 months to 35–45 years	18–24 years	From 2 to 11 years
Significant skeletal non-metric traits	Metopism, Accessory bones	NO	n/a	NO
Most common dental non-metric traits	*Double shovelling*	Hypocone	NO	NO
Pathology	*Cribra orbitalia*; lytic lesion on posterior aspect of sacrum; DJD	OA; DJD; ENTH; Chronic periostitis; possible infection of sphenoidal air sinus	NO	NO
Trauma	NO	Fatal sharp force trauma; healed blunt force trauma; healed fracture on femoral neck	NO	NO
Dentition	Some manifestation of DEH	Some manifestation of DEH	NO	NO

Key: DEH: *Dental Enamel Hypoplasia*; DJD: Degenerative Joint Disease; ENTH: Entheseal changes; IN: indeterminate; MNI: Minimum number of individuals; n/a: not applicable (*e.g.* preservation too poor to decide whether or not present); NO: not observed; OA: Osteoarthritis; P.: probable.

Table 19:2: Summary of age and sex distribution.

Grave	*MNI*	*Infants*	*Children*	*Adolescents*	*IN Subadults*	*IN Adults*	*Male or P. Male*	*Female or P. Female*	*Age range*
E1	3			1		2			1x 18–24 years, 1x 16–20 years & 1x 12–18 years
E2	6	4					1	1	1x F25–35 years, 1x M?20–24 years, 4x sub-adults: 1x 3years, 1x 2 years, 1x 1 year & 1x 9 months
E3	9	1	3	2		1	1	1	1x F?20–30 years, 1x M?30–40 years, 1x IN 20–30 years, 2x 16–20 years, 1x 7–8 years, 2x 5 years & 1x 2–4 years
E4	3	2	1						1x 4–5 years, 1x 6–9 months & 1x 3 years
G1	1						1		15–20 years
G2	1							1	21–30 years
CG3	1						1		15–20 years

(Continued)

Table 19:2: Summary of age and sex distribution. (Continued)

Grave	*MNI*	*Infants*	*Children*	*Adoles-cents*	*IN Subadults*	*IN Adults*	*Male or P. Male*	*Female or P. Female*	*Age range*
G4	1		1						7–10 years
G6	1						1		35–45 years
G8	1				1				subadult
G9	1			1					15–20 years,[1] most probably 15–17 years[2]
G10	3	2		1					1× 12 years (±30 months), 1x 6–9months (±2–3months) & 1× 2 years (±8 months)
Disturbed Grave E of Trench G	1					1			18–24 years
Grave between Trenches E and G	1					1?			Older adolescent or adult
AB1	1		1						3–5 years
AB2	1		1						3–5 years
AB3	1		1						7–11 years
AB4	1		1						4–8 years
AB5	1		1						2–4 years

[1] Based on dental attrition (Brothwell 1981 and Lovejoy *et al.* 1985a).
[2] Based on dental eruption (Hillson 1996).

Table 19:3: Summary of pathology (excl. grave east of Trench G).

Pathology	*No. of elements displaying pathology*	*Total Elements' Count*	*%*	*No. of individuals displaying pathology*	*MNI*	*%*
DEH	10	308	3.25	8	36	22.2
Caries	4	308	0.98	4	36	11.1
Dental Calculus	1	308	0.3	1	36	2.8
Lipping/Periodontitis	3	58	5.18	1	36	2.8
Cribra Orbitalia	2	4	50	1	36	2.8
DJD	7	725	0.96	2	36	5.6
Lytic lesions	1	725	0.13	1	36	2.8
Porosity (non-specific)	1	725	0.13	1	36	2.8
Bone growth	4	725	0.55	2	36	5.6
Osteoarthritis	4	725	0.55	1	36	2.8
Periostitis	4	725	0.55	1	36	2.8
Entheseal lesions	4	725	0.55	1	36	2.8

Key: DEH: *Dental Enamel Hypoplasia;* MNI: Minimum Number of Individuals.

Table 19:4: Summary of non-metric traits (excl. grave east of Trench G).

NMT	*No. of elements displaying NMT*	*Skeletal element*	*Total Elements' Count*	*%*	*No. of individuals displaying NMT*	*MNI*	*%*
Bifid roots	2	URP3-URP4	308	0.65	1	36	2.8
Odontome	1	URP2	308	0.32	1	36	2.8
Multiple lingual cusps	2	LR_LLP2	308	0.65	1	36	2.8
Double shovelling	4	ULI1/UL+RI1/URI2	308	1.30	2	36	5.6
Shovelling	3	URI2/UR1	308	0.97	2	36	5.6
Tuberculum dentale	3	URC	308	0.97	2	36	5.6
Metaconule	3	UR_ULM1, ULM2	308	0.97	2	36	5.6
Hypocone	4	UR+ULM2	308	1.30	2	36	5.6
Hypoconulid	4	LR+LLM1	308	1.30	2	36	5.6
Supraorbital foramen	1	Supraorbital margin	3	33.33	1	36	2.8
Metopism	1	Cranial (frontal bone)	n/a	n/a	1	36	2.8
Wormian bones	1	Cranial (saggital suture)	n/a	n/a	1	36	2.8

Key: MNI: Minimum Number of Individuals; NMT: Non-metric traits.

origin can be assigned to the phenotypic characteristics mentioned.

19.5. Non-metric traits

In the adult skeleton, the morphology of teeth and bones varies considerably between individuals; these variations are called non-metric traits and represent 'any minor anomaly of skeletal anatomy not normally recorded by measurement.'[59] Non-metric traits are a rather heterogeneous group, but none of the variants may be considered a sign of disease; their presence is usually asymptomatic. Dental variation is heritable, is caused by multiple genes, and is little influenced by environmental factors.[60] It is highly controlled by genetics and relatively free of sex- and age-bias.[61] More than 400 traits have been identified and recorded in the human skeleton and they exhibit substantial heterogeneity.[62]

In the present sample, adult bones only and teeth from all age groups were inspected for the identification of non-metric traits. In fact, according to Mays,[63] most archaeological studies on non-metric traits will exclude children, the one exception being dental non-metric traits, as teeth will not change morphology once formed.

Recorded non-metric traits were represented in the form of *accessory bones* or *wormian bones* (Grave E2), *metopic suture* (Grave E2), *supraorbital foramen* (Grave G2), *shovelling* (Graves E4, G4 and AB2) and *double shovelling* (Graves E3 and E4), *tuberculum dentale* (Grave G1), *interruption groove* (Grave G2), *odontomes* (Grave G1), *hypocone retention* (Graves G2 and G3) and *hypoconulid* (Graves G2 and G3), and *bifid roots* (Grave E2).

Accessory bones or *wormian bones* are supernumerary bones that occur in various forms.[64] They usually are observed in the cranium, in or adjacent to suture lines. They are commonly found within the lambdoidal suture and occasionally within other cranial sutures. Suture ossicles generally develop in response to genetic programming but they can also form within the suture membranes after the formation of the cranial bones due to stress and in rare cases with *osteogenesis imperfecta*, Down's syndrome and metabolic diseases (*e.g.* hyperthyroidism and rickets).[65] Thus, although they are strongly genetically determined, environmental factors may affect their manifestation. In the present skeletal material three such ossicles were recorded on the exterior surface of the cranial vault, along the sagittal suture of the female individual in Grave E2.

Metopism is the retention of the metopic suture after the age of two years and is a primary non-metric cranial trait. Like other cranial sutures, the metopic suture serves as an area that permits bone growth; at birth, the frontal bone of the cranial vault consists of two halves separated by a mediofrontal suture. These two halves begin to unite between the ninth postnatal month and the second year of an individual's life.[66] Usually, this union is complete and the suture has been obliterated by the second or third year, but it occasionally takes up to the eighth year.[67] If the suture

persists after infancy, it is considered a non-metric trait; obliteration might eventually occur between the thirtieth and fortieth year of an individual's life or not at all.[68] Usually, however, it does not occur at all. According to Torstein Sjøvold,[69] this trait is considered to be hereditary and can provide information on kinship. In the present sample (Grave E2), the metopic suture has persisted into adulthood in the young female individual.

Supraorbital foramen, identified on the individual from Grave G2, can exist as a notch in the supraorbital margin of the frontal bone of the cranium. Sometimes it occurs as a foramen through the edge of the arch. It carries the supraorbital vessels and nerve from the orbit onto the anterior surface of the frontal bone. Foramen variation (*e.g.* single or double supraorbital foramen) is included in the four primary types of cranial non-metric variation and indicative of population diversity.[70]

Shovelling of the upper right second incisor was observed on dentition retrieved from Grave E4 and on both upper, central incisors of the dental material from Grave AB2. Incisors and, occasionally, canines display especially prominent marginal ridges on the lingual surface that enclose a deep *fossa* or concavity.[71] Hrdlicka[72] coined the term 'shovel-shaped' for this trait, which can be unilateral or bilateral, and with ridges displaying different degrees of expression. It noticeably is a common phenomenon amongst Asian and Native American populations, but not particularly amongst Europeans.[73] *Shovelling* of the incisors is considered to be a polygenic trait that varies in expression between human groups. Hrdlicka[74] believes that it appears to be relatively stable within groups.

In the sample retrieved from Graves E3 and E4, *double shovelling* of the first and second upper incisors was recorded. *Shovelling* is most common in permanent and deciduous upper incisors,[75] but might also be detected in lower incisors. Occasionally, incisors and canine crowns have prominent marginal ridges on their labial surfaces; this condition is known as *double shovelling*, regardless of whether strong lingual ridges are present or not.[76] According to relevant literature, it is a common phenomenon amongst Asian and Native American populations, but not that common amongst Europeans.[77] Research on shovel-shaped incisors has shown that modern human populations that could be of Asian descent display a higher frequency of *shovelling*.[78]

The dental non-metric trait *Tuberculum Dentale* was recorded as present on the right maxillary canine of the individual from Grave G1, as well as both the right and left maxillary canines of the individual from Grave Context 3.[79] This feature appears on the lingual surface of the maxillary incisors and canines. It varies considerably in expression and may even appear as a free cusp.[80] Its geographic distribution is relatively unknown, but it does not appear to characterise any particular geographic group.[81]

Interruption grooves are vertical grooves that usually extend from the base of the crown onto the root. They can also be limited to the lingual surface of either the mesial or distal marginal ridge (or sometimes both). This trait is much more common on the second upper left incisor[82]. It was scored on the second upper right incisor of the female individual from Grave G2. It is not a rare trait in any regional grouping, but tends to be most common in the Sino-Americas (45–65%),[83] while it occurs in Western Eurasia and Sunda-Pacific with percentages ranging from 20 to 40%.[84] Brabant[85] and Lukacs[86] provided comparative data regarding prehistoric populations from Western Eurasia-India. Its frequency in prehistoric Europe was quite low ranging from 6.3–10.7% and 12–20%, while in prehistoric India and Pakistan, the same trait was scored in frequencies of 35% and 51.6%.[87] This trait is much more common on the second upper left incisor.[88] It was scored on the second upper right incisor of the female individual from Grave G2.

Odontomes are cone-like tubercles upon the medial occlusal ridge of the buccal cusp of the premolars. They project from the centre of the premolar and can be of different sizes. They are considered to be benign tumours or malformations, consisting of enamel, dentinal and pulpal elements. Their exact aetiology is poorly understood.[89] This trait was present on the right first upper premolar from Grave G1.

Multiple lingual cusps are quite common on the lower premolars, with one, two or three lingual cusps or cusplets. Two lingual cusps were recorded on the right and left second lower premolars of the individual from Grave Context G3.

Bifid roots: According to Turner,[90] maxillary premolars are normally single rooted, but two or three rooted variants can occur. However, van Beek considers single roots to be normal only on the first premolar whilst two roots are more common on the second premolar.[91] In the present sample bifid roots were recorded on the upper right first and second premolars of the female individual from Grave E2.

The metaconule, in the form of an occlusal tubercle positioned distally on the molar between the metacone and the hypocone, was recorded on the upper first right and left molars of the individual from Grave G1 and the upper second left molar of the individual from Grave Context G3. It can be round or triangular in shape depending upon the strength of its expression. There is evidence that this trait is more common in females.[92]

The most frequent characteristic represented on the skeletons retrieved from Trench G is the *Hypocone*, on the upper second molars, in the form of a distolingual cusp of varying size.[93] It was scored as present in both the right and left upper second molars of the individuals from Graves G2 and G3. Reduction of the hypocone is least common in Sub-Saharan African and Sahul-Pacific groups (<10%), with the South-east Asians, East Asians and American Indians displaying slightly higher frequencies of hypocone absence. Europeans display elevated frequencies of

hypocone loss (20–25%), while the American Arctic group shows the highest occurrence of loss, with a frequency of 30%.[94] The most significant trait represented, is the hypoconulid, which is indicative of geographical origins and possible ancestral affiliation.[95] This characteristic as well usually focuses on the absence of expression (reduction) on lower first (LM1) and second (LM2) molars. In terms of geographical distribution, the hypoconulid reduction occurs in frequencies between 30% and 60% in South Africa and North and East Asia. The highest frequencies are found in Western Eurasia (over 60%), distinguishing groups in this area from all other populations.[96] The variability on the second molar with the retention of a fifth cusp displays high frequencies in the Asian-descended population groups, as observed by Scott.[97] In the present sample, hypoconulid retention was observed on both the left and right LM1 and LM2 of the individuals from Graves G3 and G2 respectively.

19.6. Dentition

Most teeth recovered from both Trenches E and G were found loose in the grave filling. In most cases, they were in a fairly good condition to be recorded and analysed for age, pathology and non-metric traits and sampled for further analysis. All five burials in Trench AB contained teeth which ranged from fair to poor condition. Although most teeth were recovered loose, the skeletons from burials AB2 and AB3 had some teeth which were still in their sockets. Each burial had enough teeth in good enough condition for age estimation and sampling. Samples were obtained from suitable elements for DNA analysis, stable isotope analysis and radiocarbon dating. Most of the teeth retrieved, either loose or with associated alveolar bone, bore signs of attrition, slight calculus and a significant frequency of *Dental Enamel Hypoplasia* (DEH).

19.7. Dental attrition

Dental Attrition methods were mostly employed to estimate the age of the adult individuals.[98] Dental attrition is defined as the physiologic wearing of teeth resulting from tooth to tooth contact, as in mastication.[99] Attrition is normally an age-related process that may occur at the incisal or occlusal surfaces and, occasionally, on the proximal surfaces of teeth. It has been employed by anthropologists in both archaeology and the forensic sciences to estimate human age-at-death. However, attrition may be hastened by a coarse diet and abrasive dust, as well as by parafunctional habits such as bruxism and clenching. Additionally, one should always keep in mind that the occurrence and pattern of tooth wear is likely related to educational, cultural, dietary, occupational and geographic factors in the population under examination.[100]

Clinically, the first manifestation of attrition is the appearance of a small polished facet on the surface affected. Severe attrition may lead to dentinal exposure, which may increase the rate of wear, as well as the risk for pathological manifestations. In the present population, Brothwell's[101] and Lovejoy's[102] Dental Attrition methods were mostly employed to estimate the age of the individuals.[103] Heavy attrition was recorded on the dentition of the individual from Grave Context G3 (which brings up the age-range estimated by fusion of skeletal elements and formation of the tooth roots). A case of extreme attrition was recorded on the first lower right molar of the child in Grave G4.

19.8. Palaeopathology

Palaeopathology, the history of disease, is classified as a sub-discipline of biological/physical anthropology. It is a branch of science concerned with the pathological conditions found in ancient human populations and animal remains.[104] The state of survival of the skeleton is of crucial importance for a palaeopathological diagnosis. The skeletal material must not only survive the taphonomic processes of the burial environment, but it must retain enough strength to be excavated, lifted and analysed. In the present archaeological sample, only six manifestations of significant skeletal pathological lesions could be observed apart from the most common in archaeological populations, pathological lesions attributed to degenerative joint disease (DJD) and entheseal changes. The high level of fragmentation and taphonomic alteration inhibited palaeopathological analysis in the majority of cases.

Significant pathological lesions in the Dariali group consisted of: *cribra orbitalia*, microporosity on the glabella, a lytic lesion (17.90 × 17.08 mm) of non-specific aetiology on the sacrum of the adult female individual in Grave E2, an osteoma near the supraglenoid tubercle of the right scapula of the female individual from Grave E2; a case of osteoarthritis and chronic periostitis as well as a non-specific bone reaction on the skeleton from Grave G6 and a possible infection of the sigmoidal sinus in Grave Context G3.

Degenerative joint disease (DJD) was only observed on certain skeletal elements (vertebrae and tarsal bones) of the individual from Grave G6, and on the cervical vertebrae of the adult female individual from Grave E2. *Entheseal changes* were observed only at the insertion of major muscles on the lower long bones and the tarsal bones of the skeleton from Grave G6). Additionally, a non-specific longitudinal, sclerotic bone growth on the right ulna (6.9 × 4.33 mm) and a circular, solid, smooth bony protuberance – probably an osteoma – (4.58 × 2.63 mm) on the glenoid of the right scapula were observed on the skeletal elements representing the female individual from Grave E2.

Cribra orbitalia (CO) and *Porotic hyperostosis* (PH) are identified macroscopically as circumscribed areas of pitting and porosity in the orbital roofs and the

cranial vault (in particular on parietal bones and occipital squama); it is one of the most commonly reported pathological conditions in archaeological populations. These characteristic lesions are usually produced by the expansion of the diploë (spongy bone) of the skull in response to marrow hypertrophy.[105] The expression of this condition has been recorded by bioarchaeologists in both prehistoric and historic contexts across the world and is commonly employed to assess the health and nutritional status of earlier human populations.[106] Researchers have linked these changes with a variety of conditions, frequently anaemia (acquired and genetic), infections and vitamin deficiencies (*e.g.* scurvy, rickets).[107] Since the 1950s, chronic iron-deficiency anaemia has been accepted as the most probable cause of both CO and PH. Subsequently, bioarchaeologists employ the prevalence of these conditions to ascertain living conditions conducive to dietary iron deficiency, iron malabsorption, and iron loss from diarrheal disease as well as intestinal parasites in earlier human populations. However, recent studies suggest that iron deficiency as such cannot sustain the great red blood cell production causing the marrow expansion responsible for these lesions. There is evidence suggesting that the accelerated loss and compensatory overproduction of red blood cells seen in haemolytic and megaloblastic anaemias is the most likely aetiology of CO and PH.[108] Despite the fact that cranial vault and orbital roof porosities are sometimes converged under the term *porotic hyperostosis*, both palaeopathological and clinical evidence suggests they often occur due to different aetiologies. In this context, *cribra orbitalia* is probably best regarded as a stress indicator. Symmetrical *cribra orbitalia* in the form of porosity with coalescence of foramina[109] with combination of healed and active lesions, were clearly observed on both orbital roofs of the young female individual from Grave E2. Microporosity was only observed on the glabella. No signs of porosity or thickening of the diploë were observed on the parietal or occipital squama.

In Grave Context G3, two small bony protuberances were recorded in the *sphenoidal sinus*, a small sinus cavity located behind the eyes, on the sphenoid bone. Acute infection of the sphenoid cavity is rare, as the cavity is deep and isolated from other sinus cavities. Viral infections of the sinuses are the most common cause of infection; bacteria, such as *Streptococcus pneumonia* and fungi can cause chronic *sinusitis* infections. There is no substantial evidence to make any hypotheses on the exact causes of such bone growth in the sphenoidal sinus of the individual in Grave Context G3.

19.9. Dental Enamel Hypoplasia (DEH)

Dental Enamel Hypoplasia (DEH) is defined as an incomplete or defective formation of the enamel of the teeth in the embryonic stage of the tooth formation. It is a condition that reflects growth interruption during the formation of the dental enamel. DEH is not a disease, but a non-specific stress indicator, because a variety of factors, such as illness or malnutrition, may cause this growth arrest.[110] In archaeological populations, malnutrition and disease appear to be the most common causes, and they are usually interrelated.[111] DEH, identified as lines or grooves on the surface of the teeth, was observed on most of the teeth available from Trenches E and G. Two types characterise DEH: hereditary and environmental.[112] As enamel does not remodel once it is formed, the position of the lesions that may occur during its formation can provide valuable information on the age at which these defects occurred.

In the present sample, the form of the *hypoplastic* lesions belonged to the second type of DEH, which refers to the environmental factors and is represented in the form of linear striations. Events of stress, illness or malnutrition seem to have taken place frequently in a range of ages during childhood and the latest years of puberty on some of the individuals. The exact aetiologies for this manifestation of enamel defect are not possible to define. Nevertheless, it is indicative of the fact that these individuals suffered from some kind of frequent stress, illness or/and malnutrition that arrested their normal growth.

19.10. Caries, Dental calculus, Periodontitis, Periapical cavities and Ante-mortem Tooth loss

The dental hygiene of the group under examination was found to be rather good, with low prevalence of *Caries, Dental Calculus, Periodontitis* and *Periapical Cavities*, and no prevalence of Ante-mortem Tooth Loss. However, this could be a sample bias due to the high rate of under-representation of skeletal and dental elements and the eroded surfaces of most of the available ones because of taphonomic processes.

Dental caries, defined as the destruction of the enamel, dentine and cement, is clinically observed in the form of a cavity in the crown or root surface. Such destruction results from acid production by bacteria in dental plaque.[113] Carious lesions were observed in 3 out of 308 teeth and roots (0.97%). The presence of the disease was observed only on occlusal surfaces and its manifestation was of medium severity.

Dental calculus is calcified dental plaque, composed primarily of calcium phosphate mineral salts deposited between and within remnants of formerly viable micro-organisms. It is classified according to its location on a tooth surface as related to the adjacent gingival margin; it may develop above the gum (supragingival) or below it (subgingival).[114] Levels of calculus and location of formation are population specific and are affected by oral hygiene habits, diet, age, systemic disease and others. Subgingival calculus formation in these populations occurs coincident with periodontal disease. In the

Dariali sample, the only notable case of dental calculus was in Trench AB. Skeleton AB4 displayed a minimal amount of dental calculus on the mandibular (lower) right first molar of Skeleton AB4. The calculus was minimal and located on the lingual side of the tooth.

Periodontitis refers to the loss of alveolar bone, after an inflammation of the tissues (gingivitis) attaching the teeth to alveolar bone (gum), if left untreated. Out of 58 observable maxillary and mandibular tooth sockets, only three displayed minimal lipping of alveolar bone (5.1%), which provides an indication of an early stage of periodontitis and not acute periodontal disease. It was observed on the lower left canine, the third and the fourth lower premolar, whose teeth were lost post-mortem, on the mandible of the female individual from Grave E2.

Periapical cavities result from bacterial invasion in the exposed pulp cavity, the subsequent infection of the surrounding alveolar bone tissue through the root canal, and the localised collection of pus. Pulp chamber inflammation may result from excessive attrition or dental caries, although it may occasionally be the outcome of trauma.[115] In scientific literature, periapical cavities are usually referred to as abscesses; however, there are many and diverse types of apical cavities and a series of infection developments that may eventually lead to abscesses.[116] In the present sample, only one case of periapical cavity was observed on the root of the first upper right molar of the female individual from Grave G2.

Ante-mortem Tooth Loss (AMTL), caused by dental infection, trauma, gingivitis or periodontitis, was not observed on any of the 58 maxillary and mandibular sockets in the present skeletal material.

19.11. Osteoarthritis (OA)

Osteoarthritis (OA) is the most common condition observed on human skeletal remains. The disease primarily affects the articular cartilage; as the disease progresses, the cartilage breaks down and affects the joints. In an attempt to repair the damage caused, the bone in the joints responds by producing new bone around the margins of the joints as well as on the joint surfaces, which will end up 'rubbing' against each other, thus becoming polished – a typical feature called '*eburnation*'.[117] One single joint or many joints may be affected by OA and the production of new bone may either be great (hypertrophic) or very little (atrophic). According to its aetiology, OA is classified as *primary*, which occurs later in life due to factors such as age, genetics, sex, race, obesity, trauma and stressful activity/consistent load of the joints) or a combination of those and *secondary*, which develops earlier in life because of pathological conditions, such as trauma or infection.[118]

Hyperostosis and lipping on the margins of vertebral bodies and the joints of the long bones, pitting and barely discernible eburnation on the joint surfaces recorded on the skeleton from Grave G6 indicate that this individual suffered from Osteoarthritis.

19.12. Periostitis/Chronic Periostitis

Periostitis (PO) is an inflammatory condition of the periosteum. It is usually caused by trauma or infection. PO affects only the outer bone, the cortical bone, without involving the medullary cavity. It is categorised as *acute* or *chronic* and occurs as a reaction whenever the inner surface of the periosteum is affected.[119] This reaction of the periosteum is recognisable as woven bone in the form of islands or strips that sleeve the underlying cortical bone. Smooth lesions with well-defined margins generally suggest that the process of bone formation was chronic.[120] It is commonly observed on the surface of long bones, especially the tibia. In the Dariali sample only one individual presented clear signs of the condition; the male individual from Grave G6. He displayed characteristics typical of chronic periostitis on both lower limbs long bones.

19.13. Entheseal changes

Entheseal changes are a pathological anomaly with a broad definition and describe pathological abnormalities – including inflammatory changes and degenerative changes – that occur at tendon, ligament or joint capsule insertions. Each muscle attaches to the bones at two points, the insertion and the origin. Strenuous activity, increased mechanical loading and/or trauma on the entheses during muscle activity, can trigger new bone formation, bone resorption or a combination of the two. The osseous changes observed on the entheses have been attributed various terms, such as *enthesopathies*[121] and *musculoskeletal stress markers*.[122] *Enthesopathy* refers to an anomaly of pathological nature, whereas *musculoskeletal stress markers* suggest that the causative factor for such changes is activity. However, morphological changes on the entheses usually are of multifactorial cause; thus, the term *Entheseal Changes*, as recommended by Jurmain and Villotte,[123] bears a wider and more generic meaning, which is more suitable in the case of archaeological groups. Such changes were observed only on the insertions of major muscles on the long bones of the lower limbs (gluteal tuberosity and linea aspera of the femur) and the tarsal bones of the skeleton from Grave G6.

19.14. Trauma

19.14.1. Introduction

Analysing trauma on past populations can provide valuable information on interpersonal violence, accident rates and warfare. Considerable variations may occur in the

patterns of violence according to social context as well as the type of the weapon used. Since many different objects are capable of producing more than one type of injury, it is rarely possible to match an injury with a particular weapon, especially in archaeological contexts. The force or the velocity of each blow or projectile is primarily responsible for the amount of damage caused to the bone; however, any protective equipment (*i.e.* armour) may play a significant part on the type mark each blow left on the bone.[124]

Only one case of fatal trauma was identified in the population under examination, in Grave Context G3. Fragments of the occipital bone (the posterior, lower part of the cranium) and the petrous bone (an element of the temporal bone, located on the lower, lateral part of the cranium) bore clear signs of sharp force trauma; more specifically, a chop wound. Two more cases of probable trauma were observed, represented by a minor blunt force trauma on the lateral aspect of the cranium (Grave Context G3) and a fracture on the femoral neck of the skeleton in Grave G1. Both of them were well healed ante-mortem and were not associated with the death of the individuals.

19.14.2. Sharp force trauma

Sharp force trauma is typically the result of compressive or sheer focal loading on a relatively small area of bone surface associated with an edged object. Sharp force trauma can incise, cut, chop, indent or even crush bone; its typical manifestations involve puncture, incision or chop which creates a discontinuity along the bone.[125] Boylston[126] presents four scenarios concerning the nature of a sharp force trauma injury.

In the present case study, hacking actions typically causing this category of chop wound seem to be the most appropriate explanation for the trauma in Grave Context G3 (Fig. 19:2). Wounds caused by edged weapons (*e.g.* a sword or a sabre) are the easiest to identify. Linearity, a well-defined clean edge, a flat, smooth polished cut and the presence of parallel scratch marks on the bone surface (when viewed by light or scanning electron microscopy), is symptomatic for an attack with a bladed weapon.[127]

It is possible to recognise the direction of the blow by examining the angle at which it sliced through the bone. The opposite side of the cut from the polished surface will show flaking and roughening, except when the weapon has cut cleanly through the cranium. A considerable number of studies have found that the majority of cranial injuries occur on the left side of the head, as a result of face-to-face combat between right-handed individuals.[128] In our case, however, it seems the individual under examination was attacked from the back, the blow coming from the left at a 45-degree angle. After close examination of the region of the occipital, we were able to determine the direction of the blow, from above downwards – perhaps indicating that the assailant was of a similar height to the victim.[129] The anatomy of the inflicted bone as well as the morphology of the weapon used can affect the appearance of a trauma. In this case, the sharp force could have been inflicted by a sabre, due to the curved shape of the injury, but a different, straight blade cannot be excluded. The injury showed no signs of healing and it is definitely associated with the death of the individual.

Unfortunately, since the context was disturbed, we cannot reconstruct the precise circumstances of this young

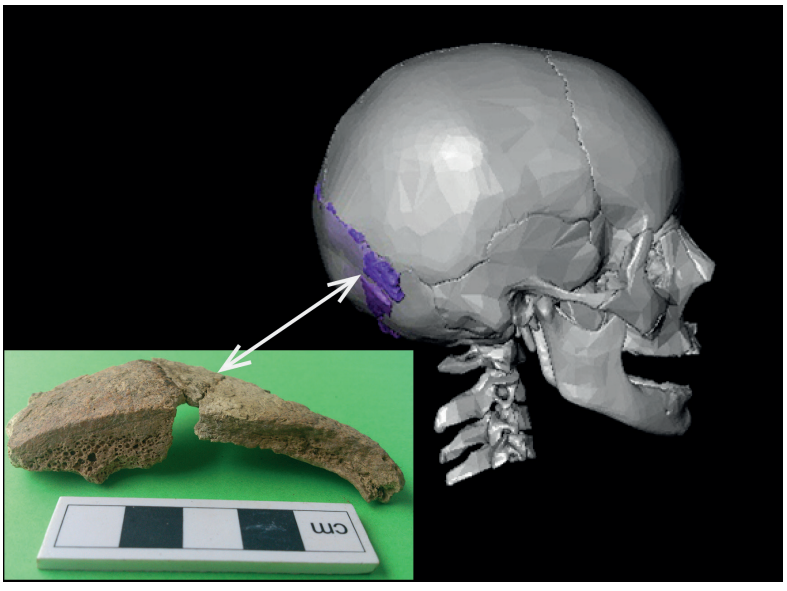


Fig. 19:2: Photo of fatal sharp-force wound on the skull, inflicted with a bladed weapon, and reconstruction by Elena Kranioti, Grave Context G3.

individual's death or the treatment of his remains. We do not know how they were buried or whether the remains were just disposed of, even if their discovery within a contemporary cemetery, albeit with no trace of a grave cist or receptacle for the small selection of his mortal remains found, may point to irregular burial. Neither can we tell whether his death occurred in combat or whether he was the victim of a crime. This is the only such incident in our small sample. Further examination of the trauma pattern may provide additional clues to the murder weapon and the exact position of the assailant.[130]

19.14.3. Blunt force trauma

The individual from Grave Context G3 exhibited, alongside the fatal sharp-force blow, a probable minor healed fracture on the left petrous region of the temporal bone. The lesion displayed characteristics of healing (raised and dense bone surface, no porosity, no active bone growth), which means it occurred ante-mortem and was not associated with the fatal sharp force trauma. Such a fracture occurs as a result of blunt force trauma on the temporal bone. Blunt force injuries are possible to occur in a number of circumstances, and produce the primary skeletal damage found in cases of traumatic compression and falls.[131] Blunt force traumas can also occur after a forceful contact with an unyielding surface or object, or by blows delivered by the fists or the feet. The amount of energy transmitted by the blow and the size of the impact area are of crucial importance to the potential for injury, and more often than not both these agents are responsible for a patterned trauma.[132] Even though the bone surfaces present all the macroscopic characteristics of well-healed, ante-mortem, blunt-force traumas, these observations should eventually be verified by X-ray examination, a technology that was not available during the assessment of this skeletal sample.

19.14.4. Fractures

The term *fracture* is employed to describe the complete or partial break in the continuity of a bone due to abnormal stress applied on the skeleton. This stress is characterised as *dynamic* (sudden, high stress) or *static* (low impact), resulting from the application of different types of force: (a) tension, (b) compression. (c) torsion, (d) bending, (e) shear. It is important to note that a different type of stress produces a different type of fracture.

In the skeletal material under examination, a healed fracture on the neck of the right femur of the young male individual from Grave G1 represents the only other case of fracture observed. This fracture is probably the reason why the proximal epiphysis of this individual's femur never fused, since the osteoblastic process was focused on healing the disrupted bone tissue on the femoral neck. Femoral neck fractures, such as the one observed in this case, are a subset of proximal femoral fractures; that is due to the fact that the femoral neck is the weakest part of the femur. Proximal femoral fractures tend to be observed in older individuals, especially those who suffer from osteoporosis. In these cases, the fracture is the result of low-impact trauma. When such fractures occur in younger individuals, such as the individual from Grave G1, they are the result mainly of high-impact or high-energy trauma, for example in individuals involved in unaccustomed strenuous activity (*e.g.* contemporary athletes). Lower limb fractures can also occur following a fall from a considerable height, and femoral neck fractures are a typical example of trauma produced by such a fall.[133] The case presents all the macroscopic characteristics of a well-healed, ante-mortem fracture, but these observations should eventually be verified by X-ray examination.

19.15. Conclusion

Overall, at least 36 individuals are represented in the assemblage excavated from all trenches at Dariali Cemetery, plus a young adult individual of indeterminate sex, represented by the scattered skeletal elements retrieved east of Trench G. In its majority, the skeletal material recovered was found to be poorly preserved. Trench G's skeletal remains were far better preserved than those recovered from Trenches E and AB, the latter being partially represented by dissolved bone. Both natural and cultural agents may be responsible for the difference in preservation.

The graves in Trench E represent mortuary practices of secondary/multiple burial or redeposition. In Trench G, by contrast, a different burial form was practised. With the exception of Grave G10 (for which we do not have the whole picture, since it remained largely unexcavated) and Grave Context G3, the deceased were buried individually, lying on their right side and facing SSE in the majority of cases. The only verified exception to this norm was the individual from Grave G9, buried supine, with their lower limbs slightly flexed towards the right, the left arm resting on the abdomen and the right probably lying towards/on the chest.[134] It was not possible to determine where the cranium was facing, but we assume that it was south. This, however, does not necessarily mean that the deceased was intentionally placed this way; taphonomic processes could be responsible for the rotation of the head to the right[135] as well as the dispersal of skeletal elements in the grave.

The sample represented by all trenches mainly consisted of young individuals, with an adult mean age-at-death of 27 years and a sub-adult mean age-at-death of 7–8 years. Infants and small children (6–9 months, 1–2 years, 3 years, 5 years, 7–10 years) were found in Trenches E and G, while Trench AB solely comprised individual child inhumations with ages ranging from 2

to 11 years. Adolescents and young adults were buried in both Trenches E and G with ages ranging from 12 to 20 years, and 20 to 30 years accordingly, while the highest age in all trenches is represented by a middle adult male aged 35–45 years. Grave G10 provided an exception to the rule of individual inhumations in Trench G, with evidence (teeth retrieved from the upper fill) for multiple inhumations of infants and an adolescent (6–9 months, 2 years and 12 years).

Overall, the preservation of the recovered skeletal material was poor and did not make it possible to reconstruct a full biological profile for every individual. Little information was retrieved, especially concerning ancestry. The young female individual from Grave E2 alone displayed prominent cranial characteristics indicative of Asian-derived ancestry, while certain dental non-metric variations present in other individuals are found to be more common amongst human populations of Asian descent, rather than those descended from European and African groups. However, we cannot be absolutely sure if these individuals' ancestry is Asian-derived, due to the small sample size and the low distribution of the specific dental non-metric traits as well as the occurrence of the same traits amongst other groups, if less frequently. Though it would be tempting to make assumptions on the provenience of the Dariali human skeletal group, given the strategic, liminal position of the Dariali Fort and the cultural and anthropological indications pointing towards possible human biocultural diversity, at this stage of research it would be a highly speculative statement. Further research on other aspects including demography, DNA and biodistance analysis will need to be combined with these data.

Stature was not possible to estimate in the majority of cases, due to the extremely fragmentary and eroded nature of the available skeletal elements. However, the skeletal material from Graves E2, G1 and G6 provided substantial information for the estimation of stature for three individuals (Table 19:1).

In its majority, the skeletal material examined did not manifest pathology or trauma. There were only three cases of trauma: sharp force fatal trauma and a probably healed blunt force trauma, both in Grave Context G3, and a healed fracture of the femoral neck in Grave G1. Major pathological lesions (other than *Dental Enamel Hypoplasia*, Degenerative Joint Disease, Entheseal changes or dental attrition) were identified on two individuals only (the female in Grave E2 and the male in Grave G6). The individual from Grave Context G3 displayed signs of a possible infection of the *sphenoidal sinus*. Trench AB contains a small sample of individuals and poor preservation prevented us from conducting any palaeopathology analysis or stature estimations.

We explored only a small group of individuals, but have been able to shed some light on their living conditions and burial practices. Our study has contributed, despite its limitations, to the understanding of the people inhabiting Dariali Fort. Data obtained in this pilot project is complemented by historical information and the stable isotope analysis.[136] In spite of the small sample size, this study will be relevant for future research by anthropologists working on human groups of this and neighbouring regions. Should future fieldwork increase the sample size, more solid patterns may emerge. Furthermore, our research has provided fascinating insights into the harsh living conditions at the remote outpost, notably episodes of illness or malnutrition affecting a considerable number of the occupants and an act of violence ending the life of one individual whose final resting place was near the famous fort.

Notes

1 Edinburgh Unit for Forensic Anthropology.
2 See chapter 6.
3 See chapter 6.3.
4 See chapter 6.4.
5 See chapter 6.6.
6 Brickley and McKinley 2004.
7 Mays *et al.* 2004.
8 Buikstra and Ubelaker 1994.
9 Most of the skeletal elements recovered were wet and extremely fragile, due to the high levels of humidity and acidity of the local soil, especially in Trench E. They were allowed to air-dry in the shade on site, before being packed in aluminium foil and sent to the base, where they were left to further air-dry in the laboratory, before being cleaned, analysed and packed for storage.
10 Buikstra and Ubelaker 1994.
11 Employing similarly the Dental Attrition Method (Brothwell 1981 and Lovejoy *et al.* 1985a), Schour and Massler's (1944) *Chart of Human Dentition Development*, Hillson's (1996) *Tooth Eruption Diagram* and Smith's *Dental Wear Method* (Smith and Knight 1984).
12 Buikstra and Ubelaker 1994.
13 Lovejoy *et al.* 1985b.
14 Buikstra and Ubelaker 1994.
15 Recording guidelines following Arizona State University system, compiled by Dr. Elena Kranioti and Dr. Hellen Brett, University of Edinburgh; unpublished document.
16 See chapter 19.4.
17 Brothwell 1981.
18 Lovejoy *et al.* 1985a.
19 Smith and Knight 1984.
20 Schour and Massler 1944.
21 Hillson 1996; Ubelaker 1987.
22 Scott and Turner 1997; Scott 1973.
23 Scott and Turner 1997; Scott 1973.
24 Scott and Turner 1997; Scott 1973.
25 Due to the fact that human skeletal remains – excluding fossilised hominid material – are recovered in archaeological contexts primarily as a result of human cultural and ritual activity, both natural and cultural agents should be considered as taphonomic (Bonnichsen and Sorg 1989). Humans are the agents responsible for burial, and the way

they treat their dead has a major impact on their preservation (cf. Andrews and Bello 2006, 16–29). A combination of microenvironmental as well as cultural agents probably is why the skeletal material recovered was found either dissolved or in a very poor condition.

26 Grupe 2007.
27 Hanson and Buikstra 1987.
28 Buikstra and Ubelaker 1994.
29 Schultz 1997.
30 Buikstra and Ubelaker 1994.
31 Pokines and Baker 2013.
32 See chapter 6.6.
33 Schour and Massler 1944.
34 Lovejoy *et al*. 1985a.
35 27.167 years.
36 7.72 years.
37 See Fig. 19:1.
38 Brothwell 1981; Lovejoy *et al.* 1985a.
39 Schour and Massler 1944.
40 Hillson 1996.
41 See chapter 6.6.
42 See chapter 6.5.
43 Ubelaker 1987.
44 Scheuer and Black 2004, 225.
45 See Table 19:1.
46 Bass 1995; Gill 1998; Byers 2005.
47 Mayall *et al.* 2017.
48 Carbonell 1963; Davies 1972; Hillson 1996.
49 Referring to biological anthropology.
50 Collins 2004; Shriver *et al.* 2004; Jorde and Wooding 2004; Race, Ethnicity and Genetics Working Group 2005.
51 A constructed common identity/ancestry is not the same as genetic relatedness.
52 Though speakers of a single language do not necessarily group into a single ethnic group (Emberling 1997).
53 Emberling 1997; Barth 1969.
54 AAPA American Association of Physical Anthropologists 1996.
55 Kennedy 1995.
56 American Association of Physical Anthropologists 1996.
57 Howells 1973; Hajek *et al.* 2008.
58 Scott and Turner 1997; Tyrell 2000.
59 Mays 1998.
60 Scott and Turner 1997.
61 Scott and Turner 1997; Tyrell 2000.
62 Mays 1998.
63 Mays 1998.
64 Mays 1998; Byers 2005.
65 Barnes 1994; Mays 1998; Byers 2005; Hauser and De Stefano 1989.
66 Hauser and De Stefano 1989, 41.
67 Hauser and De Stefano 1989, 41.
68 Hauser and De Stefano 1989, 42.
69 Sjøvold 1984.
70 Buikstra and Ubelaker 1994; Tyrrell 2000.
71 Mays 1998.
72 Hrdlicka 1920.
73 Carbonell 1963; Hillson 1996.
74 Hrdlicka 1920; Scott and Turner 1997, 183.
75 Hanihara 1963.
76 Hillson 1996.
77 Carbonell 1963; Hillson 1996.
78 Carbonell 1963; Davies 1972.
79 Scott and Turner 1997, 27–29.
80 Hillson 1996.
81 Turner 1967.
82 Scott *et al.* 2016.
83 Scott and Turner 1997, 187–89.
84 Scott and Turner 1997, 187–89.
85 Cited in Scott and Turner 1997, 189.
86 Cited in Scott and Turner 1997, 189.
87 Cited in Scott and Turner 1997, 189.
88 Scott *et al.* 2016.
89 Scott and Irish 2017, 149–54.
90 Turner *et al.* 1991, 20.
91 Van Beek 1983, 67.
92 Harris and Bailit 1980, 352.
93 Scott and Turner 1997, 27–29.
94 Scott and Turner 1997, 194.
95 Turner *et al.* 1991, 24.
96 Scott and Turner 1997, 206; Pacelli and Márquez-Grant 2010.
97 Scott, G.R., 1973. *Dental Morphology: a Genetic Study of American White Families and Variation in living Southwest Indians*. Unpublished PhD dissertation, Department of Anthropology, Arizona State University, Tempe: Table 66, cited in Harris and Turner 1974.
98 Schour and Massler's (1944) *Chart of Development for Human Dentition* and Hillson's (1996) *Dental Eruption Diagram* were also employed, where possible.
99 Shafer *et al.* 1983; Regezi *et al.* 1999.
100 Hattab and Yassin 2000.
101 Brothwell 1981.
102 Lovejoy *et al.* 1985a.
103 Schour and Massler's (1944) *Chart of Development for Human Dentition* and Hillson's (1996) *Dental Eruption Diagram* was also employed, where possible.
104 Aufderheide and Conrado 1998.
105 Ortner *et al*. 2001; Schultz 2001.
106 El-Najjar 1967; Zaino and Zaino 1975; El-Najjar *et al*. 1976; Cohen and Armelagos 1984; Walker 1985; 1986; Mensforth 1991; Mittler and Gerven 1994; Steckel and Rose 2002.
107 Schultz 2001; Ortner *et al*. 2001.
108 Walker *et al* 2009.
109 Buikstra and Ubelaker 1994.
110 Skinner and Goodman 1992; King *et al.* 2005.
111 Ogilvie and Trinkhaus 1990; Skinner and Goodman 1992.
112 Nozaka *et al.* 1990.
113 Hillson 1996, 269.
114 Roberts and Manchester 2005.
115 Hillson 2008.
116 Dias and Tayles 1997.
117 Aufderheide and Conrado 1998; Ortner 2003.
118 Aufderheide and Conrado 1998; Ortner 2003; Weiss and Jurmain 2007.

119 For a complete review of its aetiologies see Mensforth *et al.* 1978 and Weston 2011.
120 Lovel 2000.
121 Mariotti *et al*. 2004.
122 Hawkey and Merbs 1995.
123 Jurmain and Villotte 2010.
124 Boylston 2004.
125 Kimmerle and Baraybal 2008.
126 Boylston 2004.
127 Cox and Mays 2000; Boylston 2004; Byers 2005.
128 Cox and Mays 2000.
129 Analysis by Elena Kranioti.
130 Analysis by Elena Kranioti.
131 Galloway 1999.
132 Galloway 1999; Marks 1999.
133 Galloway 1999.
134 Observation by Annamaria Diana.
135 Duday 2009, 17.
136 See chapter 20.

20

Dariali Cemetery stable isotope analysis

Catriona Pickard

20.1. Isotope analysis

Carbon and nitrogen stable isotope analysis of bone collagen is a well-established method for reconstructing dietary protein intake.[1] The carbon and nitrogen isotope ratios ($\delta^{13}C=^{13}C/^{12}C$ and $\delta^{15}N=^{15}N/^{14}N$, respectively) in human tissues reflect those of consumed foods. Carbon is incorporated into plant tissues during photosynthesis. Carbon stable isotope ratio values in plants vary depending on the environmental sources of carbon and the mechanism used to fix carbon. Most terrestrial plants fix carbon through one of two routes, the C_3 or C_4 pathways.[2] C_3 plants comprise temperate region grasses and cereals, such as wheat and barley, as well as most fruits and vegetables. C_4 plants include some tropical grasses, and some cereals such as millet and sorghum. Variations in plant $\delta^{13}C$ are passed on through the food chain into the tissues of human consumers. Analysis of $\delta^{13}C$ can therefore indicate the relative importance of C_3 and C_4 resources in diet. Nitrogen in plants may be drawn from atmospheric N_2 as well as soil.[3] Nitrogen stable isotope ratio values increase with each step in the food chain: this is known as the 'trophic level effect'. Human $\delta^{15}N$ values can, therefore, be used to distinguish the proportion of animal to plant foods in diet.

Assessing both the carbon and nitrogen stable isotope ratio values in a given individual may also discriminate between the consumption of terrestrial and aquatic (*i.e.* marine and freshwater) resources. Marine plant $\delta^{13}C$, and, therefore, marine $\delta^{13}C$ foodweb, values differ from those of terrestrial C_3 foodwebs owing to distinctive environmental carbon sources.[4] The $\delta^{13}C$ values of terrestrial C_4 resources may overlap with marine $\delta^{13}C$ values. However, consumption of marine resources may be distinguished from terrestrial C_4 by virtue of the longer food chains and, therefore, higher $\delta^{15}N$ values. Similarly, $\delta^{13}C$ values of freshwater resources may overlap with those of terrestrial C_3 foodwebs but again the two may be distinguished by $\delta^{15}N$ values, which are typically much higher in freshwater foodwebs.[5] The increase in $\delta^{15}N$ between animals and their diets has been observed to be in the order of 3–5‰;[6] however, the consumer-diet offset is likely to be larger than this in humans – up to c. 6‰.[7]

Sulphur stable isotope ratio values ($\delta^{34}S=^{34}S/^{32}S$) have been used as both a dietary discriminant and as an indicator of residential mobility.[8] Dietary sulphur is ultimately derived from geological sources. Sulphur stable isotope values can indicate the movement of an individual between regions with distinctive bioavailable $\delta^{34}S$ values.[9] However, sulphur stable isotopes seldom provide the resolution of strontium and oxygen studies of provenance. In regions where there is significant variation in the bioavailable $\delta^{34}S$ values of terrestrial and aquatic foods, sulphur stable isotope values may also add resolution to dietary interpretations.

20.2. Materials and methods

Human samples

The $\delta^{13}C$, $\delta^{15}N$ and $\delta^{34}S$ values of the bone collagen of eight individuals including adults, a sub-adult and a child (see Table 20:1) from the Dariali Cemetery population were measured to reconstruct diet and to assess residential mobility.

Collagen extraction from these individuals was undertaken in the Wet Chemistry Laboratory at the School of History, Classics and Archaeology at the University of Edinburgh. A c. 1 g sample of human bone was taken from the cortical bone of each individual. Collagen was extracted from the sample using a modified Longin method.[10] Pre-treatment consisted of sample cleaning by removal of the outer 2 mm of the bone surface, ultra-sonication in milli-Q™ purified water (carbon content <3ppb),

Table 20:1:Dariali Cemetery $\delta^{13}C$, $\delta^{15}N$ and $\delta^{34}S$ values (Radiocarbon dates were taken from the same individual as the isotope sample, except for collective Grave E3, where the radiocarbon sample related to a different child, aged 2–4).

Insufficient collagen was recovered from the bone samples of Graves G4 and G9 to permit separate $\delta^{13}C$, $\delta^{15}N$ and $\delta^{34}S$ analysis. However, the $\delta^{13}C$ values of these individuals (-14.9‰ and -14.7‰ respectively), measured for quality assurance during ^{14}C dating, suggest that C_4 resources were, if not the major component of diet, a very important dietary staple.

GUsi No.	Sex/Age	Context ID (^{14}C date, 95.4%)	$\delta^{13}C$ (‰)	$\delta^{15}N$ (‰)	$\delta^{34}S$ (‰)	C:N	%N	%C	%S	C:S	N:S
GUsi 2819	?: 17–25	Grave E1 (AD 771–952)	-16.6	10.2	4.7	3.3	14.2	40.5	0.31	354	107
GUsi 2814	F: 25–35	Grave E2 (AD 671–770)	-17.9	8.4	2.2	3.3	14.6	40.8	0.31	354	109
GUsi 2821	?: 5	Grave E3 (AD 778–988)	-19.2	9.2	3.6	3.2	15.2	42.1	0.30	372	116
GUsi 2816	M: 15–20	Grave G1 (AD 777–971)	-18.5	8.8	1.3	3.3	15.6	43.8	0.30	388	119
GUsi 2818	F: 21–30	Grave G2 (AD 974–1035)	-16.6	9.1	3.8	3.3	14.7	41.2	0.29	380	116
GUsi 2820	M?: 17–20	Grave G3 (AD 989–1029)	-16.0	8.0	2.9	3.2	14.2	38.5	0.33	307	97
GUsi 2815	M: 35–45	Grave G6 (AD 780–990)	-18.4	10.1	0.2	3.2	15.5	43.3	0.31	379	117
GUsi 2817	?: sub-adult	Grave G8 (AD 770–942)	-18.7	6.3	n/a	3.1	13.3	35.8	n/a	n/a	n/a

demineralisation in 1N HCl for a minimum of 24 hours, and gelatinisation in 0.03N HCl at 80°C for ~16 hours; the resulting solution was lyophilised.

The $\delta^{13}C$, $\delta^{15}N$ and $\delta^{34}S$ mass spectrometric measurements of the human bone collagen samples were undertaken at the SUERC radiocarbon facility East Kilbride, UK. Collagen preservation was evaluated using the following criteria: percentage weight yield of collagen, total %C, %N and %S, and atomic C:N, C:S and N:S ratios. The samples presented in Table 20:1 have >1.00 wt% collagen yield the threshold quoted for well-preserved bone collagen.[11] The minimum %C = 13% and %N = 5% outlined by Ambrose[12] was met by all of the samples (see Table 20:1). The atomic C/N ratios of the samples range from 3.1 to 3.3 indicative of well-preserved collagen.[13] Insufficient collagen was recovered from sample GUsi2817 to permit $\delta^{34}S$ analysis. All but one of the samples (GUsi2820, see Table 20:1) analysed met the quality control criteria for sulphur outlined by Nehlich and Richards,[14] *i.e.* total %S between 0.15% to 0.35% and atomic C:S and N:S ratios in the range 600±300 and 200±100, respectively. Results are corrected for linearity and instrumental drift, and are reported as per mil (‰) relative to the internationally accepted standards V-PDB, AIR and V-CDT, with 1σ precisions of ± 0.2‰ for $\delta^{13}C$, ± 0.3‰ for $\delta^{15}N$ and ± 0.6‰ for $\delta^{34}S$.

Dentine samples of two further individuals from the Dariali Cemetery as well as 38 animal bone samples from the site were measured for $\delta^{13}C$ and $\delta^{15}N$ on continuous flow IRMS during sample quality assurance for ^{14}C dating at the Radiocarbon Facility at SUERC (see Tables 20:1 and 20:2). Measurement standards and precisions are given above.

Values of $\delta^{13}C$ of 12 human and 26 animal samples were measured at the Oxford University Accelerator Unit, as a collagen quality assurance protocol for ^{14}C dating.[15] The ORAU $\delta^{13}C$ measurements are reported (‰) relative to the internationally accepted standard V-PDB, with 1σ precision of ± 0.3‰.

As spatial and temporal variation in plant and animal $\delta^{13}C$ and $\delta^{15}N$ values have been observed,[16] $\delta^{13}C$ and $\delta^{15}N$ values of foods that could have contributed to diet are essential to provide an interpretational framework for human stable isotope signatures. The stable isotope summary statistics presented in the discussion include only those animals identified to at least genus level.

20.3. Results and discussion

20.3.1. Carbon and nitrogen stable isotopes

The eight individuals sampled from the Dariali Cemetery assemblage for which both carbon and nitrogen bone

Table 20:2: Dariali animal remains $\delta^{13}C$ and $\delta^{15}N$ values.

Animal	$\delta^{13}C$ (‰)	$\delta^{15}N$ (‰)	*n*
Caprine	-19.6±0.7	5.6±1.8	15
Caprine (wild)	-20.0	0.8	1
Cattle	-19.6±0.9	5.3±1.0	7
Goat	-20.3±0.3	4.7±1.9	3
Sheep	-20.0±1.4	4.8±1.1	4
Small ruminants	-19.7±0.5	3.4±2.2	5
Large mammal	-21.2	5.2	2
Animal bone – unidentified	-20.7	3.7	1
All animals	-19.9±0.8	5.8±2.0	38

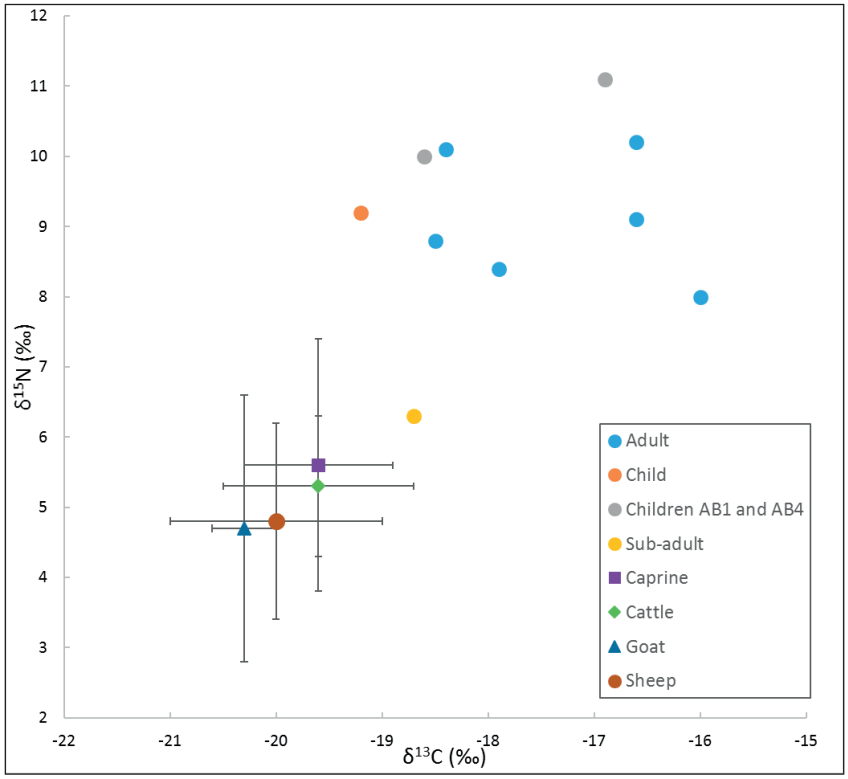


Fig. 20:1: Scatterplot of bone collagen $\delta^{13}C$ and $\delta^{15}N$ values of Dariali Cemetery human sub-sampled population. (The carbon and nitrogen stable isotope ratios of two children from Graves AB1 and AB4 were measured ($\delta^{13}C$ = -18.6‰, $\delta^{15}N$ = 10.0‰ and $\delta^{13}C$ = -16.9‰, $\delta^{15}N$ = 11.1‰, respectively), and are included in Fig. 20:1. As these were measured on dentine extracted from permanent molar M1, which represents a time-averaged dietary signal from birth and likely contain a nursing signal, these samples were not included in the summary statistics.)

collagen isotope values were measured have mean $\delta^{13}C$ of -17.7 ± 1.2‰ (1σ) and $\delta^{15}N$ of 8.8 ± 1.3‰ (1σ) (see Fig. 20:1). Mean adult bone collagen $\delta^{13}C$ and $\delta^{15}N$ values are similar to those of the whole sample set; -17.3 ± 1.1‰ (1σ) and $\delta^{15}N$ of 9.1 ± 0.9‰ (1σ), respectively.

Mean $\delta^{13}C$ and $\delta^{15}N$ of all the 38 animal remains sampled from Dariali are –19.9 ± 0.8‰ (1σ) and 5.8 ± 2.0‰ (1σ), respectively. The $\delta^{13}C$ mean and range of these animals, most of which are herbivores, are typical of a C_3 plant biome. A small offset (up to c. 1‰) between consumer and diet $\delta^{13}C$ values is expected. However, the difference between the mean $\delta^{13}C$ values of the herbivores and the humans at Dariali is 2.7‰. Furthermore, the range of $\delta^{13}C$ values exhibited by the Dariali human population, from -19.2‰ to -14.7‰, is not mirrored in animal $\delta^{13}C$ values, which range from -21.5‰ to -17.9‰. This points to a mixed diet, which included both C_3 foods, such as the domesticates and C_3 plants recovered at Dariali, as well as

other resources with relatively higher $\delta^{13}C$ values, such as aquatic or C_4 resources. Remains of both anadromous fish and the C_4 cereal, broomtail millet (*Panicum miliaceum*), were recovered at Dariali, the former from all main phases of occupation on the fort, the latter from a late eighth or ninth-century context (Q.148).[17] A further C_4 cereal, foxtail millet (*Setaria italica*) was identified in a mid-fourth to early fifth century deposit (F.181).[18] The wide range of individual $\delta^{13}C$ values greatly exceeds that observed in populations with monotonous diets.[19] This implies that different individuals were consuming varying amounts of millet and/or fish. Certain individuals, those with particularly high $\delta^{13}C$ values, likely drew a significant proportion of their diet from these resources. Determining the precise contribution of C_3, C_4 and aquatic resources to individual diet at Dariali is limited by the lack of $\delta^{13}C$ and $\delta^{15}N$ data for potential food sources – the data for only one of the three food groups is known for the Dariali locale. However, a number of inferences can be made.

Millet, a cereal crop indigenous to Africa and Asia, was cultivated in the Near East from at least the Middle Pre-Pottery Neolithic B and was widespread from the Early Bronze Age.[20] *Panicum miliaceum/Panicum* sp. was recorded at Late Neolithic Shulaveri-Shomutepe, Georgia. However, it unclear whether this was a cultivated form.[21] Varying consumption of millet, or other C_4 staples, likely accounts for the wide range of $\delta^{13}C$ values of the Dariali population. Published $\delta^{13}C$ values of modern millets range from –10‰ to –12‰ .[22] Domesticate $\delta^{13}C$ values at Dariali are typical of a C_3 biome – there is no indication that these animals were grazed or foddered on millet. This supports the hypothesis that millet was imported to the site. The contribution of foods with relatively low protein and high carbohydrate and/or lipid content to diet tends to be underestimated in reconstructions based on collagen stable isotope values.[23] Millet or other C_4 foods are, therefore, likely to have been a significant component in the diet of those individuals from Dariali with the highest $\delta^{13}C$ values.

Archaeozoological and ecological evidence suggest that, while a small number of fish remains were recovered at Dariali, they were probably imported and were unlikely to have been a major component of diet.[24] The remains of the two species identified, Persian sturgeon (*Acipenser persicus*) and Caspian trout (*Salmo caspius*), are from particularly large specimens, up to 50 kg in weight.[25] Frequent consumption of large fish is generally indicated by high $\delta^{15}N$ values.[26] This is not evident in the Dariali population, suggesting that fish was not an important source of food.

20.3.2. Demographics and diet at Dariali

The Dariali bone collagen samples were obtained from individuals of varying age (from children to young adults) as well as from different skeletal elements (including the cranium, long bones and tooth dentine). The isotope signatures of these individuals reflect diet at different stages of life and over varying timespans. Tooth dentine is largely fixed at development, while bone collagen 'turnover' occurs throughout life.[27] Tooth dentine stable isotope ratio values, therefore, provide information on diet during the period of tooth development. By contrast, bone collagen stable isotope signatures indicate average 'lifetime' dietary intake. The timespan reflected in bone collagen stable isotope values depends on, (1.) the age of the individual at death, and (2.) the type of bone sampled, *i.e.* whether it is trabecular or cortical tissue. In infants and young children there is rapid bone development and sampled bone collagen may only reflect diet during the year prior to death.[28] During adolescence, another key period of substantial bone growth, complete collagen turnover may occur in as little as two years depending on the skeletal element sampled.[29] In adulthood, collagen turnover reduces significantly; it is estimated that it may take between ten and 30 years for collagen to turnover completely.[30] Consequently, in young to middle-aged adults there is a disproportionate representation of dietary intake during adolescence in bone collagen isotope signatures. Collagen in cancellous elements, such as ribs and vertebrae, generally turns over more rapidly than that in cortical bone, such as the mid-shaft of the femur.[31]

In seven instances, two measurements of $\delta^{13}C$ were made for a single individual, one for dietary analysis and one for quality control in ^{14}C dating: four separate $\delta^{13}C$ measurements were conducted on the individual interred in Grave Context G3. In each of these cases where post-cranial bone was sampled for $\delta^{13}C$ the results were within quoted laboratory instrument measurement precisions. In the three individuals (Grave E1, Grave E2 and Grave Context G3) where various skeletal elements were sampled for dietary analysis and ^{14}C dating, differences in $\delta^{13}C$ were evident. Although there may be small variations (<1‰) in the $\delta^{13}C$ values from the different skeletal elements within a single individual consuming a monotonous diet, differences of >1‰ *may* be linked to changes in diet.

Differences between bone collagen and tooth dentine $\delta^{13}C$ in the individual recovered from Grave Context G3 point to an increase in C_4 and/or aquatic resources in the later stages of life. In individual E1, the cranial bone collagen is ^{13}C-enriched relative to the long bone value. Cranial bone collagen remodels very slowly, likely more slowly than that of the femur. Cranial samples, therefore, reflect average diet over a longer period than post-cranial elements.[32] This suggests that this individual may have consumed more C_3 resources in the later stages of life. A similar trend of increased C_3 consumption is implied by the dentine and bone collagen $\delta^{13}C$ signatures of individual E2. Relative enrichment of ^{13}C in the tooth versus the bone sample may be a relic from the 'nursing' effect. During nursing infants are at a higher point in the food chain than their mothers; a small increase in infant versus

maternal $\delta^{13}C$ may be evident in collagen values at this time. However, this increase is reported to be small, up to 1‰.[33] The tooth-bone $\delta^{13}C$ shift in individual E2 is 2.1‰ – indicating a change in dietary intake between childhood and adulthood. Further interpretation of the potential implications of these dietary shifts are hampered not only by uncertainties in which teeth were analysed, but also because of imprecisions in collagen turnover rates in different skeletal elements.

Tooth dentine from the permanent first molar of two children from Graves AB1 and AB4, the former aged 3–5, the latter, 4–8 years, record average diet from birth (the time at which this tooth begins to develop). The $\delta^{13}C$ and $\delta^{15}N$ values of the children are roughly consistent with the range of adult values suggesting similar diets.[34]

The $\delta^{15}N$ values of the Dariali Cemetery population are relatively uniform: all but one of the bone collagen values lies in the range 8.0‰ to 10.2‰ – suggesting uniformity in trophic level of dietary constituents.[35] The relatively low $\delta^{15}N$ values are also consistent with the hypothesis that consumption of C_4 rather than aquatic resources accounts for the variability in $\delta^{13}C$ values. Notable is the low $\delta^{15}N$ value of the sub-adult in grave G8 ($\delta^{15}N$ = 6.3‰). Comparison with the mean herbivore $\delta^{15}N$ (5.8‰) suggests that this individual had a distinctive diet from the other individuals sampled. Consideration of both the $\delta^{13}C$ and $\delta^{15}N$ values suggests a diet of mainly C_3 plant foods. Barley (*Hordeum vulgare*), wheat (*Triticum* spp.) and rye (*Secale cereale*), C_3 cereals, were identified at Dariali.[36] Alternatively, the distinctive nature of the isotope signature of this individual may relate to age. The remains were tentatively identified as sub-adult. Tsutaya and Yoneda[37] identified reduced $\delta^{15}N$ values in sub-adults in many archaeological populations. This was associated with the use of lower trophic level resources such as cereals during weaning. However, adolescence is a period of rapid bone growth, which results in increased protein requirements and reduced discrimination, or fractionation, of $^{14}N/^{15}N$ – *i.e.* non-dietary cause of $\delta^{15}N$ variation.[38]

The $\delta^{15}N$ value of the wild caprinid recovered from the site is a confounding factor. A very low $\delta^{15}N$ of 0.8‰ points to the availability of wild pulses in the region.[39] Small quantities of lentil (*Lens culinaris*) and broad bean (*Vicia faba*) have been recovered in flot residues, the former from a tenth-century deposit, the latter so far only from late antique layers predating the burials.[40] If pulses contributed significantly to human diet at the site, this would add a further level of complexity to reconstructing diet.

20.3.3. Sulphur stable isotopes

Of the eight samples submitted for $\delta^{34}S$ analysis, six produced reliable results. Sample GUsi2820 did not meet all of the quality control indicators with an atomic N/S ratio of <100. Although this sample will be excluded from further discussion, the $\delta^{34}S$ value obtained for this sample is consistent with those of the other samples. All of the $\delta^{34}S$ values obtained occur in a narrow range from 0.2 to 4.7‰, with an average value of 2.7 ± 1.7‰ (Table 20:1). The geology of the Dariali Gorge region of Georgia predominantly comprises metamorphic and igneous rocks.[41] Sulphur in igneous rocks of primary origin has $\delta^{34}S$ values in a narrow range close to 0‰.[42] Therefore, the $\delta^{34}S$ values of the Dariali Cemetery population are consistent with local domicile or migration from a region with similar geological $\delta^{34}S$ values. However, mobility could be more fully explored through strontium and potentially oxygen stable isotope analyses.

20.4. Conclusion

Carbon, nitrogen and sulphur stable isotope analysis of a sub-sample of the excavated population from Dariali was undertaken to investigate diet and mobility. Mean human and animal carbon and nitrogen stable isotope values indicated a mixed diet based on resources drawn from both C_3 and C_4 foodwebs. Individual dietary variation was pronounced. This may reflect differences in the status or activities of the sampled group.

Notes

1 Chisholm *et al.* 1983; Schoeninger 2010.
2 DeNiro and Epstein 1978; Krueger and Sullivan 1984.
3 Wirén *et al*. 1997.
4 Tykot 2004.
5 Tykot 2004.
6 Bocherens and Drucker 2003.
7 Hedges and Reynard 2007; O'Connell *et al*. 2012
8 Richards *et al.* 2001.
9 *E.g*. Linderholm *et al*. 2014.
10 Longin 1971; Brown *et al*. 1988.
11 Van Klinken 1999; Brock *et al*. 2010.
12 Ambrose 1990.
13 DeNiro 1985; van Klinken 1999.
14 Nehlich and Richards 2009.
15 See Tables listing radiocarbon samples in chapters 2–8.
16 Heaton 1999; Drucker *et al*. 2003; Ma *et al*. 2012.
17 See chapters 21.2 and 22.2.
18 See chapter 22.2.
19 DeNiro and Schoeninger 1983; Perkins *et al*. 2014.
20 Nesbitt and Summers 1988; Hunt *et al*. 2008.
21 Hunt *et al*. 2008.
22 McGovern *et al*. 2004; Pechenkina *et al*. 2005; An *et al*. 2015.
23 Lanting and van der Plicht 1998.
24 See chapter 21:2 below.
25 See chapter 21:2 below.
26 *E.g*. Schoeninger *et al*. 1983; Bonsall *et al*. 1997.
27 Hedges *et al*. 2007; Montgomery *et al*. 2013.
28 Tsutaya and Yoneda 2013.
29 Ubelaker and Parra 2011; Tsutaya and Yoneda 2013.

30 Libby *et al.* 1964; Stenhouse and Baxter 1979; Hedges *et al*. 2007.
31 Hedges *et al*. 2007; Ubelaker and Parra 2011.
32 Bryant and Loutit 1964.
33 Fuller *et al*. 2006.
34 Fuller *et al*. 2006.
35 DeNiro and Schoeninger 1983.
36 See chapter 22.2.
37 Tsutaya and Yoneda 2013.
38 Fuller *et al.* 2005; Waters-Rist and Katzenberg 2010.
39 *E.g*. Szpak *et al*. 2014.
40 See chapter 22.2.
41 Bock *et al.* 1995.
42 Thode 1991.

21

Herding and hunting in the highlands from the Sasanian to late medieval periods

21.1. The archaeozoology of the Dariali Gorge

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21.1.1 Introduction

This chapter will introduce the archaeozoological studies of the Dariali region with a particular focus on the evolution of the subsistence economies of the Dariali Fort. Dariali Fort is located in the Dariali Pass part of Kazbegi district in the Mtskheta-Mtianeti region of North-eastern Georgia, on the border of Russia's Republic of Ossetia–Alania. The lowest point in the Kazbegi region is around 1,200 m above sea level and the highest point is over 5,000 m.

The Kazbegi region has a rich and diverse environment and natural resources. The National Park of Kazbegi houses Georgia's Red List species, such as East Caucasian tur (*Capra cylinricornis/caucasica*), which is endemic to the region, chamois (*Rupicarpa rupicarpa caucasica*), one of the most remarkable mountain ungulates, bezoar goat (*Capra aegagrus*), brown bear (*Ursus arctos*) and lynx (*Lynx lynx*). The avian fauna that inhabit this region are also important, including rare species, such as the Caucasian black grouse (*Tetrao mlokosiewiczi*) alongside birds of prey including the golden eagle (*Aquila chrysaetos*), griffon vulture (*Gyps fulvus*) and bearded vulture (*Gypaetus barbatus*).

The relief around Dariali Fort is complex, mountainous and rugged. As a result, the potential for agricultural activities is limited. Instead, the area is more suitable for sheep, goat and cattle breeding, together with the development of terrace field systems for pasture or growing animal fodder.[2] The high altitude and harsh winter climate, with freezing temperatures from October to April, have favoured the development of transhumant pastoralism.

The aim of this study is to document the subsistence economy of the human communities that inhabited the Dariali Gorge during the long occupation of the Dariali Fort, from the Sasanian period until modern times. The population that came to occupy this confined area were of different ethnic and religious origins, as indicated by various historical and ethnographic sources.[3]

The study of the animal bones of the Dariali Gorge

The faunal assemblage of the Dariali Gorge can be considered as the most voluminous osteological collection ever studied in Georgia. Most of the osteological studies in Georgia refer to palaeontological work; however, a limited number of Holocene faunal studies have been published, mostly representing studies by Oleg Bendukidze.[4] A recent literature review by Rémi Berthon illustrates the limited number of faunal studies in Georgia in general and more specifically for historical periods.[5]

An international archaeozoology team united in Stepantsminda

In 2013, the first author had the opportunity to visit Ivane Javakhishvili Tbilisi State University, where the bone remains of the first field season of work in the Dariali Gorge and Dariali Fort are stored, and to examine some of the faunal remains and organise their study during the field seasons (Figs 21:1–7). Given the large amount of bones, it was decided that a team of archaeozoologists was required for a complete and proper analysis of the animal remains.

The team was composed of seven archaeozoologists who all took part in the fieldwork.[6] Also, at the dig house in Stepantsminda, local workers helped to wash the great



Fig. 21:1: A selection of bone boxes deriving from the first and second seasons of excavation.





Fig. 21:2: Young workers washing bones in the field, seen from the dig house.



Figs 21:3–21:4: Using free spaces on the balcony of the dig house to dry the bones.



Fig. 21:5: Analysing bones on the balcony of the dig house in 2014.



Fig. 21:6: Analysing bones in the dig house in 2015.



Fig. 21:7: Bone studies in the field laboratory in 2016, a 20m long military tent dating back to the Second World War.

number of bones that were collected during excavations each day.

Identifications of macro-mammalian remains were made with the help of modern comparative collections that we progressively created from local modern domestic animals (Figs 21:8–10) and the archaeological material itself due to its exceptional preservation. In addition, we used osteological atlases.[7] The osteological distinction of sheep and goat is based mainly on the studies developed by Joachim Boessneck.[8]

The precise taxonomic identification and registration of the bird remains took place at the Natural History Museum in Paris, using the patrimonial collections of the museum and the facilities at the Archaeozoology laboratory. Fish remains were handed to Dr Valentin Radu of the National Museum of Bucharest (Romania).[9] Finally, the study of the microvertebrates (including rodents, insectivora, amphibians and reptiles, but excluding tortoises) was undertaken by Dr Emmanuelle Stoetzel from the National History Museum of Paris.[10] In total, just over 84,000 animal bones were collected during the four excavation seasons (Table 21:1) in Dariali Gorge. The archaeozoology team devoted the equivalent of more than one year of full time work to the study and analysis of the faunal remains of the Dariali project.



Fig. 21:8: Bibino Tsiklauri, the cook, defleshing the meat (beef) and handing us the bones to be prepared for a comparative collection in 2014.





Figs 21:9–21:10: Unearthing the skeletal parts of Bibino's bull in summer 2015. The fusion state of the Humerus and Femur bones indicate the bull was one year old or slightly over one year.

Origin of the assemblage

The faunal remains were recovered from 17 trenches (A to X) with a minimum of one to ten bones in trenches A, K, O, R, T and W (Table 21:1 and Fig. 21:11).[11] Trenches C, N and V yielded between ten and 100 bones. In trenches D, L, P, U and X, bone recovery was slightly better, numbering between 100 and 500 each. The bulk of the material derived from Trench F, the most abundant with 51,396 bones, and also from Trenches Q (29,545 bones) and M (1,779 remains).

Table 21:1: Distribution of the faunal remains from the excavated trenches of the Dariali Gorge (NR = number of remains).

Trench	*NR*	*Weight (g)*
A	1	10
C	88	579
D	303	2,836
F	51,396	543,509
K	2	17
L	111	617
M	1,779	26,646
N	76	429
O	1	167
P	455	4660
Q	29,545	282,761
R	7	157
T	1	10
U	138	787
V	12	147
W	3	168
X	160	3658
Total	84,078	867,157

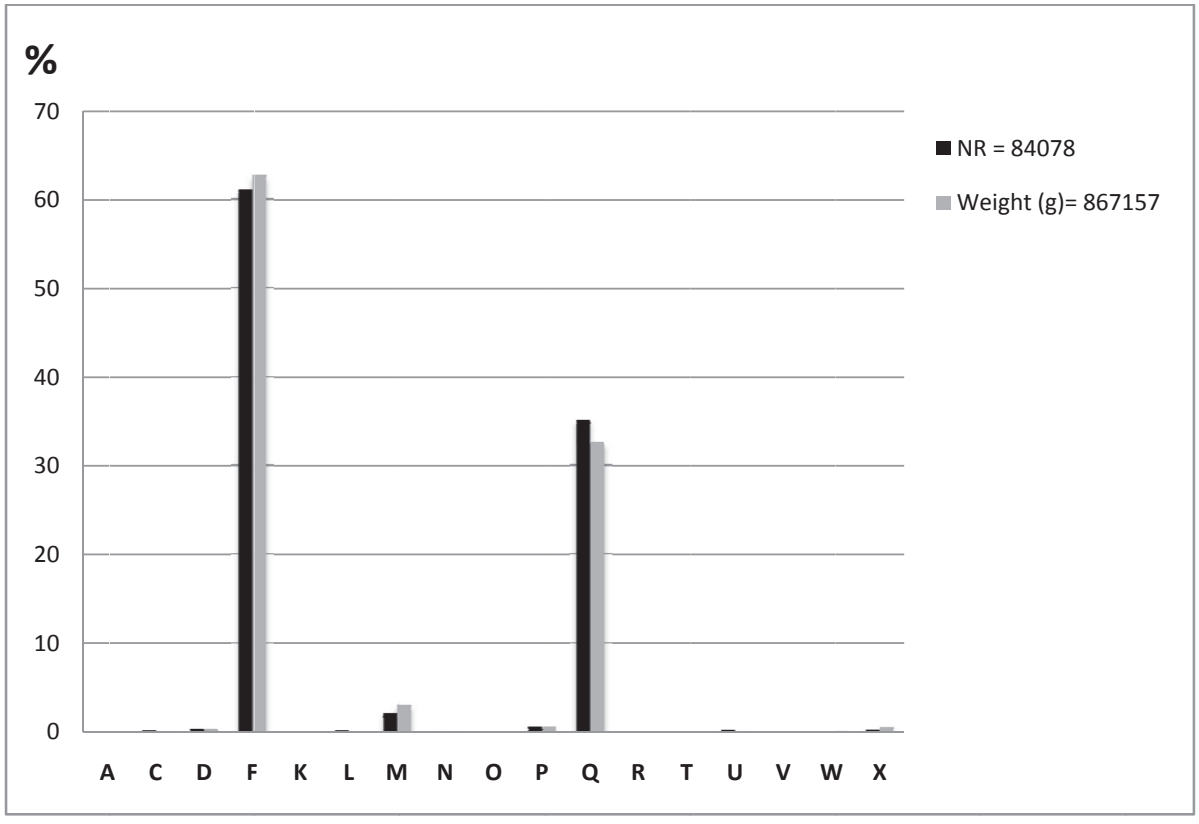


Fig. 21:11: Relative distribution of the faunal remains by number of remains (NR) and total weight in each of the excavated trenches of the Dariali Gorge.

Trenches F and Q within the Fort have yielded the bulk of the Dariali animal bone assemblage. We are using two quantification methods in this study: the bone count, which is expressed by NR (number of remains), and weight of the bone in grams. A comparison between bone count and bone weight indicates that there is not a great discrepancy between these two measures. The animal bones in Trench F account for 60% of the remains, and slightly more than 30% in Trench Q. Although the number and weight of bones is very low when compared to the two former trenches, Trench M, on the terrace south of the fort, is the third most abundant trench in the Dariali excavations in terms of its bone material.[12]

The chronology and phasing of our trenches has been established via an extensive series of radiocarbon dates as well as pottery analysis.[13] The material has been subdivided into seven phases. Phase 3 belongs to the Sasanian period, from the late fourth to the mid seventh centuries. Phase 4 (mid seventh to early eighth centuries) is from the transition of the Sasanian era to the Middle Ages. Phases 5, 6 and 7 are post-Sasanian: phase 5 runs from the late seventh or early eighth centuries to the late tenth or early eleventh centuries, phase 6 encompasses the first half of the second millennium (notably the fourteenth century), and phase 7 is post-medieval. A summary of the framework used for the classification of the faunal data is presented below (Table 21:2).

Some phases overlap with an adjacent phase and thus correspond to a very long period (*e.g.* phase 6, 7). The bones attributed to these levels were treated with caution, as they are not closely datable and/or may contain much earlier redeposited material. According to the distribution of remains in the excavated trenches (Table 21:3), it is clear that the bulk of the assemblage derives from phases 5 to 7, with the emphasis on phase 5. In chronological terms, this corresponds to the time between the late seventh/early eighth and late tenth/early eleventh centuries.

Bone preservation and taphonomy

The animal bones collected from the excavations, in particular those from the trenches on Dariali Fort, are well-preserved (Figs 21:12; 21:14–18). This is generally the case for material that is not very old, and is commonplace in most European historical sites. An additional reason is that the environmental conditions at Dariali, located in a cool mountainous area, are conducive to better preservation of organic material. Furthermore, the majority of the bones, notably from Trench F, was found at a considerable depth below the modern surface.

In comparing the number of remains and their weight, a harmonious relationship is evident between the two measures that is represented by an index of low fragmentation (Fig. 21:13). Despite good preservation, various factors have contributed to the damage of the bones; these are divided into natural (edaphic and environmental: Fig. 21:14), animal (Fig. 21:15) and anthropogenic (Figs 21:16–18).

Noteworthy here is that the macrofauna collected in the Dariali excavations all relate to anthropogenic activity and display a wide variety of modifications caused by butchery, cooking and discard of the carcasses. Bone has also been used as a raw material for a wide range of artefacts (Fig. 21:18).[14] In addition, the presence of domestic carnivores has had an obvious effect on the bone assemblage, but certainly not an important one considering the vast number of bone fragments that have survived until now.

In Table 21:4, the mean percentage of unidentified bones (UI) to identified bones (ID) is less than 10% for Trench F and less than 14% for Trench Q. Unidentified bones represent those that could be neither anatomically nor taxonomically identified. Another category of animal remains was also created that includes herbivorous animals that could not be identified to the sub-family or genus level. This category accounts for almost 25% of the total herbivores, with the latter constituting the bulk of the assemblage.

21.1.2. Methods

The good preservation of bone assemblages from the Dariali excavations (Fig. 21:19) has enabled us to record a substantial number of measurements. Approximately 6,000 animal bones were measured, which constitutes a very solid statistical basis for the morphological analysis of various species present at the site. Most of the measurements were registered following the codes published by Angela von den Driesch;[15] however, we have added other measurements when needed with reference to its author.

The use of biometric methods

One of the most important issues in archaeozoology is to describe the morphological development of animals in response to ecological changes, or human induced factors. Metrical analysis of animal bones (including bone fragments) can be used for taxonomic discrimination and to identify any morphological modifications that have occurred in animals through time and space. Good examples of the latter include morphological changes resulting from domestication, various breeding techniques or conditions, or environmental changes. Different biometric methods are used to substantiate these.

The LSI method

One of the most common biometric methods is to use the Log Size Index (LSI). With the LSI method, it is possible to compare the biometric characteristics (including all measurements, such as length, width and depth of all bones) of the different animal populations belonging to a single species. By using this method, it is possible to compare all the bone measurements simultaneously rather than using univariate or multivariate analyses. This technique was

Table 21:2: Chronological framework used for the analysis of the faunal remains.[1]

Phases	*Date*
7	Mid/late 15th–21st c.
6,7 = 6 to 7	Early/mid-11th–21st c.
6	Early/mid-11th–early 15th c., mainly late 13th–early 15th c.
5,6 = 5 to 6	Late-7th/early 8th–early 15th c.
5	Late 7th/early 8th–late 10th/early 11th c.
4,5 = 4 to 5	Mid-7th–late 10th/early 11th c.
4	Mid-7th–early 8th c.
3,5 = 3 to 5	Late 4th–late 10th/early 11th c.
3,4 = 3 to 4	Late 4th–early 8th c.
3	Late 4th–mid-7th c.
2	Up to 4th c.
1	Geological (without archaeozoological material)
?	≥3 phases

[1] See chapter 1.2 for further details.

Table 21:3: Distribution of the faunal remains in each trench by phase: a) number of remains; b) weight of remains.

	Trenches																	
Phases	**A**	**C**	**D**	**F**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**T**	**U**	**V**	**W**	**X**	**Total NR**
7			149	4599			2				9							4759
6,7	1	9	38	349	0	19	1	0	0	4	915	2	1	68	0	0	0	1407
6		39	100	468							215							822
5.7	0	0	0	1011	0	0	0	0	0	0	8163	0	0	0	0	0	0	9174
5.6	0	23	5	8938	1	92	894	7	0	203	994	0	0	54	10	3	25	11249
5		14	11	32089			668			228	15329			16	1		135	48491
4,5											304							304
4				955														955
3,6											239							239
3,5	3	0	357	0	0	208	43	0	4	3366	0	0	0	1	0	0	0	3982
3.4				189														189
3				2441			1			1	48							2491
2,3							5			8								13
n/a					1			26	1	7		5						40
Total	**1**	**88**	**303**	**51396**	**2**	**111**	**1779**	**76**	**1**	**455**	**29545**	**7**	**1**	**138**	**12**	**3**	**160**	**84078**

	Trenches																	
Phases	**A**	**C**	**D**	**F**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**T**	**U**	**V**	**W**	**X**	**Total Weight (g)**
7			1153	56656.1			30.3				37							57876.4
6.7	10	206	352	2444	0	108	16	0	0	54.8	9193.1	103	10	165	0	0	0	12661.9
6		98	1201	3119.4							1367							5785.4
5,7	0	0	0	18404.9	0	0	0	0	0	0	83547.3	0	0	0	0	0	0	101952.2
5,6	0	122	45	82302.38	15	509	11212.4	34	0	2380.5	12906.22	0	0	449	113	168	524	110780.5
5		140	85	344706.3			13133.6			2041.7	140082.16			173	11		3134	503506.76
4,5											2787							2787
4				10241.65														10241.65
3,6											2226							2226
3,5	0	13	0	3714.1	0	0	2225.2	191.3	0	23.1	30059.6	0	0	0	23	0	0	36249.3
3.4				1295														1295
3				20624.5			5			28	556							21213.5
2,3							23			48								71
n/a					2			204	166.8	84		54						510.8
Total	**10**	**579**	**2836**	**543508.33**	**17**	**617**	**26645.5**	**429.3**	**166.8**	**4660.1**	**282761.38**	**157**	**10**	**787**	**147**	**168**	**3658**	**867157.41**



Fig. 21:12: An example of a bone assemblage from Trench F with many complete and identifiable bones.

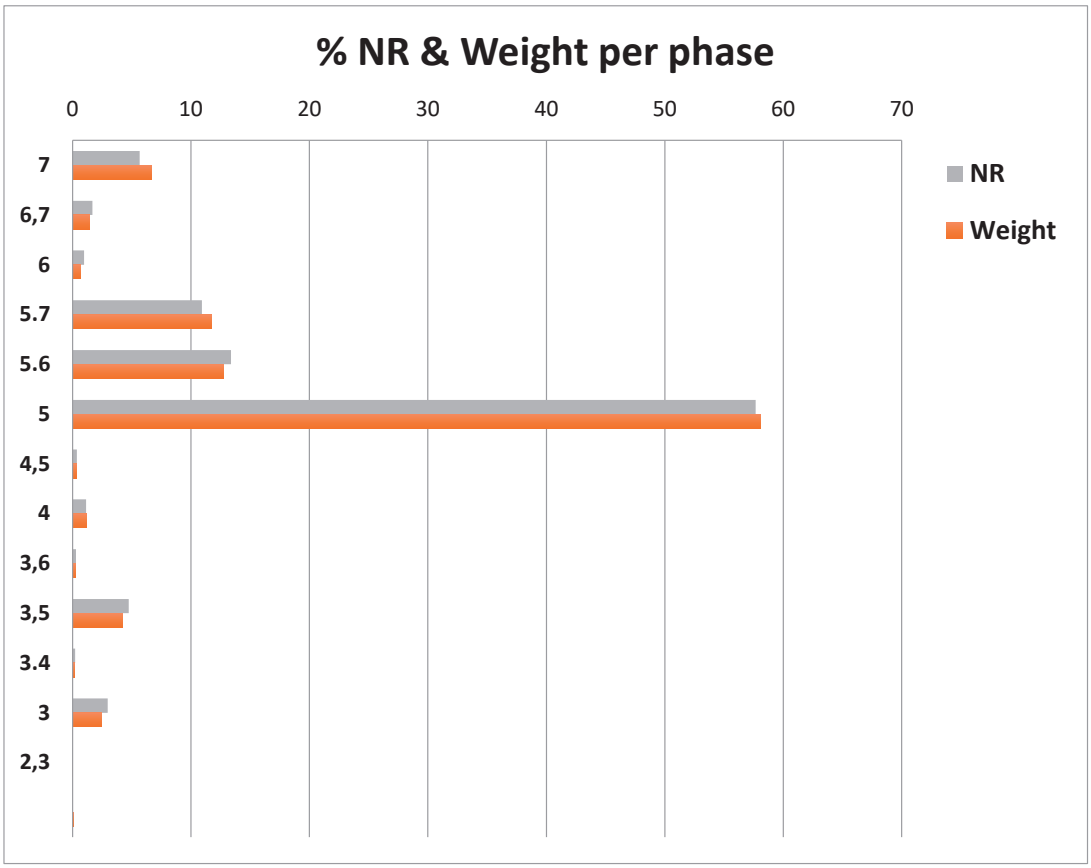
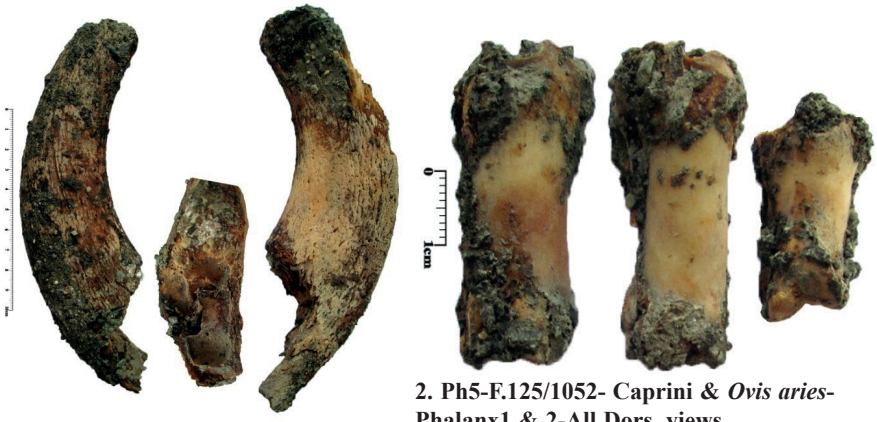


Fig. 21:13: Distribution of bones (of all trenches) to phases.



1. Ph5-F.131/1114-Caprini-Horn Core -Lat.-Trans. & Med. views

2. Ph5-F.125/1052- Caprini & *Ovis aries*-Phalanx1 & 2-All Dors. views

Fig. 21:14: Taphonomic examples of pedological factors (water circulation affecting bone and teeth) such as heavy concretion.

Table 21:4: Faunal remains from Trenches F and Q: ratio of identified to unidentified bones.

Trench	*Trench F*						*Trench Q*				
Phase	*3*	*4*	*5*	*6*	*7*	*Total*	*3*	*5*	*6*	*7*	*Total*
Total remains	2319	822	29504	411	3820	36876	48	13453	174	7	13682
Total identified Herbivores	1838	607	21533	286	3058	27322	41	11396	138	0	11575
% ID to UI	5.2	15.9	8.6	12.7	20.2	9.8	0.0	13.7	23.0	28.6	13.8
% ID Herbivores to total Herbivores	79.3	73.8	73.0	69.6	80.1	74.1	85.4	84.7	79.3	0.0	84.6
% UI Herbivores to total Herbivores	20.6	24.8	25.8	29.9	19.6	24.9	14.6	12.9	20.7	14.3	13.0

developed in order to graphically compare the relative, rather than the absolute, dimensions of a number of animals or groups of animals.[16] The first step in this method is to convert all the measurements into logarithms so that the measurement scales become comparable, otherwise these scales can be very different because of morphological differences between bones (*e.g.* the femur and patella). With this method, data from one specimen or a group of specimens is chosen as a reference for comparisons. Then, the difference between the logarithmic value of the reference and each of the other specimens is calculated:[17] $d = \log X - \log$ reference data. We generally use a wild sheep *(Ovis orientalis*) and a wild goat (*Capra aegagrus*), published by Margarethe Uerpmann and Hans-Peter Uerpmann.[18] We applied this same method in the analysis of cattle remains, using the standard measurement collected by D. Helmer from a domestic female cow from the Camargue region in Southern France.[19]

The identification of equid bones

In addition to morphoscopic criteria that can be used to distinguish between various equids,[20] especially on the teeth, morphometric criteria can also be very useful. Measurements on equid bones were taken following Vera Eisenmann, and Eisenmann and Beckouche.[21] The metric comparisons were possible thanks to Eisenmann's freely accessible online database of equid measurements.[22]

The ratio diagrams

The method used for the analysis of the equid postcranial bones is based on a logarithmic method known as Simpson's ratio diagrams,[23] modified by Eisenmann. These diagrams allow rapid and easy comparisons, of both size and shape, and for a single bone or a group of bones. The dimensions of a bone sample of a reference animal are converted into decimal logarithms. By convention, logarithms of these dimensions are placed on the zero line of the graph. The reference animal used in these diagrams is the Persian onager, *E. hemionus onager*.[24] Dimensions of the material under study are also converted into decimal logarithms. Arithmetic differences between the reference logarithms and the logarithms of the dimensions of the studied bones are placed above the zero line if they are positive (larger dimensions), or below if they are negative (smaller dimensions). In such a logarithmic

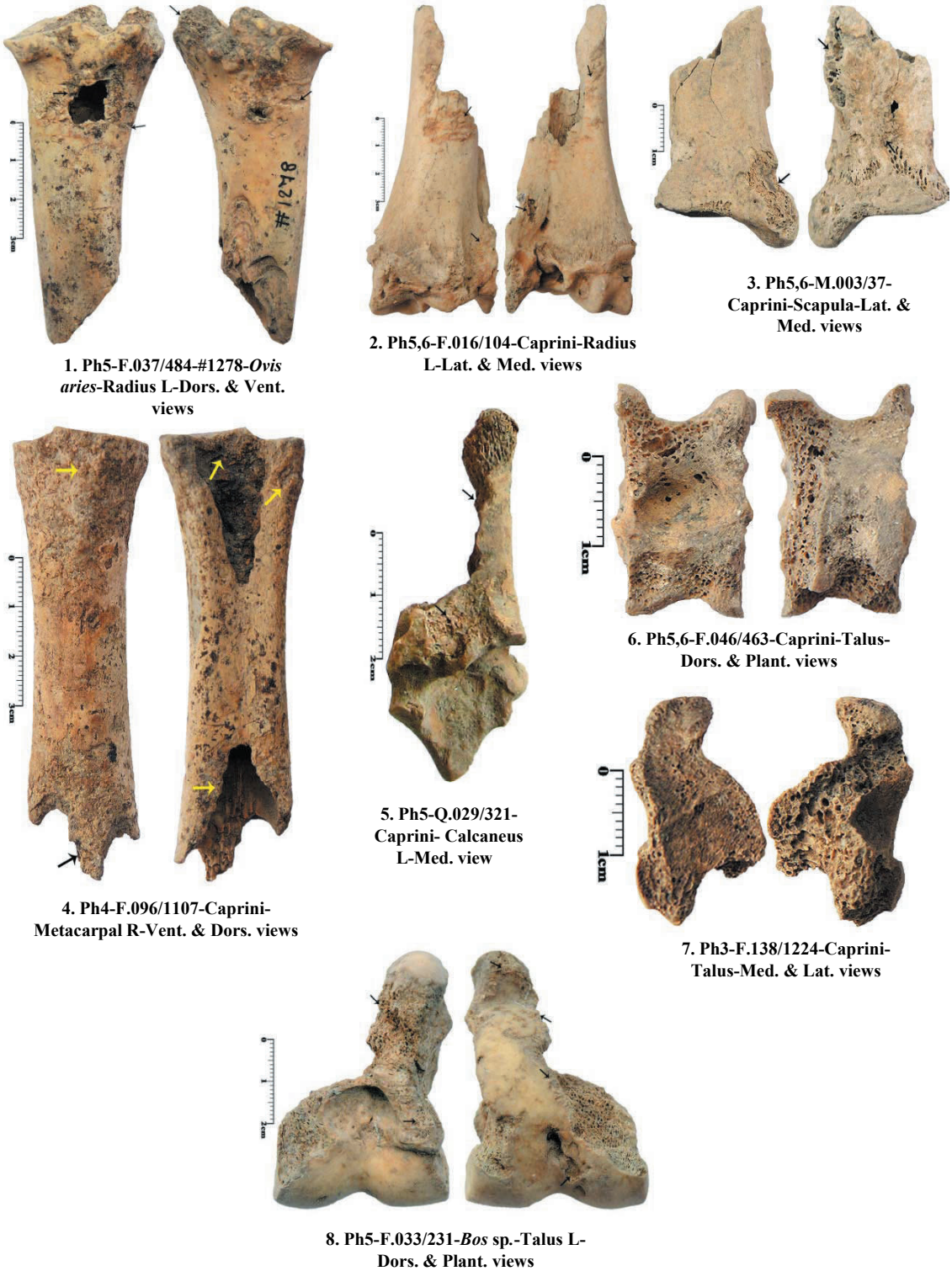


Fig. 21:15: Taphonomic examples of animal-induced modifications, mainly resulting from digestion and gnawing by carnivores. (R stands for Right and L stands for Left.)

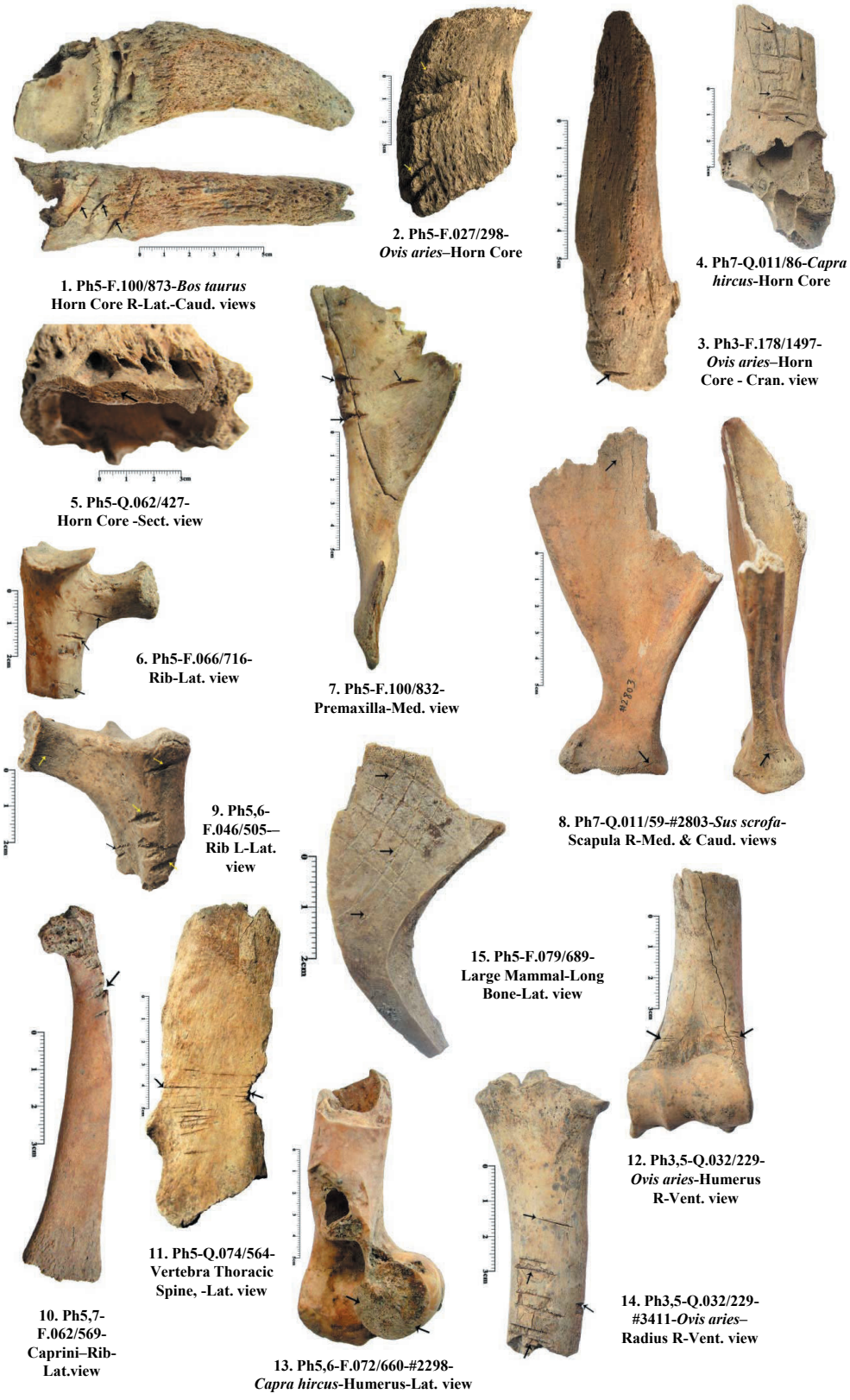


Fig. 21:16: Examples of heavy cut marks and chopping for disarticulation and defleshing.



1. Ph5-F.063/551- Caprini–
Metacarpal -Vent & Dors. views



2. Ph5-F.100/981- Caprini-
Axis-Med. & Lat. views



3. Ph5-F.027/316-#255-Caprini–Coxal L-Vent. & Dors. & Lat. views



4. Ph5-Q.047/449-
Mandible-Lat. view



5. Ph5-Q.063/436-Rib &
lumbar vertebra-Lat. views



5. Ph5/F.100-873-
Coxal L-Lat. view

Fig. 21:17: A type of bone modification: deep notches seen on various bones (1–3), bone discolouration (4–6).

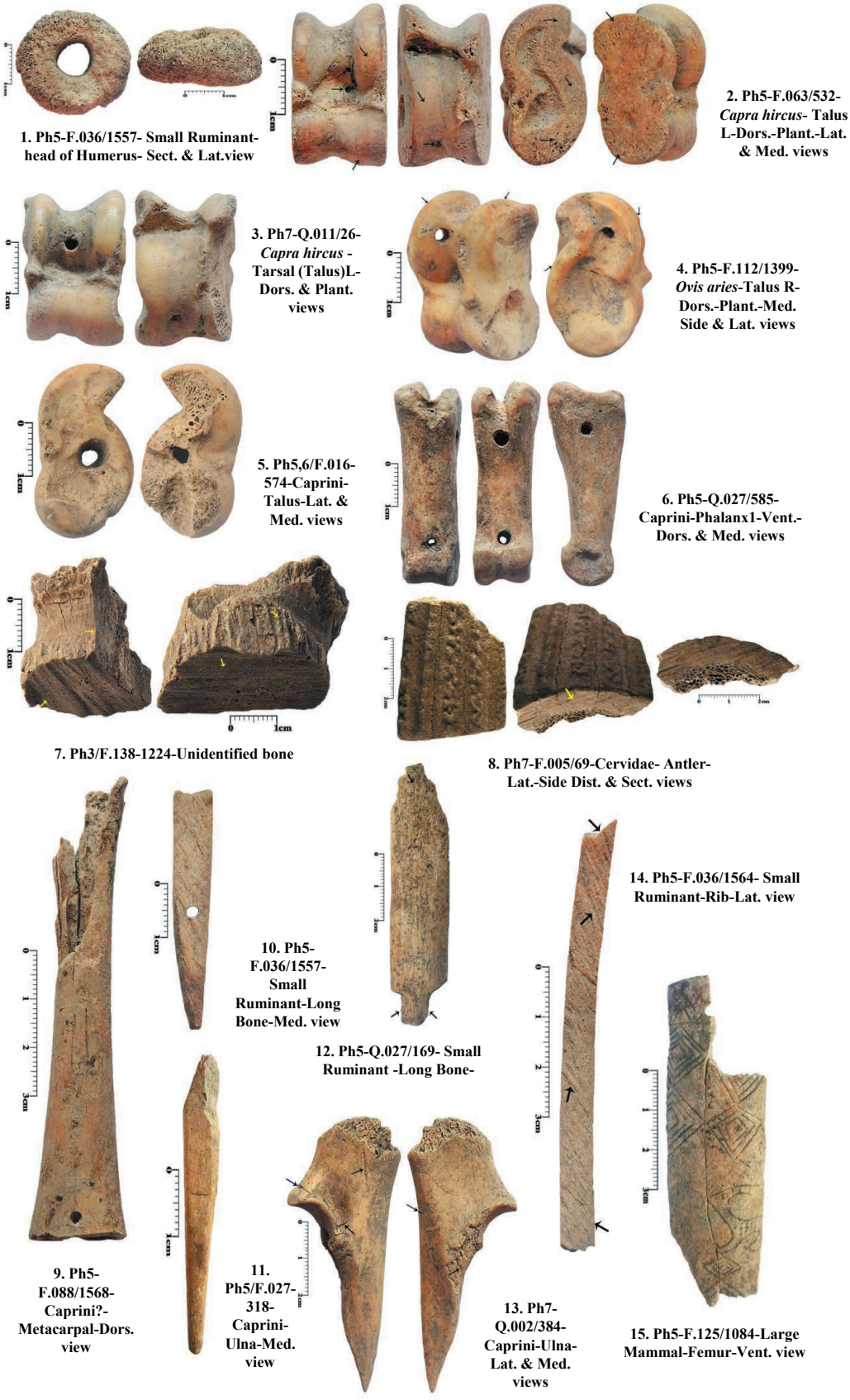


Fig. 21:18: Examples of bone objects.



Fig. 21:19: Bone preservation in Dariali Fort's faunal assemblage was excellent, with many taxonomically identifiable elements being present.

diagram, proportions remain unchanged whatever the absolute dimensions.

Here, the position of the archaeological specimen is shown in relation to the other logarithmic profiles of three probable options: horse (*Equus caballus*), donkey (*Equus asinus*), or hybrids such as mules and hinnies (*E. caballus* × *E. asinus*). This method, although efficient in many cases, also has its limits because of the overlap of several species and the diversity of domestic forms. For example, this is the case with hybrids in general, for which reference material is drastically lacking.

21.1.3. Species represented in the Dariali assemblage

21.1.3.1. Characterisation of the bovid populations of Dariali

Sheep, goat and cattle are generally the most important domestic animals found in archaeozoological assemblages because they constitute the base of the subsistence economy of animal production in most of South-west Asia during the Holocene. The reliance on domestic bovids increased during the historical period, as a result of the intensification of agropastoralism, rural development and urbanism.

Osteological identification of sheep, goat and cattle has been one of the most prolific areas of research in archaeozoology, and still remains so.[25] This is because of the difficulties of differential taxonomic distinction among Caprini, including sheep, goat, chamois,[26] or among various genera of Bovini (*Bos, Bison, Bubalus*)[27] or species of Bos (aurochs, taurine, zebu).[28]

Over the last three decades, the development of several approaches and techniques to overcome this problem has been tremendous. These include geometric morphometrics (GMM) and ancient genetics (aDNA).[29] Although these techniques are efficient, they remain difficult to use as a routine methodology. Anatomical comparisons based on classical metric analyses and refined morphological and morphoscopic observations are the most commonly used methods for determining taxonomic affiliation. Of course, this does not exclude the use of these other approaches (GMM and aDNA) when possible.

Cattle populations (*Bos* sp.)

Based on morphoscopic analysis of the cranial elements of cattle, generally useful skeletal parts for precise identifications, very large cattle specimens were present (Fig. 21:20). Cranial remains can also be used to determine the presence of old and young specimens,[30] and to differentiate between males and females (Fig. 21:21). As for the presence of various species within the genus *Bos*, Grigson presents osteological and metric criteria for distinguishing between taurine (*Bos taurus*) and zebu (*Bos indicus*).[31] One of these criteria, located on the cranium, is the shape of the orbital rim (zygomatic zone). The development of a flat rim to a sharp rim can be an age indicator, but is also used in adult animals to differentiate between taurine and zebu cattle.[32] The persistence of a flat rim in older animals is a good indicator of the presence of zebu. In Dariali, we noticed the presence of four orbital rims that are flat (Fig. 21:22). While the age of these animals is uncertain, their size relative to other similar bones suggests that these specimens were not very young (Fig. 21:22). In a recent genetic study of the Dariali cattle population, the presence of zebu has been identified through admixture with taurine breeds.[33] It is interesting to see the distribution of zebu during the medieval period, in particular how far zebu spread around the Near East, also reaching the Northern Caucasus area.

Aurochs (*Bos primigenius*)

The striking presence of very large specimens has attracted our attention, raising questions about the possible presence of aurochs. We know that aurochs were extinct in Europe during the early seventeenth century, with the last record associated with the year 1627 in Poland.[34] However, Oliver Wardrop, writing in 1888, claims that aurochs survived on the slopes of Mount Kazbeg into the nineteenth century.[35] The occurrence of very large fragmented horn-cores in the assemblage alongside metric comparisons with *Bos taurus* show the presence of very large specimens (Fig. 21:20).[36] We have no genetic proof for the presence of this animal in Dariali but the possibility of their presence, or admixture with domestic cattle, should not



*Fig. 21:20: Cattle (*Bos*), diversity of horn cores morphology: very large specimens.*

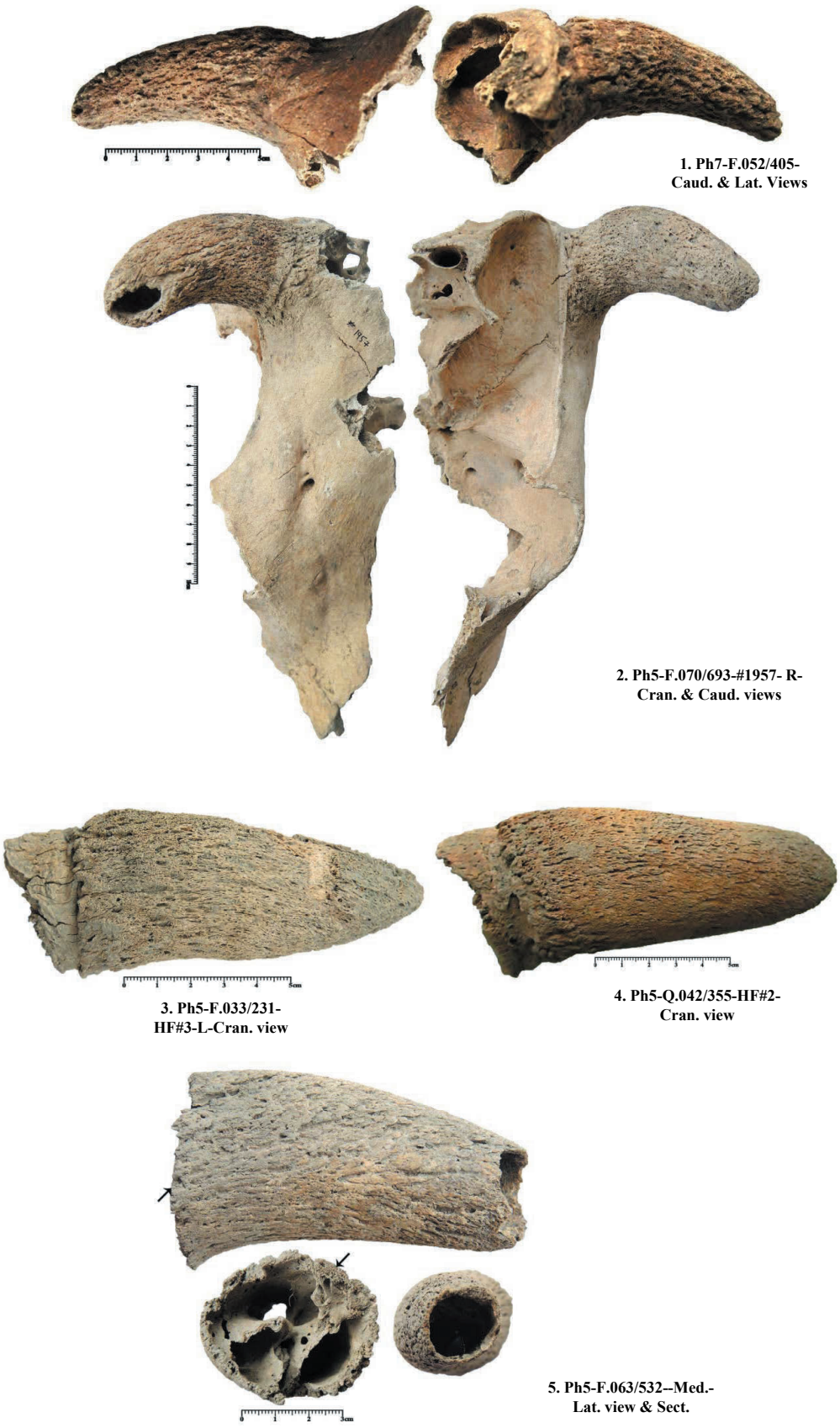


*Fig. 21:21: Cattle (*Bos*), diversity of horn cores morphology: adult and juvenile specimens.*

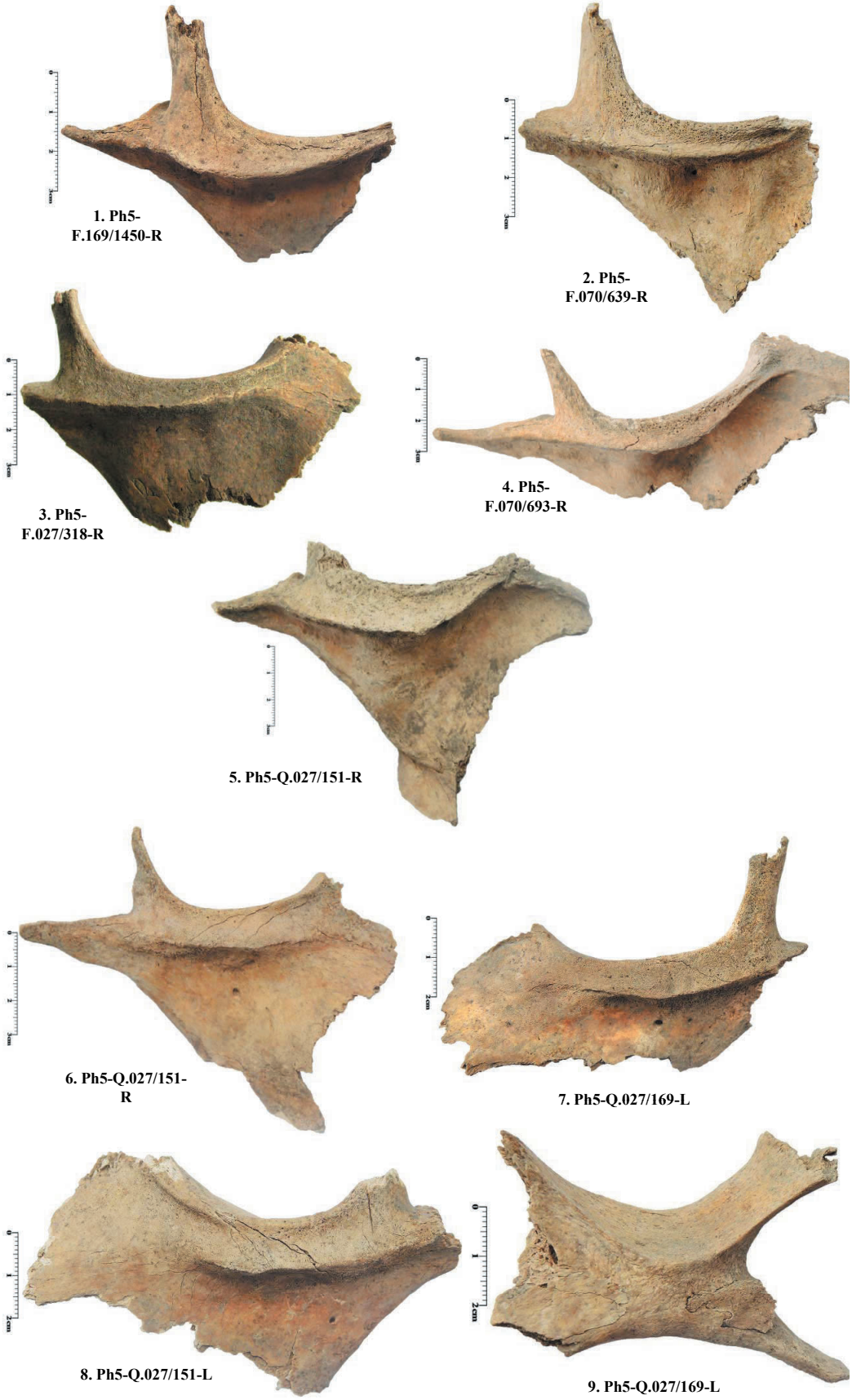


*Fig. 21:22: Cattle (*Bos*), diversity of the morphology of the orbital rim (zygomatic bone).*

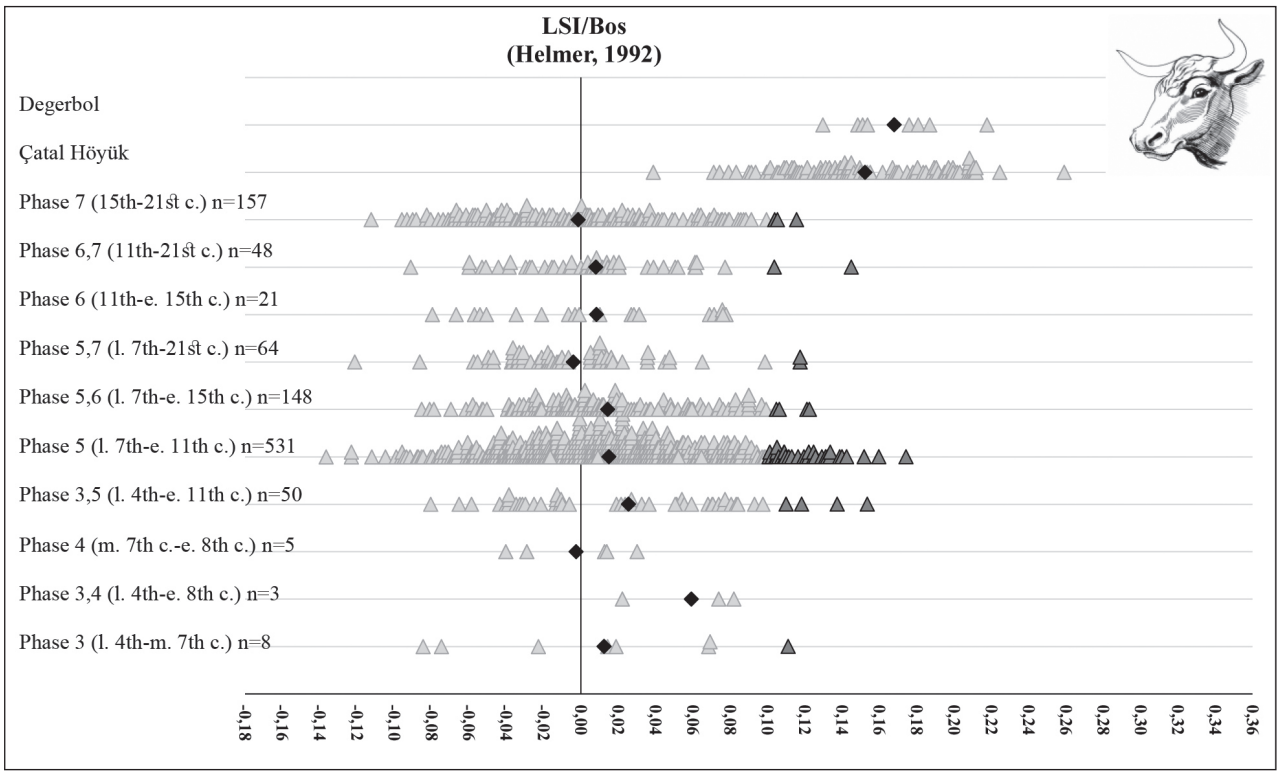


*Fig. 21:23: Cattle (*Bos*): Log Size Index (LSI) distribution in various phases of Dariali Fort (black diamonds = mean for each phase; dark grey triangles = large Dariali specimens; light grey triangles = other Dariali specimens). Note that bones from phase 6 and 7 deposits, as well as those attributed to longer periods (5 to 6, 5 to 7 and 6 to 7), may be dominated by earlier redeposited material, notably from phase 5).*

Table 21:5: T test for the evolution of size in cattle. Highly significant differences are in bold.

Phase	*3*	*3,4*	*4*	*3,5*	*5*	*5,6*	*5,7*	*6*	*6,7*	*7*
Phase 3		0.305	0.669	0.621	0.868	0.791	0.355	0.671	0.942	0.464
Phase 3,4			0.035	0.372	0.227	0.187	0.016	0.615	0.109	0.050
Phase 4				0.363	0.506	0.412	0.936	0.501	0.568	0.990
Phase 3,5					0.337	0.442	0.006	0.836	0.239	0.004
Phase 5						0.773	0.012	0.359	0.574	**0.001**
Phase 5,6							0.005	0.587	0.345	**0.001**
Phase 5,7								0.171	0.469	0.596
Phase 6									0.097	0.002
Phase 6,7										0.031
Phase 7										

be ruled out (Fig. 21:23).[37] Additional and more thorough investigations are necessary in order to reach a conclusion. Another possibility that also needs to be considered is the presence of bison. Although the shorter horns of *Bison bonasus* are distinctive, their postcranial remains are morphologically similar to *Bos primigenius*. The faunal material was originally examined during fieldwork, and was revisited afterwards in the laboratory through examination of illustrations and photographic documentation. The bovine assemblage probably needs to be assessed again in further detail in order to resolve these queries.

A total of 1,422 bones were collected, and 5,939 individual measurements were taken on cattle remains. Figure 21:23 displays the LSI distribution of cattle measurements

Table 21:6: T test for the evolution of size in sheep. Highly significant differences are in bold.

Phase	*3*	*3,4*	*4*	*3,5*	*5*	*5,6*	*5,7*	*6*	*7*	*Tepe Asiab*	*Bakhtiari*
Phase 3		0.161	0.749	0.847	0.619	0.755	0.642	0.711	0.290	**0.000**	**0.000**
Phase 3,4			0.418	0.084	0.043	0.014	0.412	0.694	0.021	0.638	0.438
Phase 4				0.829	0.996	0.587	0.895	0.815	0.286	0.002	**0.001**
Phase 3,5					0.676	0.482	0.630	0.751	0.116	**0.000**	**0.000**
Phase 5						0.071	0.692	0.870	0.021	0.001	**0.000**
Phase 5,6							0.271	0.624	0.230	**0.000**	**0.000**
Phase 5,7								0.989	0.166	0.093	**0.000**
Phase 6									0.424	0.036	0.071
Phase 7										**0.000**	**0.000**
Tepe Asiab											0.693
Bakhtiari											

deriving from excavated material belonging to the various phases or intermediate phases of Dariali Fort. Measurements of aurochs populations from one Anatolian site[38] (Çatal Höyük) and one Danish site (Degerbøl)[39] were added for comparison in order to position the aurochs population mean against the Dariali bovine population. The large specimens of Dariali that are suspected to be wild or a product of admixture with aurochs are indicated (dark grey triangles). According to this analysis, these possibly wild/hybrid specimens are present from the early phases and persist throughout the whole sequence. To conclude, according to the LSI analyses, it is apparent that from the early phases until phase 5 the Dariali cattle are on average larger than the standard mean. In all groups up to phase 5 there were very large specimens, if the sample of phase 3 may be too small to be statistically viable (Table 21:5), that may be interpreted as either large males or wild/hybrid specimens.

21.1.3.2. Sheep and goat domestic and wild populations

Sheep (*Ovis*)

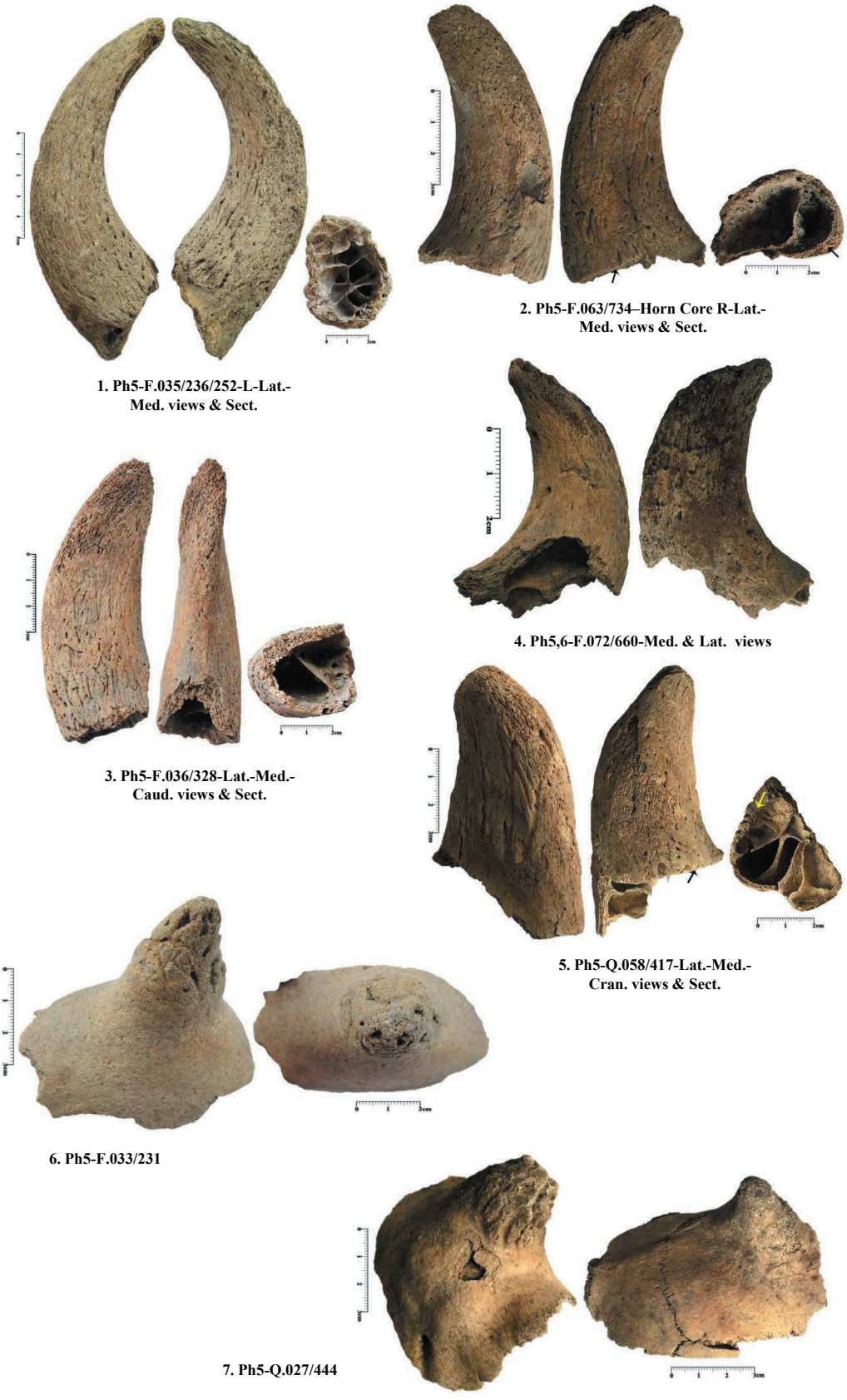
A high proportion of the faunal remains belong to sheep and goat. Many of these could not be identified to species level. We measured the bones identifiable to species or genera level, numbering 1811 in total, as this exceptional assemblage will be of interest to archaeozoological studies in Georgia more broadly.[40] Figures 21:24 shows the presence of typical *Ovis* horn-cores with oval-shaped sections. The examples we have indicate underdeveloped horn-cores; these include those belonging to younger animals (Fig. 21:24.6–7), and those without horns (Fig. 21:24.7).

A large dataset of measurements were taken on sheep bones from Dariali, corresponding to 2,191 bones and 10,180 measurements.[41] Some of these measurements were transformed to LSIs (Fig. 21:25).[42] Two ancient and modern osteological collections were included as a means to examine the relative position of the Dariali sheep populations. Asiab is a prehistoric site considered to be pre-Neolithic and where wild specimens are present.[43] The modern collection belongs to the herds of Bakhtiari nomads. This collection was made in 2001 by the first author with the support of the Fyssen Foundation, constituting a post-doctoral project on ancient herd mobility in the Zagros. The Bakhtiari assemblage is composed of females, males and castrated sheep that belong to local large breeds of the Zagros region.[44]

Interestingly, the Dariali sheep assemblages are homogenous in size throughout all phases and significantly different from Asiab and Bakhtiari populations (Table 21:6). When compared to the standard, which refers to a female wild sheep (*Ovis orientalis*),[45] the Dariali sheep are all larger on average. Noteworthy is the presence of several very large specimens in phase 5 that were allocated to wild sheep (*Ovis orientalis*).

Goat (*Capra*)

As with the sheep, a large number of Caprini remains were identified as goat (1182), including wild and domestic species. The horn-cores that we identified all belong to the domestic species (Figure 21:26). It is not always easy to make identifications based on fragmented horn-cores or even the complete ones due to the large variation in their shape amongst domestic breeds, especially during the historical period. This is the case with specimen 7 in Figure 21:26.7, which exhibits a twisted curve. Boessneck has described cranial difference in sheep and goat where he schematises the fronto-parietal fusions in crania. The goat has a T-shaped (Fig. 21:27.2–4) fusion and sheep a V-shaped fusion (Fig. 21:27.6–9).[46] There were large numbers of petrosal bones that could be taxonomically identified (Fig. 21:27.5) and that were also used in genetic



1. Ph5-F.035/236/252-L-Lat.-Med. views & Sect.

2. Ph5-F.063/734–Horn Core R-Lat.-Med. views & Sect.

3. Ph5-F.036/328-Lat.-Med.-Caud. views & Sect.

4. Ph5,6-F.072/660-Med. & Lat. views

5. Ph5-Q.058/417-Lat.-Med.-Cran. views & Sect.

6. Ph5-F.033/231

7. Ph5-Q.027/444

*Fig. 21:24: Sheep (*Ovis*), diversity of the morphology of the horn cores.*

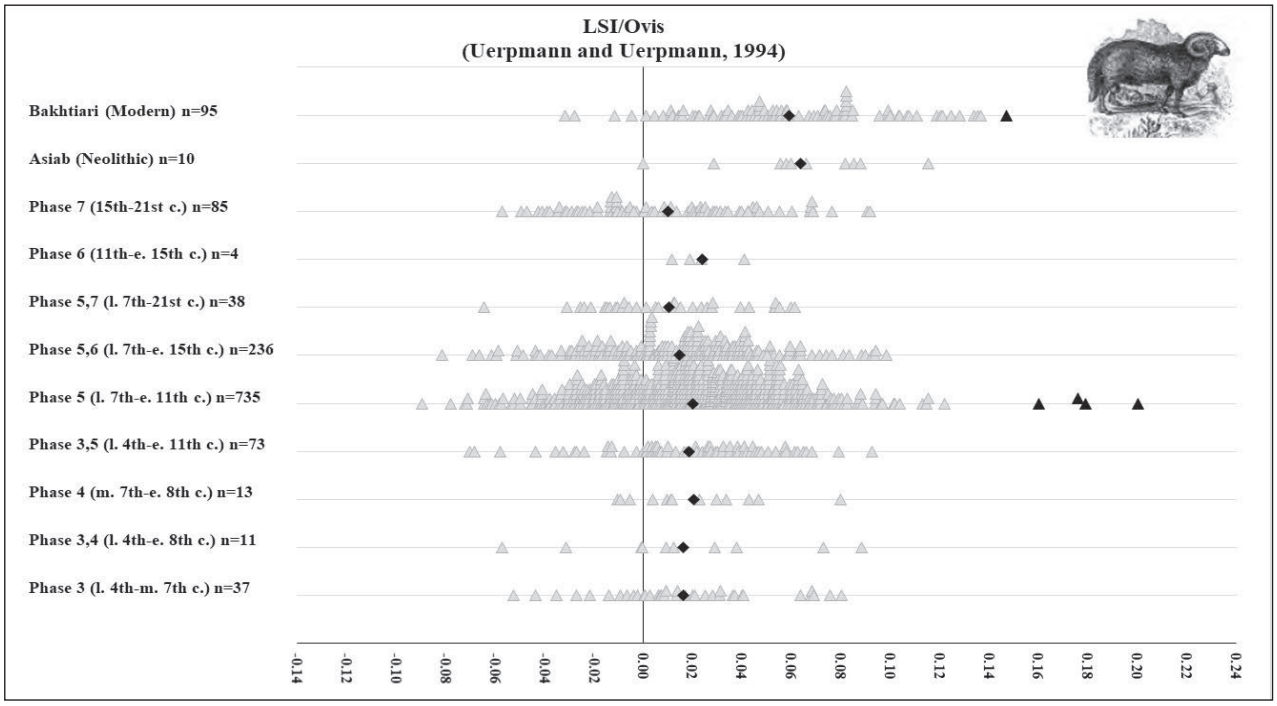


*Fig. 21:25: Sheep (*Ovis*) Log Size Index (LSI) distribution in various phases of Dariali Fort (black diamonds = mean for each phase; dark grey triangles = large Dariali specimens; light grey triangles = other Dariali specimens). Note that bones from phase 6 and 7 deposits, as well as those attributed to longer periods (5 to 6, 5 to 7 and 6 to 7), may be dominated by earlier redeposited material, notably from phase 5.*

Table 21:7: T test for the evolution of size in goat. Highly significant differences are in bold.

Phase	*3*	*4*	*3,5*	*5*	*5,6*	*5,7*	*6*	*6,7*	*7*	*Tepe Asiab*	*Bakhtiari*
Phase 3		0.737	0.829	0.654	0.520	0.001	0.761	0.008	0.099	**0.001**	0.043
Phase 4			0.783	0.474	0.392	0.026	0.490	0.010	0.153	**0.001**	0.017
Phase 3,5				0.268	0.194	**0.000**	0.626	**0.000**	0.007	**0.000**	0.005
Phase 5					0.600	**0.000**	0.844	**0.000**	0.004	**0.000**	0.014
Phase 5,6						**0.000**	0.934	**0.001**	0.049	**0.000**	0.034
Phase 5,7							0.169	0.946	**0.000**	0.389	0.028
Phase 6								0.080	0.641	0.032	0.262
Phase 6,7									0.020	0.457	0.018
Phase 7										0.003	0.537
Tepe Asiab											0.011
Bakhtiari											

analyses.[47] For the metric analysis of the goat remains, we collected 1,541 bones and made 7,372 individual measurements.

For the LSI analysis of the post-cranial elements (Fig. 21:28),[48] we chose measuring protocols published by Uerpmann and Uerpmann,[49] as discussed above.[50] For comparison, we included specimens from the same two modern and ancient populations that were used for sheep. The mean size for all the phases remains homogenous. The results indicate that the Dariali goats are smaller on average than the reference standard, which represents the average of a male and female wild goat. Interestingly, these small-sized animals are not very different from the Bakhtiari goats that also originate from a mountainous area. In contrast, the Dariali material is very different to that from Asiab, as demonstrated by the T test (Table 21:7). Several very large specimens are also present among the remains, which are considerably larger than even the Asiab population. In the introduction of this paper, a review was made of the wild caprids that



1. Ph7-Q.007/34-
Lat. view



2. Ph5-F.063/788-Lat. view & Sect.



3. Ph5-F.027/173-L-
Med.-Lat. & Cran. views



4. Ph5-F.063/734-Lat.
& Caud. views



5. Ph5,6-M.003/15-R-Med. view & Sect.

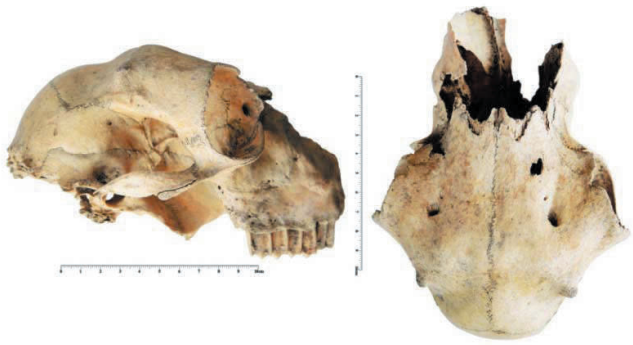


6. Ph5-M.008/48-
Lat.view



7. Ph5-Q.027/286-R?-Lat. & Cran. views & Sect.

*Fig. 21:26: Goat (*Capra*), diversity of the morphology of horn cores.*



1. Ph4-F.096/847-*Capra hircus*-Right Side & Dors. views



2. Ph5-Q.058/417-*C. hircus*-Dors. view



3. Ph5-F.077/677-*C. hircus* -Dors. & Vent. views



4. Ph5-F.070/629-*C. hircus*–Post. view



5. Ph5-F.053/423-Capra sp. Petrosal part of R. temporal bone- Med. Side view



6. Ph5-F.066/640-*Ovis aries*-Post. view



7. Ph5-F.077/677-*O. aries*-Post. view



8. Ph5-F.053/423-*O. aries*-Post. view



9. Ph5-F.065/559-*O. aries*-Post. view

*Fig. 21:27: Caprini (*Ovis*) and (*Capra*) skulls.*

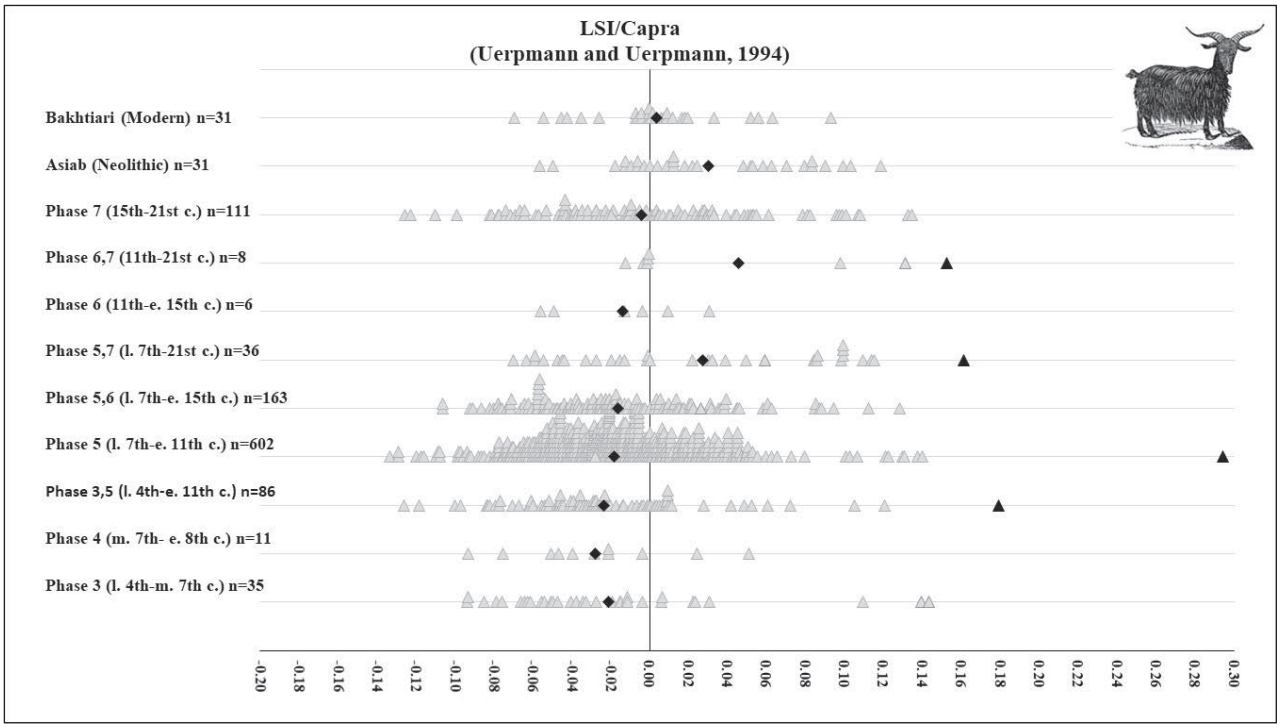


*Fig. 21:28: Goat (*Capra*) Log Size Index (LSI) distribution in various phases of Dariali Fort (black diamonds = mean for each phase; dark grey triangles = large Dariali specimens; light grey triangles = other Dariali specimens). Note that bones from phase 6 and 7 deposits, as well as those attributed to longer periods (5 to 6, 5 to 7 and 6 to 7), may be dominated by earlier redeposited material, notably form phase 5.*

are present in Georgia, particularly those in the Kazbeg area. Based on the modern fauna present in Georgia and direct comparisons with modern skeletons of Caucasian tur at the Natural History Museum of Paris, we attributed these very large specimens to *Capra caucasica* (see black triangles in Fig. 21:28). In addition, the genetic analysis of these specimens at the Smurfit Institute of Genetics (Trinity College Dublin, Ireland) has confirmed these allocations.[51] Interpretations are complicated by those animals with LSI values between 0.04 and 0.14, which fall within the range of the largest specimens from Asiab. For the time being, these animals may be considered as wild.[52] Finally, an interesting discovery was made amongst the phase 5 remains from Trench F of a horn-core of chamois (*Rupicapra rupicapra*) (Fig. 21:29.1), a type of goat-antelope. A subspecies of this animal is found in Georgia (*R. r. caucasica*).

Pictures of some of these large specimens are reproduced in Figure 21:29.2–6 and 21:29.8. Those that were measured have a code preceded by #. In the same plate, very large upper molar teeth are included that could belong to the wild specimens discussed above. It is interesting to note that these remains come from phases 3, 5, 6 and 7 and from multiple trenches (C, D, F and P).

21.1.3.3. Red deer (Cervus elaphus)

A small quantity of red deer bones were found among the remains. One example is reproduced in Figure 21:29.7.

21.1.3.4. Suids (Sus scrofa)

Taxonomic discrimination between boar and pig is a delicate question in the osteology of suids, and has been a point of substantial debate over the last decade. Geometric morphometric approaches combined with ancient genetic studies have resulted in a greatly improved understanding of the mechanisms underlying morphological modification after domestication.[53]

Boar/pig remains are not very common in Dariali, although they were found in all phases. There were as little as 89 bone fragments (Table 21:8), out of a sample of over 84,000. Pig account for well under 1% of the bones. The remains belong to young specimens but there are also cranial parts present that cannot be measured (Fig. 21:30). In total, only 30 bones were measured and indicate specimens of intermediate size.[54] No bones from Dariali have been analysed genetically or examined through GMM; this is due to an absence of appropriate samples, such as second or third molars.[55]

21.1.3.5. Equids (Equus sp.)

As with the suids, few equid remains were found in Dariali. The expectation was that more equid remains would have been recovered from at least the earlier periods when the Dariali Fort was built and when the site had an obvious military function. Taxonomic identification of equids is complicated by the presence of two domestic species, horse and donkey, as well as their



1. Ph5-F.063/551-*Rupicapra rupicapra*



2. Ph7-D.003/5- Large Caprini - Teeth M2 & M3 sup.-Ling. & Lat. views



3. Ph7-F.049/407- Large Caprini L- Tooth M2 sup.-Lat.-Ling. & Med. views



4. Ph3-F.153/1305- #2280-Large *Capra*-Phalanx1-Dors.-Vent. & Achs./ Periph. views



5. Ph7-C.001/5-cf. Wild *Capra*-Phalanx1-Vent. & Achs./ Periph. views



6. Ph7-C.001/5-cf. Wild *Capra*-Phalanx1 & 2-Dors. views



7. Ph5-P.006/39-cf. *Cervus*-Phalanx1-Dors. & Achs./ Periph. views

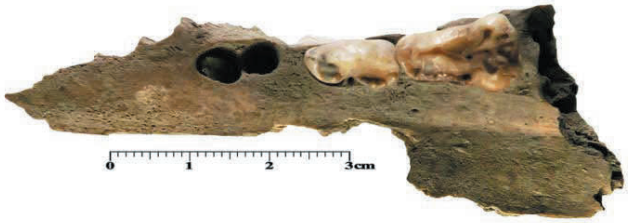


8. Ph5-P.006/33-#1581-cf. Wild *Capra*-Phalanx3- Achs./ Periph. & Dors. views

*Fig. 21:29: Examples of large and wild herbivores (*Rupicapra, Capra, Cervus*), selected bones.*



1. Ph5-F.070/629-Maxilla L-Occ. view



2. Ph4,5-Q.045/342-Maxilla L-Occ. view



3. Ph3-F.109/1343-incisive tooth-Med. & Dist. views



4. Ph3-F.124/1050-#490-Scapula-R-Lat. view



5 & 6. Ph3-F.138/1224-Humerus R. Distal Epiphysis, Vent. & Dors. views & Tibia R. Distal Epiphysis, Dist. & Med. views



7. Ph5-F.070/841-#2157- Metacarpus IV L-Dors.Vent.-Med. & Lat. views



8. Ph5-F.164/1440-Talus R-Dors.-Plant.-Med. & Lat. views

*Fig. 21:30: Pig and boar (*Sus*), selected bones.*



1. Ph5,6-F.042/308- #1724 a P2- b,c P3/P4 Sup. R. Occ. views



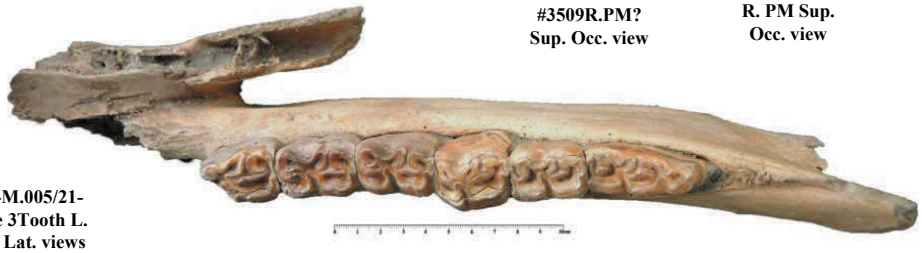
2. Ph5,6-M.003/37-#3509R.PM? Sup. Occ. view



3. Ph7-F.001/7 R. PM Sup. Occ. view



4. Ph5-M.005/21-Incisive 3Tooth L. Occ. & Lat. views



5. Ph3-F.109/1349-#2277-Mandible L-Occ. views



6 & 7. Ph7-Q.037/260- L. Radius #3520, L. Metacarpal #3519, Vent. & Dors. Views



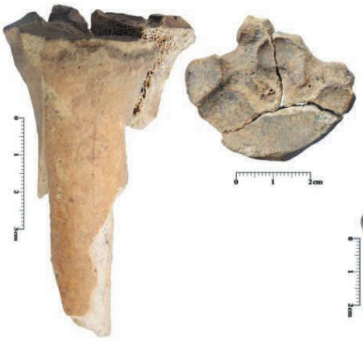
8. Ph5,6-M.003/37,Capitatum L. Prox. & Palmar Side



9. Ph5,6-M.003/10-#1234-R. Calcaneus - Vent. views



10. Ph5,6-F.046/463-Metapodial III & IV-Lat & Med views



11. Ph5,6-M.003/13-Metatarsal-Vent.-Dors. & Sup. views



12. Ph3-F.178/1515- #3521 Phalanx2-Vent. & Dors. views

*Fig. 21:31: Horse, Donkey and hybrids (*Equus*), selected bones.*

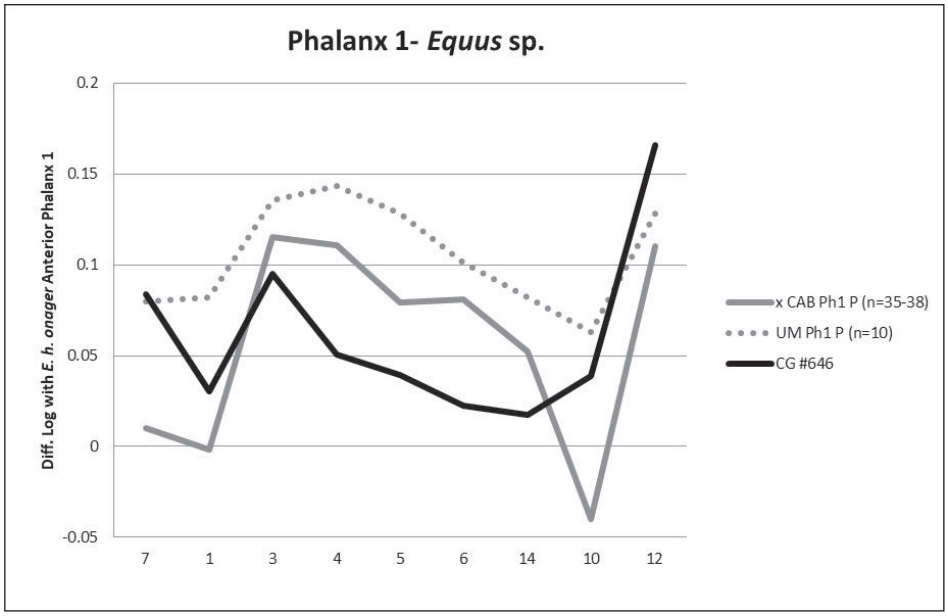


Fig. 21:32: Ratio diagram for a first phalanx.

Table 21:8: Distribution of Suid (Boar/Pig) remains in different trenches and phases.

Phases	*F*	*Q*	*D*	*M*	*N*	*P*	*Total*
7	3		1				4
6,7		1					1
6		1					1
5	24	4		3		1	32
5,7	5	6					11
5,6	4	7					11
4,5		2					2
3,6		1					1
3,5	2	10			1		13
3	13						13
Total	51	32	1	3	1	1	89

hybrids. These key animals acted as 'vehicles' during the historical period, and were crucial in many different economic activities besides warfare. The status of these animals was not equal, however, with horses used for riding and donkeys or mules as draught animals. There is no evidence for the consumption of these animals. This may explain why their remains are not found mixed with other consumption refuse.

In Dariali, only a handful of remains were found with most depicted in Figure 21:31. In total 29 bones were measured and 121 measurements were taken. Most of the measured bones[56] indicate that many of the Dariali bones belong to horse, as may be expected in a military context. One would also expect that other domestic forms, like donkey and mules, were present, especially in this mountainous environment. Only one tibia, found in the medieval deposit Q.072 (of phase 5 or 6), could be allocated clearly to donkey.[57]

The first phalanx (#646) of a putative hybrid allocated to phase 5 or 6 (Fig. 21:32) was compared to modern reference material.[58] The logarithmic profile of the first phalanx is compatible with a mule. However, the only way to make a secure identification is to analyse the specimen genetically. This is a project that is underway at Ludovic Orlando's Paleogenetic Laboratory in Toulouse (France). An accessible method has been developed recently that permits identification of hybrid animals.[59]

21.1.3.6. Carnivores

A small number of carnivore remains were identified mostly in phases 5 and 7. Several remains of cat, from very young to adult, were found in Trenches F, Q and X

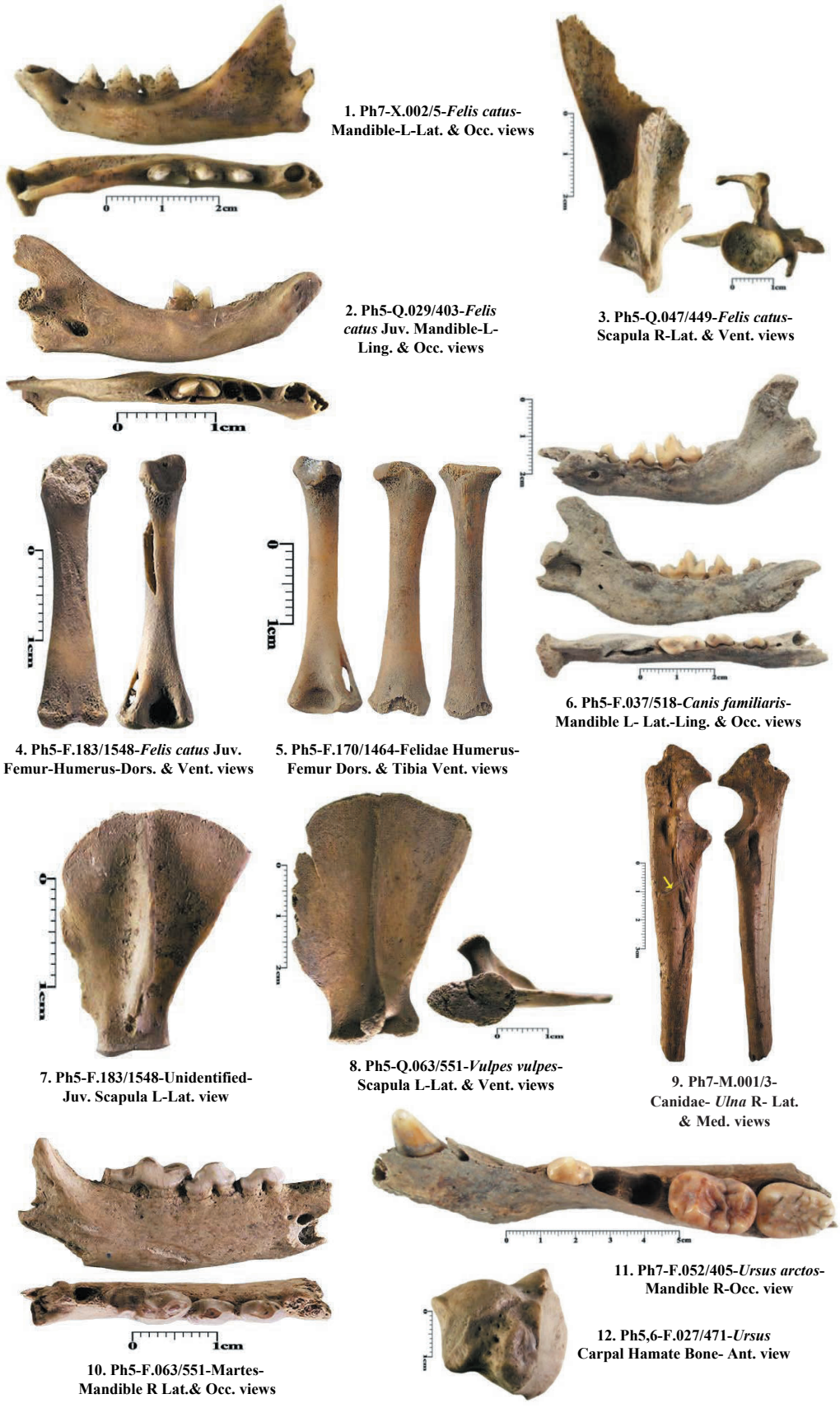


*Fig. 21:33: Carnivores (*Felis, Canis, Vulpes, Ursus*), selected bones.*

(Fig. 21:33). Remains of canids (dog and fox) as well as marten were found in Trenches F and Q. Cats and dogs may have been part of households as pets or simply as commensals. The fox and the marten were found in the deposit F.063 (F.063/551), just outside the F.004 building in Trench F. The presence of a fox and marten may have various explanations. If associated with anthropogenic activity, they may have been hunted or captured for their fur. Alternatively, they may have been the prey of larger animals.

Two interesting finds consist of a bear mandible in deposit F.052 (F.052/405), relating to phase 7, and a carpal bone of marten from phase 5 or 6 (F.027/471). The habitat preference of bears is in forested environments and mountains, as is the case with martens (possibly represented here by *Martes martes*). Martens climb more than any other mammal and are clever hunters, especially of birds up to the size of tetraonids (grouse and partridge) and squirrels.

21.1.3.7. Hare (Lepus sp.)

A mandible of a hare was found in the deposits of phase 5 in trench F (Fig. 21:34.1). The Dariali region is at the limit of the distribution of *Lepus europaeus* and *Lepus timidus*.[60]

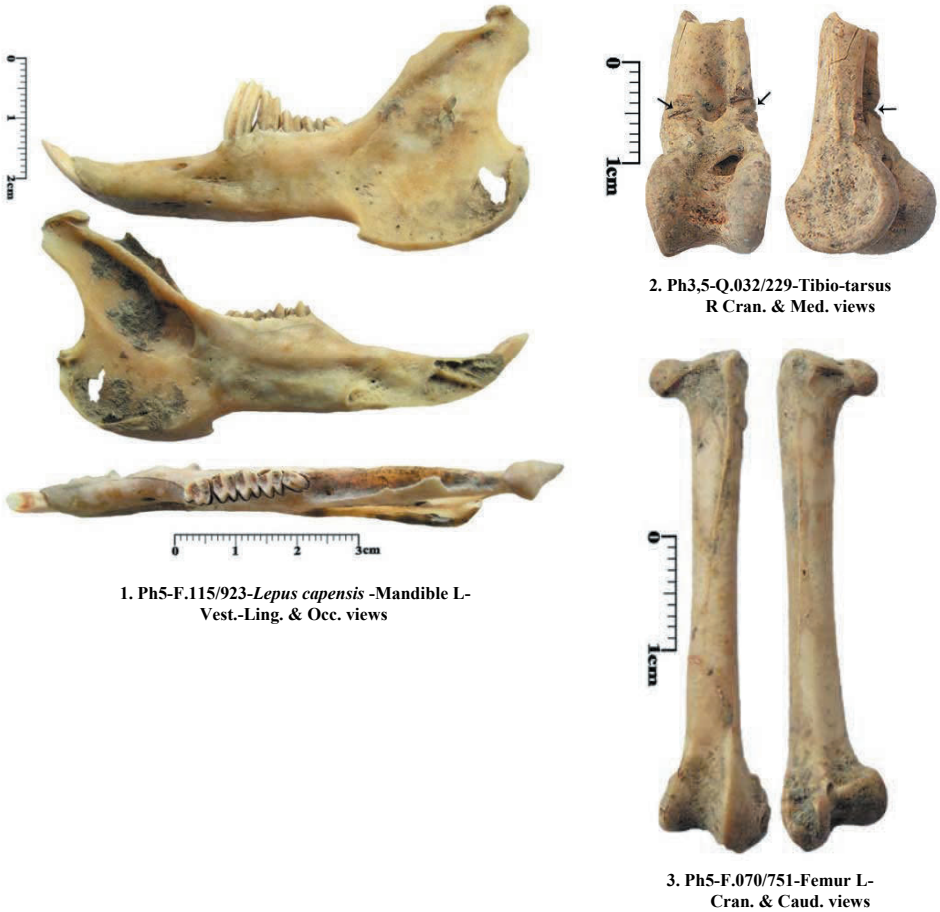
21.1.3.8. Bird remains

The important diversity of bird remains in Dariali is certainly one of the most attractive aspects of the faunal assemblages of the excavated trenches. A detailed study has been performed on half of the material by the first author, Benoît Clavel, and Safoora Kamjan, using the bird collection of the Natural History Museum in Paris for reference. The identified groups are Anseriformes (Anserinae and Anatidae), Falconiformes (Falconidae), Galliformes (Tetraonidae and Phasianidae), Gruiformes (Gruidae), Columbiformes (Columbidae) and Passeriformes (Corvidae). Bird remains were found exclusively in Trenches Q and F.

The bulk of the remains belong to Galliformes, which include domestic fowl (Fig. 21:34.2) but also wild birds such as the Caucasian black grouse. The detailed identification of these remains is reported in Tables 21:14–15. A more in-depth study of the bird remains is underway and will be published soon as a separate paper.

21.1.4. Faunal spectra at the excavated sites in Dariali Gorge

In this section, a detailed account is provided of the faunal remains recovered from specific phases within each trench



1. Ph5-F.115/923-*Lepus capensis* -Mandible L-Vest.-Ling. & Occ. views

2. Ph3,5-Q.032/229-Tibio-tarsus R Cran. & Med. views

3. Ph5-F.070/751-Femur L-Cran. & Caud. views

*Fig. 21:34: Hares and birds (*Lepus*,* Aves*), selected bones.*

Table 21:9: Faunal spectra of Trenches A, K, R, T by means of NR and Weight (g).

		NR				*Weight*			
Trenches		*A*	*K*	*R*	*T*	*A*	*K*	*R*	*T*
Taxa	Common names	6,7	5,6	6,7	6,7	6,7	5,6	6,7	6,7
Bos	Cattle			2	1			103	10
Caprini	Sheep/goat	1				10			
Capra hircus	Goat		15				15		
Total		1	15	2	1	10	15	103	10

or group of trenches. Where applicable, the well-defined phases are highlighted in grey in the tables.

21.1.4.1. Gveleti Cemetery area (Trenches A, K, R, T)

Our excavations in the area of early medieval Gveleti Cemetery failed to reveal any further remains of this burial ground or any other significant structures.[61] Finds concentration in the medieval to modern deposits unearthed was low, and only 19 animal remains were recovered from these trenches, with the highest concentration in Trench K (Table 21:9).

21.1.4.2. On the slopes of Dariali Fort (Trenches L and X)

These trenches contained deposits representing phases 5 to 7 only (Table 21:10). Trench L, the interior of a tower on the southern approaches to the fort with surviving early medieval occupation layers, produced a majority of Caprini remains, evidence to suggest that food was consumed by a stationary garrison,[62] rather than it being guarded by small detachments from the main fort changing once every few hours. Trench X, a sondage dug into a substantial accumulation of occupation debris on the western slopes of the fort deposited here by the fort's occupants,[63] also produced a relatively large number of Caprini (sheep/goat) remains, followed by cattle. The remains of one cat were also found in phase 5 or 6 of Trench X.

21.1.4.3. Animal remains from Gveleti Fort (Trenches C, D, N, U, V and W)

Faunal remains from the trenches on Gveleti Fort are limited (Table 21:11), but of significant interest as its chronology differs substantially from Dariali Fort. Whereas at Dariali Fort deposition of artefacts and bones reaches a peak in period 5, Gveleti Fort is most heavily occupied in phase 6 and at the beginning of phase 7, *i.e.* within the first two thirds of the second millennium AD.[64] When counting the total number of remains recovered only from deposits attributed to a single phase, the overall number of remains becomes very low, resulting in no statistical power. Some elements are, however, worthy of note. For example, the wild Caucasian tur is found in phase 6 of Trench D, and a substantial concentration of large caprines, possibly wild, were recovered from within phase 7 deposits. Also in Trench D, the remains of wild sheep were identified along with suid remains. Equally interesting is the discovery of the chamois horn-core from Trench N. Although small in number, these observations indicate specific functions and activities in relation to Trenches D and N.

21.1.4.4. The Assemblage from Trench P

In Trench P, a small sondage at the foot of Dariali Rock (south of the Trench L tower), ancient as well as the medieval phases are represented (Table 21:12). These bones were embedded in cultivation layers.[65] Phase 5 deposits within this trench produced the most numerous remains. In contrast with the trenches discussed above, Trench P has a larger number of cattle remains, especially evident in the weight of the remains. Another interesting observation is that Caucasian tur and boar were both present in phase 5. A single equid bone was also recovered from phase 5 of this trench.

21.1.4.5. The Assemblage from Trench M

The distribution of fauna in Trench M, located south of Trench P and on the same terrace below the Fort, appears similar to that in Trench P for the represented chronological phases. As the bones from Trench P, those from Trench M were embedded in cultivation layers.[66] The faunal remains from the much larger Trench M are, however, more abundant and display greater taxonomic diversity (Table 21:13). Although sheep/goat are rich numerically, cattle also constituted an important resource. The remains of large caprines and boar were also found amongst the animal bones of phase 5. Interestingly, equid remains are more abundant in Trench M than in any of the other trenches.

21.1.4.6. The Assemblage from Trench F on top of the fort

The bulk of the Dariali Fort animal bone remains were recovered from Trench F, and in terms of finds and

Table 21:10: Faunal spectra of Trenches L and X by means of NR and Weight (g).

NR		Trench L			Trench X		
Taxa	Common names	5.6	6.7	Total	5	5.6	Total
Bos sp.	Cattle	2		2	8	11	19
Caprini	Sheep/goat	55	15	70	63	8	71
Capra hircus	Goat	3		3	6		6
Capra (Large)	Large goat				1		1
Ovis aries	Sheep	2	1	3	3		3
Felis catus	Domestic cat					1	1
Aves	Unidentified bird	3		3	2		2
LM	Large Mammal	9	3	12	50		50
UI	Unidentified Spec.	18		18	2	5	7
Total		**92**	**19**	**111**	**135**	**25**	**160**

Weight (g)		Trench L			Trench X		
Taxa	Common names	5.6	6.7	Total	5	5.6	Total
Bos sp.	Cattle	18		18	390	423	813
Caprini	Sheep/goat	275	44	319	820	79	899
Capra hircus	Goat	25		25	170		170
Capra (Large)	Large goat				74		74
Ovis aries	Sheep	17	20	37	74		74
Felis catus	Domestic cat					3	3
Aves	Unidentified bird	4		4	1		1
LM	Large Mammal	118	44	162	1603		1603
UI	Unidentified Spec.	52		52	2	19	21
Total		**509**	**108**	**617**	**3134**	**524**	**3658**

Table 21:11: Faunal spectra of Trenches C, D, N and V by means of NR and Weight (g).

NR		Trecnh C					Total	Trench D					Total	Trench N		Total	Trench U			Total		Trench V		Total	Trench W	Total
Taxa	Common names	3,5	5	5,6	6	6,7		5	6	5,6	6,7	7		3,5	5,6		5	5,6	6,7		3,5	5	5,6		5,6	
Bos sp.	Cattle		**1**	3	**1**	4	*9*	**5**	**31**		2	**32**	*70*	3	1	4	**1**	14	5	*20*			1	*1*	3	*3*
Caprini	Sheep/goat		**7**	12	**22**	5	*46*	**2**	**35**	3	24	**31**	*95*	28	5	33	**12**	25	25	*62*	1	**1**	3	*5*		
Large Sheep/goat	Large Caprini				**2**		*2*																			
Capra hircus	Goat			5	**4**		*9*			2	1		*3*	1		1			1	*1*						
cf. *Capra*	cf. Goat																									
Capra (Large)	Large goat				**3**		*3*				1	**40**	*41*					1		*1*						
Capra caucasica	West Caucasian Tur								**4**				*4*													
Ovis aries	Sheep	1	**5**	2	**7**		*15*		**3**		6		*9*	5	1	6		2		*2*						
cf. *Ovis*	cf. Sheep																									
cf. *Rupicapra rupicapra*	cf. Chamois													1		1										
Ovis cf *orientalis*	cf. Wild sheep								**12**				*12*													
Sus scrofa	Boar/Pig											**1**	*1*	1		1										
cf. *Sus scrofa*	cf. Boar/pig																									
Aves	Unidentified Bird													1		1										
Testudo sp	Land Tortoise																									
SR	Small Ruminant													1		1										
LM	Large mammal, red deer size	1	**1**				*2*		**1**				*1*													
UI	Unidentified Spec.	1		1			*2*	**4**	**6**		4	**44**	*58*	2		2	**3**	12	37	*52*			6	*6*		
Total		**3**	**14**	**23**	**39**	**9**	*88*	**11**	**92**	**5**	**38**	**148**	*294*	**43**	**7**	50	**16**	**54**	**68**	*138*	**1**	**1**	**10**	*12*	**3**	*3*

Weight		Trecnh C					Total	Trench D					Total	Trench N		Total	Trench U			Total		Trench V		Total	Trench W	Total
Taxa	Common names	3,5	5	5,6	6	6,7		5	6	5,6	6,7	7		3,5	5,6		5	5,6	6,7		3,5	5	5,6		5,6	
Bos sp.	Cattle		**6**	30	**10**	83	*129*	**59**	**721**		26	**619**	*1425*	14	13	*27*	**109**	236	32	*377*			62	**62**	168	**168**
Caprini	Sheep/goat		**23**	70	**50**	123	*266*	**4**	**87**	10	230	**120**	*451*	140	16	*156*	**63**	163	60	*286*	23	**11**	16	**50**		
Large Sheep/goat	Large Caprini				**8**		*8*																			
Capra hircus	Goat			19	**22**		*41*			45	22		*67*	9		*9*			12	*12*				**0**		
cf. *Capra*	cf. Goat																									
Capra (Large)	Large goat				**27**		*27*				20	**443**	*463*					5		*5*				**0**		
Capra caucasica	West Caucasian Tur								**15**				*15*													
Ovis aries	Sheep	3	**98**	2	**41**		*144*		**94**		69		*163*	14	5	*19*		23		*23*				**0**		
cf. *Ovis*	cf. Sheep																									
cf. *Rupicapra rupicapra*	cf. Chamois													1		*1*										
Ovis cf *orientalis*	Ovis cf orientalis								**14**				*14*													
Sus scrofa	Boar/Pig											**4**	*4*	3		*3*										
cf. *Sus scrofa*	cf. Boar/pig																									
Aves	Unidentified Bird													1		*1*										
Testudo sp	Land Tortoise																									
SR	Small Ruminant													3,8		*3,8*										
LM	Large mammal, red deer size	8	**13**				*21*		**14**				*14*													
UI	Unidentified Spec.	2		1			*3*	**22**	**16**		5	**84**	*127*	6		*6*	**1**	22	61	*84*			35	**35**		
Total		**13**	**140**	**122**	**158**	**206**	*639*	**85**	**961**	**55**	**372**	**1270**	**2743**	**191**	**34**	*225*	**173**	**449**	**165**	*787*	**23**	**11**	**113**	**147**	**168**	**168**

Table 21:12: Faunal spectra of Trenches P by means of NR and Weight (g).

		Trench P						
Taxa	Common names	2,3	3	3,5	5	5,6	6,7	Total NR
Bos sp.	Cattle	1	1	1	60	69		132
Caprini	Sheep/goat	7		2	72	60	3	144
Capra hircus	Goat				9	1		10
Capra caucasica	West Caucasian Tur				1			1
Ovis aries	Sheep			1	11	8		20
Sus scrofa	Boar/Pig				1			1
Equus sp.	Equid				1	1		2
SR	Small Ruminant				24	2		26
LM	Large Mammal				9	3	1	13
UI	Unidentified Spec.				40	59		99
Total		**8**	**1**	**4**	**228**	**203**	**4**	**448**

Trench P						
2,3	3	3,5	5	5,6	6,7	Total Weight (g)
45	28	2	994.5	1331.4		2400.9
3		14	552.2	517.4	47.1	1133.2
			154.7	39		193.7
			10			10
		8	88	214		309.6
			17			17
			19	33.9		52.9
			61.3	5.3		66.6
			58	33.5	7.7	99.2
			87	206		293
48	**28**	**23**	**2041.7**	**2380.5**	**54.8**	**4576.1**

Table 21:13: Faunal spectra of Trenches M by means of NR and Weight (g).

		Trench M							
Taxa	Common names	2,3	3	3,5	5	5,6	6,7	7	Total NR
Bos sp.	Cattle			17	105	99		1	222
Bos (Large)	Large Cattle				2	1			3
Caprini	Sheep/goat	2	1	35	228	266			532
Caprini (Large)	Sheep/goat (Large)				1				1
Capra hircus	Goat			5	12	20		1	38
Capra (Large)	Large goat				1				1
Ovis aries	Sheep			6	27	27			60
Ovis cf *orientalis*	cf Wild sheep				2				2
Sus scrofa	Boar/Pig				3				3
Equus sp.	Equid				3	7			10
Equus caballus	Horse				1	1			2
cf. *Equus caballus*	cf Horse					2			2
Equus cf. Hybrid	cf. Hybrid					1			1
Canidae	Canid						1		1
Carnivora	Carnivore				1	1			2
Aves	Unidentified Bird				3				3
SR	Small Ruminant			111	109	244			464
LM	Large Mammal			32	150	179			361
MM	Medium Mammal				6	5			11
SM	Small Mammal			2	1	39			42
UI	Unidentified Spec.	3			13	1			17
Total		**5**	**1**	**208**	**668**	**893**	**1**	**2**	**1778**

Trench M							
2,3	3	3,5	5	5,6	6,7	7	Total Weight (g)
		662.7	4716.7	3246.9		23.3	8649.6
			772.8	24.3			797.1
5	5	275.7	2086.9	2245.2			4617.8
			48.2				48.2
		61	176.7	248.3		7	493
			9.7				9.7
		70.8	452.1	601.9			1124.8
			125.2				125.2
			140.9				140.9
			142.2	196.4			338.6
			53	74.8			127.8
				71.3			71.3
				45			45
					16		16
			23.3	15			38.3
			3.9				3.9
		529.2	517	950.4			1996.6
		617.2	3692	3254.5			7563.7
			42	94.4			136.4
		8.6	1.5	132.4			142.5
18			129.5	10.3			157.8
23	**5**	**2225.2**	**13133.6**	**11211.1**	**16**	**30.3**	**26644.2**

architectural remains it was the most prolific of all our trenches.[67] Out of the 51,300 remains, 43,000 were identified taxonomically (Table 21:14). All the phases are represented, with phase 5 being the most abundant (as in the other trenches) followed by phases 7, 4, 3 and 6. Here, caprines are the most common animal resource followed by cattle, although this ratio is more balanced when looking at weight.

The particularity of this trench is the biodiversity it shows for wild herbivores and other game species as well as for birds. Thirteen bird species were identified, including the snowcock and wood grouse that represent local birds adapted to the harsh, cool and mountainous environment of Dariali. All other birds are present in the local environment of the site.

21.1.4.7. Archaeozoological remains from Trench Q on Dariali Fort

Trench Q is similar to Trench F in its general tendencies, as well as in location being also situated on top of the fort,[68] but with approximately half the quantity of remains (Table 21:15). The bird list is slightly different, with more Columbidae identified. In phase 3 (Sasanian), only 48 remains were recovered, reflecting that we found far fewer undisturbed late antique deposits than in Trench F. The most abundant is phase 5 with 15,300 remains.

For a better comparative view, the faunal spectra were simplified and only material from the pure phases was included (Figs 21:35–36). As a result, only phase

Table 21:14: Faunal spectra of Trenches F by means of NR and Weight (g).

NR		Trench F										Total NR
Taxa	Common names	3	3.4	3.5	4	5	5.6	5.7	6	6,7	7	
Bos sp.	Cattle	**220**	5	37	**73**	**3375**	1545	334	**59**	33	**928**	6609
Bos (Large)	Large Cattle					**5**						5
Caprini	Sheep/goat	**1386**	138	142	**479**	**15925**	4200	477	**201**	45	**1833**	24826
Caprini (Large)	Large Sheep/goat					**12**	1					13
Capra hircus	Goat	**74**		11	**20**	**854**	172	22	**10**	9	**85**	1257
cf. *Capra*	cf. Goat				**1**	**1**						2
Large Capra	Large goat	**2**			**1**	**5**	4	4		3	**31**	50
Capra caucasica	West Caucasian Tur										**11**	11
Ovis aries	Sheep	**133**	11	9	**33**	**1283**	294	37	**16**	10	**157**	1983
cf. Ovis	cf. Sheep					**6**	1					7
cf. *Rupicapra rupicapra*	cf. Chamois					**5**					**2**	7
Ovis cf *orientalis*	cf. Wild sheep					**7**				1	**1**	9
Cervus elaphus	Red deer					**1**					**2**	3
Sus scrofa	Boar/Pig	**11**		1		**22**	4	3			**3**	44
cf. *Sus scrofa*	cf. Boar/pig	**2**		1		**2**		2				7
Equus sp.	Equid	**7**		2		**30**	2				**4**	45
Equus caballus	Horse	**2**		1			9				**1**	13
cf.*Equus caballus*	cf Horse	**1**										1
Lepus europaeus	Hare			1		**7**	1					9
Felis catus	Cat					**6**				1		7
Canis familiaris	Dog					**1**						1
Canidae	Canid					**2**						2
Vulpes sp.	Fox					**5**	3					8
cf. *Vulpes*	cf. Fox						1					1
Meles meles	Badger					**1**						1
Martes sp.	Marten					**1**						1
Ursus arctos	Brown bear					**5**	1				**1**	7
Carnivora	Carnivore					**7**						7
Rodentia/Insectivora	Micromammals					**1**						1
Aves	Unidentified Bird	**3**		2	**11**	**155**	35		**2**		**9**	217
Anas sp.	Duck					**1**						1
Falco tinnunculus	Common kestrel						1					1
Gallus gallus	Fowl	**1**				**130**	30	2			**4**	167
Tetrao caucasicus	Caucasian Snowcock									1		1
Tetrao urogallus	Western Capercaillie/ Wood grouse						1					1
Tetrao cf. *caucasicus*	Caucasian Snowcock					**4**	1					5
Alectoris rufa	Red Legged Partridge			1		**3**	1					5
Coturnix coturnix	Common quail					**1**						1
Galliformes	Galliformes					**2**						2
Grus grus	Crane					**1**						1
Columba sp	Pigeon					**10**						10
Corvus frugilegu s or *C. Corone*	Rook/Carrion crow					**8**						8
Corvus cf.	cf. Crow					**1**	1					2
Corvid	Crows					**1**						1
Testudo sp.	Land Tortoise					**1**						1
												0
SR	Small Ruminant	**345**		61	**149**	**4426**	516		**63**		**124**	5684
LM	Large Mammal	**132**	7	59	**55**	**3192**	545	60	**60**	93	**616**	4819
LM	Large Mammal, red deer size					**1**					**8**	9
MM	Medium Mammal	**1**				**22**	1			132	**132**	288
SM	Small Mammal	**1**			**1**	**220**	37		**1**			260
UI	Unidentified Spec.	**118**	28	29	**130**	**2301**	1514	69	**51**	10	**638**	4888
Total		**2439**	**189**	**357**	**953**	**32049**	**8921**	**1010**	**463**	**338**	**4590**	**51309**

(Continued)

Table 21:14: (Continued)

Weight		Trench F										Total Weight (g)
Taxa	Common names	3	3.4	3.5	4	5	5.6	5.7	6	6,7	7	
Bos sp.	Cattle	**4276.7**	191.0	1042.4	**3145.1**	**112460.0**	34608.2	11561.0	**922.7**	660.0	**22284.5**	191151.55
Bos (Large)	Cattle (Large)					**1084.6**						1084.6
Caprini	Sheep/goat	**9293.3**	763.0	1019.5	**4283.4**	**115817.8**	28260.2	4202.0	**884.6**	338.0	**14156.1**	179017.93
Caprini (Large)	Large Sheep/goat					**161.0**	122.0					283
Capra hircus	Goat	**901.4**		127.2	**334.0**	**12042.0**	2579.7	706.0	**92.7**	49.0	**2222.2**	19054.2
cf. *Capra*	cf. Goat				**7.0**							7
Large Capra	Large goat	**113.7**			**8.6**	**146.3**	97.6	206.0		23.0	**739.0**	1334.2
Capra caucasica	West Caucasian Tur						0.0				**336.0**	336
Ovis aries	Sheep	**1637.9**	166.0	74.5	**862.3**	**22974.6**	3516.0	689.0	**265.1**	131.0	**2749.6**	33066
cf. Ovis	cf. Sheep					**48.0**	37.0					85
cf. *Rupicapra rupicapra*	cf. Chamois					**77.5**					**19.0**	96.5
Ovis cf *orientalis*	cf. Wild sheep					**502.6**					**16.2**	518.8
Cervus elaphus	Red deer					**72.0**					**47.0**	119
Sus scrofa	Boar/Pig	**228.0**		19.0		**404.0**	63.0	4.0			**37.0**	755
cf. *Sus scrofa*	cf. Boar/pig	**23.8**		0.0		**39.7**		18.0				81.5
Equus sp.	Equid	**280.0**		85.5		**1558.2**	47.6				**130.0**	2101.3
Equus caballus	Equid	**629.5**		84.0			203.5				**64.0**	981
cf.*Equus caballus*	cf. Horse	**31.0**										31
Lepus europaeus	Hare			1.1		**11.6**	1.0					13.7
Felis catus	Cat					**5.0**				1.0		6
Canis familiaris	Dog					**4.0**						4
Canidae	Canid					**10.5**						10.5
Vulpes sp.	Fox					**11.0**	2.0					13
cf. *Vulpes*	cf. Fox						3.0					3
Meles meles	Badger					**6.5**						6.5
Martes sp.	Marten					**5.0**						5
Ursus arctos	Brown bear					**8.6**	5.0					13.6
Carnivora	Carnivore					**6.9**						6.9
Rodentia/Insectivora	Micromammals					**0.1**						0.1
Aves	Unidentified Bird	**6.1**		4.2	**17.1**	**259.9**	53.1		**7.3**		**7.0**	354.7
Anas sp.	Duck					**0.5**						0.5
Falco tinnunculus	Common kestrel						0.3					0.25
Gallus gallus	Fowl	**1.5**				**204.3**	49.3	2.9			**10.2**	268.2
Tetrao caucasicus	Caucasian Snowcock									3.0		3
Tetrao urogallus	Western Capercaillie/ Wood grouse						3.8					3.8
Tetrao cf. *caucasicus*	Caucasian Snowcock					**11.0**	2.0					13
Alectoris rufa	Red Legged Partridge			0.6		**1.4**	0.6					2.6
Coturnix coturnix	Common quail					**0.1**						0.1
Galliformes	Galliformes					**2.0**						2
Grus grus	Crane					**3.3**						3.3
Columba sp	Pigeon					**4.2**						4.2
Corvus frugilegu s or *C. Corone*	Rook/Carrion crow					**8.0**						8
Corvus cf.	cf. Crow					**1.0**	1.0					2
Corvid	Crows					**0.3**						0.3
Testudo sp.	Land Tortoise					**3.0**						3
SR	Small Ruminant	**906.0**		148.6	**439.9**	**13579.1**	1249.1		**188.2**		**368.0**	16878.9
LM	Large Mammal	**1952.8**	141.0	1007.5	**830.2**	**56684.5**	8196.2	747.0	**638.4**	711.0	**10732.3**	81640.9
LM	Large Mammal, red deer size					**29.0**					**149.0**	178
MM	Medium Mammal	**23.0**				**93.0**	13.0			478.0	**551.0**	1158
SM	Small Mammal	**8.4**			**1.6**	**746.9**	92.4		**1.0**			850.3
UI	Unidentified Spec.	**308.3**	34.0	100.0	**310.5**	**5539.7**	2986.9	269.0	**116.0**	12.0	**1840.0**	11516.4
Total		**20621.4**	**1295.0**	**3714.1**	**10239.7**	**344628.7**	**82193.5**	**18404.9**	**3116.0**	**2406.0**	**56458.1**	**543077.3**

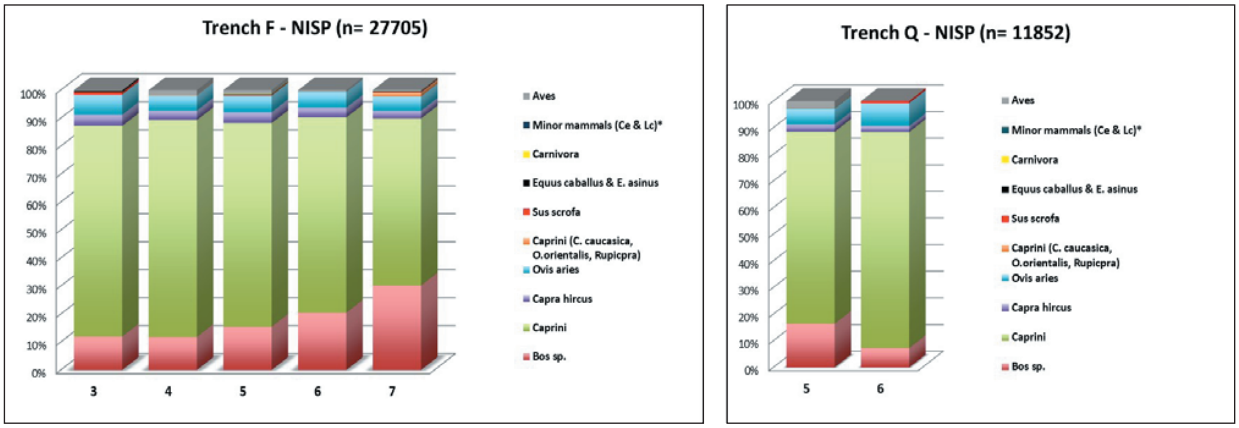


Fig. 21:35: Faunal spectra: chronological distribution of the identified taxa in Trenches F and Q by means of NISP. (There is too little well-stratified material from Q for plotting phases other than 5 and '6'; '6' refers to material that may belong to phase 5 or 6.)

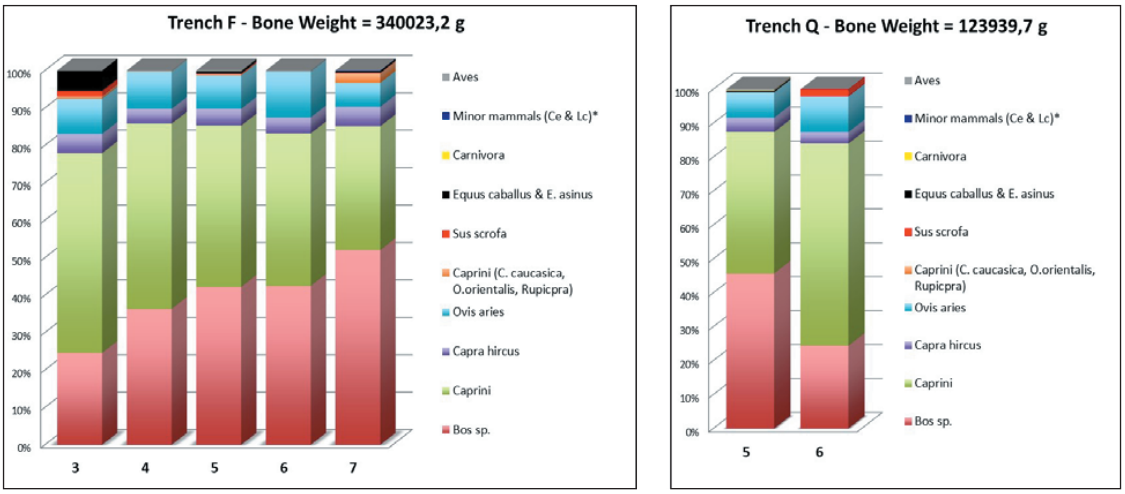


Fig. 21:36: Faunal spectra: Chronological distribution of the identified taxa in Trenches F and Q by means of Bone Weight (g). (There is too little well-stratified material from Q for plotting phases other than 5 and '6'; '6' refers to material that may belong to phase 5 or 6.)

Table 21:15: Faunal spectra of Trenches Q by means of NR and Weight (g).

NR		Trench Q										Total NR
Taxa	Common names	3	3,5	3,6	4,5	5	5,6	5,7	6	6,7	7	
Bos sp.	Cattle		225	1	64	**1918**	135	1567	**10**	108		4028
Bos (Large)	Large Cattle							5				5
Caprini	Sheep/goat	**40**	1595	161	129	**8448**	488	3828	**112**	423		15224
Large Sheep/goat	Large Caprini							1				1
Capra hircus	Goat		125	7	3	**324**	31	239	**3**	18		750
Capra (Large)	Large goat		2		1	**1**		19		2		25
Capra caucasica	West Caucasian Tur		1				1	13				15
Ovis aries	Sheep	**1**	138	9	7	**694**	32	332	**12**	21		1246
Ovis cf *orientalis*	cf. Wild sheep		1			**1**		1				3
Sus scrofa	Boar/Pig		10	1	2	**4**	7	6	**1**	1		32
Equus sp.	Equid		1			**5**	1	4				11
Equus caballus	Horse					**1**		2				3
Equus asinus	Donkey							1		1		2
Lepus europaeus	Hare					**1**				1		2
Felis catus	Domestic cat					**5**		1		2	**6**	14
Canis familiaris	Dog						1					1
Rodentia/Insectivora	Micromammals					**9**		6				15
Aves	Unidentified Bird		48		1	**54**	6	124		2		235
Anser anser	Grey geese					**3**						3
Anser sp.	Grey geese					**7**						7
Tadorna tadorna	Common shelduck					**1**						1
Raptor	Raptor					**5**						5
Circus aeroginosus	Western marsh harrier							1				1
Falco tinnunculus	Common kestrel					**7**						7
Tetraonidae	Grouse/partridge/quail							1				1
Tetrao cf *caucasicus*	Caucasian Snowcock					**1**						1
Phasianidae	Pheasant/Partridge					**1**						1
Phasianus colchicus	Common pheasant					**2**						2
Perdix perdix	Grey partridge							1				1
Gallus gallus	Fowl		5		1	**201**		52				259
cf *Gallus gallu* s	cf Fowl							1				1
Columba cf *livia*	cf. Rock Dove					**1**						1
Columba oenas	Stock dove					**4**						4
Columba palumbus	Common Woodpigeon					**4**						4
Columba sp.	Pigeon					**2**						2
Streptopelia sp.	Doves							1				1
Corvus monedula	Eurasian Jackdaw					**1**						1
Corvus corax	Common raven					**18**						18
SR	Small Ruminant		802			**929**	71	492				2294
LM	Large Mammal	**7**	353	40	2	**810**	179	802	**36**	206	**1**	2436
LM	Large mammal, red deer size											
MM	Medium Mammal			1	1			13	**4**	15		34
SM	Small Mammal							1				1
UI	Unidentified Spec.		45	18	93	**1841**	41	641	**36**	76	**2**	2793
Total		**48**	**3351**	**238**	**304**	**15303**	**993**	**8155**	**214**	**876**	**9**	**29491**

(Continued)

Table 21:15: (Continued)

Weight		Trench Q										Total Weight (g)
		3	3,5	3,6	4,5	5	5,6	5,7	6	6.7	7	
Bos sp.	Cattle		8650.3	140	1671.6	**56248.9**	4741.3	34341.3	**247**	3317		109357.4
Bos (Large)	Cattle (Large)							3202				3202
Caprini	Sheep/goat	**383**	10757.5	352	923	**51203.4**	3204.4	21772.6	**603**	2495		91693.9
Large Sheep/goat	Large Sheep/goat							35				35
Capra hircus	Goat		1267.9	762	16	**5205.4**	484.5	3057.8	**34**	127		10954.6
Capra (Large)	Large goat		39		15	**8**		745.7		4		811.7
Capra caucasica	West Caucasian Tur		37				27	6				70
Ovis aries	Sheep	**41**	2219	220	23	**9202.2**	551.8	4101.4	**107**	339		16804.4
Ovis cf orientalis	cf Wild sheep		3			**5**		44				52
Sus scrofa	Boar/Pig		133.2	0	8	**35.5**	191.12	118.9	**21**	7		514.72
Equus sp.	Equid		3.6			**446**	15	83				547.6
Equus caballus	Equid					**20**		517.1				537.1
Equus asinus	Donkey							27		157		184
Lepus europaeus	Hare					**1.1**				1		2.1
Felis catus	Domestic cat					**95**		3		24		122
Canis familiaris	Dog						43					43
Rodentia/Insectivora	Micromammals					**2**		1				3
Aves	Unidentified Bird		75.5		0.7	**69.1**	6.3	189.2		1.1		341.9
Anser anser	Grey geese					**4**						4
Anser sp.	Grey geese					**21.1**						21.1
Tadorna tadorna	Common shelduck					**5.3**						5.3
Raptor	Raptor					**7.4**						7.4
Circus aeroginosus	Western marsh harrier							1				1
Falco tinnunculus	Common kestrel					**2.3**						2.3
Tetraonidae	Grouse/partridge/quail							1				1
Tetrao cf *caucasicus*	Caucasian Snowcock					**0.2**						0.2
Phasianidae	Pheasant/Partridge					**2.3**						2.3
Phasianus colchicus	Common pheasant					**3**						3
Perdix perdix	Grey partridge							0.8				0.8
Gallus gallus	Fowl		15.3		1.7	**307.57**		94.4				418.97
cf *Gallus gallu* s	cf Fowl							0.2				0.2
Columba cf *livia*	cf. Rock Dove					**0.2**						0.2
Columba oenas	Stock dove					**1.2**						1.2
Columba palumbus	Common Woodpigeon					**1.3**						1.3
Columba sp.	Pigeon					**0.85**						0.85
Streptopelia sp.	Doves							0.2				0.2
Corvus monedula	Eurasian Jackdaw					**0.4**						0.4
Corvus corax	Common raven					**30.97**						30.97
SR	Small Ruminant		1771.9			**2147.1**	162.5	1075.3				5156.8
LM	Large Mammal	**132**	4927.4	698	52	**12383.7**	3326.3	12205	**298**	2498	**28**	36548.4
LM	Large mammal, red deer size											
MM	Medium Mammal			6	4			56	**10**	46		122
SM	Small Mammal							0.2				0.2
UI	Unidentified Spec.		135	35	72	**2539**	98	1844.9	**46**	176	**9**	4954.9
Total		**556**	**30035.6**	**2213**	**2787**	**139999.5**	**12851.2**	**83524**	**1366**	**9192.1**	**37**	**282561**

5 (and 5 to 6) data from Trench Q is included. Since Trenches F and Q are in proximity within the Fort, the faunal spectra of the two trenches are displayed alongside one another.

It is clear that sheep and goat herding constituted the backbone of the subsistence economies of the Dariali region. A constant element is the ratio of goat to sheep. Sheep always outnumber goats, whereas a greater presence of goats would be expected in the kind of environment within which Dariali is situated. Another interesting observation is the slow increase in cattle through time in Trench F, which is particularly apparent when looking at the weight charts (Fig. 21:36). This may indicate the development of agriculture and a growing need for draught animals through time. Within Trench F there is a slight difference between phase 3 and the other phases, caused by the higher abundance of equid remains. Interestingly, the phase 5 assemblages in the two trenches are remarkably similar.

21.1.5. Age at death of the bovid collection

Many bones display traits indicative of aged bovids, including heavy fusion of some parts of the skeleton, such as the coxa (Fig. 21:37), or teeth showing heavy wear. In parallel, many bones of young bovids are also present (Fig. 21:38), showing that animals were born in the settlement. This is an important indication of the presence of year-round herding in the area.

The large amount of dental material belonging to phases 5 and 7 has permitted reconstruction of kill-off patterns for caprines, with determinations based on tooth eruption and wear methods developed by Sebastian Payne.[69] Figure 21:39 presents the kill-off patterns for sheep and goat, with calculations based on the number of teeth.[70] The results of the analysis of tooth remains have been interpreted as follows.

In phase 5, the presence of young animals in class B indicates that they had been born at Dariali. For goat



1. Ph3-F.175/1482-Young herbivore- Petrosa, Med. side



2. Ph.5-F.043/336-*Ovis aries*-Mandible-L-Lat. & Occ. views



3. Ph.5,7-Q.020/126-*Ovis aries*-Mandible-L- Ling & Occ. views



4. Ph3-F.178/1497-Caprini- Tibia



5. Ph7-D.001/2-Femur-



6. Ph5-F.022/207-cf. *Bos* sp. unfused R Coxal bone (Illiac & acetabulum parts)



7. Ph5-F.063/24-Bos / *Cervus* unfused Phalanx1



8. Ph4-F.096/347-Caprini, Discs of 3 & 4 cervical Vt. in fusion



9. Ph5-M.005/24-*Bos*, Disc of cervical Vt. in fusion



10. Ph5-F.033/352-*Bos* Talus L- Dors. view



11. Ph5-F.164/1440-Talus R- Dors. view

Fig. 21:37: A selection of bones from juvenile domestic animals.

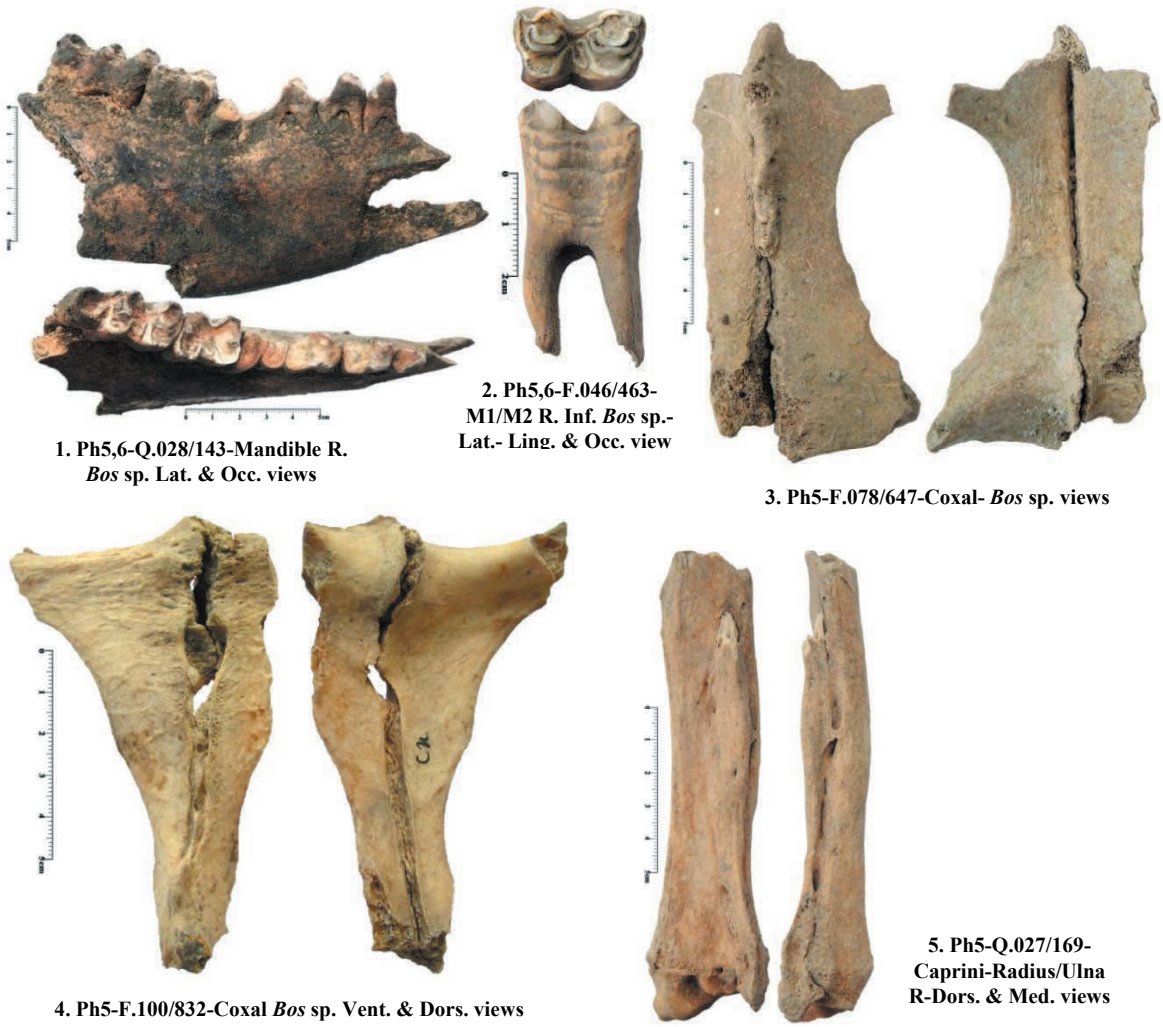


Fig. 21:38: A selection of bones from old animals.

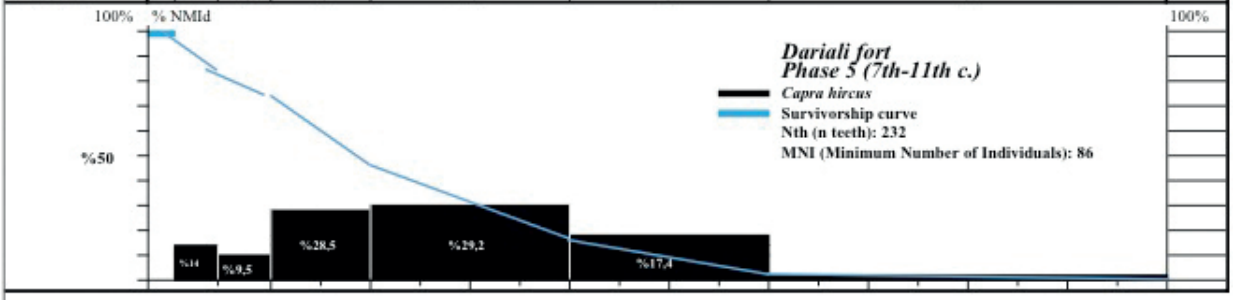
(*Capra hircus*), the majority of animals were killed between one and four years. It is interesting to see that old animals (over six years) are practically absent. In contrast, young goats are absent in phase 7; no mandibles of individuals younger than one year old could be found. For sheep (*Ovis aries*), no animals less than six months old were found. This is an important observation since these results are based on large quantities of data; the minimum number of individuals is significantly high and the absence of data is not related to any bias.

These kill-off patterns are the first datasets on animal husbandry practices that exist for Georgia during the medieval period. Future studies of additional sites could help to better understand and interpret the present evidence from Dariali. What is obvious is the change in strategy between phases 5 and 7 (Fig. 21:39). It is possible that during the latest period a kind of transhumant pastoralism was practised that could explain the absence of young animals. It is worth noting here that phase 7 will include redeposited medieval bones as well as more recent material, some perhaps related to the military re-occupation in the early twentieth century. Whilst it is clear that the assemblage from phase 7 differs from those of earlier phases, it is hard to be sure when precisely the changes occurred. The kill-off pattern for cattle has yet to be determined but methods are being applied to address this.

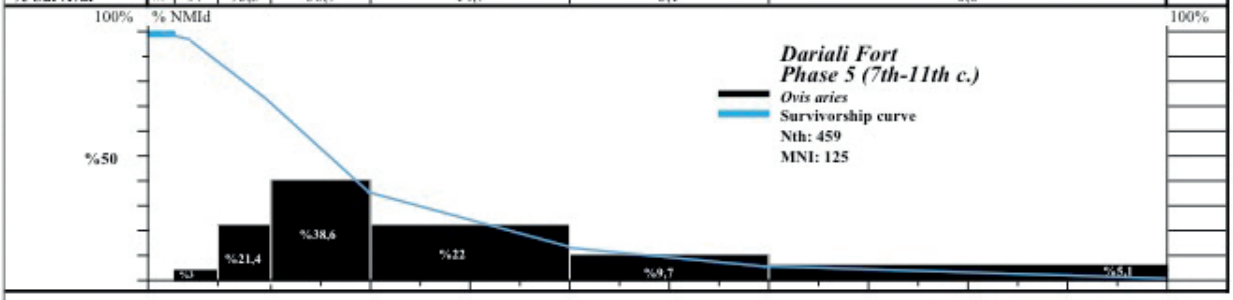
21.1.6. Bone pathologies

Modifications of bones have different origins; some are due to stress and others to the health conditions of the animal during its life. Figures 21:40–41 present a selection of the various pathologies observed. The deformed horn-cores are an indicator of stress and harsh conditions, especially those related to feeding, which can have an effect on normal bone growth. Specimens 1 to 5, which exhibit ‘thumb’ like impressions, provide examples of this pathology (Fig. 21:40). Exostoses and abnormal bone growth indicate osteoarthritis, due either to age or difficult living conditions. The latter can be easily imagined

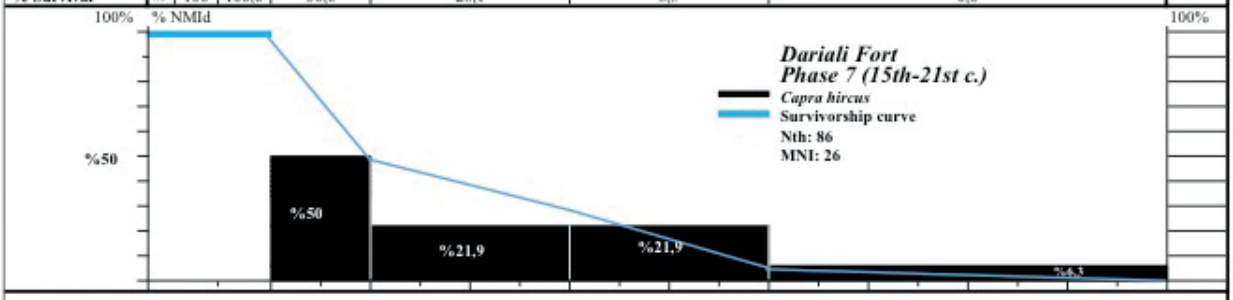
Capra	A 0-2m	B 2-6m	C 6-12 m	D 1-2 y	E-F 2-4y	G 4-6 y	H-I Plus de 6 ans (6-10 y)	Tot
NMId	0	3	3	18	37	22	3,0	86
Fc corr.	6	3	2	1	0,5	0,5	0,25	
Effect. corr.	0	9	6	18	18,5	11	0,8	63,25
% NMId	0	14	9,5	28,5	29,2	17,4	1,2	100
% Survival	##	86	76,3	47,8	18,6	1,2	0,0	



Ovis	A 0-2m	B 2-6m	C 6-12 m	D 1-2 y	E-F 2-4y	G 4-6 y	H-I Plus de 6 ans (6-10 y)	Tot
NMId	0	1	10	36	41	18	19,0	125
Fc corr.	6	3	2	1	0,5	0,5	0,25	
Effect. corr.	0	3	20	36	20,5	9	4,8	93,25
% NMId	0	3,2	21,4	38,6	22,0	9,7	5,1	100
% Survival	##	97	75,3	36,7	14,7	5,1	0,0	



Capra	A 0-2m	B 2-6m	C 6-12 m	D 1-2 y	E-F 2-4y	G 4-6 y	H-I Plus de 6 ans (6-10 y)	Tot
NMId	0	0	0	8	7	7	4,0	26
Fc corr.	6	3	2	1	0,5	0,5	0,25	
Effect. corr.	0	0	0	8	3,5	3,5	1,0	16
% NMId	0	0	0,0	50,0	21,9	21,9	6,3	100
% Survival	##	100	100,0	50,0	28,1	6,3	0,0	



Ovis	A 0-2m	B 2-6m	C 6-12 m	D 1-2 y	E-F 2-4y	G 4-6 y	H-I Plus de 6 ans (6-10 y)	Tot
NMId	0	0	5	12	13	11	2,0	43
Fc corr.	6	3	2	1	0,5	0,5	0,25	
Effect. corr.	0	0	10	12	6,5	5,5	0,5	34,5
% NMId	0	0	29,0	34,8	18,8	15,9	1,4	100
% Survival	##	100	71,0	36,2	17,4	1,4	0,0	

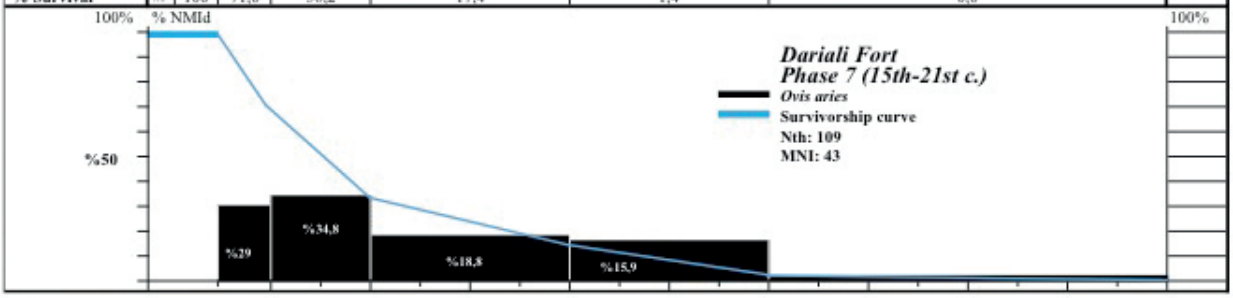


Fig. 21:39: Kill off pattern for sheep and goat in phase 5.

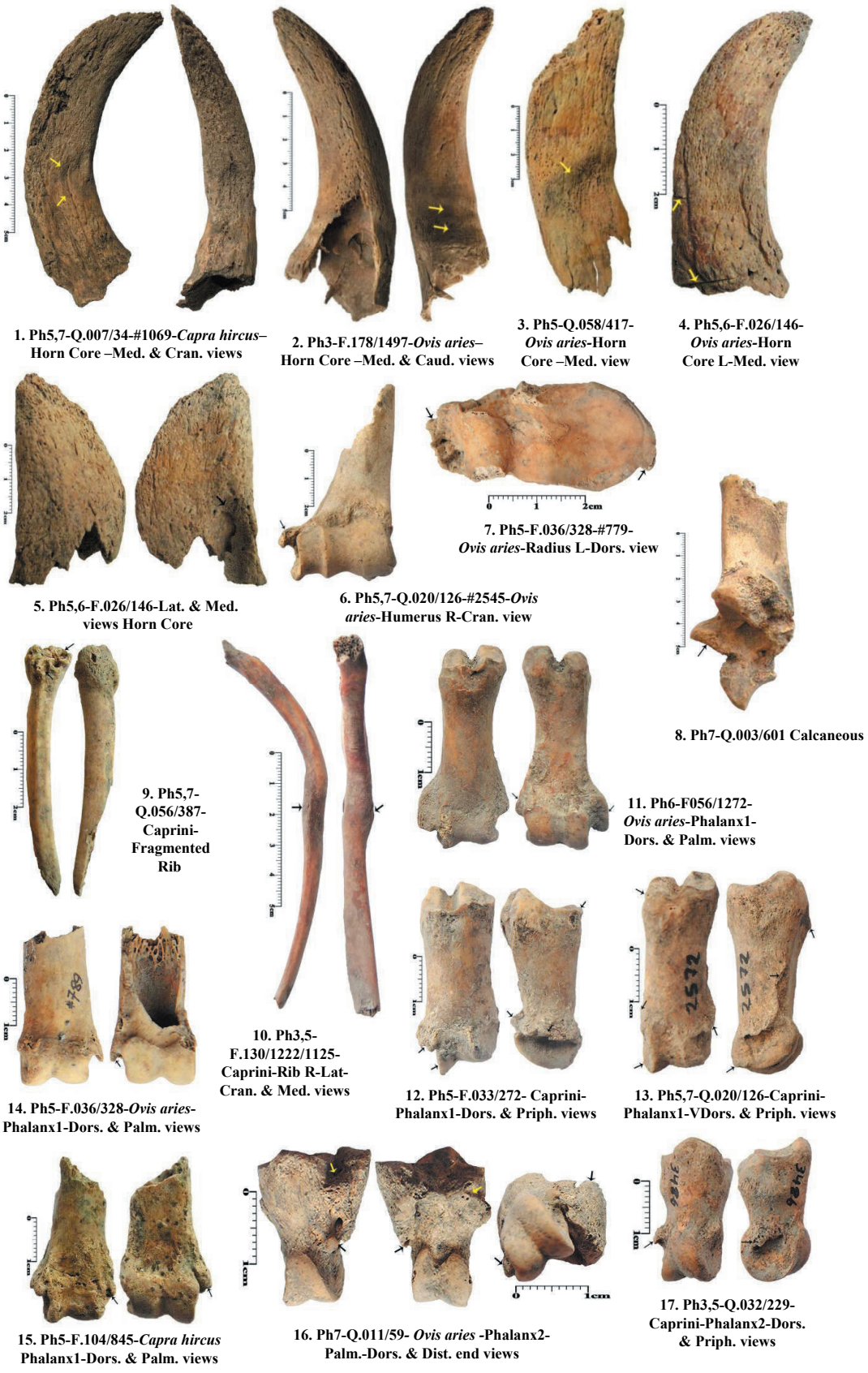


Fig. 21:40: Pathologies.



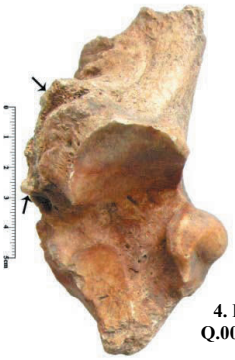
1. Ph3,5-F.130/1222/1125-Rib R-Lat-Cran. & Med. views



2. Ph3,5-Q.032/229--Rib-Lat. & Med. views



3. Ph7-Q.003/601-Talus, Calcaneus, NC, Phalanx-1, 2 & 3- fused proximal Metatarsal bone R-Vent.- Lat.-Med.-Vent. views



4. Ph7-Q.003/601



5. Ph5-F.033/231-#1496-*Bos taurus*-Phalanx1-Palm. & Priph. views



6. Ph3,5-Q.031/181-*B. taurus*-Phalanx1-VDors.



7. Ph5,7-Q.007/34- *B. taurus*- Periph. & Dors. views



8. Ph7-Q.003/601

Fig. 21:41: Pathologies (Continued).

for the rocky and challenging landscape around the site. These cases are displayed in Figures 21:40–41 for sheep and goat. Similar cases are encountered in cattle that may be due to the use of these animals for work, either for transport or agricultural purposes.

21.1.7. Conclusion

The present account is a first attempt at describing the rural life of the Dariali region from the Sasanian period to modern times. More than eighty thousand animal bones were studied from four excavation seasons, and a large corpus of archaeozoological data was produced that can be considered as a solid basis for future research in the Caucasus area and in Georgia in particular. This work is ongoing and there remains important work to be done on the material. An interesting issue that may require further investigation via ethnography is seasonal herd management in this cold and mountainous environment.

For now, we can conclude that the Dariali people who lived in the Fort and its surroundings had a high reliance on husbandry. Sheep and cattle were the main targets of herding in the area. Domestic fowl also played an important role in the diet of the inhabitants of Dariali, while wild animal resources also made an occasional contribution. This study has also demonstrated the ancient presence of Caucasian tur. Finally, the presence of the remains of very large cattle requires further study in order to improve our understanding of the variability of the bovine population in the Caucasus area.

Appendices

For the appendices to this chapter, cited below, please see: http://books.casematepublishing.com/Dariali_the_Caspian_Gates.pdf.

Notes

1 Archéozoologie, Archéobotanique (UMR 7209), CNRS, MNHN CP55, 55rue Buffon 75005 Paris, France: Marjan Mashkour, Karyne Debue, Delphine Decruyenaere and Benoît Clavel; Archaeozoology section, Bioarchaeology Laboratory of the Central Laboratory, University of Tehran, Iran: Marjan Mashkour, Sarieh Amiri, Homa Fathi, Roya Khazaeli, Sanaz Beizaee Doost and Safoora Kamjan; Faculty of Environment- University of Tehran, Iran: Marjan Mashkour; University of Gröningen, Netherlands: Safoora Kamjan; Ivane Javakhishvili Tbilisi State University, Georgia: Rusudan Jajanidze; University of Edinburgh, UK: Eberhard W. Sauer; corresponding author: Marjan Mashkour (mashkour@mnhn.fr). Three of the archaeozoologists, Roya Khazaeli, Sarieh Amiri and Homa Fathi, were trained at the Archaeozoology section of the Bioarchaeology laboratory at Tehran University, and are part of the Gorgan Wall project (ERC-AG-Persia). Karyne Debue is an archaeozoology technician, Delphine Decruyenaere was trained at the Archaeozoology laboratory of the National Museum of Paris and Rusudan Jajanidze, an undergraduate in archaeology and initiated in archaeozoology, joined the team during summer 2016. Three additional archaeozoologists (Safoora Kamjan, Benoît Clavel and Sanaz Beizaee Doost) joined the team for the study of the bird bones in Paris and for the preparation of the bone illustrations in Tehran (Sanaz Beizaee Doost). We would like to address special thanks to the joyful archaeological team in Georgia for their great help in the collection and conservation of the Dariali bone assemblages at Stepantsminda and Tbilisi. We are also grateful to Dr Sacha Jones for copy-editing this chapter.

2 See chapter 10.5.

3 Brosset 1842; 1849; Wardrop 1888; see also chapters 6 and 25.

4 Bendukidze 2010; 2013a; 2013b; 2013c; Burchak-Abramovich and Bendukidze 1969; Narimanishvili *et al.* 2011.

5 Berthon 2014.

6 Marjan Mashkour, Sarieh Amiri, Homa Fathi, Roya Khazaeli, Karyne Debue, Delphine Decruyenaere and Rusudan Jajanidze.

7 Barone, 1986; Pales and Garcia 1981; Schmid 1972.

8 Boessneck 1969; Helmer 1992; Helmer and Rocheteau 1994.

9 See chapter 21.2.

10 See chapter 21.3.

11 See chapters 2–9.

12 A detailed list of the bone remains from each trench is reproduced in Appendix 21.1a.

13 See chapters 2–8 and 11.

14 See also chapter 15.

15 Driesch 1976.

16 Simpson *et al.* 1960.

17 Meadow 1999.

18 Appendix 21.1b; Uerpmann and Uerpmann 1994.

19 Appendix 21.1c.

20 Uerpmann 1987.

21 Eisenmann 1986; Eisenmann and Beckouche 1986; Uerpmann 1987.

22 Official website of Vera Eisenmann: www.vera-eisenmann.com.

23 Simpson 1941.

24 Eisenmann and Mashkour 2000.

25 *E.g.* Boesneck 1969; Payne 1985; Grigson 1973; 1976; 1980; Clutton Brock *et al.* 1990; Helmer 2000; Zeder and Lapham 2010.

26 Helmer and Rocheteau 1994; Mallet and Guadelli 2013).

27 Olsen 1960.

28 Grigson 1973; 1976; 1980.

29 Evin *et al.* 2015a; 2015b; Cucchi *et al.* 2017.

30 Chaix and Méniel 1996.

31 Grigson 1973; 1980.

32 Grigson 1976, 1980.

33 Verdugo *et al.* submitted.

34 Guintard 1999; Wright 2014.

35 Wardrop 1888, 59. On the aurochs in the Caucasus, see also Klaproth 1814, VIII and Dubois de Montpéreux 1840, 282.

36 See Grigson 1969 for the limitations.

37 Upadhyay *et al.* 2017; see measurements in Appendix 21.1d. The metric data can also be requested from the first author. Note that there have been a small number of cases that the phasing of deposits was changed, as the excavation and

small finds team processed the results of our fieldwork. These concern almost exclusively more recent or mixed deposits and have only a minimal impact on the results. It has not been possible to correct these in this and other appendices, as this would have meant recalculating all statistics, without making any major difference to the overall picture.

38 Hongo, pers. comm.
39 Degerbøl and Freskild 1970; Appendix 21.1e.
40 Appendix 21.1f.
41 Appendix 21.1g.
42 Appendix 21.1h.
43 Bökönyi 1977; Mashkour 2001; 2002.
44 Mashkour *et al.* 2005; Mashkour and Mohaseb, unpublished data.
45 Uerpmann and Uerpmann 1994.
46 Boessneck 1969.
47 Daly *et al.* 2018.
48 Appendices 21.1i and 21.1j.
49 See also Appendix 21.1b.
50 Uerpmann and Uerpmann 1994.
51 Daly *et al.* 2018.
52 The individual measurements and LSIs are reported in Appendices 21.1i and 21.1j.
53 Ottoni *et al.* 2012.
54 Appendix 21.1k.
55 Evin *et al.* 2015b.
56 Appendix 21.1l.
57 Appendix 21.1l.
58 Eisenmann and Giuli 1974; Dive and Eisenmann 1991.
59 Schubert *et al.* 2017.
60 Thulin 2003.
61 See chapter 9.1.
62 See chapter 4.1.
63 See chapter 4.2
64 See chapter 8.
65 See chapter 5.1.
66 See chapter 5.2.
67 See chapter 2.
68 See chapter 3.
69 Payne 1973; Helmer and Vigne 2007.
70 Vigne 1988.

21.2. Fish remains

Valentin Radu[1] and Eberhard W. Sauer

21.2.1. Chronology of fish consumption at Dariali Fort

Fish remains were found in Trenches F and Q on Dariali Fort. In total 82 bones have been identified. As the number is far smaller than those of the main domestic animals discussed in the previous chapter, it has been possible to offer a tighter dating of some of the phases discussed, as there is no advantage in giving the date for the entire period, if only parts are represented. The distribution of the remains from the various contexts is as follows (see also Table 21:16):

Late antique contexts (fourth–sixth centuries, Phase 3c–d): two remains

No more than two bones come from certain late antique layers: a caudal vertebra from an adult Caspian trout and a medium sized cranial plate (supracleithrum) from a Persian sturgeon.

Late antique or early medieval contexts (fourth–ninth centuries, Phases 3a–5b): 15 remains

Only sturgeon bones were identified within this not closely datable group. There were ten external skull plates of Persian sturgeon from context Q.032 (Fig. 21:45). The dimensions of two other, the parasphenoideum and the subopercular, are such that it is possible that they may be assigned to the same medium sized individual. We identified abdominal scutes from a medium sized sturgeon from other contexts (Q.031and Q.033).

Early medieval (seventh–early eleventh centuries, Phase 5): 55 remains
Seventh–ninth centuries (Phases 4–5b): 38 remains

The Caspian trout is represented both by remains of the head (epihyal, dentary) and remains of the spine (caudal vertebrae). All belonged to large individuals. Sturgeon was much more common. Fourteen skull plates, one parasphenoid, nine remains of fins and eight scutes were identified. The skull is represented by large plates (frontal, parietal, dermopterotic, opercula and rostrum), and we found ossified rays of the fins. In context Q.047, we found a series of rays and fulcra of the fin of a large individual. The scutes are from the dorsal row. Five of them were identified among the first four positions and two from the sixth-ninth position. Only one scute is from the abdominal row (fourth-eighth position). From F.170 we retrieved one complete dorsal scute of a sturgeon (fourth-sixth position in the dorsal row) belonging to a large individual.

Eighth–early eleventh centuries (Phase 5): 17 remains

The Caspian trout is represented by skull remains, *i.e.* the dental, articular and hyomandibulair and precaudal and caudal vertebrae. All belonged to large individuals. Sturgeons are represented by a very large parasphenoid with cut marks (Fig. 21:46), a large opercular with tooth marks and a parietal with signs of burning on the edge (Fig. 21:44), two claviculars, six dorsal scutes and one abdominal scute.

Late medieval horizons (probably thirteenth–fifteenth centuries: Phase 6b): ten remains

We found a maxilla of Caspian trout with cutting traces on the anterior part and a parasphenoideum from a very large Caspian trout (Fig. 21:47). Sturgeons are represented by only one bone from the fragmentary cranium plates and one remain from the fin. Three out of five dorsal scales come from the seventh-eleventh position and the other two from the first-third positions. One of them is of a large individual.

21.2.2. Methods

1. Taxonomic identification

In the case of the sturgeons, a part of the remains was attributed to the *Acipenser persicus* species (Persian sturgeon). In the absence of a Persian sturgeon skeleton, we used one of the *Acipenser gueldenstaedtii* species which is morphologically similar. Even though there is still a controversy whether the two taxa are different species,[2] the remains recovered from Dariali Fort are best attributed to *A. persicus* which is currently recognised as a valid species[3] and one of the most frequent fish today in the rivers west and south of the Caspian Sea.[4] Specific molecular study could lead to a more reliable identification of these remains. Other remains of uncertain identification are included in the non-specific group of sturgeons.

As for the trout, comparison with the skeletal elements from the reference collection (Figs 21:48–49) has shown that the bones from the present material belong to the *Salmo caspius* Kessler, 1877 species (Caspian trout). This is a species that lives in the Caspian Sea and migrates for reproduction into the rivers that flow into this large inland sea.

2. Calculation of the number of remains (NR) for each taxon.

3. Measurements to reconstruct the size of fish. Concerning the Caspian trout, we used data from the modern *Salmo trutta trutta* species.[5] For this purpose, we measured the height of the vertebral centra and plotted the Global Rachidian Profile (GRP) after the method of Jean Desse *et al.*, 1989.[6] The dimensions of the vertebrae from the assemblage from this site were inserted in the GRP

Table 21:16: Fish remains from Dariali Fort.

Phase	*Date*	*Context*	*Salmo caspius*		*Sturgeons*			*Acipenser persicus*		*IND*	*Total*
			skull	*vertebral column*	*skull*	*fin*	*scutes*	*skull*	*scutes*		
Late antique: 3c	Late 4th–mid-5th c.	F.149		1							1
3d	Early 5th–6th c.	F.156						1			1
3a-5b	4th–9th c.	Q.032						12			12
3a-5b	4th–9th c.	Q.033					1				1
3d-5b	5th–9th c.	Q.031					1				1
3d-5b	6th–9th c.	F.169			1						1
4	7th–8th c. (7th c., 2nd half?)	F.097							1		1
5a	Late 7th–8th c.	F.077			1						1
5a-b	Late 7th–9th c.	F.170							1		1
5a-c	Late 7th–10th c.	F.106			1						1
5a	8th–early 9th c.	F.070			4			2			6
5a	8th–early 9th c.	F.104	1				1				2
5a	8th–early 9th c.	F.165	2								2
5a-b	8th–9th c.	F.036					1				1
5b (with redeposited 4–5a)	Late 8th–9th c. (with redeposited 7th–8th c.)	Q.027	1	2	1	1	1				6
5b (with redeposited 4–5a)	Late 8th–9th c. (with redeposited 7th–8th c.)	Q.047				7	1				8
5b (with redeposited 4–5a)	Late 8th–9th c. (with redeposited 7th–8th c.)	Q.058						1	1		2
5b (with redeposited 4–5a)	Late 8th–9th c. (with redeposited 7th–8th c.)	Q.062				1	2	4			7
5b-c	Late 8th–11th c.	F.163	1								1
5b-c	9th–11th c.	F.022			2						2
5b-c	9th–11th c.	F.033					1				1
5b-c	9th–11th c.	F.063	2	1	2				1		6
5c	Late 9th–10th c.	F.196		1			1				2
5c	Early-mid-10th c.	F.100					1				1
5c	10th c.	F.043					1		1		2
5c	10th c.	F.053			1		1				2
5c-6b (6b?)	10th–14th c. (late 13th–14th c.?)	F.046					1				1
5c-6b (6b?)	10th–15th c. (late 13th–early 15th c.?)	F.016				1					1
5c-6b (6b?)	10th–14th c. (late 13th–14th c.?)	F.027	2							1	3
5c-6b (6b?)	10th–14th c. (late 13th–14th c.?)	F.042			1		1				2
6b	Late 13th–14th c.	F.056					1		1		2
6b	Late 13th–15th c.	F.029					1				1
Total			*9*	*5*	*14*	*10*	*17*	*20*	*6*	*1*	*82*

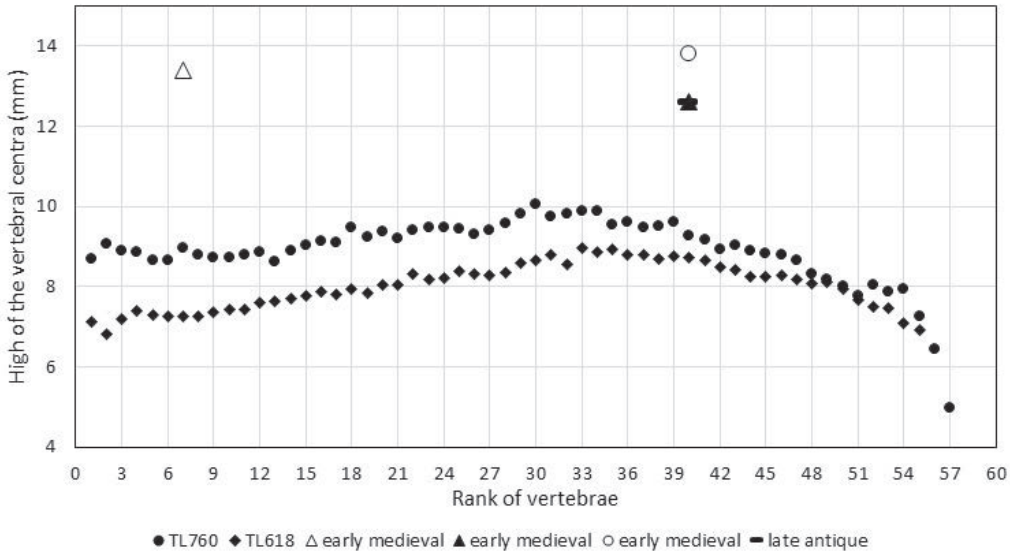


Fig. 21:42: Graph: Global Rachidian Profile (height of the vertebrae in mm) for two complete modern specimens (TL 760 and TL 618) in relation to archaeological specimens from various contexts.



Fig. 21:43: Dorsal scutes of Persian sturgeon (from left to right: F.170, F.063 and F.043).

graph, which plots the approximate dimensions of the fish consumed at Dariali Fort (Fig. 21:42). In the absence of bibliographic data, we plotted the approximate size of sturgeons, based on the skeletons of *Acipenser gueldenstaedtii* or *A. stellatus* from our reference collection.

21.2.3. Results

Two taxa were identified: trout and sturgeon. Nine out of the 14 trout remains come from the skull area and the other five are precaudal and caudal vertebrae. The dimensions of the trout vertebrae from the late antique and early medieval layers indicate that they certainly belong to breeding individuals. The height of the vertebral centra (Fig. 21:42) far exceeds the dimensions of the individuals from the reference collection, which are 0.760 m and 0.618 m total length (weighing 3.6 kg and 4.7 kg respectively). Fragments of the skull are from very large individuals as well (Fig. 21:49).

The small number of remains identified per archaeological context (two at most) does not allow us to establish if they came from whole individuals or tranches or if they were prepared for preservation, a process that required removal of parts of the body, as shown by cutting traces, missing parts of the skeleton, etc.[7]

In only one context (F.027, an early to late medieval horizon of the tenth to fourteenth centuries and more likely to date to the thirteenth or fourteenth century), did we observe a maxilla that was cut. With this cut the lower part of the head was removed, facilitating the removal of the gills and evisceration. It is difficult to determine, however, if this was done immediately after the fish had been caught, for the purpose of conservation, or later on site, for consumption.

In the case of sturgeons, some archaeological contexts yielded skeletal elements that we could attribute to Persian sturgeon (38.24% of all sturgeon remains). These include remains of connected cranial plates (Fig. 21:45) from context Q.032 (of the fourth-ninth centuries), identified as belonging to the *Acipenser persicus* species. Scales with an external morphology specific to *A. persicus* are present in some contexts as well (Table 21:16 and Fig. 21:43).

There were 42 remains of uncertain identification, representing 61.76% of all sturgeon bones. In this category (*i.e.* sturgeons) there are scutes, rays or fulcra without

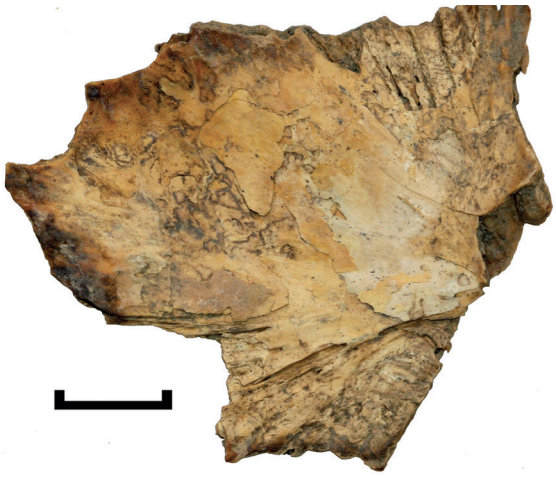


Fig. 21:44: Skull plate of sturgeon with traces of burning (F.022).



Fig. 21:45: Skull bones of Persian sturgeon from context Q.032 and their position.



Fig. 21:46: Parasphenoideum of sturgeon (F.053) with cut marks (the black lines show the direction of cutting).

diagnostic elements that allow sub-classification, as well as fragmentary pieces whose identification is uncertain (41.18% and 20.58% of the sturgeon remains respectively).

All bones are large and belong to breeding individuals. A comparison between the skeletal elements and the ones from the reference collection suggests that the smallest were of c. 1–1.50 m total length (TL) and weighed 10–25 kg. Such dimensions are frequent in all periods. Other bones, belonging to even larger individuals exceeding 1.50 m and 50 kg, were found in early medieval contexts Q.047 and F.053.

The skull and fins are both represented, as well as the scutes from different parts of the body (dorsal or abdominal, from the anterior or posterior part of the body). From all of these, the neurocranium plates and the dorsal scales are most frequent (Table 21:16). From a few contexts only have we evidence that whole fish, or almost whole fish, were consumed on site. This is the case for the context Q.032 (fourth-ninth century), where there are elements from the connected cranial plates, Q.047 (seventh-ninth century), and there are only rays from the pectoral and caudal fins, and in F.040, where there are both plates and scutes from the same individual. For the other contexts, the number of remains is too small to draw such conclusions.

In tenth-century material from context F.053, we observed cut marks on the ventral part of a parasphenoid, one of these cuts resulting in fragmentation of the bone (Fig. 21:46). The purpose of this action was to split the skull into smaller portions for consumption, as the fish was of a fairly large size. Gnawing has left tooth marks on a bone too (context F.063) and there are traces of burning (context F.022), both phenomena observed on bones of the ninth to early eleventh centuries (Fig. 21:44).



Fig. 21:47: Maxilla of Caspian trout (F.027) with a cut mark (black line): detail of the cut.

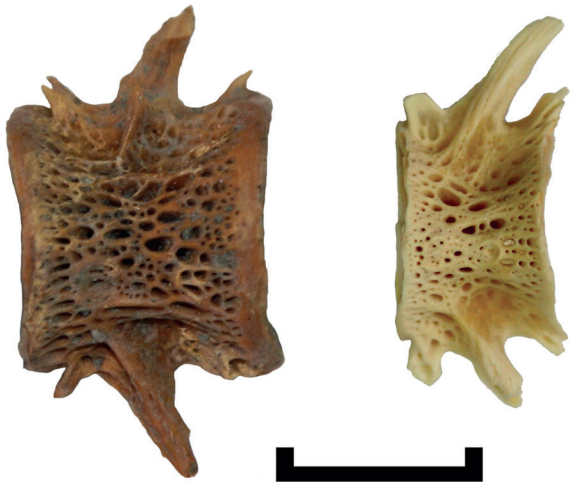


Fig. 21:48: Caudal vertebras of Caspian trout, left from Dariali Fort (F.149) and right a modern vertebra for comparation (the latter from a 7kg heavy individual).

21.2.4. Discussion related to ecology

Even if the archaeological deposits with fish bones span approximately 1,000 years, the only taxa identified at Dariali Fort site are Caspian trout and sturgeon. These are represented by species that live in the Caspian Sea and only during the reproductive season migrate up the tributaries rivers, including the Kura River and Tergi/Terek River. Only at this time of the year was it possible to catch these fish.

Caspian trout spawn only once in the Kura, between the ages of five and nine years.[8] They enter the river between October and December and migrate upstream as far as modern South-west Georgia and then Eastern Turkey.[9] The average weight reported today is around 10 kg, but they can reach up to 50 kg. The individuals from our assemblage fall into the medium and heavy categories (10–20 kg) and they can be captured in the central sections of the Kura from October when the migration period begins. Caspian trout do not appear to be present today as far upstream as the Dariali Gorge on the Tergi or its tributaries, and we believe that the ecological requirements (clean gravel and water temperature of 4–12 C) for spawning are not met in the upper course of the river and that unfavourable conditions prevent anadromous fish from reaching the gorge.

In the Kura, one encounters a variety of species of sturgeon: *Huso huso* (beluga), *Acipenser persicus* (Persian sturgeon) *A. gueldenstaedtii* (Russian sturgeon), *A. nudiventris* (ship sturgeon), *A. stellatus* (stellate sturgeon) and *A. ruthenus* (starlet sturgeon).[10] The most common species is Persian sturgeon which prefer fast rivers for spawning and migrate long distances. Persian sturgeon are less common in the Tergi.[11] After historical data (of the nineteenth century), it is known that the spawning area within the Kura did not extend beyond its confluence with the Aragvi River. On the Aragvi, anadromous fish migrated up to the middle course approximately as far as the modern Zhinvali



*Fig. 21:49: Caspian trout (*Salmo caspius*); Hyomandibular: left, a modern bone (from a 7kg heavy fish); right, its archaeological equivalent from Dariali Fort (F.063).*

Reservoir, the limit already before the construction of the modern dam,[12] evidence for the ability of this species to swim far up these rivers and into the mountain zone. Other species, such as *A. nudiventris*,[13] migrate 650 km on the Kura to the mouth of the Alazani River, as well as 300 km up the Aras River, one of the Kura's major tributaries. *A. stellatus* and *Huso huso* are common only in the lower reaches of the Kura, but have also been reported north of Tbilisi.[14] The spawning period in the Kura is from April to September, at temperatures between 15–29 °C for almost all species of sturgeon.[15]

We may conclude that sturgeons were not reaching the Tergi and its tributaries as far upstream as the Dariali Gorge. Only in the middle courses of the major rivers on both sides of the Caucasus Mountains, up to the foothill zone area, was it possible to catch such fish. Sturgeon fishing was only possible in the lower and middle courses

of the Kura and Tergi (and their tributaries), which are also the main fishing areas.

21.2.5. Fish provenance and consumption

The large size of the sturgeon and trout consumed at Dariali Fort raises a series of questions related to their provenance, methods of preparation and consumption. The ecological characteristics of the taxa identified show that they would not have reached the Dariali Gorge area. Only much further downstream, on both sides of the watershed, was it possible to catch sturgeon or trout. Here the spawning period provides the ideal fishing season, when these anadromous fish are available and more vulnerable; both trout and sturgeons are easier to catch during the spawning season when no complex fishing tools or techniques are required. Both the climatic conditions – long winters and cold summers – and geographic conditions – very fast and cold rivers with major sedimentary contribution[16] – and also, in our opinion, the influence of permanent glaciers in the immediate vicinity,[17] were the main factors that limited the access of these fish in the area. The limited consumption in the period under investigation is no doubt a result of fishing areas being at a long distance from Dariali Fort. It is possible that fish formed part of provision convoys from the Tbilisi area, travelling for five days, attested by Mas'udi,[18] if probably only during periods of the maximum abundance of these taxa in the rivers. We do not have a clear explanation for the fact that during this time only the two taxa were consumed, but their large size and the high content of protein and fat may well explain the selection.

All body parts of the two taxa are represented, but as the number of bones per context is small, it is difficult to establish how they were prepared for conservation and consumption. Skull elements of sturgeon are more frequent in late antique to early medieval layers, and it is possible that in these periods the whole fish were brought to the site and prepared for consumption. Sturgeons migrate furthest at the beginning of the warm season (from May to July) and the trout in November and December. These are also the periods when most of these two taxa are available for fishing in the Tergi and Kura. A supply of fresh fish would have been possible for the trout only, as the cold weather at the beginning of winter would have allowed fish to be brought from fishing areas at a lower altitude. For the sturgeon, however, which can only be caught in areas even further away from the site, and in much warmer temperatures during late spring or early summer, we believe that it would have been necessary to preserve the meat by salting, smoking or drying. The small amount of fish remains excavated from different levels of habitation demonstrates that the fish were consumed only occasionally and probably during times of maximum availability. There are cut marks on some of the bones, but it is difficult to determine if they attest preparation for preservation (*i.e.* removal of gills and evisceration) or cutting the fish into smaller portions for consumption. It is important to note that the remains do not show traces of burning, except for a single bone. This indicates that fish was not normally grilled on an open fire, at least not sturgeon where the burning would have been obvious with traces on the exoskeleton (the plates and the scutes).

21.2.6. Conclusion

The fish analysed belong to anadromous taxa – trout and sturgeon – that migrate from the Caspian Sea to the Tergi and Kura, but do not reach the Dariali Gorge area. The relatively small amount of fish remains identified overall suggests that it was only occasionally on the menu. It is hard to be sure in which river these fish had been caught, but because there are always only two taxa, we believe that they probably came from the closest fishing grounds. The Kura and its tributaries in the Tbilisi area are rivers where both taxa could be fished. For the Tergi, the current data shows a weak availability of both taxa even in the middle and lower course situated at an appreciable distance from Dariali Fort. We cannot exclude the possibility that fish were imported from fishing grounds in the Tergi much further north, but the modern data at least makes the Kura and its tributaries a more likely source.

Both the representation of all body parts and the traces left on the bones suggest that during the Early Middle Ages (seventh to early eleventh centuries) some of the sturgeon were brought to the site in one piece and that they were not normally directly exposed to fire. Most of them were, however, brought in tranches that had probably been conserved (by salting, smoking etc.). The advantage of consuming conserved meat included that no inedible parts needed to be transported (except the bones, of course). Not even the fat is wasted if it is consumed directly or as a broth or soup. Trout and sturgeon contain both, a large amount of protein and fat, and it is possible that they were imported to meet the need for high calorific food in an area of low temperatures for most of the year. Maybe this is why fish consumption at this site was limited to trout and sturgeon. Analysis of carbon and nitrogen stable isotope conducted on the human remains from Dariali Cemetery[19] confirm a low contribution of the aquatic resources to the diet of the population in the Early Middle Ages (eighth to eleventh centuries). The data from this study shows us that, around the same period, the largest amount of fish remains were discarded in the intramural area (a pattern that is reflected in the terrestrial bone and pottery assemblages that are similarly dominated by early medieval material). In addition to site-specific consumption and disposal patterns, it is worth noting that this era, until the middle of the thirteenth century, was the

Medieval Warm Period, a time of general warming, but also of poor precipitation in the Caucasus Mountains.[20] The establishment of human settlements at higher altitude, as well as the existence of favourable ecological conditions for the migration of a large number of the two taxa along the rivers in Transcaucasia and the Caucasus, probably allowed a more intensive exploitation and distribution of fish. In the next period – probably from the late thirteenth to early fifteenth centuries (after a likely hiatus in occupation in the first quarter of the second millennium) – fish consumption is resumed even if the quantity of remains of the two taxa is reduced in comparison to the Early Middle Ages (a pattern that may reflect intensity of occupation or rubbish disposal in general rather than fish consumption per head).

Surprisingly for a site located at high altitude, this study shows that fish was eaten by the population of Dariali Fort over a period of about a millennium (from the late fourth or fifth to the fourteenth or early fifteenth century). Perhaps it was part of an effort to offer a more diverse diet. Some of the remains come from within the casemate in Trench F, probably serving as accommodation for garrison members, suggesting fish was not only a food for the elite – even if it is possible, of course, that wealth, religious or secular traditions determined in part how often individuals were able to enjoy this rare treat.

Notes

1 We are indebted to I.C. Negrea for help with the English translation of this article.
2 Vlasenko *et al.* 1989; Ruban *et al.* 2008; 2009; Khoshkholgh *et al.* 2013.
3 UNEP-WCMC 2010.
4 Guchmanidze 2009.
5 I am grateful to Emilie Guillaud for allowing us to publish the data of the two individuals ICOS 00613 (618 mm total length) and ICOS 00550 (760 mm total length). For details concerning these individuals (geographical origins, weight and length) see Guillaud 2014 and Guillaud *et al.* 2016.
6 Desse *et al.* 1989.
7 Desse and Desse-Berset 2000.
8 Coad 2017.
9 Turan *et al.* 2011.
10 Billard and Leicontre 2001; Coad 2017.
11 Billard and Leicontre 2001, 374.
12 Guchmanidze 2009, fig. 3.
13 Sokolov and Vasilev 1989, 212.
14 Coad 2017.
15 Coad 2017.
16 Radvanyi and Thorez 1977.
17 Solomina *et al*. 2016.
18 Mas‘udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 157.
19 See chapter 20.
20 Solomina *et al.* 2016.

21.3. Microvertebrates

Emmanuelle Stoetzel, Lyudmila Shumilovskikh, Karyne Debue, Michel Lemoine and Marjan Mashkour[1]

21.3.1. Introduction

Microvertebrates are composed of small animals such as rodents, shrews, bats, amphibians, lizards, snakes, and also fish and birds in some cases. The study of their fossil remains in archaeological contexts can provide interesting biochronological, taphonomic and palaeoenvironmental information. For more recent periods, the introduction and spread of commensal species can be related to the development of Neolithic and subsequent cultures. Data on past microvertebrate communities in the Caucasus region are scarce, especially in Georgia. Some data are available from sites dating to the Early Pleistocene (*e.g.* Dmanisi;[2] Akhalkalaki[3]), the Middle Pleistocene (*e.g.* Koudaro I and Tsona;[4] Treugolnaya[5]), the Late Pleistocene (*e.g.* Bondi;[6] Satsurblia;[7] Dzudzuana[8]) and more recent periods of the Holocene.[9] The aim of the present study was to generate new data on sub-fossil microvertebrate communities and past environments around the Dariali Fort between the fourth and fifteenth centuries AD.

21.3.2. Material and methods

Methods of sampling and sieving for microvertebrates were similar to those used for the archaeobotanical evidence (see Lyudmila Shumilovskikh, this volume). Sediments extracted from the excavation (0.5 to 15 litres depending on the context) were water sieved using 3.15, 0.71 and 0.25 mm mesh sizes by Shumilovskikh during each field season, particularly in 2016. For microvertebrates, 36 samples deriving from Trenches F, P, Q and Y were collected and studied (Table 21:17). Some of these samples were further sub-divided into several sub-samples according to the sieve size and/or taxonomic groups represented. Samples came from both inside and outside the Fort: Trenches F and Q are located inside the Dariali Fort, Trench P is a test-pit at the southern base of the Fort, and Trench Y is on a rocky ridge c. 1 km north of the Fort. Bones of microvertebrates were first sorted by Shumilovskikh, Karyne Debue and Marjan Mashkour, and preliminary photographs of some of the diagnostic specimens were taken by Michel Lemoine. They were then studied by Emmanuelle Stoetzel at the Musée de l'Homme (MNHN, Paris) using a binocular microscope.

Data on the current ecology and distribution of species mainly come from Boris Kryštufek and Franc Vohralík,[10] Natalia Ananjeva *et al.*,[11] Stéphane Aulagnier *et al.*,[12] and articles from www.iucnredlist.org. Pictures were taken by Stoetzel using a Dinolite AM 7915 MZTL, and measurements were taken with the software Image J.

21.3.3. Results and discussion

21.3.3.1. Faunal list

The studied microvertebrate material is composed of 155 remains identified at least anatomically and at the Order level. These include 148 rodent remains, four shrew remains, one squamate remain and two tortoise remains. In addition, more than 20 bird bones and numerous fish remains were identified, but these were not studied here. The Dariali material is thus very scarce, and several bone fragments or splinters could not be included in this study because the lack of discriminant characters prevented their identification, even at the anatomical level (some may belong to amphibians although this is uncertain). Rodents dominate the assemblage (Table 21:18, Fig. 21:50), followed almost equally by shrews, tortoises and lizards. Table 21:18a shows a detailed faunal list for each chronological phase. The quantity of material is too low, however, to consider each phase separately in interpretations. Consequently, in this preliminary study we tentatively consider all samples together in making our interpretations.

21.3.3.2. Description of taxa

O: Rodentia – F: Cricetidae – ss-F: Cricetinae

Material: one fragmented, toothless left mandible, one isolated lower left m1 (molar) (Table 21:19, Fig. 21:51). Represented in: sample F062 (phase 5–6).

Cricetinae remains from the Dariali Fort were attributed to the Grey dwarf hamster (*Cricetulus migratorius*) on account of its small size (smaller than *Mesocricetus* and *Cricetus*) as well as mandible and molar morphology.[13] This species still inhabits the study area today.

O: Rodentia – F: Cricetidae – ss-F: Arvicolinae

Material *Chionomys* sp.: one fragmented left mandible with *in situ* incisor (Inc), m1 and m2 (Table 21:19, Fig. 21:51). Represented in: sample Y.004 (phase 3).

Material *Microtus* sp.: one isolated right upper M2, one isolated left upper M3 (Table 21:19, Fig. 21:51). Represented in: samples F.068 (phase 5–6) and Y.004 (phase 3).

Three *Chionomys* species (C. *gud, C. nivalis, C. roberti*) and at least five *Microtus* species (*M.* gr. *arvalis/obscurus, M. schidlovskii, M. socialis, M. daghestanicus, M. majori*) occur today in Georgia. Yet, data on their molar size and morphology remain scarce, and there exists high intra-specific variability.[14] In addition, few remains were found at the Dariali Fort. Consequently, some hypotheses can be proposed but we cannot make any asserted attributions based on this material.

The mandible attributed to *Chionomys* shows a lower m1 with a posterior lobe, four closed triangles and a

Table 21:17: Distribution of the microvertebrate samples in each deposit with associated chronological phases.

Archaeological context	*Sample number*	*Flotation residue*	*Phase*	*Archaeological context*	*Sample number*	*Flotation residue*	*Phase*
F.056	n/a	0.71 mm	6	F.170	n/a	0.71 mm	5
F.056	n/a	0.71 mm	6	F.170	7		5
F.056	n/a	0.71 mm	6	F.170	7		5
F.056	n/a		6	F.171	8		3–5
F.062	n/a	>0.31 mm	5–6	F.171	8		3–5
F.062	n/a	0.25–3.15 mm	5–6	F.175	1482		3
F.062	n/a		5–6	F.178	12	0.71 mm	3
F.068	n/a		5–6	F.178	12		3
F.070	n/a	0.71 mm	5	F.178	12		3
F.092	n/a	0.71 mm	5	F.191	19		3
F.092	1		5	F.199	s.1a	0.71 mm	5
F.092	1		5	F.199	s.1b	0.71 mm	5
F.093	n/a	0.71 mm	5	F.206	n/a		3
F.093	n/a		5	P.013	6	0.71 mm	2
F.096	n/a		4	Q.011	n/a	0.71 mm	7
F.100	n/a	0.31–0.71 mm	5	Q.011	n/a	0.71 mm	7
F.103	n/a		5	Q.011	n/a		7
F.109	3	0.25 mm	3	Q.011	n/a		7
F.109	n/a	0.71 mm	3	Q.011	n/a		7
F.114	n/a		5	Q.027	n/a		5
F.114	n/a		5	Q.027	4	0.71 mm	5
F.122	n/a	0.71 mm	5	Q.029	5		5
F.129	n/a	0.71 mm	3	Q.031	2		3–5
F.131	n/a	0.71 mm	5	Q.031	3	0.71 mm	3–5
F.131	n/a		5	Q.031	1	0.71 mm	3–5
F.140	n/a		3	Q.031	2	3.15 mm	3–5
F.140	n/a		3	Q.062	n/a	3.15 mm	5
F.143	n/a		6	Q.062	10	0.71 mm	5
F.143	n/a		6	Q.076	n/a	0.71 mm	5–6
F.146	n/a	0.71 mm	5–6	Q.076	n/a	0.71 mm	5–6
F.161	n/a		5	Q.080	n/a	0.71 mm	5
F.164	n/a		5	Q.080	n/a	3.15 mm	5
F.164	5		5	Y.004	n/a		3
				Y.004	n/a	3.15 mm	3

Table 21:18: Faunal list of the microvertebrate assemblage from Dariali Fort by Number of Remains (NR) and, in brackets, by Minimum Number of Individuals (MNI), according to (a) chronological phases and (b) trenches. The NR_T and MNI_T were calculated on the whole assemblage. X = asserted presence, ? = possible presence, grey columns = no microfauna.

a)

			Chronological phases								
Order	*Family/ Sub-family*	*Genus/species*	**2**	**3**	*4*	*3–5*	*5*	*5–6*	*6*	*7*	*Total NR_T (MNI_T)*
Rodentia	Cricetinae	*Cricetulus migratorius*						2 (1)			2 (1)
	Arvicolinae	*Chionomys* sp.		1 (1)							1 (1)
		Microtus sp.		1 (1)				1 (1)			2 (1)
	Murinae	*Apodemus* sp.					4 (2)				4 (2)
		cf. *Mus* sp.		1 (1)							1 (1)
	Rodentia indet.			39 (2)		5 (1)	75 (4)	8 (1)	7 (1)	4 (1)	138 (6)
	Total Rodentia			42 (3)		5 (1)	79 (4)	11 (2)	7 (1)	4 (1)	148 (6)
Soricomorpha	Soricinae	*Sorex* sp.		3 (1)			1 (1)				4 (1)
Chelonia indet.							2 (1)				2 (1)
Squamata	Lacertidae	Lacertidae indet.		1 (1)							1 (1)
Aves indet.				X		X	X	?	X	?	/
Pisces indet.				X		?	X	X	X	X	/
Total NR_T (MNI_T)				46 (5)		5 (1)	82 (6)	11 (2)	7 (1)	4 (1)	155 (9 by species, 16 by phase)

b)

			Trenches				
Order	*Family/ Sub-family*	*Genus/species*	*F*	*P*	*Q*	*Y*	*Total NR_T (MNI_T)*
Rodentia	Cricetinae	*Cricetulus migratorius*	2 (1)				2 (1)
	Arvicolinae	*Chionomys* sp.				1 (1)	1 (1)
		Microtus sp.	1 (1)			1 (1)	2 (1)
	Murinae	*Apodemus* sp.	4 (2)				4 (2)
		cf. *Mus* sp.	1 (1)				1 (1)
	Rodentia indet.		91 (4)		34 (1)	13 (2)	138 (6)
	Total Rodentia		99 (5)		34 (1)	15 (2)	148 (6)
Soricomorpha	Soricinae	*Sorex* sp.	1 (1)			3 (1)	4 (1)
Chelonia indet.			2 (1)				2 (1)
Squamata	Lacertidae	Lacertidae indet.				1 (1)	1 (1)
Aves indet.			X		X		/
Pisces indet.			X		X		/
Total NR_T (MNI_T)			102 (7)		34 (1)	19 (4)	155 (9 by species - 12 by trench)

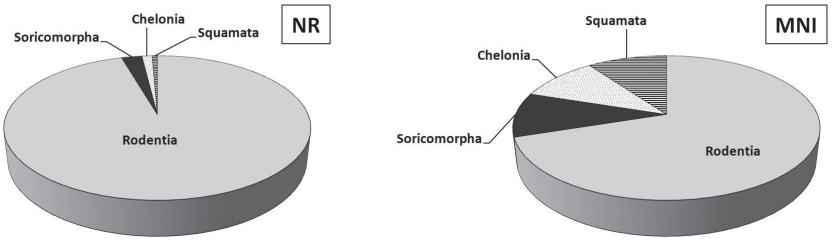


Fig. 21:50: Relative proportions of the main microvertebrate groups from the Dariali Fort by Number of Remains (NRT) and Minimum Number of Individuals (MNIT).

Table 21:19: Measurements of the rodent molars from the Dariali Fort in occlusal view. L= length in mm, w = width in mm.

Taxa	*Lower tooth-row*	*Lower m1*		*Lower m2*		*Lower m3*		*Upper tooth-row*	*Upper M1*		*Upper M2*		*Upper M3*	
	L	*L*	*w*	*L*	*w*	*L*	*w*	*L*	*L*	*w*	*L*	*w*	*L*	*w*
Cricetulus migratorius	-	1.71	1.04	-	-	-	-v	-	-	-	-	-	-	-
Chionomys sp.	-	2.56	1.23	1.59	1.08	-	-	-	-	-	-	-	-	--
Microtus sp.	-	-	-	-	-	-	-	-	-	-	1.72	1.20	1.77	0.82
Apodemus sp.	3.99 (molars)	1.77	1.08	1.24	1.10	0.99	0.90	4.48 (alveoli)	1.87; 1.98	1.26; 1.25	1.32; 1.33	1.21; 1.17	0.93	0.84
cf. *Mus* sp.	-	1.60	0.95	-	-	-	-	-	-	-	-	-	-	-

Table 21:20: Measurements of the shrew molars from the Dariali Fort in occlusal view. L= length in mm, w = width in mm.

Taxa	*Lower m1-m3*	*Lower m1*		*Lower m2*		*Lower m3*		*Upper P4-M3*	*Upper P4*		*Upper M1*		*Upper M2*		*Upper M3*	
	L	*L*	*w*	*L*	*w*	*L*	*w*	*L*	*L*	*w*	*L*	*w*	*L*	*w*	*L*	*w*
Sorex sp.	3.31	1.25	0.71	1.18	0.64	0.95	0.46	3.97	1.31	1.09	1.34	1.32	1.24	1.13	0.60	1.08

fifth triangle opening in the anterior complex. The latter is composed of the confluent triangles T6, T7 and the anterior cusp, and does not display the classic arrow-head-like shape of *C. nivalis*. All these morphological features (especially confluent T5, T6, T7) correspond rather to the *C. gud* or *C roberti* morphotypes. Note, however, that they may also enter in the extreme variability of the *malei/oeconomus* group.[15] In addition, *C. nivalis* is today found further to the south of the study area.[16]

The isolated hypsodont M3 is attributed to the genus *Microtus*, exhibiting an anterior lobe, confluent T2 and T3, closed T4, T5 opening in the posterior complex composed of a marked LRA4 and LSA5 (T7) but no BSA4 (T6), and buccal triangles smaller than lingual ones. These morphological characteristics (especially the confluent T2 and T3) correspond well to representatives of the *Microtus* (*Terricola*) subgenus, such as *M. majori* or *M. daghestanicus*.[17] The isolated hypsodont upper M2 is not discriminating enough to make hypotheses regarding its specific attribution.

O: Rodentia – F: Muridae – ss-F: Murinae

Material *Apodemus* sp.: one left mandible with *in situ* Inc, m1, m2 and m3, one left maxillary fragmented in two parts with *in situ* M1 on one part and M2 and M3 on the other part, one toothless left maxillary, one right maxillary with *in situ* M1 and M2 (Table 21:19, Fig. 21:51). Represented in: samples F.131 (phase 5) and F.170 (phase 5).

Material cf. *Mus* sp.: one fragmented left mandible with an *in situ* m1 and a loose Inc (Table 21:19, Fig. 21:51). Represented in: sample F.109 (phase 3).

Several wood mice occur today in Georgia (*Apodemus agrarius, A. mystacinus, A. ponticus, A. uralensis, A. witherbyi*) and *A. flavicollis* occurs in nearby areas of

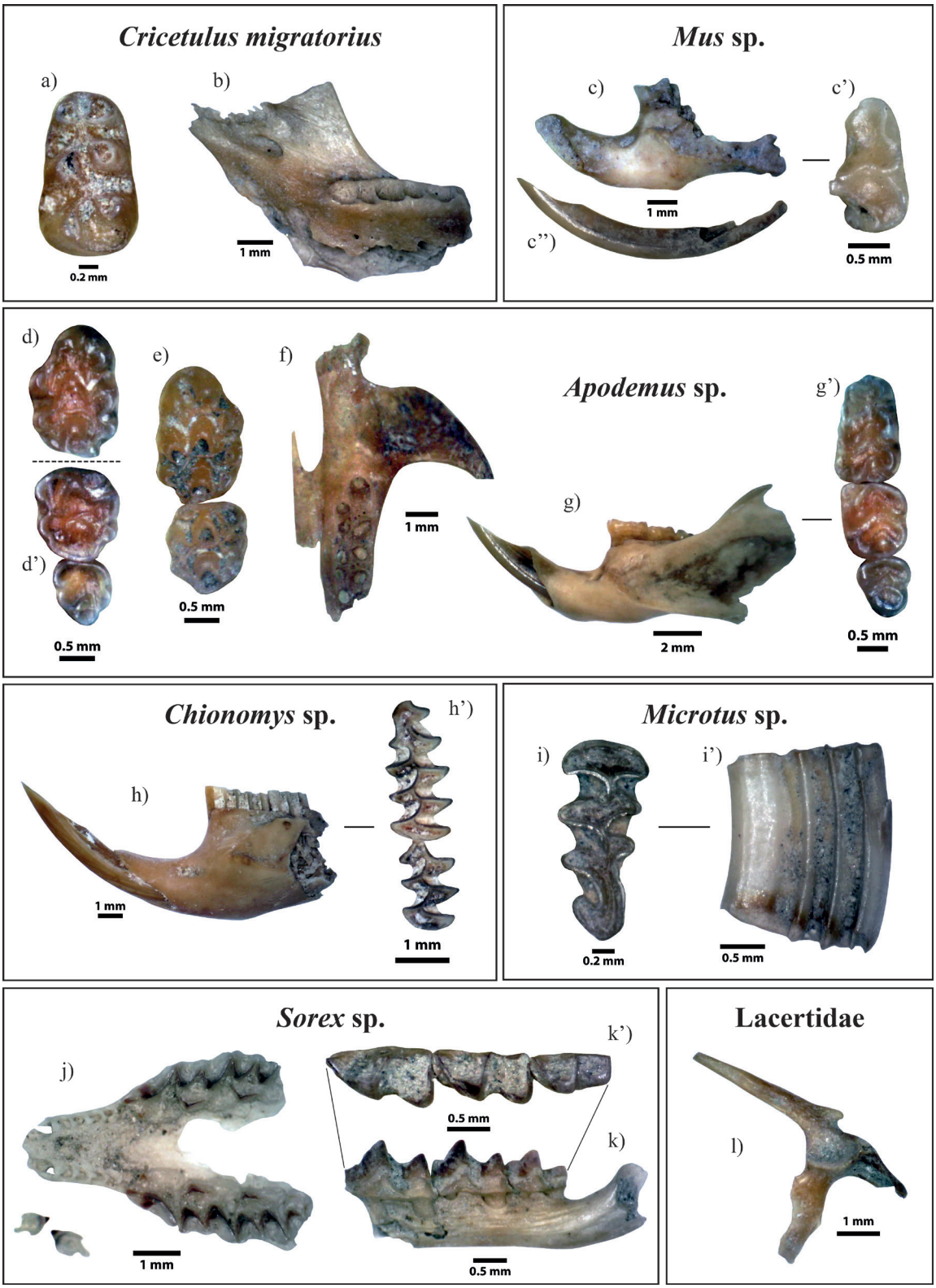


Fig. 21:51: Examples of microvertebrate remains from the Dariali Fort (photos E. Stoetzel). Cricetulus migratorius*: a) isolated lower left m1 (F.062); b) left mandible (F.062). Cf.* Mus *sp.: c) left mandible (F109) with c')* in situ *m1 in occlusal view, and c'') loose incisor.* Apodemus *sp.: d)* in situ *M1 and d')* in situ *M2M3 from the same left maxillary fragmented in two parts (F.131); e)* in situ *M1M2 from a right maxillary (F.170); f) toothless left maxillary (F.170); g) left mandible (F.131) with g')* in situ *m1m2m3 in occlusal view.* Chionomys *sp.: h) left mandible (Y.004) with h')* in situ *m1m2.* Microtus *sp.: isolated left upper M3 (F.068) i) in occlusal view and i') in lateral view.* Sorex *sp.: j) rostrum with two loose unicuspids (Y.004); k) left mandible (F.122) with k')* in situ *m1m2m3 in occlusal view. Lacertidae: l) pelvis (Y.004).*

Turkey and Armenia. At the Dariali Fort, the lower m1 shows a small isolated antero-central cusp and a strong cingular margin composed of four accessory cusps. This latter characteristic is notable in the *A. sylvaticus/flavicollis* group, but not in *A. agrarius* for example.[18,] In the Dariali material, the upper M1s are composed of t1–3, t4–6, t7–9 and a small t12, with a cusp-like, isolated t7. The M2s are composed of t1, t3, t4-t6, t7–9, but no t12. Both M1s and M2s display a connection between t6 and t9, and lack any ridge between the anterior and the second cusp rows. *A. agrarius* presents a narrower and smaller M1, an absence of t3 on the M2, and other morphological characteristics that distinguish this species from other representatives of the *Apodemus* genus and from the Dariali Fort material.[19,] Moreover, *A. agrarius* is only found in the extreme North-west of Georgia.[20] In *A. mystacinus*, the M1 and M2 show a well-developed t12 and a connection between t9 and t12,[21] which is not the case at the Dariali Fort. In addition, *A. mystacinus* today inhabits more western areas of Georgia.[22] *A. uralensis* also displays distinct morphological characteristics on M1: t1 is isolated during earlier stages of wear, t4 is displaced posteriorly compared to t6, t7 is ridge-like, and t12 is lacking.[23,] Moreover, according to measurements on both lower and upper molars, we can exclude *A. uralensis,* which is much smaller, and *A. mystacinus*, which is much larger than the other *Apodemus* species and the Dariali material.[24] The latter is more similar in size to *A. whiterbyi*, *A. ponticus*, *A. sylvaticus* or *A. flavicollis*.[25] Yet, *A. whiterbyi* can be excluded because in this species the M1 and M2 present stephanodont features, notably with a connection between t1 and t5, as well as the frequent presence of additional tubercles t1bis, t2bis or t3bis on M1;[26] these traits are not recognised on the Dariali molars. Furthermore, on the M1 in *A. flavicollis*, t12 and t9 are most often aligned and connected, forming a garland consisting of t4-t5-t6-t9-t12-t8-t7, and the M2 generally also presents a t12;[27] again, this is not the case with the Dariali Fort material. Yet, some variability does exist.[28] Thus, according to both size and morphological features, the Dariali material appears closer to *A. ponticus* or the *A. sylvaticus/flavicollis* group. Both the lack of identification keys and comparative material for the study region (notably for *A. ponticus*) and the close morphology of some species (notably *A. sylvaticus* and *A. flavicollis*) prevent a more precise identification; however, it does seem that the *A. sylvaticus/flavicollis* group is not represented in Georgia today. The taxonomic relationship between *A. ponticus* and *A. flavicollis* has yet to be resolved, and some authors consider them as conspecific.[29]

Another fragmented murid mandible with a damaged and highly worn molar may instead be attributable to the genus *Mus*, mainly according to its size (smaller than *Apodemus*, but larger than *Micromys*). Only two *Mus* species appear to inhabit Georgia today: a wild species (*M. macedonicus*) and a commensal species (*M. musculus*). The measurements appear closer to *M. macedonicus*, which is larger than *M. musculus*,[30] but the Dariali individual is aged and the molar is damaged, which may lead to some biases. *M. macedonicus* occurs today in more southern regions of Georgia,[31] therefore, this specimen may belong to an old *M. musculus* individual.

Rodentia indet

Material: one complete femur with an isolated distal epiphysis, five tibia fragments (two proximal and three distal), one pelvis, five calcanea, one astragalus, one complete humerus and five fragments (one proximal, two diaphyses, two distal), one complete radius and one distal fragment, one scapula, 13 ribs, 29 vertebrae, 24 metapodials, 19 phalanxes, three cf. carpals, three frontals, one occipital, one zygomatic fragment, four left premaxillaries with two *in situ* Inc, one toothless right premaxillary, one small fragment of a right mandible, two isolated left lower Inc, three isolated right lower Inc, seven isolated left upper Inc, and four isolated right upper Inc. Represented in: all samples having yielded microfauna.

Most of the postcranial elements and the isolated incisors cannot be identified even at the Family level, especially because of the lack of discriminant characteristics and the fragmentation of the material.

O: Soricomorpha – F: Soricidae – ss-F: Soricinae

Material: one humerus fragmented in two parts (proximal/distal), one rostrum with two loose unicuspids and seven *in situ* teeth (two P4, two M1, two M2, one M3), and one left mandible with *in situ* m1, m2 and m3 (Table 21:20, Fig. 21:51). Represented in: samples F.122 (phase 5) and Y.004 (phase 3).

A few elements belonging to a red-toothed shrew were found at the Dariali Fort. These are attributed to the genus *Sorex* based on their size, dental formula (notably five upper unicuspids) and morphology. Several species can be found in Georgia today (*S. raddei, S. satunini, S. volnuchini*). Again, the lack of identification keys and comparative material prevents a more precise identification.

O: Chelonia

Material: two coracoïd fragments (belonging to the same element). Represented in: sample from deposit F.131 (phase 5).

Two fragments of an undetermined chelonian coracoïd were found amongst the microvertebrate remains, but were not analysed in detail here as classically tortoises are studied with the meso-macrofauna.

O: Squamata – F: Lacertidae

Material: one pelvis (Figure 21:51). Represented in: sample Y.004 (phase 3).

One lizard pelvis shows features of the Lacertidae family: the ilium wears a characteristic postero-dorsal

hook-shape tip and is aligned with the pubis, which shows the beginning of a crest bent ventrally. Numerous Lacertid lizards occur today in this geographic area (mainly belonging to the genera *Darevskia, Eremias, Lacerta, Ophisops*), and the pelvis does not allow more precise identification.

21.3.3.3. Taphonomic observations and environmental inferences

The low quantity of material recovered at the Dariali Fort does not permit precise and confident taphonomic and environmental interpretation; however, some observations can be made. Considering the whole assemblage, almost all the anatomical elements are represented (Fig. 21:52), belonging to all the Voorhies dispersal groups.[32] This suggests good preservation of the assemblage with no major post-depositional perturbation, despite the low abundance. It is now well known that most small vertebrate assemblages were produced by predation.[33] At the Dariali Fort, few digestion marks have been observed on some elements (rodent isolated incisors, vertebrae, pelvis and metapodials/phalanges; *Sorex* lower molars; and bird remains), together with soil corrosion. There is no evidence of burning or anthropic marks. The origin of the Dariali microvertebrates may have resulted from predation by an owl of low taphonomic impact (such as *Tyto alba*), or they possess a mixed origin (predation and natural) that includes animals that died *in situ* (notably fossorial taxa such as *Cricetulus* or *Microtus*, or *Chionomys* and lizards that often inhabit fissures in rocky walls and ruins). For example, *Cricetulus migratorius* can dig burrows up to 150 cm in depth.[34] This behaviour may cause some bioturbation by transporting more recent material into underlying archaeological levels. Yet, few remains of burrowing rodents were found at Dariali, suggesting that such disturbances were limited. Note also that fish and birds, which were not studied in detail here, may have been eaten by both humans and non-human predators.

The Grey dwarf hamster (*Cricetulus migratorius*) is a fossorial rodent that inhabits relatively arid areas with sparse vegetation (dry grasslands, steppes, shrubs, semi-deserts, rocky places, but also cultivated fields) and avoids forests and damp habitats. It is known to enter houses frequently, and is considered as a commensal rodent in some places. It is also often recorded at high altitudes.[35]

Snow voles (*Chionomys* spp.) are generally associated with relatively high elevations and mountainous habitats. *C. gud* frequents open rocky habitats, alpine meadows and sometimes forest edges, while *C. roberti* is found in mesic habitats near forested areas and along streams and

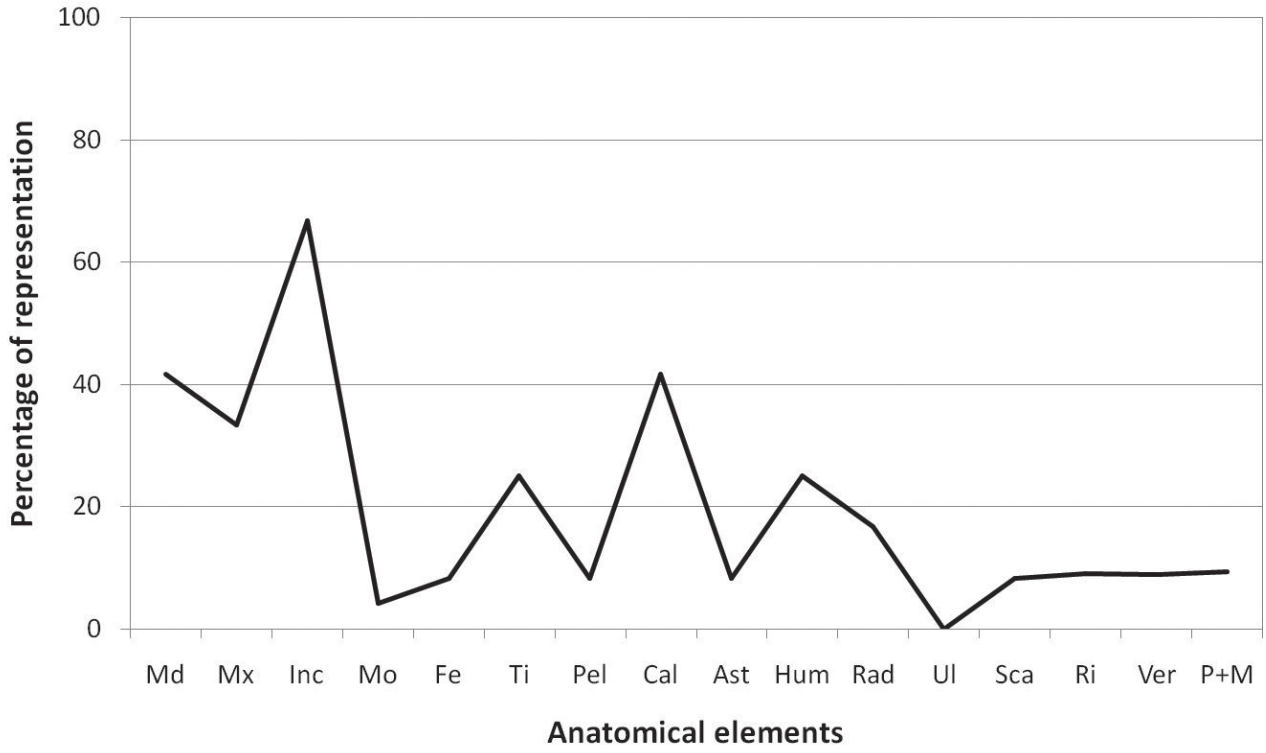


Fig. 21:52: Profile of anatomical representation of the rodent remains from the Dariali Fort (calculated following the formula: PR = (FO/(FT × MNI)) × 100, where PR = percentage representation, FO = observed frequency of the element, FT = theoretical frequency of the element, MNI = minimum number of individuals).

mountain rivers, usually rocky mossy areas with shrubs. Both inhabit fissures or crevices in stony habitats.[36].

The five Georgian *Microtus* species (*M.* gr. *arvalis/obscurus, M. schidlovskii, M. socialis, M. daghestanicus, M. majori*) present different ecological requirements, but at the Dariali Fort we more probably identified pine voles (*Terricola* sub-genus). *Microtus majori* occurs in mixed forests, shrubland, forest clearings and edges, alpine pastures, while *M. daghestanicus* frequents mesic and dry alpine meadows above 2,000 m in elevation; both are fossorial rodents.[37]

Wood mice are semi-arboreal rodents commonly found in or near forested areas. At the Dariali Fort, we attributed the material to *A. ponticus* or the *A. sylvaticus/flavicollis* group, excluding other species (*A. agrarius, A.mystacinus, A. uralensis, A. witherbyi*) on the basis of size and morphological features. Both *A. ponticus* and *A. flavicollis* present similar ecological requirements, including a variety of wooded and bushy habitats such as mixed forests, forest-steppe and grassy fields.[38]

Only one of the remains has been tentatively attributed to the *Mus* genus. The commensal mouse (*M. musculus*) is found in almost all anthropic habitats, while *M. macedonicus* inhabits a wide range of habitats but avoids dense forests and human habitation areas.[39]

Concerning shrews, several *Sorex* species inhabit Georgia today (*S. raddei, S. satunini, S. volnuchini*), but we could not precisely identify these amongst the Dariali material. It seems that these three species all inhabit relatively humid and densely vegetated habitats in forests and forest edges.[40]

Considering the whole assemblage, such micromammal associations are commonly seen in Caucasian regions,[41] and the environmental information provided by the represented species indicates an alternation of open areas (meadows, steppe) and woody habitats near water (streams) at relatively high altitudes, which corresponds well with the modern environment of the study region. In keeping in mind that the material is too scarce to make any confident conclusions regarding environmental evolution through time, we can make some tentative observations.

During phase 3 (late fourth to mid-seventh centuries AD), we found *Chionomys* sp., *Microtus* sp., cf. *Mus* sp. and *Sorex* sp. This suggests an environment of alpine meadows and forest edges. During phase 5 (eighth to tenth centuries AD), we found *Apodemus* sp. and *Sorex* sp., indicating mainly forested habitats. During phase 5–6 (eighth to fifteenth centuries AD), we found *Cricetulus migratorius* and *Microtus* sp., characteristic of more open, steppic habitats. For the other phases (3–5, 6 and 7), the material is composed only of fragmented and unidentified rodent remains. We also have to consider the provenance of the samples as the material derives from several trenches located in different places, including inside the Fort (Trenches F and Q) and on a rocky ridge c. 1 km north of the Fort (Trench Y). In Table 21:18b, it is evident that *Cricetulus*, *Apodemus* and *Mus*, which may all present commensal habits, are only recorded in Trench F inside the Fort, while *Chionomys* and lizards, frequenting rocky areas, are only recorded in Trench Y, on the rocky ridge outside the Fort.

Some concordance is found with regional palynological data, notably from the Stepantsminda core, which indicates subalpine meadows, mid-montane forests, and agriculture and pasture around AD 350–1000. Subsequently, a strong erosional event caused a hiatus between the tenth and fifteenth centuries;[42] however, other regional records indicate that dynamic vegetation changes occurred as a result of agricultural and pastoral human activities.

21.3.4. Conclusion

The systematic collection and study of microvertebrate remains from archaeological contexts remain rare in Georgia, and the present study is the first one for the Dariali region. Documentation of such material during archaeological excavations will progressively add to our understanding of the geographical and chronological distribution of rodents, shrews, amphibians and squamates in this area, and represents a reliable corollary to accompany other proxies (*e.g.* palynology, large fauna) in palaeoenvironmental reconstructions.

Notes

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2 Furió *et al*. 2010; Blain *et al*. 2014.
3 Tappen *et al*. 2002.
4 Mgeladze and Moncel 2016.
5 Baryshnikov and Potapova 1995.
6 Tushabramishvili *et al.* 2012.
7 Pinhasi *et al.* 2014.
8 Belmaker *et al.* 2016.
9 Vereschagin 1967.
10 Kryštufek and Vohralík 2005; 2009.
11 Ananjeva *et al.* 2006.
12 Aulagnier *et al*. 2008.
13 Pradel 1989; Hir 1992; 1993, 1997; Yiğit *et al*. 2006; Kryštufek and Vohralík 2009; Nedyalkov 2016.
14 Nadachowski 1991; Kryštufek 1999; Kryštufek and Vohralík 2005; Sözen *et al.* 2009.
15 Nadachowski 1991.
16 Kryštufek 2016a.

17 Kryštufek and Vohralík 2005; Seker 2009.
18 Filipucci *et al.* 1996; Popov 2017.
19 Kryštufek and Vohralík 2009, Popov 2017.
20 Kaneko *et al.* 2016.
21 Darvish *et al.* 2014.
22 Amori *et al*. 2016.
23 Filipucci *et al.* 1996; Kryštufek and Vohralík 2009.
24 Darvish *et al.* 2014; Knitlová and Horáĉek 2017.
25 For example: Darvish *et al.* 2010, 2014; Jangjoo *et al*. 2011; Mohammadi *et al.* 2014; Knitlová and Horáĉek 2017.
26 Filippucci *et al.* 1996; Javidkar *et al.* 2007; Kryštufek and Vohralík 2009.
27 Filippucci *et al*. 1996.
28 Kryštufek and Vohralík 2009.
29 Kryštufek and Vohralík 2009; Cassola 2016.
30 Macholán 1996; Çolak *et al*. 2006.
31 Kryštufek and Vohralík 2016.
32 Voorhies 1969; Korth 1979; Fernández-Jalvo and Andrews 2003.
33 Andrews 1990.
34 Smith *et al*. 2010.
35 Kryštufek and Vohralík 2009; Kryštufek *et al.* 2016a.
36 Kryštufek and Vohralík 2005; Kryštufek *et al.* 2016b, 2016c.
37 Kryštufek and Vohralík 2005; Kryštufek *et al.* 2016d, 2016e.
38 Kryštufek and Vohralík 2009; Amori *et al*. 2016; Cassola 2016.
39 Kryštufek and Vohralík 2016.
40 Bukhnikashvili and Kryštufek 2016a, b; Kryštufek 2016b.
41 Kryštufek and Vohralík 2005, 2009.
42 See chapter 22.3.3.5–22.3.5.

22

Plant remains

Lyudmila Shumilovskikh and Imogen Poole

22.1. Charcoal

Imogen Poole and Lyudmila Shumilovskikh

22.1.1. Introduction

Charcoalified wood and other plant remains preserved within archaeological contexts can provide important information about past life within archaeological settings. Such insights include local or imported resources used in domestic and industrial economies of ancient societies[1] as well as helping us to understand the local (woodland) vegetation and associated dynamics over time.[2] To this end charcoal samples were collected during archaeological excavations on Dariali Fort to help further understanding of the composition of the neighbouring woodlands and the use of woody plant species in domestic contexts at a time when this site was still occupied.

The remains of the Dariali Fort are situated near Mount Kazbek at an altitude of c. 1,350 m above sea level in the steeply sloping zone of upper montane forests[3] overlooking the Tergi/Terek River. These forests are characteristically open in structure and composed of *Pinus, Betula, Salix, Fraxinus, Ulmus, Viburnum, Sambucus, Malus, Acer, Prunus, Ribes* (Fig. 22:1). On unstable slopes subject to a high degree of erosion (erosion slopes) and within river valleys, dense coppices of *Hippophae rhamnoides*, *Berberis, Rubus* and *Rosa* are prevalent.

22.1.2. Material and methods

The charcoal fragments retrieved were generally damp to wet so they were first dried for 12–18 hours at a low heat (c. 50°C) prior to any further investigation. The fragments were relatively large in transverse diameter (>3 mm up to >10 mm), although some fragments were ≤3 mm (and thus not big enough to secure precise identification). Fragments were prepared using standard methods[4] and the anatomy examined using reflected light with an Olympus BX41 and Zeiss compound microscopes with magnifications up to ×400. Material was identified with the aid of relevant literature[5] whenever necessary. It must be noted that generally wood anatomy alone is often not enough to secure identification to individual species and thus fragments have been identified to generic level only. If there was some degree of doubt regarding taxonomic identity (due to, for example, fragment size, preservation etc.) the number is preceded by a question mark in the text and tables. If a fragment was identified to two taxa with close anatomical similarity but the specific genus could not be verified because of the small size and/or poor preservation of key anatomical features, both possibilities are given. Whenever possible the maturity of the wood (*i.e.* whether the fragment was twig wood, heartwood or round wood) was assessed.

22.1.3. Results

About 55% of a total of 5,654 charcoalified fragments that were analysed could be identified to generic level. The majority of the wood was considered to be mature heartwood based on certain anatomical characteristics (*e.g.* such as growth ring curvature, presence of tyloses), although some fragments were obviously round wood (probably originating from relatively small diameter axes such as branch material) and twig wood was also present (Table 22:2). Relatively large fragments (>5 mm diameter) all show evidence of rounding indicating that they may have been subject to post-charcoalification weathering or abrasion. Preservation was generally relatively good with many fragments exhibiting well-preserved anatomy and good reflectivity although some fragments showed evidence of distorted anatomy and homogenised cell walls usually coupled with high reflectivity. In most cases all fragments exhibited good reflectivity. A summary of



Fig. 22:1: View from Dariali Fort looking across the Tergi/Terek River towards the mid- to upper montane forests.

the taxonomic finds from all the contexts is provided in Table 22:1. Details of fragments recovered from each trench at this site are given in Table 22:2.

Trench C[6]

Trench C (on Gveleti Fort) dated to the post-medieval period, yielded a maximum of eight possible taxa including *Betula*, *Populus*, *Salix* and *Acer* (Table 22:1). The other fragments are possibly *Alnus, Quercus, Lonicera* and *Carpinus* although identification could not be verified because of small size and/or poor preservation. All fragments generally showed good reflectivity but occasionally the original brown, uncharcoalified wood was still visible in some fragments.

Trench D[7]

Trench D (on Gveleti Fort) dated to eleventh to twenty-first century, yielded a maximum of 16 taxa including *Pinus*, *Alnus*, *Betula*, *Quercus*, *Euonymous*, *Cornus*, *Hippophae, Fagus*, *Tilia*, *Prunus*, Maloideae, *Populus* and *Acer*. Other fragments are of uncertain identify because of small size and/or poor preservation, and include grass remains, *Corylus* and *Lonicera* (Tables 22:1–2). Few fragments exhibited either small areas of (very localised) brown, uncharcoalified, wood structure or distorted anatomy but the majority of the material showed good reflectivity and intact anatomy.

Trench E[8]

Trench E (in Dariali Cemetery), covering late ninth to early eleventh century, yielded a maximum of ten taxa including *Picea*, *Pinus*, *Alnus*, *Lonicera*, *Quercus, Ligustrum, Fraxinus* and Maloideae. Other fragments of small size and/or poor preservation indicate possible *Ilex, Acer* and *Populus/Salix* (Tables 22:1–2). The fragments were generally well-preserved exhibiting good reflectivity, a few fragments had high reflectivity and distorted anatomy.

Trench F[9]

From Trench F (on Dariali Fort) 149 samples were collected, covering the period from the fourth century AD to

Table 22:1: Comparison of taxonomic composition of the charcolified remains from the twelve trenches.

Family	*Genus*	*Common name*	*C*	*D*	*E*	*F*	*G*	*M*	*N*	*Q*	*P*	*V*	*W*	*AB*
Cupressaceae	*Juniperus*	juniper				✓								
Pinaceae	*Picea*	spruce			✓									
	Pinus	pine		✓	✓	✓		✓		✓	✓	✓		✓
Poaceae		grass		?										
Adoxaceae	*Viburnum*	viburnum				?								
Altingiaceae	*Liquidambar*	sweetgum				✓								
Aquifoliaceae	*Ilex*	holly			?									
Berberidaceae	*Berberis*	barberry				?								
Betulaceae	*Alnus*	alder	?	✓	✓	✓	✓					✓	✓	
	Betula	birch	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓
	Betula/*Alnus*	birch/alder								✓			✓	
	Corylus	hazel		?		✓								
	Carpinus	hornbeam	?			✓		✓		✓				
	Carpinus/ *Ostrya*	hornbeam/ hop-hornbeam				✓				✓				
Buxaceae	*Buxus*	boxwood				✓								
Caprifoliaceae	*Lonicera*	honeysuckle	?	?										
Celastraceae	*Euonymous*	spindle tree		✓		✓				?				
Cornaceae	*Cornus*	dogwood		✓										
Eleagnaceae	*Hippophae*	sea buckthorn		✓		✓		?		✓	✓			
Fagaceae	*Fagus*	beech		✓		✓	✓			✓				
	Quercus	oak	?	✓	✓	✓				✓				
	Quercus/ *Castanea*	oak/chestnut				✓								
Juglandaceae	*Juglans*	walnut				✓								
Lythraceae	*Punica*	pomegranate				✓		?						
Malvaceae	*Tilia*	lime		✓		✓								
Oleaceae	*Ligustrum*	privet			✓					✓				
	Fraxinus	ash			✓	✓				✓	✓			
Platanaceae	*Platanus*	plane tree				✓								
Rosaceae	*Prunus*	(probably) cherry		✓		✓					✓			
	Rosa	rose				✓								
	Maloideae	apple/pear		✓	✓	✓				✓	✓			
	Sorbus	-									✓			
Salicaceae	*Populus*	poplar	✓	✓		✓	?			✓				
	Salix	willow	✓			✓			✓	✓				
	Populus/*Salix*	poplar/willow			?	✓				✓			✓	
Sapindaceae	*Acer*	maple	✓	✓	?	✓				✓				
Thymeleaceae	*Daphne*	-								?				
Ulmaceae	*Ulmus*	elm				✓								✓

Table 22:2: Charcoal analysis of samples from the trenches excavated in Dariali Gorge.

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench C			
7b	C.001	C-008	c. 20th–21st c.	2 × ?*Carpinus*, 1 × *Populus*
7b	C.004	Flotation sample 1	c. late 15th–mid-17th c.	1 × ?*Alnus* twig, 5 × ?*Alnus*, 3 × ?*Lonicera*, 5 × *Populus*, 1 × *Betula* twig, 1 × ?*Quercus*, 7 × unidentifiable dicot
7b		C-013		3 × ?*Carpinus*, 2 × unidentifiable dicot, 5 × small dry pieces <5mm
7b		C-020		2 × *Acer*
7b		C-022		1 × *Salix*
	Trench D			
6a-7b	D.003	D-004	c. 11th–21st c.	3 × *Alnus*
		D-006		2 × *Betula* twig, 3 × *Betula*, 2 × *Fagus*, 1 × ?*Corylus* twig, 8 × unidentifiable small particles
7a	D.005	D-013	c. 15th–mid-17th c.	1 × unidentifiable dicot wood
		Flotation sample 2		11 × *Cornus*, 1 × *Pinus*, 3 × *Fagus*, 5 × *Betula*, 2 × *Betula* twig with pith, 1 × *Euonymus*, 1 × *Alnus*, 1 × *Quercus*, 1 × *Hippophae*, 19 × unidentifiable small particles
		D-015		6 × ?*Lonicera*
		D-016		1 × *Populus*
6a-7b	D.006	D-018	c. 11th–21st c.	1 × *Betula* round wood
6a-b	D.009	D-026	c. 11th–15th c.	2 × *Hippophae*
6a-b	D.010	D-025	c. 11th–15th c.	1 × ?*Alnus*, 5 × unidentifiable dicot wood
6a-b	D.020	D-048	c. 11th–15th c.	1 × *Populus*
6a-b	D.024	D-036	c. 11th–15th c.	1 × *Alnus* twig
		Flotation sample 3		2 × Maloideae, 2 × ?*Populus*, 1 × unidentifiable plant, 6 × unidentifiable dicot
6a-b	D.031	Flotation sample 4	c. 11th–15th c.	11 × *Alnus* twig, 2 × ?*Prunus*, 1 × *Fagus*, 18 × unidentifiable, 8 × *Alnus*, 2 × *Populus*, 6 × *Prunus*, 2 × *Hippophae*, 1 × *Tilia* twig, 7 × *Betula*, 2 × *Pinus*
5a-6a	D.039	Flotation sample 6	c. 8th–12th c.	7 × *Alnus*, 3 × ?Poaceae, 4 × unidentifiable small particles
5a-c	D.037	Flotation sample 5	c. 8th–10th c.	27 × *Betula*, 11 × *Acer*, 1 × dicot twig, 52 × unidentifiable dicot
	Trench E			
5a-c	E.007/ Grave E1	E-017	c. late 8th/10th c. (charcoal: 1st–10th c.?)	2 × *Alnus*
5a	E.010/ Grave E2	E-030	c. late 7th/8th c. (charcoal: 1st–8th c.?)	3 × *Picea*
		E-043		1 × ?*Populus*/*Salix*
5a-c	E.016/ Grave E5	E-028	c. late 7th/10th c. (charcoal: 1st–10th c.?)	4 × ?*Acer*
5a-c	E.019/ Grave E3	E-047	c. late 8th/10th c. (charcoal: 1st-10th c.?)	7 × *Ligustrum*, 4 × *Pinus*, 1 × *Alnus*, 1 × *Fraxinus*, 1 × Maloideae, 1 × *Pinus*
		E-057		1 × ?*Pinus*

(Continued)

Table 22:2: (Continued)

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench E			
5a-c	E.022/ Grave E6	E-035	c. late 7th/10th c. (charcoal: 1st–10th c.?)	1 × *Alnus*
5a-c	E.024	E-038	c. late 7th/11th c.? (charcoal: 1st–11th c.?)	14 × ?*Ilex*, 2 × *Quercus*
	Trench F			
7b	F.001	F-027	modern	6 × *Betula*
7b	F.002	F-096	modern	22 × *Betula*, 1 × *Pinus*, 2 × *Populus*, 4 × *Prunus*, 1 × ?*Pinus*, 2 × *Carpinus*/*Ostrya*, 2 × ?*Betula* twig, 5 × unidentifiable dicot
		F-111		3 × *Alnus* twig, 1 × ?*Viburnum* twig, 2 × *Prunus*, 1 × *Fraxinus*, 32 × *Betula*, 6 × *Carpinus*, 4 × *Betula* twig, 7 × *Populus*, 2 × *Pinus*, 8 × *Alnus*, 5 × unidentifiable
		F-126		2 × *Betula* twig, 4 × *Alnus* twig, 8 × *Alnus*, 10 × *Betula*, 3 × *Pinus*, 1 × *Fagus*
7b	F.003	F-015	modern	3 × *Betula*, 8 × *Alnus*, 1 × *Alnus* round wood, 1 × *Populus*, 2 × unidentifiable dicot
6b-7b	F.005	F-035	c. 14th c.-modern	6 × *Alnus*
		F-071		3 × *Betula* twig, 15 × *Betula* axis, 2 × *Carpinus*, 1 × *Populus*/*Salix*
6b-7b	F.012	F-080	c. 14th c.-modern	20 × *Alnus* round wood, 3 × *Alnus* twig, 30 × *Betula* round wood, 4 × *Populus* round wood
5c-6b	F.016	Flotation sample 2	c. 10th–15th c.	3 × *Hippophae*, 24 × *Betula*, 5 × ?*Populus*, 14 × *Alnus*, 33 × unidentifiable, 12 × *Quercus* heart wood, 1 × ?*Betula* twig, 1 × ?*Tilia*
		F-189		1 × *Betula*
6b	F.020	F-156	c. 14th–early 15th c.	3 × *Alnus* twig, 4 × *Alnus* round wood, 16 × *Betula* round wood, 5 × *Populus*, 13 × *Alnus*, 4 × unidentifiable dicot
		F-183		3 × *Betula* twig, 3 × *Alnus* twig, 14 × *Betula* round wood, 9 × *Alnus* round wood, 1 × *Populus* round wood, 1 × dicot twig
		F-184		10 × *Quercus* twig, 3 × ?*Quercus*, 2 × *Pinus*, 2 × *Populus*/*Salix*, 1 × *Pinus* compression wood, 2 × *Fagus*, 1 × *Betula*
6b-7b	F.021	F-129	c. 14th c.-modern	3 × *Fagus* twig, 7 × *Rosa* twig, 1 × outer cortical material, 37 × *Hippophae*, 10 × *Hippophae* twig, 1 × *Rosa*, 3 × *Fraxinus*, 1 × *Pinus* twig, 35 × unidentifiable dicot, 4 × unidentifiable
5b-c	F.022	F-134	c. 9th–11th c.	1 × *Fraxinus* heart wood, 4 × *Betula*, 3 × *Quercus* heart wood, 3 × *Alnus*
		F-205		1 × *Acer*, 1 × *Alnus*
5c-6b, prob. 6b	F.027	F-177	c. 11th–14th c.	4 × *Populus*, 5 × *Pinus*, 9 × *Betula*, 1 × ?*Fraxinus*, 4 × unidentifiable wood, 1 × unidentifiable dicot
		F-287		5 × *Betula*, 7 × unidentifiable dicot small particles
		F-294		11 × unidentifiable ?wood (inside of the pot)
		F-324		1 × ?*Alnus* twig with pith and cortex, 1 × *Liquidambar*, 4 × unidentifiable dicot

(Continued)

Table 22:2: Charcoal analysis of samples from the trenches excavated in Dariali Gorge. (Continued)

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench F			
6b-7b	F.028	F-158	c. 14th c.-modern	6 × *Alnus* twig, 4 × *Betula* round wood, 14 × *Betula*, 17 × *Alnus*, 1 × outer cortical material
6b-7b, prob. 6b	F.029	Flotation sample 1	c. 14th c.-modern, probably 14th–15th c.	3 × *Fagus*, 2 × ?*Quercus*, 2 × *Betula*, 2 × *Pinus*, 1 × ?*Populus*, 10 × unidentifiable
5b-c	F.030	F-211	c. 9th–11th c.	10 × *Betula*, 5 × *Alnus*, 2 × *Fagus*, 5 × unidentifiable
6b	F.031	F-278	c. late 13–early 15th c.	9 × *Betula*, 4 × unidentifiable dicot small size, 1 × unidentifiable wood with outer cortex
5b-c	F.033	F-222	c. 9th–11th c.	1 × *Alnus*
5a-b, prob. 5b	F.035	F-229	c. late 8th–9th c.	12 × *Pinus*, 1 × *Pinus* twig with pith and cortex, 10 × ?*Pinus*
		F-351		15 × *Pinus*, 1 × unidentifiable wood
		F-356		2 × ?*Corylus*, 4 × *Betula*, 20 × ?*Alnus*, 1 × *Juglans*
		F-370		26 × *Alnus*, 7 × *Pinus*, 6 × *Salix*, 1 × *Alnus* round wood, 3 × Maloideae, 10 × *Betula*, 1 × *Pinus* twig, 1 × *Quercus*/*Castanea*, 15 × unidentifiable dicot
5a-b, prob. 5b	F.036	F-327	c. late 8th–9th c.	1 × ?*Acer*, 21 × unidentifiable dicot
		F-365		2 × *Acer*, 5 × ?*Pinus*, 21 × unidentifiable dicot
		F-537		6 × *Pinus*, 3 × Maloideae, 3 × ?*Prunus*, 23 × *Betula*, 7 × *Carpinus*, 4 × *Tilia*, 36 × unidentifiable dicot small size, 20 × unidentifiable ?wood
5a-b, prob. 5b	F.037	F-259	c. 8th–9th c.	1 × *Quercus*, 15 × *Pinus*, 1 × *Alnus*
		F-482		2 × *Pinus*, 1 × *Fagus*, 5 × *Acer*, 4 × *Alnus*, 20 × unidentifiable dicot small size or poor preservation
5c-6b, prob. 6b	F.042	F-288	c. 11th–14th c.	8 × *Alnus* round wood, 1 × *Acer*, 4 × unidentifiable dicot small size
		F.300		7 × *Betula* round wood, 1 × *Betula* round wood with cortex, 55 × *Betula*, 3 × *Salix*/*Populus*
5c	F.043	F-386	c. 10th c.	1 × *Pinus*, 8 × *Betula*, 3 × *Platanus*
6b-7b	F.044	F-311	c. 14th c.-modern	2 × *Acer*, 1 × *Alnus* twig with pith and cortex
		F-349		2 × *Alnus* twig with pith, 2 × *Alnus*, 2 × *Salix* round wood, 4 × *Betula*, 30 × *Pinus*, 4 × unidentifiable dicot
5c-6b, prob. 6b	F.046	F-460	c. 10th–14th c.	3 × *Populus*/*Salix*, 2 × ?*Fagus*, 22 × *Hippophae*
5c	F.053	F-417	c. 10th c.	2 × *Acer*
		F-763		1 × *Betula*, 1 × *Pinus*
6b	F.056	F-1261	c. late 13th–14th c.	17 × unidentifiable dicot small size

(Continued)

Table 22:2: (Continued)

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench F			
		F-1279		4 × *Populus*/*Salix*, 1 × *Pinus*, 1 × *Betula*, 1 × *Salix*, 1 × *Hippophae*, 1 × *Quercus*, 1 × ring-porous dicot, 6 × dicots (homogenised), 58 × unidentifiable particles of small size
5b-c	F.063	F-530	c. 9th–11th c.	42 × *Pinus*
		F-592		1 × ?*Pinus*, 6 × *Pinus*, 37 × *Betula*, 50 × unidentifiable dicot, 1 × ?*Betula* twig with pith, 2 × Maloideae, 3 × *Alnus*, 1 × unidentifiable dicot twig with pith
		F-617		52 × *Pinus*, 1 × *Pinus* round wood
5b-c	F.065	F-528	c. 9th–11th c.	11 × *Pinus*, 1 × *Corylus* round wood
		F-560		6 × *Acer*, 10 × unidentifiable dicot, 1 × *Carpinus*, 1 × ?*Betula* twig with pith, 2 × *Alnus*
5c	F.066	F-674	c. 10th c.	21 × unidentifiable ?wood, 2 × *Alnus*, 7 × *Populus*/*Salix*, 5 × unidentifiable wood
		F-708		2 × ?*Populus*/*Salix* twig, 4 × *Hippophae*, 2 × *Hippophae* twig, 2 × *Betula*, 15 × unidentifiable dicot poor preserved
		F-747		1 × *Pinus*, 3 × *Alnus*, 1 × *Alnus* twig, 35 × unidentifiable dicot
5a	F.070	F-584	prob. mainly 8th c., poss. 8th–early 9th c.	13 × *Pinus*, 3 × *Quercus*/*Castanea*, 2 × unidentifiable dicot poor preserved
		F-596		8 × *Pinus*, 2 × *Acer*, 1 × *Betula*, 4 × *Alnus*, 5 × unidentifiable dicot poor preservation
		F-639		11 × *Quercus*/*Castanea*, 2 × *Betula*, 5 × *Alnus*, 1 × ?*Prunus*, 6 × *Acer*, 3 × *Salix*, 3 × Maloideae, 23 × unidentifiable dicot
		F-684		45 × *Pinus* (probably one piece fragmented)
5c-6b	F.072	F-675	c. 10th–15th c.	9 × unidentifiable dicot, 2 × ?wood, 1 × dicot twig with pith and stem
		F-715		3 × *Betula*, 1 × ?wood, 2 × *Prunus*, 4 × unidentifiable dicot
		F-950		30 × *Alnus*, 6 × *Acer*, 1 × *Betula*, 2 × *Populus*/*Salix*, 2 × *Populus*/*Salix* twig, 1 × Maloideae, 1 × ?*Prunus*, 4 × *Quercus*, 21 × unidentifiable dicot, 2 × unidentifiable dicot twig with pith
5a	F.077	F-635	c. late 7th–8th c.	45 × *Pinus*, 1 × *Pinus* twig with pith
		F-638		1 × *Pinus*
5a-b	F.078	F-683	c. late 7th–9th c., perhaps 8th–9th c.	1 × *Liquidambar*, 8 × unidentifiable dicot
5b-c	F.079	F-690	c. 8th–10th c.	19 × *Hippophae*, 10 × unidentifiable dicot
5b-c	F.088	F-813	c. 9th–11th c.	1 × *Carpinus*, 1 × *Fagus*, 6 × *Pinus*
		F-831		2 × ?Maloideae, 1 × ?*Prunus*, 1 × *Carpinus*, 4 × unidentifiable dicot
		F-919		5 × *Acer*, 2 × unidentifiable dicot small size
5c	F.089	F-737	c. 10th c.	1 × *Prunus*, 1 × not wood

(Continued)

Table 22:2: Charcoal analysis of samples from the trenches excavated in Dariali Gorge. (Continued)

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench F			
		F-773		8 × Maloideae, 2 × *Punica*, 4 × *Alnus*, 4 × ?*Betula*, 2 × *Acer*, 20 × unidentifiable dicot
5c	F.091	F-895	c. 10th c.	2 × *Alnus*, 5 × *Betula*, 1 × ?*Betula* twig, with pith and cortex, 4 × unidentifiable dicot, 1 × unidentifiable
		F-1379		50 × *Betula* (2 × round wood, 7 × twigs, 1 × with outer cortex), 12 × *Salix*, 6 × *Populus*/*Salix*, 1 × *Populus*, 10 × *Hippophae*, 10 × ?*Euonymus*, 3 × *Ulmus*, 1 × *Juniperus*, 1 × *Carpinus*, 1 × ?Maloideae, 1 × Maloideae, 4 × dicot
5a	F.092	F-1257	c. late 7th–8th c.	22 × *Betula* (2 × twigs), 1 × *Populus*, 1 × *Juniperus* twig, 3 × unidentifiable dicots, 30 × unidentifiable wood small size
		F-1270		3 × *Betula*, 11 × unidentifiable wood small size
4	F.094	F-757	c. 7th–8th c., perhaps 7th c., 2nd half	5 × *Pinus*, 2 × unidentifiable dicot small size
4	F.095	F-890	c. mid-7th c.-early 8th c.	5 × *Betula*, 1 × *Buxus*, 2 × *Prunus*, 3 × *Pinus*, 13 × unidentifiable dicot small size and poor preservation
4	F.096	F-762	c. mid-7th c.- early 8th c.	1 × unidentifiable dicot twig, 1 × ?*Acer*, 5 × Maloideae, 9 × unidentifiable dicot
		F-849		3 × *Betula*, 3 × unidentifiable dicot poor preservation
		F-857		1 × ?*Hippophae*, 5 × unidentifiable wood
		F-1006		1 × *Quercus*, 2 × ?*Alnus*, 2 × *Acer*, 3 × unidentifiable dicot small size and poor preservation
		F-1105		1 × ?*Corylus* round wood with pith, 3 × *Punica* round wood with pith, 5 × *Alnus*, 3 × *Alnus* twig with pith and cortex, 2 × ?Maloideae, 15 × unidentifiable dicot
		F-1106		17 × ?*Hippophae*
		F-1109		25 × *Alnus*, 10 × Maloideae (?*Prunus*), 11 × unidentifiable dicot, 1 × Maloideae round wood, 1 × *Acer*
		F-1168		1 × ?*Pinus* twig with pith and cortex, 6 × unidentifiable dicot
4	F.097	F-792	c. 7th–8th c., perhaps 7th c., 2nd half	8 × *Alnus*, 16 × *Populus*/*Salix*, 16 × unidentifiable dicot
5c	F.098	F-772	c. late 9th–mid-10th c.	3 × *Alnus*, 1 × unidentifiable outer cortex of twig wood
		F-775		1 × *Betula* twig with pith and cortex, 4 × ?*Betula* round wood, 3 × unidentifiable outer cortex of twig wood, 15 × ?organic material, 1 × *Pinus*, 6 × ?*Betula*, 5 × unidentifiable dicot
		F-839		6 × *Alnus*
		F-877		3 × *Betula* twig with pith, 3 × *Betula*, 3 × unidentifiable dicot
5c	F.100	F-835	c. early–mid-10th c.	7 × *Betula*, 13 × *Hippophae*, 1 × *Populus*/*Salix*, 3 ×?wood, 1 × ?*Betula* round wood, 3 × *Tilia*, 3 × *Quercus*/*Castanea*, 10 × unidentifiable dicot, 2 × unidentifiable dicot twig with pith and cortex

(Continued)

Table 22:2: (Continued)

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench F			
		F-878		1 × ?*Alnus*, 15 × unidentifiable dicot, 3 × *Betula*, 7 × *Fagus*, 8 × *Pinus*, 5 × *Populus*/*Salix*, 1 × unidentifiable dicot twig with pith
5c (with 5b redeposited material)	F.102	F-805	c. 10th c.	1 × unidentifiable dicot twig (possible bole wood)
		F-814		3 × *Alnus*, 2 × *Fagus*
5a	F.104	F-858	prob. mainly 8th c., poss. 8th–early 9th c.	8 × *Betula*, 1 × *Betula* twig
		F-982		5 × *Carpinus*, 10 × *Betula*, 6 × *Platanus*, 1 × *Pinus*, 2 × *Acer*, 1 × *Populus*/*Salix*, 11 × unidentifiable dicot small size
		F-1005		4 × *Betula*, 3 × *Castanea*/*Quercus*, 7 × unidentifiable wood (bole wood present?)
5a-c	F.106	F-866	c. late 7th–10th	6 × *Hippophae*
3d	F.109	F-887	c. early 5th–6th c.	2 × ?*Alnus*, 2 × *Pinus*, 1 × unidentifiable dicot twig with pith, 5 × unidentifiable dicot
		F-892		1 × ?*Betula*, 1 × unidentifiable wood
		F-1033		3 × *Pinus*
		F-1316		1 × *Populus*/*Salix*
		F-1323		2 × *Betula*
		F-1331		1 × *Betula*, 2 × ?*Buxus*
		F-1346		30 × *Carpinus*, 20 × unidentifiable small particles
		F-1350		9 × *Pinus*, 4 × *Betula*, 1 × *Salix*, 1 × Prunoideae, 2 × *Euonymus*, 30 × unidentifiable small particles
3d	F.109/ 148	F-1289	c. early 5th–6th c.	4 × *Pinus*, 2 × *Betula*, 18 × unidentifiable small particles
5b-c	F.112	F-915	c. late 8th–10th c.	5 × *Pinus*, 1 × Maloideae (?*Crataegus*), 4 × *Acer*, 6 × *Alnus*
		F-1394		6 × *Quercus*, 5 × *Pinus* (1 × round wood), 1 × *Ulmus*, 15 × *Betula* (2 × partially homogenised, 1 × with outer cortex), 5 × ?*Euonymus*, 1 × *Salix*, 1 × dicot, 106 × unidentifiable small particles
5a	F.113	F-943	c. 8th c.	1 × *Alnus*, 5 × *Betula*, 6 × unidentifiable dicot poor preservation and small size
		F-944		3 × *Betula*/*Alnus*, 1 × ?*Pinus* degraded, 1 × Maloideae, 6 × unidentifiable dicots, 50 × unidentifiable small particles
5c	F.114	F-983	c. late 9th–1st half of 10th c.	1 × *Pinus*
		F-1026		7 × *Pinus*, 3 × unidentifiable dicot (?bole wood)
5a	F.118	F-967	c. late 7th–8th c.	10 × *Hippophae*, 1 × unidentifiable dicot

(Continued)

Table 22:2: Charcoal analysis of samples from the trenches excavated in Dariali Gorge. (Continued)

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench F			
		F-1021		2 × *Quercus*, 6 × Maloideae, 11 × *Betula*, 5 × ?*Populus*/*Salix*, 4 × *Pinus*, 15 × ?*Hippophae*, 2 × *Acer*, 22 × unidentifiable dicot poorly preserved
5c	F.119	F-1010	c. late 9th–10th c.	3 × ?*Betula*, 7 × unidentifiable dicot
		F-1081		3 × *Alnus*
3c	F.124	F-1049	c. late 4th–mid-5th c.	6 × unidentifiable dicot small size
5b	F.125	F-1069	c. late 8th–early 10th c., prob. late 8th–9th c.	9 × *Populus*/*Salix*, 2 × Maloideae, 2 × unidentified dicot poor preservation
3c	F.126	F-1136	c. late 4th–mid-5th c.	7 × *Pinus*
3c	F.127	F-1071	c. late 4th–mid-5th c.	15 × *Pinus* round wood, 11 × *Acer*
		F-1240		1 × ?*Pinus*, 2 × *Populus*/*Salix*, 2 × unidentifiable dicot
		F-1432		2 × *Betula* (1 × twig)
5c	F.128	F-1067	c. late 9th–10th c.	1 × *Alnus* twig with pith and cortex, 3 × unidentifiable dicot small size
		F-1099		8 × *Alnus*
3e	F.129	F-1074	c.6th–early 7th c. AD	3 × *Betula*, 2 × unidentifiable dicot
		F-1185		1 × *Pinus*, 11 × *Acer*, 10 × unidentifiable dicot small size
		F-1190		8 × *Acer*, 2 × *Alnus*, 12 × unidentified dicot small size
3f	F.134	F-1143	c. early to mid-7th c.	4 × *Pinus*
		F-1151		3 × *Alnus*, 1 × unidentifiable dicot small size
3a-5c	F.137	F-1199	c. 4th–10th c.	1 × *Acer*
3f	F.138	F-1220	c. early to mid-7th c.	11 × *Betula* (possibly one piece fragmented)
		F-1223		10 × *Betula*, 1 × ?*Pinus*, 9 × unidentifiable wood (possible bole wood)
3d-5a	F.139	F-1227	c. 5th–8th c.	6 × *Salix*, 1 × *Prunus*, 19 × unidentifiable dicot small size
6b	F.143	F-1254	c. 14th c.	4 × *Betula*, 9 × unidentifiable small particles
3d	F.148	F-1291	c. early 5th–6th c.	13 × *Pinus*, 25 × unidentifiable small particles
3c	F.149	F-1295	c. late 4th–5th c.	1 × *Quercus* heart wood
		F-1602		6 × Prunoideae, 1 × *Betula*, 7 × *Pinus* (1 × twig), 2 × *Hippophae*, 4 × dicots, 30 × unidentifiable small particles
3c	F.152	F-1299	c. late 4th–5th c.	2 × *Betula*
3c	F.153	F-1308	c. late 4th–5th c.	1 × unidentifiable dicot, 8 × unidentifiable small particles
		F-1312		1 × *Betula*
3c	F.154	F-1315	c. late 4th–5th c.	1 × *Euonymus*, 8 × *Hippophae* (7 × twigs), 1 × *Betula*, 1 × unidentifiable dicot
		F-1318		1 × *Pinus*, 1 × *Betula*
3d	F.158	F-1359	c. early 5th–6th c.	1 × Maloideae
		F-1362		4 × *Betula* (2 × twigs), 2 × ? *Betula* (poor preservation), 15 × unidentifiable dicots small size
5a-b	F.164	F-1408	c. 8th–9th c.	61 × *Populus*/*Salix*, 1 × *Salix*, 1× *Populus*
		F-1421		1 × *Carpinus*, 11 × *Betula* (2 × round wood), 30 × unidentifiable small particles
		F-1428		4 × *Betula*

(Continued)

Table 22:2: (Continued)

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench F			
3d-5b	F.169	F-1443	c. 6th–9th c.	6 × *Betula* (1 × with outer cortex), 2 × unidentifiable dicot degraded, 18 × unidentifiable small particles
5a-b	F.170	F-1451	c. late 7th–9th c.	2 × *Betula* (1 × round wood), 2 × ?*Euonymus*
		F-1458		3 × *Betula*, 3 × *Alnus*, 1 × *Ulmus*, 6 × unidentifiable small particles
		F-1462		30 × *Pinus*, 1 × *Betula* (1 × twig), 1 × bark
3d	F.175	F-1478	c. early 5th–6th c.	14 × *Pinus*, 14 × unidentifiable small particles
		F-1480		2 × *Pinus*
		F-1484		19 × *Pinus*, 2 × *Betula*, 1 × *Acer*, 25 × unidentifiable small particles
3a	F.177	F-1485	c. mid-4th–early 5th c.	5 × *Pinus*, 8 × unidentifiable small particles
		F-1489		8 × *Pinus*, 3 × *Betula*, 16 × unidentifiable small particles
		F-1493		16 × *Pinus*, 1 × *Acer*, 1 × Maloideae, 14 × *Betula* (3 × round wood), 1 × Prunoideae, 97 × unidentifiable small particles
3c	F.178	F-1492	c. late 4th–early 5th c.	4 × *Pinus*
3c-d	F.180	F-1575	c. late 4th–5th c.	6 × *Acer*, 40 × unidentifiable small particles
3a	F.181	F-1520	c. mid-4th–early 5th c.	27 × *Betula*, 1 × *Acer*, 1 × *Pinus*, 35 × unidentifiable small particles
		F-1522		4 × *Fagus*, 1 × ?*Berberis*, 4 × *Pinus* (1 × tension wood)
		F-1541		2 × *Betula* (twigs with pith and outer cortext), 1 × *Pinus*
3a	F.184	F-1537	c. 4th c., 2nd half	1 × *Pinus*
		F-1604		1 × Maloideae
		F-1621		4 × *Pinus*, 2 × *Betula*
3a	F.188	F-1614	c. 4th c., 2nd half	9 × *Pinus*
		F-1617		1 × *Betula*
		F-1630		4 × *Pinus*, 1 × *Hippophae*, 1 × *Fraxinus*, 1 × unidentifiable dicot, 20 × unidentifiable small particles
3c	F.191	F-1594	c. late 4th–mid-5th c.	7 × *Betula* (degraded wood), 1 × *Alnus* (round wood with pith, degraded), 8 × unidentifiable small particles
		F-1613		7 × *Betula*, 5 × *Pinus* (1 × round wood), 1 × *Alnus*, 15 × unidentifiable small particles
		F-1632		12 × *Pinus*, 2 × *Betula*
3c	F.193	F-1641	c. late 4th–mid-5th c.	6× *Pinus*, 1 × *Betula*, 1 × *Carpinus*, 1 × ?*Triticum*, 11 × dicots, 2 × unidentifiable small particles
5c	F.196	F-1684	c. late 9th–10th c.	1 × *Betula*
		F-1687		1 × *Betula*
5a-c	F.199	F-1697	c. 8th–10th c.	1 × *Betula*
		F-1698		1 × Maloideae, 6 × *Salix*
3d	F.204	F-1710	c. 5th–6th c.	1 × *Betula*
3d	F.206	F-1714	c. 5th–6th c.	1 × *Betula*

(Continued)

Table 22:2: Charcoal analysis of samples from the trenches excavated in Dariali Gorge. (Continued)

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench G			
5c	Grave G2		c. late 10th/early 11th c. (charcoal: 1st–11th c.?)	3 × *Fagus*, 1 × ?*Populus*
5a-c	G.002/ Grave G1	G-002	c. late 8th/10th c. (charcoal: 1st-10th c.?)	2 × *Betula*, 1 × *Betula* twig
5c	G.006/ Grave G2	G-004	c. late 10th/early 11th c. (charcoal: 1st–11th c.?)	3 × *Betula*, 1 × *Alnus*
5a-c	G.023 Grave G10	G-011	c. late 8th/early 11th c. (charcoal: 1st–11th c.?)	1 × ?*Alnus*, 3 unidentifiable dicots in clay
5c	G.020 Grave G9	G-012	c. late 10th/early 11th c. (charcoal: 1st–10th c.?)	5 × *Alnus*
	Trench M			
5a-b	M.003	M-040	tpq: 8th–9th c., perhaps all early med. (phase 5) or continuing beyond	4 × *Pinus*
		Flotation sample 2		1 × *Carpinus*
		Flotation sample 3		3 ×?*Carpinus*, 1 × *Carpinus*, 1 × ?*Punica*
		sample 4		1 × *Betula*, 1 × ?*Hippophae*
		Flotation sample 5		1 × *Pinus*
3d-5a	M.010	M-056	c. 6th–8th c. (based on 3D of sample)	1 × *Pinus*
	Trench N			
7a	N.004	N-011	c. 15th–17th c.	2 × *Salix* (heart wood)
	Trench P			
2a	P.009	P-062	c. 6th–4th c. BC (based on 3D of sample)	4 × *Betula*, 1 × *Fraxinus*, 21 × unidentifiable dicot (small), 2 × unidentifiable small particles
		P-063	c. 4th–3rd c. BC (based on 3D of sample)	6 × *Fraxinus* (2 × heart wood, 1 × round wood), 3 × *Sorbus*, 1 × Prunoideae, 1 × *Betula*, 36 × unidentifiable dicot (small)
		P-064	c. 6th–3rd c. BC (based on 3D of sample)	6 × *Pinus*, 15 × Maloideae, 5 × *Fraxinus*, 1 × *Hippophae*, 122 × unidentifiable small particles
	Trench Q			
5c-6b	Q.005	Q-669	c. 10th–15th c.	1 × unidentifiable dicot
5a-b	Q.012	Q-100	c. late 7th–9th c.	9 × unidentifiable small particles in charcolified soil
5b-c	Q.016	Q-066	c. late 8th–10th c.	7 × *Betula*, 37 × unidentifiable small particles of dicots
5a-b	Q.029	Q-305	c. late 7th–9th c.	6 × *Betula*, 1 × *Hippophae*, 1 × *Populus*/*Salix*, 1 × dicot, 45 × unidentifiable small particles
		Q-325		12 × *Betula* (6 × tension wood), 25 × unidentifiable small particles
3f-5b	Q.060	Q-419	c. late 6th–7th c.	10 × *Pinus* (2 × tension wood), 2 × *Betula*, 3 × unidentifiable small particles

(Continued)

Table 22:2: (Continued)

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench Q			
5c-7b	Q.071	Q-483	c. 11th c.-modern	1 × ?*Euonymus*
		Q-506		1 × unidentifiable dicot, 17 × unidentifiable small particles, 4 × outer cortical material
5b-6b	Q.072	Q-497	c. 9th–15th c.	3 × *Betula*/*Alnus*, 20 × unidentifiable small particles
5b-7b	Q.075	Q-528	c. 9th c.-modern	5 × *Pinus*, 4 × unidentifiable small particles
5b-6b	Q.076	Q-517	c. 9th–15th c.	1 × *Betula*, 4 × Maloideae, 29 × unidentifiable small particles
		Q-864		5 × *Betula*, 1 × *Pinus*, 2 × *Populus*,
		Q-898		3 × *Betula* twig, 12 × *Betula*, 1 × *Carpinus*, 4 × ?*Daphne*, 1 × *Populus*, 2 × *Salix*, 1 × *Populus*/*Salix*, 1 × unidentifiable dicot, 36 × unidentifiable small particles
3c-5c (prob. 5a-c)	Q.079	Q-550	c. late 4th–11th c.	1 × *Betula*
5b-c	Q.080	Q-554	c. 9th–10th c.	1 × *Betula*
		Q-572		2 × *Alnus*, 1 × *Betula*, 7 × unidentifiable small particles
		Q-573		1 × *Betula*/*Alnus*, 1 × ?Maloideae, 2 × *Populus*/*Salix*
3c-6b	Q.084	Q-556	c. late 4th–15th c.	6 × *Carpinus*/*Ostrya*, 1 × *Salix*, 15 × unidentifiable small particles
5b-c?	Q.086	Q-602	c. late 8th–11th c.?	1 × *Carpinus*/*Ostrya*, 5 × *Fraxinus* twigs, 1 × unidentifiable dicot, 50 × unidentifiable small particles
5a-6b	Q.089	Q-627	c. 7th–15th c.	1 × *Acer*, 2 × *Betula*, 3 × ?*Daphne*, 1 × *Pinus*, 7 × unidentifiable small particles
		Q-946		2 × *Betula*, 4 × *Pinus*, 35 × unidentifiable small particles
3a-5c	Q.090	Q-588	c. late 4th–11th c.	1 × *Betula*
		Q-633		1 × *Pinus* compression wood
5b-c?	Q.091	Q-594	c. late 8th–11th c.?	1 × *Betula*, 3 × *Betula*/*Alnus* with outer cortical material, 1 × unidentifiable dicot
5b-c?	Q.092	Q-593	c. late 8th–11th c.?	2 × *Betula*, 2 × *Betula*/*Alnus*, 1 × unidentifiable dicot, 5 × unidentifiable small particles
3c-6b	Q.103	Q-715	c. late 4th–15th c.	2 × *Alnus*, 3 × *Betula*, 1 × *Betula*/*Alnus*, 2 × *Ligustrum*, 3 × *Pinus*, 16 × unidentifiable small particles
5b-6b	Q.111	Q-812	c. 9th–15th c.	1 × Maloideae
3c-d	Q.112	Q-1004	c. late 4th c.-530s, perhaps late 4th c.-430s	12 × *Betula*, 20 × unidentifiable small particles
5b-c	Q.113	Q-744	c. late 8th–11th c.	1 × *Betula* twig
		Q-1014		1 × *Betula*
5b-7b	Q.114	Q-838	c. late 8th c. to modern	1 × *Betula* twig, 2 × *Betula*, 3 × unidentifiable small particles
		Q-879		3 × *Betula*, 9 × unidentifiable small particles
5a-6b	Q.117	Q-759	c. late 7th–15th c.	1 × *Fraxinus*
3a-5b	Q.125	Q-806	c. late 4th–15th c.	1 × *Betula*
5b-6b	Q.126	Q-842	c. late 8th–15th c.	1 × unidentifiable dicot
3a-5b	Q.131	Q-814	c. late 4th–9th c.	1 × *Betula*
5b-c	Q.133	Q-832	c. late 8th–11th c.	2 × unidentifiable dicot, 16 × unidentifiable small fragments

(Continued)

Table 22:2: Charcoal analysis of samples from the trenches excavated in Dariali Gorge. (Continued)

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench Q			
3a-6b	Q.134	Q-881	c. late 8th–15th c.	3 × *Betula*, 1 × Maloideae
3a-5c	Q.137	Q-1102	c. late 4th–11th c.	3 × *Pinus*, 20 × unidentifiable small particles
3a-5c	Q.138	Q-865	c. late 4th–11th c.	1 × *Fraxinus*
5b-6b	Q.139	Q-924	c. 9th–15th c.	2 × *Pinus* compression wood
3e-5a (prob. 4–5a)	Q.140	Q-1007	c. mid-7th–8th c.	3 × *Betula*
		Q-1023		1 × *Pinus* compression wood
5a-7b	Q.141	Q-981	c. late 7th c. to modern	4 × *Betula*, 1 × *Salix*, 1 × *Salix*/*Populus*, 3 × unidentifiable small particles
5b-c	Q.144	Q-901	c. 8th–11th c.	1 × *Betula*
3c-5a	Q.147	Q-1106	c. 5th–8th c.	1 × *Alnus*, 1 × *Betula*/*Alnus*, 1 × *Salix*, 18 × unidentifiable small particles
		Q-1108		2 × *Carpinus*, 5 × *Fagus*, 1 × *Fraxinus*, 2 × *Pinus*, 30 × unidentifiable small particles
5a-7b	Q.151	Q-954	c. late 7th c. to modern	1 × *Pinus*
5b-6b	Q.158	Q-1042	c. 9th–15th c.	1 × *Betula*, 2 × *Fraxinus*
5a	Q.160	Q-1020	c. late 7th–8th c.	1 × *Alnus*, 1 × *Betula* twig, 15 × *Betula*, 2 × *Salix*, 2 × outer cortical material, 70 × unidentifiable small particles
3c-f (prob. 3c-d)	Q.162	Q-1052	c. late 4th–6th c.	4 × *Carpinus*, 1 × *Pinus*, 1 × *Quercus*, 9 × unidentifiable small particles
5b-6b	Q.164	Q-1066	c. 9th–15th c.	1 × *Betula*
5a	Q.166	Q-1127	c. late 7th–8th c.	1 × *Fraxinus*
5a-b	Q.169	Q-1081	c. late 7th–8th/9th c.	1 × *Carpinus*, 1 × unidentifiable dicot
		Q-1112		2 × *Betula*, 1 × *Populus*/*Salix*
	Trench V			
6a-7b	V.003	V-007	c. 11th–20th c.	3 × *Alnus*
6a-7b	V.004	V-012	c. 11th–20th c.	2 × *Betula*, 10 × unidentifiable small particles
6a-7b	V.005	V-015	c. 11th–20th c.	4 × *Betula*
		V-018		4 × *Pinus*
		V-020		2 × *Pinus*
6a-7b	V.006	V-018	c. 11th–20th c.	1 × *Alnus*, 10 × unidentifiable small particles
6a	V.008	V-021	c. 11th–13th c.	1 × *Betula*
	Trench W			
6b-7b	W.002	W-006	c. 14th–20th c.	11 × *Betula*, 20 × unidentifiable small particles
6b	W.004	W-007	c. 13th–15th c.	2 × *Alnus*, 2 × *Betula*, 1 × *Betula*/*Alnus*, 1 × unidentifiable dicot, 20 × unidentifiable small particles
		W-008		2 × *Populus*/*Salix*, 20 × unidentifiable small particles

(Continued)

Table 22:2: (Continued)

Phase	*Context*	*Sample number*	*Date*	*Taxa identified*
	Trench AB			
5c	AB.004/ Grave AB1	AB-008	c. late 9th/10th c. (charcoal: 1st–10th c.?)	3 × *Betula*
		AB-017		3 × *Ulmus*
5c	AB.006/ Grave AB2	AB-016	c. late 9th/early 11th c. (charcoal: 1st–11th c.?)	3 × *Betula*, 20 × unidentifiable small particles embedded in sediment
5c	AB.008/ Grave AB3	AB-029	c. late 9th/early 11th c. (charcoal: 1st–11th c.?)	2 × unidentifiable broadleaf shrub/tree, 10 × unidentifiable small particles
5c	AB.012/ Grave AB4	AB-022	c. late 10th/early 11th c. (charcoal: 1st–11th c.?)	1 × *Betula*, 3 × *Pinus*, 1 × unidentifiable broadleaf shrub/ tree

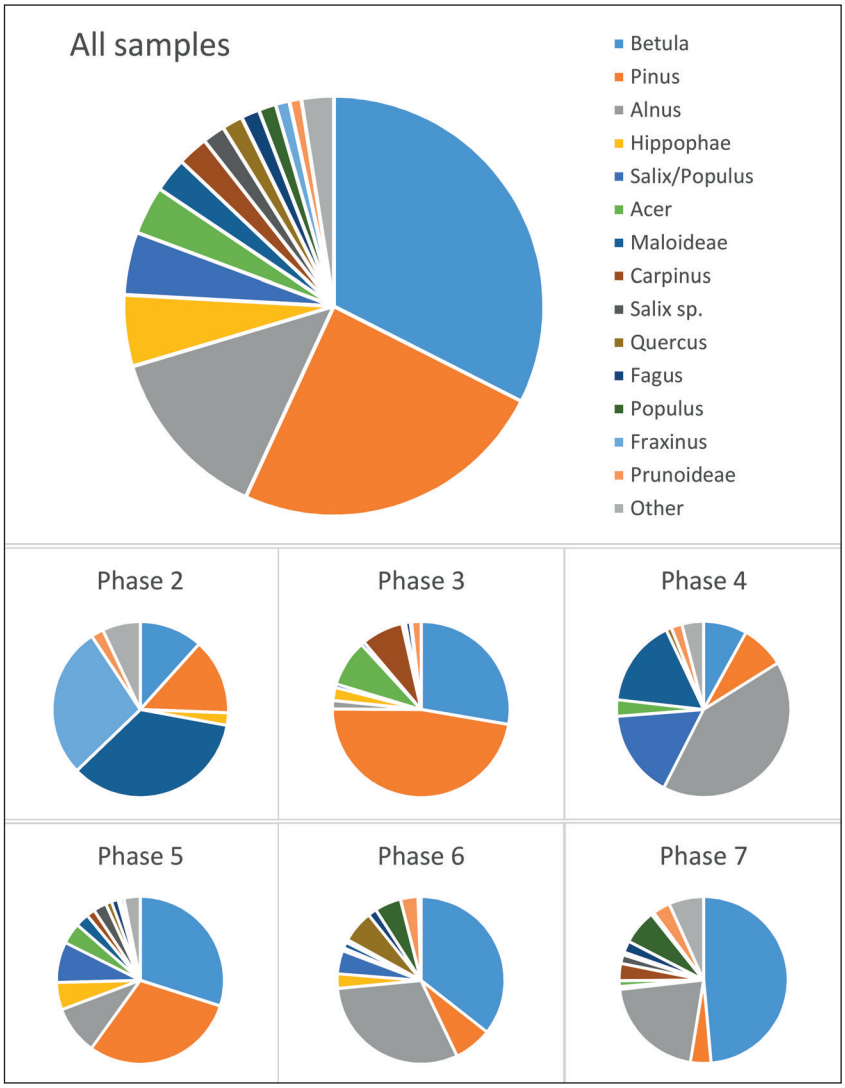


Fig. 22:2: Pie charts showing the relative taxonomic composition of the charcoal assemblages from Dariali Fort at the different phases of site occupation.



Fig. 22:3: View over Dariali Gorge, with Hippophae *in the foreground.*

modern times. It yielded a maximum of 28 taxa including *Pinus, Juniperus, Liquidambar, Alnus, Betula, Corylus, Carpinus, Carpinus/Ostrya, Euonymus, Hippophae, Fagus, Quercus, Quercus/Castanea, Juglans, Punica, Tilia, Fraxinus, Platanus, Prunus, Rosa,* Maloideae, *Populus, Salix, Populus/Salix, Acer* and *Ulmus*. Other fragments suggest the possible presence of *Viburnum* and *Berberis*.

Material from Trench F illustrate a range in fragment exposure to heat (~200°C to ~500°C) based on relative reflectance and anatomical characteristics.[10] Some fragments still exhibit the original brown colour and poor reflectivity (~200°C) whilst other fragments (not necessarily from the same context) showed good to high reflectivity and homogenised anatomy (up to 500°C).

Trench G[11]

Five samples from Trench G (in Dariali Cemetery) were recovered from graves dating from the late eighth or ninth to the tenth or early eleventh century. These samples yielded three taxa namely *Alnus*, *Betula* and *Fagus*. Other fragments indicate the presence of *Populus/Salix* (Tables 22:1–2). Preservation was generally good with intact anatomy, black colouration and good reflectivity.

Trench M[12]

Fourteen fragments originate from Trench M (on the cultivated terrace south of Dariali Fort), covering the period from the sixth, seventh or eighth to the eighth or ninth centuries, and yielded five taxa, including *Pinus*, *Betula*, *Carpinus* and possible *Hippophae* and *Punica* (Table 22:1).

Charcoal fragments from Trench M exhibited less of a variation in heat exposure relative to those recovered from Site F, with the majority of specimens exhibiting good reflectivity and intact anatomy suggestive of an exposure to temperatures of up to ~500°C.[13] Only one sample (Sample 5, from deposit M.003) comprising *Pinus* fragments was more grey in colour and friable suggesting possible exposure to temperatures >600°C.

Trench N[14]

The charcoal sample recovered from N.004 (on Gveleti Fort), dated to fifteenth-seventeenth centuries, is represented by two fragments of *Salix*. Preservation was good with intact anatomy, black colouration and good reflectivity.

Trench P[15]

The most ancient samples were recovered from Trench P (on the cultivated terrace south of Dariali Fort) dated to the sixth-third century BC. Charcoal fragments from this trench were attributed to seven taxa including *Fraxinus,* Maloideae, Prunoideae, *Sorbus, Betula, Pinus* and *Hippophae*. Preservation was generally

good with intact anatomy, black colouration and good reflectivity.

Trench Q[16]

Fifty-five samples were recovered from Trench Q (on Dariali Fort), which dates from the fourth century AD to modern times, with a maximum of 14 taxa including *Pinus*, *Betula*, *Betula/Alnus*, *Carpinus*, *Carpinus/Ostrya*, *Hippophae, Fagus*, *Quercus*, *Ligustrum*, *Fraxinus*, Maloideae, *Populus*, *Salix* and *Acer*. Other fragments suggest the presence of *Euonymus* and *Daphne*. Preservation was generally good with intact anatomy, black colouration and good reflectivity.

Trench V[17]

Seven samples recovered from Trench V (on Gveleti Fort) date to the eleventh to twentieth century and are represented by fragments of *Pinus*, *Alnus* and *Betula*. Reflectivity of the most fragments was good.

Trench W[18]

Three samples from Trench W (on Gveleti Fort), dating to the fourteenth or early fifteenth century and the more recent past, comprise three taxa including *Alnus*, *Betula* and *Populus/Salix*. Reflectivity was generally good.

Trench AB[19]

Five samples collected from four contexts in Trench AB (in Dariali Cemetery) represent charcoal assemblages dating from the late ninth to early eleventh century. Charcoal fragments consist of *Betula*, *Pinus* and *Ulmus* (Tables 22:1–2) as well as small unidentifiable fragments.

22.1.4. Discussion

22.1.4.1. General vegetation characteristics

Charcoal fragments recovered from Dariali Fort comprise a total of 39 distinct taxa, from 24 families, including six uncertain identifications of grass (Poaceae), *Viburnum* (Adoxaceae), *Ilex* (Aquifoliaceae), *Lonicera* (Caprifoliaceae), *Berberis* (Berberidaceae) and *Daphne* (Thymeleaceae) (Tables 22:1–2). An examination of the contexts from which the charcoal was recovered suggests that these fragments represent fuel wood used in domestic fires. The only direct evidence for these fragments being fuel wood, however, is the fireplace in context F.139. The sample recovered from the remains within the fireplace was rather small and included *Salix*, *Prunus* and other small fragments of unidentifiable dicots.

Fuel wood would have been collected from the surrounding environment and can provide a snapshot into the vegetation growing at the time. The ecological signal derived from the charcoal is in agreement with the native vegetation of Georgia today. The three taxa most often encountered were *Betula* (in 10 of the 12 trenches), *Pinus* (8/12) and *Alnus* (6/12). This suggests that most of the fuel would have originated from taxa growing in the upper montane forest zone or from those preferring damp habitats (*e.g.* close to springs and from the river valley). Taxa characteristic of mid-montane forests such as *Fagus*, *Quercus*, *Acer*, *Carpinus*, *Fraxinus* and Maloideae as well as less frequently encountered taxa such as *Tilia*, *Prunus*, *Corylus*, *Cornus*, *Rosa*, *Sorbus* and *Ulmus* were recovered from a maximum of four trenches (Table 22:1). The presence of *Hippophae* might indicate wood derived from the relatively unstable erosion slopes such as on mountain slopes (Fig. 22:3) or along the river valley, whilst *Salix* and *Populus* would suggest wood collected originally from relatively damp habitats. Few fragments of charcoal belonging to taxa more characteristic of low montane forests such as *Ligustrum, Euonymus* and *Ilex* were recovered and suggest the low montane forests may not have been used as extensively as a source of (fuel) wood.

Today the conifers growing in the Dariali Gorge are represented by *Pinus* and *Juniperus*; *Picea* does not grow here. Therefore, the presence of *Picea* in the charcoal assemblages of the Grave E2 is surprising and might point to its presence on the slopes of Mount Kazbek at the time when the Dariali Fort was occupied, followed either by a subsequent local extinction of *Picea* in this region through either natural or human activity (although no evidence has been found to support either of these scenarios), or that these woods had been brought into the area from more distant habitats. The import of *Picea* might have been from regions in the west, where *Picea* is still present today,[20] as wooden artefacts or for a specific use. *Juniperus* was found in only two contexts of Trench F (phase 5a and 5c), suggesting that this taxon was either not abundant in the local vegetation, or it was not selected as fuel – which would be surprising as *Juniperus* is known to have a relatively high calorific output for a conifer, but does tend to spit whilst burning.

Other less frequently encountered taxa, and those which are not found in the vegetation close to the site today, include *Punica*, *Liquidambar*, *Juglans* and *Platanus*. The presence of these taxa is more circumspect. *Juglans, Punica* and *Platanus* grow in the Caucasian lowlands, some hundreds of kilometres from the Dariali Fort site, and are widely used in horticulture there today. *Liquidambar*, however, does not grow naturally in the Caucasus region today; the closest relict population is located in South-western Turkey some 1,500 km to the south-west. The presence of these taxa, represented by single pieces of charcoal (Table 22:2) from contexts dating to the eighth–ninth (F.078) and eleventh–fourteenth century (F.027), suggest that these taxa probably originated from somewhere outside this region and were transported to the site possibly as artefacts.

The presence of *Juglans* in context F.035, dating from the late eighth-ninth century, coincides with an increase in the presence of *Juglans* as shown in the pollen diagram from Stepantsminda close to Dariali Fort (c. 10 km to south).[21] Moreover fragments of *Juglans* nuts were found

in the archaeobotanical record during phases 3 (late fourth to mid seventh centuries) and 5 (late seventh or early eighth to tenth or early eleventh centuries).[22] This could suggest transport of wood from the lowlands to Dariali Fort or indeed a local introduction of walnut as a managed (food) resource into the area.

The findings indicate that the local flora was taxonomically varied. The abundance of certain taxa (*e.g.* *Alnus*, *Betula* and *Pinus*) recovered from the charcoalified remains suggests that some taxa might have been favoured as fuel woods, possibly due to their abundance and were probably sourced locally.

22.1.4.2. Changes in vegetation over time

In general, wood selection during different phases of occupation at the Dariali Fort over time is represented by a similar taxonomic cohort in the charcoal assemblages (Fig. 22:2). Taxa from the upper montane cohort such as *Betula* (32%), *Pinus* (24%), *Alnus* (13%), *Hippophae* (6%) and *Populus/Salix* (5%) dominate whilst mid-montane elements such as *Carpinus, Fagus* and *Quercus* (each 2%) are much less frequently encountered (Fig. 22:2). Over time it appears that the wood taxa selected change: for example, in phase 3 (fourth to mid-seventh century) *Pinus* was most frequently encountered reaching 47% of the assemblage. Compare this with later phases *i.e.* phases 4–7 (dating from the mid-seventh to twenty-first century) where *Betula* and *Alnus* change from 12% and 29% respectively in phases 2 and 3, to 49% and 21% in phase 7. *Acer*, a natural component of the upper montane forests, is more frequent in phases 3 to 5 (3–9%), whilst *Hippophae* (Fig. 22:3), characteristic of the erosion slopes or valley floor, occurs more often in phases 5 and 6 (late seventh to early fifteenth century). These dynamics could possibly shed some light on the changing composition of the local vegetation with *Pinus* being more abundant in the immediate vicinity of the fort in Antiquity but as it became depleted it was replaced by other taxa, which in turn were selected for firewood in phase 7.

The greatest diversity is documented during phases 4 (mid-seventh to early eighth centuries) and 5 (late seventh to tenth centuries) where many new taxa appear including *Buxus*, *Punica*, *Juglans*, *Liquidambar* and *Platanus*. Since these species are not native to the upper to mid-montane forests of Mount Kazbek it is more likely that they were either transported to the site, or were introduced as plants either from lower altitudes or from further afield such as the Caspian area or Anatolia. Their use as a fuel wood could possibly be a secondary function.

Several charcoal samples were found associated with grave contexts (in Trenches E, G and AB). From the four graves in Trench G (late eighth or ninth to tenth or early eleventh centuries) and four graves in Trench AB (late ninth or tenth to tenth or early eleventh century) charcoal fragments comprised mainly *Betula* and *Alnus* alongside rare *Fagus*, ?*Populus*, *Ulmus* and *Pinus* (Table 22:2). Charcoal samples originating from five (in part at least) more ancient graves in Trench E, which have been dated to the late seventh or eighth to the ninth or tenth century,[23] are more diverse and consist of fragments of *Alnus*, *Ligustrum*, *Quercus*, *Pinus*, *Picea*, Maloideae, *Fraxinus*, ?*Ilex*, ?*Acer*, and ?*Populus/Salix* (Table 22:2). It should be noted that no cremations were uncovered in Dariali Cemetery, nor any evidence for the use of fire in funerary rituals. The charcoal from the graves probably resulted from the upcast of the grave pits used to cover human remains. The date of the charcoal is likely to be earlier than that of the graves, dating to the time after the start of cultivation around the beginning of the Christian era and before early medieval grave digging.[24] Taxa such as ?*Ilex* from Grave E6, *Ligustrum* and *Picea* from Grave E3 no longer grow in the upper to mid-montane vegetation on the slopes of Mount Kazbek today. This suggests that the forests were probably more diverse in the first millennium and they were growing locally. Alternatively these woods originated from further afield.[25]

22.1.4.3. Fire characteristics

The reflectivity of the charcoal material was assessed for each trench. Charcoal fragments generally showed good reflectivity with few fragments showing original detailed wood structure still brown in colour. This indicates that the wood would probably have been subject to low temperatures generally up to about 500°C. The material could have been exposed to these temperatures only for a very short period of time, or alternatively were subject to lower temperatures (250 to 300°C) for a longer period to obtain a similar degree of reflectivity.[26] This latter scenario would occur if the wood was positioned on the edge of the fire or had been added when the fire was past the peak of heat output.

Inferred temperatures in the range from ~250°C to >450°C are more typical of domestic fires. A few fragments from Trench F (*e.g.* context F.089 and F.096) showed evidence of the wood anatomy having become 'homogenised', 'blurred' and/or 'distorted' with a high degree of reflectivity; this tends to occur with exposure to high (*i.e.* >600 to 800°C) temperatures.[27] These higher inferred temperatures (*i.e.* >600°C) can be present in domestic fires but usually result in the wood becoming more brittle and friable before turning to ash and subsequently being lost from the archaeological record altogether. Such temperatures are, however, also associated with industrial fires. To attain such high temperatures charcoal is often used as the fuel rather than wood; it cannot be ruled out that charcoal, in addition to wood, was used as a fuel source.[28]

Higher exposure temperatures (possibly >600°C)[29] were also evidenced from fragments originating from Trench E, with fragments exhibiting high reflectivity and/

or distorted anatomy, and Trench F with some fragments being relatively friable and having distorted anatomy.

22.1.5. Conclusion

Charcoalified wood remains from Dariali Gorge provide evidence for the use of wood taxa derived mainly from the surrounding upper montane forests such as *Pinus, Betula, Alnus* and *Populus/Salix*. Wood from the mid-montane forests such as *Fagus, Quercus* and *Carpinus* was used less often. Few finds of relatively rarely encountered genera such as *Liquidambar, Picea, Platanus* and *Juglans* indicate (long-)distance transport of wood. These pieces may not have been intended as a fuel initially but could have been imported in the form of wooden artefacts, which were later burnt. Analysis of charcoal fragments found in different phases indicates that *Pinus* was more widely used during Antiquity but less so from the seventh century onwards. Charcoal fragments found in graves, probably from redeposited first-millennium soil, show a wide taxonomical spectrum suggesting a higher diversity of the local vegetation at that time. Fire characteristics derived from charcoal reflectance indicate that wood was used mainly in domestic contexts, although it cannot be ruled out that some finds might have been associated with industrial fires that used charcoal instead of wood as a fuel.

Notes

1 Gale and Cutler 2000; Braadbaart *et al.* 2009.
2 Ludemann 1999.
3 Nakhutsrishvili 2013; Zazanashvili 2000.
4 Gale and Cutler 2000.
5 *E.g.* Schweingruber 1990; Gale and Cutler 2000; *Inside Wood* 2004.
6 See chapter 8.2.
7 See chapter 8.3.
8 See chapter 6.3.
9 See chapter 2.
10 Cf. Braadbaart and Poole 2008.
11 See chapter 6.4.
12 See chapter 5.2.
13 Cf. Braadbaart and Poole 2008.
14 See chapter 8.4.
15 See chapter 5.1.
16 See chapter 3.
17 See chapter 8.6.
18 See chapter 8.7.
19 See chapter 6.5.
20 Nakhutsrishvili 2013.
21 See chapter 22.3.4.
22 See chapter 22.2.
23 See chapter 6.7 on the chronology of Dariali Cemetery.
24 See chapters 5.2 and 6.2.
25 *E.g.* Gale and Cutler 2000.
26 Braadbaart and Poole 2008.
27 Braadbaart and Poole 2008.
28 Fragments from the topsoil (C.001) in Trench C generally showed good reflectivity and rarely did fragments show original structural detail that was still brown in colour. This suggests that the wood was used in a domestic fire (derived from the context) where the pieces could have been subject to temperatures generally in excess of 400°C for a very short period of time, or they were subject to lower temperatures (250–300°C) for longer (cf. Braadbaart and Poole 2008). We cannot be sure if the charcoal is from modern camp fires or from the small post-medieval dwelling in Trench C. (The deposit contained very recent and redeposited archaeological material.) As with the fragments from Trench F this later scenario would occur if the wood was positioned on the edge of the fire or had been added when the fire was past its peak heat output. The same scenario is seen in the fragments retrieved from Trench D.
29 Braadbaart and Poole 2008.

22.2. Archaeobotany

Lyudmila Shumilovskikh

22.2.1. Introduction

Plants are the major component of the human diet. Large quantities of plants were brought to Dariali Fort for a variety of purposes: food, fuel, oil- and textile-production, dyeing and other domestic purposes.[1] Our archaeobotanical archive of plant remains preserved through charcoalification or mineralisation provides significant insights into past diet and economy.

22.2.2. Material and method

A wide variety of contexts from our trenches on Dariali Fort and in its surroundings were sampled during the excavations. The material was collected from indoor deposits, outdoor occupation layers, burnt horizons, the fill of jars and of stone boxes, as well as from cultivation horizons (Table 22:3). The volume of samples varied between 0.5 and 15 litres, depending on the context (Table 22:3). All samples were processed during the field seasons via flotation and sieving, using mesh sizes of 3.15, 0.71 and 0.25 mm. Afterwards they were dried, packed and transported to the University of Göttingen in Germany. In total, 143 samples, with a combined volume of more than 750 litres, were collected. Based on context descriptions, 53 samples (405.7 litres) from 44 possibly non-mixed contexts originating from five trenches were selected and used for archaeobotanical analysis. Identification was conducted using a stereo-microscope (6.5× to 50× magnification), with the aid of reference collections and scientific literature.[2]

22.2.3. Results and discussion

In total, 836 fruits and seeds were found and 633 of them identified. The majority of the finds (over 62%) belong to cereals, 8% are remains of other edible plants such as nuts, pulses and berries, while weeds make up the remaining 30%. The majority of preserved plant remains are charred but phosphatised plants and recent diaspores are represented as well (Table 22:3).

22.2.3.1. Archaeobotanical record

Ninty-five grains of *Hordeum vulgare* (hulled six-row barley) were identified (Table 22:4 and Fig. 22:4), suggesting that barley played an important role in the diet of the inhabitants of the Dariali Fort. Barley accounts for 26% of the cereal assemblage during phase 3 (late fourth to mid-seventh centuries) and increases to as much as 37% in phase 5 (late seventh to tenth centuries).

A comparable number (97) of grains belong to *Panicum miliaceum* (broomcorn millet) (Fig. 22:4). It is worth noting that millet was represented in more contexts than barley (Tables 22:3–4), indicating that its overall strong representation is statistically viable. The proportion of millet amongst cereals increases from 30% in phase 3 (late fourth to mid-seventh centuries) to 43% in phase 5 (late seventh to tenth centuries).

The 82 grains of *Secale* identified (Table 22:4) include cultivated forms, *i.e. Secale cereale* (rye) (Fig. 22:4), as well as some smaller forms. The latter could come from the weed *Secale segetale*, naturally growing in the area,[3] or could be a variety of rye grains known since the beginning of rye cultivation.[4] The role of rye in the cereal assemblage decreases from 31% in phase 3 (late fourth to mid-seventh centuries) to 18% in phase 5 (late seventh to tenth centuries).

Wheat, by contrast, is far less strongly represented in the cereal assemblages from Dariali Fort (Table 22:4). Twenty-six grains of *Triticum aestivum/durum/turgidum* (free-threshing wheat) (Fig. 22:4) were recovered. The majority of these (19, *i.e*. 10% of the cereal assemblage) are from phase 3 (late fourth to mid-seventh centuries). Single grains also appear in later phases, *i.e.* 5 (late seventh to tenth centuries) and 6b (late thirteenth to early fifteenth centuries). There are just seven grains of *Triticum dicoccum* (emmer) (Fig. 22:4), all from phase 3 deposits (late fourth to mid-seventh centuries). Emmer, it seems, was less frequently consumed at Dariali Fort than other crops.

Beside cereals, leguminous crop plants would have provided vegetable protein. Since pulses are usually under-represented in charred seed samples, it is difficult to estimate their role in the human diet.[5] At Dariali Fort four seeds of cf. *Lens culinaris* (lentil) were recovered from deposits of phases 3 (late fourth to mid-seventh centuries) and 5 (late seventh to tenth centuries), while *Vicia hirsuta/tetrasperma* occurs only in phase 3 (late fourth to mid-seventh centuries) (Table 22:4).

In addition to these staple foods, remains of fruits, berries and nuts were found at the Dariali Fort that would have enriched the diet of its inhabitants (Table 22:4). *Juglans* (walnut), *Corylus* (hazel), *Cornus mas* (European cornel) and *Prunus persica* (peach) indicate food supply from the Caucasian lowlands during phases 3 (late fourth to mid-seventh centuries) and 5 (late seventh to tenth centuries). While hazel and cornel may have been collected from the mid-latitude forests, peach and walnut might have been cultivated.[6] Other fruits, such as *Rubus caesius* (dewberry), *Rubus idaeus* (raspberry), *Sambucus racemosa* (elderberry), cf. *Viburnum opulus* (guelder-rose), probably grew in the surroundings of the fort.

Oil plants were probably used too as suggested by a few seeds of cf. *Camelina sativa*, but the identification is not certain due to the poor preservation of the remains (Table 22:3). A single phosphatised seed of cf. *Linum* (flax) from context F.181 (Table 22:3) does not prove that this plant was used for oil or textile production at Dariali, as the seed could also have come from the natural vegetation near the fort.



Fig. 22:4: Charcoalified grains from Dariali Fort: a) Hordeum vulgare *(F.123), b)* Secale cereale *(F.175), c)* Triticum dicoccum *(F.175), d)* Triticum aestivum/durum/turgidum *(F.123), e)* Panicum miliaceum *(F.175).*

22.2.3.2. Distribution of plant remains at Dariali Fort

The majority of finds (616) was embedded in indoor deposits, characterised by the highest concentration of plant remains of 4.48 finds/litre. The average concentration in cultivation layers is 2.5 finds/litre, that in the fill of ceramic jars and stone boxes just 1.1 finds/litre. Concentration in outdoor layers (0.8 finds/litre), foundation deposit Y.004 (0.6) and burnt horizons (0.1) is even lower. The only context sampled that represents a fire place (F.139) did not contain any seeds or fruits.

The unequal concentration of finds reflects the taphonomy of the site. It appears that crops were cooked, and possibly stored, indoors. When cooking over a fire, some grains and other plant remains will occasionally have fallen onto, and become trampled into, earthen floors. This would explain why we find the maximum concentration of plant remains within living quarters. We encountered no burnt storage vessels, and all jars found *in situ* were filled with soil only after the end of their period of use. The same appears to be true for the stone boxes that (whilst all indoors), unlike the storage vessels, had probably never been used for storing commodities in the first instance. This might explain why the concentration of plant remains in the fill of jars *in situ* and boxes is rather low and comparable to that found in the outdoor occupation layers and levelling horizons. It was probably soil from such outdoor bulk deposits, with no more than just random plant remains, that was used to fill the vessels to create a building platform.[7]

22.2.3.3. Food economy

Since no spikelet forks and glume bases were found, we may conclude that grains were transported to the fort after threshing, before being stored and consumed within the intramural area. This does not imply that all grain was brought from afar; some crop cultivation in the surroundings of the fort is perfectly possible.[8] The dominance of cereals resistant to a harsh climate, such as barley and rye, indicates that these crops could be cultivated near Dariali Fort, situated at an altitude of c. 1,350 m, or even at higher altitudes such as the Stepantsminda area. Archaeobotanical studies at the high-altitude settlement of Shenako in Tusheti (1,950 m) indicate that free-threshing wheat, spelt wheat, six-row hulled barley and oats were cultivated here in the tenth to twelfth centuries.[9] The presence of terraces,

Table 22:3: List of seeds and fruits found in deposits on Dariali Fort (Trenches F and Q), the terrace south of the fort (Trenches M and P) and Bakh'tari Fort (Trench Y) (charred if not indicated otherwise in brackets).

Phase	*Context*	*Sample number*	*Volume, litre*	*Age*	*Description*	*Taxa identified*
	Trench F					
6b	F.056		10	c. late 13th–14th c.	Indoor deposit	4 × *Secale cereale*, 5 × Cerealia indeterminate fragments, 1 × nut shell indeterminate, 2 × cf. *Asperula arvensis*, 1 × Caryophyllaceae, 3 × *Chenopodium*, 3 × cf. *Sherardia arvensis*, 4 × indeterminate seeds,
5a	F.070		10	prob. mainly 8th c., poss. late 7th–9th c.	Well-stratified occupation layer	2 × *Panicum miliaceum*, 2 × *Juglans* nut shell fragments, 1 × *Chenopodium*
5c	F.089		10	1st half 10th c. – AD 960s	Indoor deposit	2 × cf. *Camelina sativa*, 3 × cf. *Humulus lupulus*, 9 × indeterminate (6 × phosph.)
5c	F.093		10	c. early-mid-10th c.	Indoor deposit	3 × *Panicum miliaceum* (2 × phosph.), 4 × Cerealia indeterminate, 1 × *Cornus mas*, 1 × *Galium* cf. *rotundifolium*, 6 × indeterminate (4 × phosph.)
4	F.096	F-854	2	c. mid-7th–early 8th c.	Burnt horizon	no seeds found
4	F.096	F-855	2	c. mid-7th–early 8th c.	Burnt horizon	no seeds found
4	F.096		10	c. mid-7th–early 8th c.	Burnt horizon	1 × *Secale cereale*, 1 × Cerealia indeterminate
5c	F.100		10	c. early-mid-10th c.	Indoor deposit	1 × Cerealia indeterminata, 1 × indeterminata
5c	F.102	F-819	15	c. 10th c.	Fill of jar	1 × *Juglans* nut shell fragment
5c	F.103		10	c. early-mid-10th c.	Indoor deposit	29 × *Hordeum vulgare* (hulled), 6 × *Panicum miliaceum*, 13 × *Secale cereale*, 1 × *Triticum aestivum*, 29 × Cerealia indeterminata, 1 × cf. *Lens culinaris*, 1 × *Carex*, 1 × Caryophyllaceae, 11 × *Chenopodium*, 1 × cf. *Fallopia*, 3 × *Galium aparine*, 1 × *Galium* cf. *rotundifolium*, 1 × *Rubus ideaus*, 6 × cf. *Thymelea*, 36 × indeterminata
3d	F.109	F-003	20	c. early 5th–6th c.	Occupation layer	1 × *Triticum aestivum*, 2 × Cerealia indeterminate, 1 × cf. *Asperula arvensis*, 4 × indeterminate
5a	F.113	F-005	10	prob. mainly 8th c., poss. late 7th–9th c.	Occupation layer	1 × cf. *Lens culinaris*
5c	F.114		10	c. late 9th–1st half of 10th c.	Indoor deposit	3 × *Panicum miliaceum* (phosph.), 1 × cf. *Asperula arvensis*, 2 × *Chenopodium* (phosph.), 2 × Polygonaceae (phosph.), 6 × indeterminate (4 × phosph.)
5a	F.118	F-008	5	c. late 7th–8th c.	Occupation layer	1 × Cerealia indeterminate, 1 × cf. *Asperula arvensis*
5c	F.119	F-006	2	c. late 9th–10th c.	Occupation layer	1 × *Panicum miliaceum*, 2 × indeterminate
5c	F.119	F-007	3	c. late 9th–10th c.	Occupation layer	1 × *Bromus* spec. (broad form), 1 × *Rubus caesius*

(Continued)

Table 22:3: (Continued)

Phase	*Context*	*Sample number*	*Volume, litre*	*Age*	*Description*	*Taxa identified*
	Trench F					
5b	F.122		10	c. late 8th–9th c.	Indoor deposit	1 × *Secale cereale*, 4 × Cerealia indeterminate, 5 × *Corylus* nut shell fragments. 1 × *Juglans* fragment, 1 × indeterminate nut shell fragment, 1 × cf. *Asperula arvensis*, 8 × *Chenopodium*, 1 × *Rubus ideaus*, 18 × indeterminate seeds (13 × phosph.)
3c	F.126		10	c. late 4th–mid-5th c.	Occupation layer	1 × *Panicum miliaceum*, 1 × *Secale cereale*, 1 × cf. *Triticum*, 1 × cf. *Asperula arvensis*, 1 × indeterminate seed
3c	F.127	lower 20 cm	10	c. late 4th–mid-5th c.	Occupation layer	2 × *Panicum miliaceum*, 2 × indeterminate, 1 × cf. *Lens culinaris*, 1 × *Plantago* cf. *lanceolata*
3c	F.127	upper 20 cm	10	c. late 4th–mid-5th c.	Occupation layer	2 × *Hordeum vulgare* (hulled), 1 × *Secale cereale*, 2 × Cerealia indeterminate, 1 × *Juglans* fragment
3e	F.129		10	c. 6th c.-early 7th c.	Occupation layer	1 × Cerealia indeterminate, 1 × indeterminate nut shell fragment, 1 × *Chenopodium*
5a-b	F.131		10	c. 8th–9th c.	Indoor deposit	2 × *Hordeum vulgare* (hulled), 1 × cf. *Hordeum vulgare* (spikelet), 3 × *Panicum miliaceum*, 1 × cf. *Triticum dicoccum*, 10 × Cerealia indeterminata, 5 × undetermined nut shell fragments, 1 × *Bromus* spec. (broad form), 1 × Caryophyllaceae, 1 × *Chenopodium*, 1 × cf. *Humulus lupulus*, 5 × *Trifolium* spec. (phosph.), 11 × indeterminata
3d-5a	F.133		10	c. 5th–8th c.	Indoor deposit	1 × *Panicum miliaceum*, 2 × *Triticum vulgare*, 3 × Cerealia indeterminata, 1 × cf. *Asperula arvensis*, 1 × Caryophyllaceae, 1 × cf. *Humulus lupulus*, 1 × *Trifolium* spec. (phosph.), 1 × indeterminate, 1 × indeterminate (phosph.), 1 × indeterminate (non-charred)
3f	F.138		10	c. early to mid-7th c.	Occupation layer	1 × *Panicum miliaceum*, 1 × *Triticum aestivum*, 4 × Cerealia indeterminata, 1 × Poaceae (phosph.), 1 × *Sambucus racemosa* (phosph.)
3d-5a	F.139	F-009	2	c. 5th–8th c.	Indoor fireplace	no seeds found
3a-f	F.140		10	c. late 4th–early 7th c.	Occupation layer	1 × *Hordeum vulgare* (hulled), 2 × *Chenopodium*, 1 × *Galium*, 7 × indeterminata (3 × phosph.)
6b	F.143		10	c. 14th c.	Fill of stone box	13 × *Hordeum vulgare* (hulled), 1 × *Panicum miliaceum*, 1 × cf. *Triticum dicococcum,* 6 × *Triticum aestivum*, 1 × ?*Triticum*, 20 × Cerealia indeterminata, 1 × indeterminate nut shell fragment, 10 × indeterminata
3d	F.156	F-004	10	c. early 5th–6th c.	Occupation layer	1 × *Hordeum vulgare* (hulled), 1 × *Juglans* fragment, 1 × *Chenopodium*

(Continued)

Table 22:3: List of seeds and fruits found in deposits on Dariali Fort (Trenches F and Q), the terrace south of the fort (Trenches M and P) and Bakh'tari Fort (Trench Y) (charred if not indicated otherwise in brackets). (Continued)

Phase	*Context*	*Sample number*	*Volume, litre*	*Age*	*Description*	*Taxa identified*
	Trench F					
3d	F.175	F-010	10	c. 5th–6th c.	Indoor deposit	18 × *Hordeum vulgare* (hulled), 27 × *Panicum miliaceum*, 23 × *Secale cereale*, 1 × *Triticum dicoccum*, 3 × *Triticum aestivum*, 20 × Cerealia indeterminata, 10 × cf. *Asperula arvensis*, 4 × Caryophyllaceae, 6 × *Chenopodium*, 1 × cf. *Fallopia*, 1 × *Galium spirium*, 1 × *Malva*, 1 × *Plantago* cf. *lanceolata,* 1 × *Polygonum aviculare*, 1 × cf. *Solanum nigrum*, 6 × indeterminate seed
3a	F.177	F-1499	2	c. mid-4th–early 5th c.	Indoor deposit	1 × *Secale cereale*, 1 × cf. *Camelina sativa*, 1 × *Polygonum aviculare*, 5 × indeterminate seed
3c	F.178	F-012	10	c. late 4th–early 5th c.	Indoor deposit	1 × *Triticum aestivum*, 3 × *Prunus persica* (nut shell)
6b	F.179		0.5	c. late 13th–14th c.	Indoor deposit	1 × Caryophyllaceae
3c-d	F.180	F-017	10	c. late 4th–5th c.	Occupation layer	1 × *Hordeum vulgare* (hulled), 1 × *Secale cereale*, 8 × *Juglans* nut shell fragments, 1 × indeterminate nut shell fragment, 4 × indeterminate seeds
3a	F.181	F-013	5	c. mid-4th–early 5th c.	Indoor deposit	10 × *Hordeum vulgare* (hulled), 13 × *Panicum miliaceum*, 10 × *Secale cereale*, 2 × *Triticum dicoccum*, 1 × ?*Triticum dicoccum*, 3 × *Triticum aestivum*, 3 × cf. *Setaria italica*, 10 × Cerealia indeterminata, 1 × cf. *Vicia hirsuta/tetrasperma*, 4 × Caryophyllaceae, 1 × *Chenopodium* (modern), 17 × *Chenopodium*, 3 × *Galium aparine*, 1 × *Galium* cf. *rotundifolium*, 3 × *Galium spirium*, 1 × ?*Humulus lupulus*, 2 × *Hyoscyamus niger,* 1 × *Lamium/Stachys* (phosph.), 1 × cf. *Linum* (phosph.), 1 × *Lycopus europeus*, 3 × Poaceae, 1 × Poaceae (phosph.), 3 × *Polygonum aviculare*, 1 × *Rubus caesius* (phosph.), 2 × *Teucreum chamaedrys*, 5 × *Trifolium* spec., 12 × indeterminata
3a	F.184	F-014	10	c. 4th c., 2nd half	Indoor deposit	2 × *Hordeum vulgare* (hulled), 1 × cf. *Vicia hirsuta/tetrasperma*
3c	F.191	F-019	10	c. late 4th–mid-5th c.	Occupation layer	3 × *Hordeum vulgare* (hulled), 1 × *Panicum miliaceum*, 4 × *Secale cereale*, 3 × *Juglans* fragments, 1 × cf. *Lens culinaris*
3a	F.192	F-020	10	c. mid-to late 4th c.	Indoor deposit	13 × *Hordeum vulgare* (hulled), 14 × *Panicum miliaceum*, 16 × *Secale cereale*, 4 × *Triticum dicoccum*, 8 × *Triticum aestivum*, 1 × cf. *Triticum*, 20 × Cerealia indeterminata, 1 × indeterminate nut shell fragment, 5 × cf. *Asperula arvensis*, 1 × *Carex*, 9 × *Chenopodium*, 2 × cf. *Fallopia*, 1 × cf. *Geranium,* 2 × *Polygonum aviculare*, 1 × *Rubus ideaus*, 1 × *Trifolium*
3d	F.206		10	c. 5th–6th c.	Indoor levelling deposit sealed under mortar floor	no seeds found

(Continued)

Table 22:3: (Continued)

Phase	*Context*	*Sample number*	*Volume, litre*	*Age*	*Description*	*Taxa identified*
	Trench M					
3c-f	M.010	M-014	3	c. late 4th/5–mid-7th c. (based on level of sample)	Cultivation horizon	3 × *Secale cereale*, 1 × cf. *Asperula arvensis*,
2b	M.010	M-015	3	c. 1st c. BC – 1st c. AD (based on level of sample)	Cultivation horizon	5 × Cerealia indeterminate, 1 × indeterminate nut shell fragment, 1 × *Bromus* spec. (broad form), 1 × Caryophyllaceae, 1 × Fabaceae
	Trench P					
n/a	P.010		2	mixed horizon	Outdoor burnt horizon	5 × *Urtica* spec. (non-charred)
n/a	P.011		2	mixed horizon	Outdoor deposit	4 × *Hordeum vulgare* (hulled), 2 × Cerealia indeterminata, 1 × *Chenopodium* (modern)
n/a	P.013	P-006	2	mixed horizon	Occupation layer	1 × *Panicum miliaceum*
	Trench Q					
3a-f	Q.061	Q-013	10	c. 3rd/4th–6th/7th c.	Occupation layer	2 × *Secale cereale*, 1 × Cerealia indeterminata
5b-c	Q.113	Q-020	5	c. late 8th–10th c.	Fire-exposed floor surface	1 × *Panicum miliaceum*
5b-c	Q.113	Q-710	0.2	c. late 8th–10th c.	Fire-exposed floor surface	40 × ?charred food remains
5b-c	Q.144	Q-022	10	c. 8th–10th c.	Fill of posthole cut into bedrock	no seeds found
5b	Q.148	Level 2	10	c. late 8th–9th c.	fill of storage vessel 849 in Q.147	no seeds found
5b	Q.148	Level 3	5	c. late 8th–9th c.	fill of storage vessel 849 in Q.147	1 × *Panicum miliaceum*, 1 × Cerealia indeterminata
5b	Q.148	Q-023 level 9	10	c. late 8th–late 9th c.	Fill of storage vessel 849 in Q.147	20 × *Panicum miliaceum*, 1 × cf. *Viburnum opulus*, 1 × Fabaceae (phosph.), 1 × *Polygonum aviculare*, 4 × indeterminata
5b	Q.154	Q-025	5	c. late 8th–late 9th c.	Fill of storage vessel 966 in Q.031	1 × *Panicum miliaceum*, 1 × *Secale cereale*, 1 × *Bromus* spec. (broad form)
	Trench Y					
3a-c	Y.004		10	c. late 3rd to early 6th c., prob. mid-4th–early 5th c.	Foundation layer	7 × *Galium* spec. (charred), 2 × *Rubus caesius* (phosph.), 1 × *Sambucus racemosa* (phosph.)

Table 22:4: Summary of crop plant finds by occupation phases.[1]

Occupation phase	*2b*	*3*	*4*	*5*	*6*	*all finds*
Age	1st c. BC – 1st c. AD	Late 4th–mid-7th	Mid-7th–early 8th	Late 7th–10th/early 11th	11th–early 15th	
Number of samples	1	23	3	20	3	50
All finds	12	457	2	308	57	836
Total cereals	7	225	2	128	31	393
Total other food plants	1	27	0	22	2	52
Total weeds	3	117	0	58	10	188
Total unidentifiable	1	88	0	100	14	203
Hordeum vulgare (hulled barley)	0	51	0	31	13	95
Panicum miliaceum (broomcorn millet)	0	60	0	36	1	97
Secale cereale (rye)	0	62	1	15	4	82
Triticum aestivum/durum/turgidum (free-threshing wheat)	0	19	0	1	6	26
Triticum dicoccum (emmer)	0	7	0	0	0	7
Cerealia unidentifiable	7	26	1	45	7	86
Cornus mas (European cornel)	0	0	0	1	0	1
Corylus (hazel), nut shell fragments	0	0	0	5	0	5
Juglans (walnut), nut shell fragments	0	13	0	4	0	17
cf. *Lens culinaris* (lentil)	0	2	0	2	0	4
Vicia hirsuta/tetrasperma	0	2	0	0	0	2
Prunus persica (peach)	0	1	0	0	0	1
Rubus caesius (dewberry)	0	3	0	1	0	4
Rubus idaeus (raspberry)	0	1	0	2	0	3
Sambucus racemosa (elderberry)	0	2	0	0	0	2
cf. *Viburnum opulus* (guelder-rose)	0	0	0	1	0	1
Unidentifiable nut fragments	1	3	0	6	2	12

[1] Finds from Trench P are not included due to one sample being much younger than the deposits above, perhaps a result of a rare mistake in finds processing or as a result of disturbance.

in the gorge south of the fort, also points to local crop production.[10]

The underlying question is whether the staple food for the garrison was grown on such terraces or was some food imported from further afield? The considerable amount of broomcorn millet found at Dariali Fort is of particular significance in this context. Broomcorn millet is a warm-season crop growing well in intense heat, poor soils, severe droughts and completes its life cycle in a short time of just 60–90 days.[11] It is well-known that this crop even grows in regions with short rainy seasons,[12] and the earliest sites with millet remains in East Asia are located between 800 and 2,000 m.[13] Millet also played an important role in high mountainous environments such as the Tibetan Plateau (3,500 m) as early as at 3500 BC,[14] or in the Alps (1,100 m) in the Iron Age.[15] These parallels make local millet cultivation close to Dariali Fort theoretically possible, for example on south-facing terraces. Yet studies of genetic erosion of crop varieties of the Kazbegi region[16] indicate wheat, rye, barley, and oat cultivation at the beginning of the twentieth century. Broomcorn millet is neither documented by this study nor does it feature in analyses of soil distribution in the Kazbegi region.[17] Indeed, a review of relevant Georgian work revealed evidence for cultivation of a variety of cereals in the recent past in Khevi (*i.e.* the region around Stepantsminda including Dariali Gorge) but none whatever for millet.[18] This renders it unlikely that local production accounts for the very high proportion of millet in our sample. Most probably much or all was imported. That food was sent to the fort in the Early Middle Ages, even if there is

no information what these provisions consisted of, is of course also attested by Mas'udi.[19]

The only two samples studied from cultivation horizons (both from Trench M) contain few cereals: five grains, unidentifiable due to poor preservation, in phase 2b (first century BC – first century AD) and three grains of *Secale cereale* in phase 3c-f (late fourth or fifth to mid-seventh centuries) (Table 22:3). The presence of grains in these horizons does not prove local cultivation, because here too spikelet forks and glume bases are missing. One possible reason is the low volume of the sample (of just three litres), not enough to be sure that the absence of spikelet forks and glume bases is statistically significant. It is also possible that threshing occurred not on the field but elsewhere, not to mention that only charred remains would be preserved anyway. Perhaps the occupants of Dariali Fort used domestic rubbish as fertiliser, bringing charred grains to the field together with charred wood, bones and broken pottery.

Furthermore it is possible that not just millet but also other cereals were brought to Dariali Fort over considerable distances. Crop cultivation has a long tradition in the Caucasus.[20] Since the Neolithic, in the sixth and fifth millennia BC, einkorn wheat, emmer wheat, free-threshing wheat, spelt wheat, two-row and six-row hulled barley, naked barley, broomcorn millet, lentil and pea are known from Chokh in Dagestan,[21] Arukhlo 1 and 2 in the Bolnisskiy region,[22] Imiris-Gora in the Marnsulskij region[23] and Aratashen and Aknashen in the Ararat Valley in Armenia.[24] Later, during the first millennium BC, rye, broomcorn millet, emmer wheat, free-threshing wheat, six-row hulled barley are found in Chuberi and Eceri in Upper Svaneti.[25] In Antiquity, six-row hulled barley, broomcorn millet, free-threshing wheat and rye are documented in Vani in Imereti (third to first centuries BC), in Namarnu in Abašsiy region (third to second centuries BC), Ėceri and Dorfe Nakra in Upper Svaneti.[26] All cereals found at Dariali Fort had evidently already been cultivated in the Caucasus region or Transcaucasia long before the earliest attested occupation of Dariali Fort. Import from other regions is perfectly possible even if our data do not allow us to pinpoint the area of origin.

While it is hard to know what proportion of cereals was imported, walnut and peach also point to food supply from the Transcaucasian lowlands. The origins of peach cultivation was China; the cultivated variety reached Greece in the first millennium BC and was widely cultivated in the Roman world from the first century AD onwards.[27] In the Caucasus, there is evidence for peach cultivation in the twelfth to fourteenth centuries at Zinvali in Dusheti district.[28] Peach has also been successfully cultivated in the lowlands to the north of the Dariali Gorge,[29] making it impossible to determine whether the peach stone from the late fourth or early fifth century deposit F.178 came from the south or the north, even if written sources suggest that southern connections were much stronger at the time.[30]

Notes

1 Cappers and Neef 2012; Zohary *et al*. 2012.
2 Bertsch 1941; Cappers and Bekker 2013; Jacomet 2006; Kȧt͡s *et al.* 1965; Kohler-Schneider 2001; Lange 1979; Neef *et al.* 2012; Schoch *et al*. 1988.
3 Grossgeĭm 1948.
4 Piening 1982.
5 Van Zeist 1975.
6 See also chapters 22.1 and 22.3.
7 See chapter 3.4.2.
8 See also chapter 22.3.
9 Schultze-Motel 1989.
10 See chapter 10.5.
11 Zohary *et al*. 2012; Miller *et al*. 2016.
12 Zohary *et al*. 2012.
13 Miller *et al*. 2016.
14 Guedes *et al*. 2014.
15 Schmidl *et al*. 2007.
16 Akhalkatsi *et al*. 2017.
17 Hanauer *et al*. 2017.
18 Itonishvili 1953 and Naskidashvili, pers. comm.
19 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 157.
20 Zohary *et al*. 2012.
21 Lisitsina 1984; Hunt *et al.* 2008.
22 Janušević 1984; Lisitsina 1984; Schultze-Motel 1988.
23 Lisitsina and Prishchepenko 1977; Schultze-Motel 1988.
24 Hovsepyan and Willcox 2008.
25 Schultze-Motel 1988.
26 Schultze-Motel 1988.
27 Zohary *et al*. 2012.
28 Schultze-Motel 1989.
29 Dragavtsev *et al*. 2015.
30 See chapter 25.3.

22.3. Vegetation history

Lyudmila Shumilovskikh

22.3.1. Introduction

Palynological studies in the Dariali Gorge, near Mount Kazbek, were carried out in order to reconstruct vegetation history and land use in the area. Our particular focus was the Dariali Fort, probably occupied from the late first millennium BC or the early first century AD up to c. AD 1000, as well as for a period between the late thirteenth and early fifteenth centuries. Whilst the main goal of the Persia project was to further our understanding of the Sasanian era (third to seventh centuries AD), the focus of this study is not restricted to this period. The time before and after are of crucial importance too, to provide us with an understanding of the local and regional vegetation over time, and to place the Sasanian era into the context.

Mount Kazbek, with a height of 5,047 metres above sea-level, is the one of the highest mountains of the Central Caucasus. Geology of the region is represented by volcanic rocks, overlain by Quaternary glacial and riverine deposits and accumulations of calcareous tuffs and travertine. Brown and light brown soils of medium to shallow depths are dominant in the region, together with degraded forest and meadow soils.[1] The River Tergi/Terek flows past the eastern slopes of Mount Kazbek towards the Caspian Sea. The climate is moderately humid, with cold winters and short summers, the growing season lasting around six months.[2]

On the slopes of Mount Kazbek, characteristic high-mountain vegetation of the Greater Caucasus[3] is represented by the following zones: upper montane forests (1,500–1,900 m), subalpine (1,900–2,500 m), alpine (2,500–3,000 m), subnival (3,000–3,800 m) and nival (3,800–5,047 m).[4] Today, the slopes are used as pasture by sheep, goats, cows and horses.[5] The area under investigation is situated in the Tergi River Valley between the west-facing slopes of Mount Shani and east-facing slopes of Mount Kazbek. The upper montane and subalpine zones in the area (Fig. 22:5)[6] is represented by *Betula litwinowii, Populus tremula, Salix caprea* and *Pinus* forest patches in gorges and steep slopes, alternating with alpine meadows rich in species. The forest patches in the neighbourhood of settlements are often considered sacred groves, protected by local people. On the meadows and in the forests, one finds *Juniperus, Cotoneaster, Rosa, Rubus, Berberis*, as well as, in higher elevations, a shrubby vegetation with *Rhododendron caucasicum, Vaccinium myrtillus, V. vitis-idaea, Empetrum caucasicum, Daphne glomerata* and *Dryas caucasica*. Erosion slopes and river valleys are covered by a dense coppice of *Hippophae rhamnoides*, growing together with *Berberis, Rubus* and *Rosa*. The meadows are rich in species. At lower altitudes, such as around Dariali Fort, forested slopes are richer in species than at higher elevations, including *Fraxinus, Ulmus, Viburnum, Malus* and *Ribes*.

Although a number of palynological studies have been conducted across the Caucasus,[7] the majority were

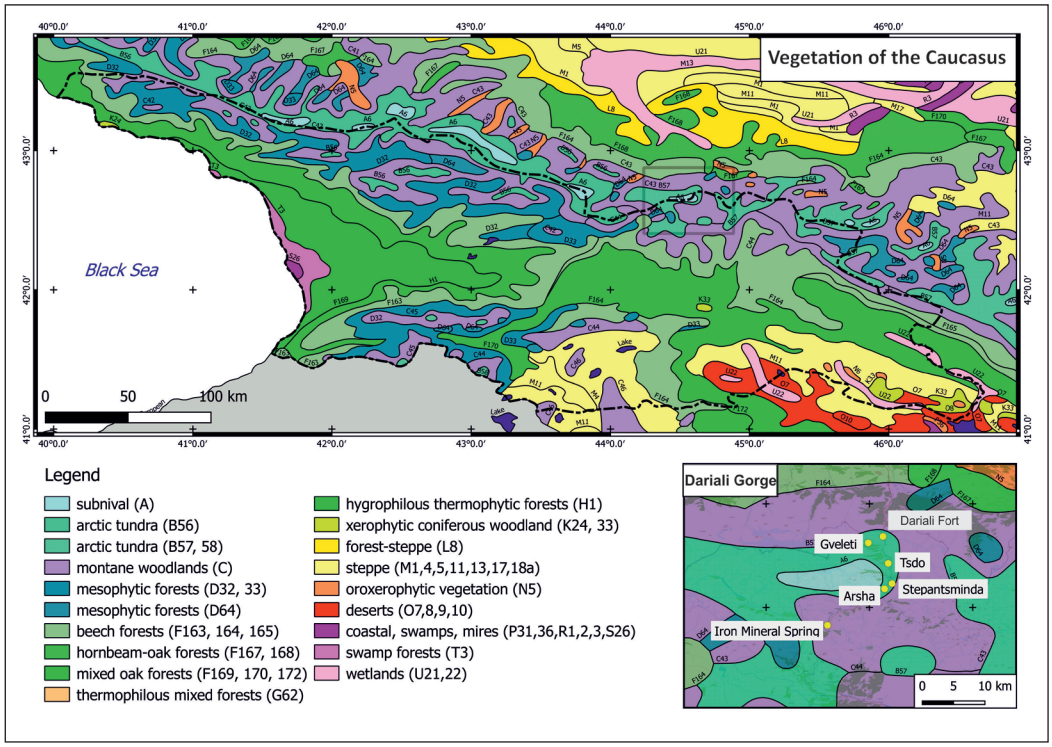


Fig. 22:5: The Vegetation of the Caucasus.

focused on the Western and Southern Caucasus, whereas the Kazbegi region is still underinvestigated. The only pollen diagram from the region of Mount Kazbek was published by Margalitadze in 1995.[8] She studied buried peat at Tkarshetskiy volcano at an altitude of 1,980 metres above sea level. Radiocarbon dating of the peat demonstrated that it was formed during the mid-Holocene (between 7000 and 4000 BP) and deposition was then interrupted by slope erosion and covered by diluvium. Further north, the mire of Tarskoe, near Vladikavkaz at about 800 m, has been studied in the 1950s.[9] Based on stratigraphy, it covers the last 6,000 years. Since both diagrams do not provide sufficient information about vegetation changes in the late antique era, due to insufficient chronological resolution, we felt that new investigations in the area were required.

22.3.2. Material and methods

Peat and lake deposits in the mountainous areas of the Greater Caucasus are not easy to find.[10] Unstable slopes, prone to rapid erosion,[11] and frequent landslides makes a search for suitable archives in the Kazbek region extremely challenging. Our fieldwork took place in July 2014 and July 2015. Archaeological surveys, undertaken by Dan Lawrence, Kristen Hopper and Lisa Snape in 2014,[12] led to the discovery and subsequent investigation of four mires (at Gveleli, Tsdo, Arsha and the Iron Mineral Spring) on the eastern and southern slopes of Mount Kazbek (Fig. 22:5). Based on the examination of maps and satellite images as well as interviews with local people in 2015, a mire close to Stepantsminda was found and investigated with the kind support of Vazha Alibegashvili. Coring was carried out by a Russian peat core sampler with a core tube of 60 cm length and a diameter of 6 cm. All cores were described and photographed in the field and transported to the laboratory for further processing. All collected sediment cores were dated in the Poznan Radiocarbon Laboratory (Poland) and calibrated using clam software[13] (Tables 22:5–9).

In order to test the suitability of samples collected for palaeoenvironmental reconstructions, samples from different core depths were processed and examined at the Laboratory of the Department of Palynology and Climate Dynamics of the University of Göttingen. Subsamples of a volume 0.5 to 1 cm^3 were prepared using HCl for soft treatment and processed on a metal sieve of 200 µm and a nylon sieve of 5–6 µm mesh size. Harsh treatment with HF and acetolysis was applied to several samples when necessary. In order to determine pollen concentration, one tablet with a known amount of *Lycopodium* spores (batch number 1031, 20,848±1,546) was added to each sample at the beginning of the laboratory process. Pellets were stored in glycerine. To estimate suitability, each sample was visually scanned at 400× magnification to identify and document pollen and non-pollen palynomorphs (NPP). NPP are a variety of microfossils found in the palynological slides, including algae, spores of fungi, animal eggs and resting stages. These remains are widely used in palynology and provide important information on environmental conditions and land use activities (such as use as pasture), erosion, hydrological conditions, parasitism etc.[14]

22.3.3. Palynological investigations

22.3.3.1. Arsha Mire

The sediment core Arsha (35 cm) was collected from alluvial soil in the flood plain of the Tergi near the village of Arsha (at UTM 38N 469665, 4720990, 1,748 m) (Fig. 22:5). The peat deposit is covered today by sedges and *Hippophae* (Fig. 22:6). A single sample from a depth of 30 cm was examined. It is characterised by good pollen preservation and a concentration of 60,000 pollen/cm^3. The pollen assemblage is represented mainly by grasses, sedges and herbs such as Apiaceae, *Artemisia*, *Ranunculus acris*-type, and Cichorioideae, indicating ruderal plant assemblages possibly related to settlements close to the core site. Tree taxa include pollen of *Hippophae*, indicating erosion, as well as *Corylus* and *Alnus.* The diatoms and testate amoebas in the sample signal that the core has potential for reconstructing hydrological changes. A radiocarbon sample (Table 22:5) from near the base of the core reveals that the core at Arsha covers the period from the eighth or ninth century onwards. It will be examined further at a later stage.

22.3.3.2. Gveleti Mire

Gveleti Mire is located some 2.4 km north-west of Gveleti Village as the crow flies, near the border between Georgia and Russia (Fig. 22:5). The lake (at UTM 38N 467247, 4729884, 1,763 m) measures about 30 m in diameter and about five meters in depth and is silted up in successive stages. Nowadays, it is a quaking bog covered by different terrestrial vegetation types such as *Sphagnum girgensohnii* Russ., with *Salix* trees in the middle and grasses and sedges at the edges (Fig. 22:7). In the eastern part of the lake a spring of iron rich water emerges. The quaking

Table 22:5: Radiocarbon date from the sediment core from Arsha.

Sediment core	*Depth (cm)*	*Material*	*Lab code*	*Date (BP)*	*Calibrated date at 95.4% confidence*
Arsha	30–31	bulk	Poz-71972	1180±30	AD 730–736 (0.7%) AD 769–901 (87.5%) AD 921–951 (7.2%)



Fig. 22:6: Arsha Mire.



Fig. 22:7: Gveleti Mire.

Table 22:6: Radiocarbon dates from the sediment cores from Gveleti Mire.

Sediment core	*Depth (cm)*	*Material*	*Lab code*	*Date (BP)*	*Calibrated date at 95.4% confidence*
Gveleti 2014 II	45–46	bulk	Poz-71973	190±30	AD 1648–1694 (21.7%) AD 1727–1813 (52.7%) AD 1918-modern (21.0%)
Gveleti 2014 II	80–81	bulk	Poz-71974	230±30	AD 1530–1539 (0.9%) AD 1635–1684 (44.7%) AD 1736–1805 (39.2%) AD 1935- modern (10.6%)
Gveleti 2014 II	120–121	bulk	Poz-71975	715±35	AD 1225–1233 (1.5%) AD 1243–1308 (82.8%) AD 1362–1386 (11.1%)
Gveleti 2014 II	150–151	bulk	Poz-77028	9030±50	8320–8185 BC (88.9%) 8112–8089 BC (1.5%) 8077–8062 BC (0.7%) 8041–7992 BC (4.2%)
Gveleti 2015 VI	170–171	bulk	Poz-77029	545±30	AD 1315–1357 (35.1%) AD 1388–1435 (60.3%)
Gveleti 2015 VI	290–291	bulk	Poz-77030	420±30	AD 1427–1515 (87.9%) AD 1598–1618 (7.5%)

bog is in the centre of the lake. A loose peat sediment, of ~50–70 cm depth in this area, made it impossible to take a sediment core here with our Russian corer. Instead, we took sediment cores at Gveleti in the southern part of the lake in 2014 and in the northern part in 2015. In the south, the maximal length of the core was 152 cm (II), whereas in the north, the maximum reached was 300 cm (VI).

From the 2014 sediment core Gveleti II, five samples were examined. The samples are characterised by excellent pollen preservation and high pollen concentration. The lowest sample studied (at 135 cm depth) contains a high amount (~50%) of arboreal pollen (AP), such as *Pinus, Alnus, Betula, Corylus* and *Carpinus betulus*, indicating that the landscape was forested at the time. The pollen spectrum changes in the next sample (at 120 cm depth) and includes many (~75%) non-arboreal pollen (NAP), such as *Poaceae*, *Apiaceae*, *Plantago major-media*-type and *Ranunculus acris*-type, suggesting that anthropogenic influence had increased markedly. The presence of Cerealia-type possibly points to agriculture, whereas coprophilous fungal spores, such as *Podospora* and *Sordaria*, indicate pasture. The coring site was an open lake at this time, which is evident from green algae *Botryococcus*, diatoms and the water plant *Potamogeton* all being present. The next sample (at 80 cm depth) shows an increase in AP, mainly in *Betula* and *Salix*, which could grow at the coring site or near the lake. A decrease in algae and the occurrence of testate amoeba indicate that swamps and peat formed at the site. At a core depth of 45 cm, NAP such as Poaceae, Chenopodiaceae, *Plantago major-media*-type, and *Ranunculus acris*-type etc., increase again, which, together with Cerealia-type and coprophilous fungal spores, possibly point to a renewed increase in anthropogenic pressure on the landscape. The last sample studied (at 20 cm depth) reflects modern conditions.

In the 2015 sediment core Gveleti VI, the lower sample is younger than the upper sample (Table 22:6). The formation of the peat was evidently complex and not easy to interpret. Furthermore, all samples are younger than AD 1200, whilst blue clays in the lower part of core II date to c. 8000 BC.

22.3.3.3. Iron Mineral Spring

The sediment cores from the Iron Mineral Spring (IMS) were collected from a nutrient-rich swamp, covered in grass and sedges, in the flood plain area of the Tergi (UTM 38N 460596, 4712151, 1,950 m) (Figs 22:5 and 22:8). The mineral spring water brings iron-rich water to the surface, as is evident from the orange discolouration of the surrounding swamp.

The samples examined (at 25, 45 and 90 cm depth) are characterised by good pollen preservation and high pollen concentration (30,000–62,000 pollen/cm^3). The pollen assemblages are all similar, dominated by grasses, with diverse herb pollen being present, such as *Ranunculus acris*-type, Caryophyllaceae, *Polygonum aviculare*-type, Chenopodiaceae, and Apiaceae etc., pointing to ruderal assemblages perhaps connected to settlement activities in the area. Arboreal pollen is mainly represented by high montane forest indicators such as *Hippophae, Pinus* and *Juniperus*. Further pollen analysis is required for reconstructing the vegetation history of the area in detail. Moreover, high amounts of diatoms and testate amoeba reveal that the core has high potential for reconstructing past hydrological conditions. The radiocarbon dates obtained (Table 22:7) show that the IMS sediments are all earlier than 1400 BC and are, therefore, not suitable for answering our key research question of how environmental change during the occupation of the Dariali Fort compares with the time before and after.



Fig. 22:8: Iron Mineral Spring.

Table 22:7: Radiocarbon dates from the sediment core IMS.

Sediment core	*Depth (cm)*	*Material*	*Lab code*	*Date (BP)*	*Calibrated date at 95.4% confidence*
IMS	45–46	bulk	Poz-71976	3170±30 (0.8 mg C)	1505–1396 BC (95.4%)
IMS	89–91	bulk	Poz-71977	3550±30	2009–2002 BC (0.8%) 1976–1861 BC (67.7%) 1853–1772 BC (26.9%)

22.3.3.4. Tsdo Mire

Two sediment cores (at 83 and 93 cm depth) were collected from a peaty area between the mountain slope and the Tergi flood plain near the village of Tsdo (UTM 38N 470509, 4726538, 1,579 m) (Fig. 22:5). Several small springs emerge on the surrounding slopes and feed *Equisetum*-peats at the foot of the mountains (Fig. 22:9). The cores are very minerogenic and contain several thin gravel layers, indicating erosion events in this highly dynamic landscape.

Three samples from the core Tsdo I were examined. Pollen preservation in all samples is average and pollen concentrations vary between 1,500 and 15,000 pollen/cm^3. The main pollen taxa are Cyperaceae, Cichorioideae, Poaceae and *Pinus*. All samples contain testate amoebae, which help us to reconstruct past conditions of the peat. The low pollen concentration and the similarity of pollen spectra throughout the core point to a rather young age of the sediment, which was confirmed by the radiocarbon dates (Table 22:8), showing that the preserved sediments all post-date AD 1200.

22.3.3.5. Stepantsminda Mire

The Stepantsminda Mire (UTM 38N 470490**,** 4722096, 1,767 m) is located c. 1 km south of the centre of the town of Stepantsminda (or Kazbegi), just beyond its southern outskirts on the right bank of the Tergi (Fig. 22:5). The mire of 250 × 200 m is fed by springs coming from Mount Kultsikhe (Fig. 22:10) and it is surrounded by drainage canals. According to the locals, the mire was relatively deep prior to modern drainage. We took four core samples in different parts of the mire of 170 cm (StM-1), 160 cm (StM-2), 132 cm (StM-3) and 245 cm depth (StM-4). The longest core (StM-4) is presented by six sections taken from four bore holes spaced c. 20 cm apart. A master core, Stepantsminda (StM), consists of these sections of StM-4, put together into a single sequence based on stratigraphic observations.



Fig. 22:9: Tsdo Mire.

Table 22:8: Radiocarbon date of the sediment core Tsdo.

Sediment core	*Depth (cm)*	*Material*	*Lab code*	*Date (BP)*	*Calibrated date at 95.4% confidence*
Tsdo	90–91	bulk	Poz-71978	660±30	AD 1277–1323 (47.6%) AD 1347–1393 (47.8%)

Ten radiocarbon samples from our master core (StM) provide the chronological framework (Table 22:9). Based on the dates, an age-depth model was established, using the IntCal13[15] calibration curve and clam software[16] (Fig. 22:11). The sediment core covers the last 4,500 years and more of the periods of greatest relevance to the project than any other sequence. For this reason, its pollen spectrum was investigated thoroughly.

22.3.4. Palynological diagram of the sediment core Stepantsminda

The sediment core Stepantsminda covers the last 4,500 years and provides insights into the vegetation history of the Kazbek region. In total, 33 samples were studied taken at intervals of 4 to 10 cm. In each sample up to 500 pollen grains of terrestrial plants were counted, and this sum was used for percentage calculations for each taxon. I will focus on the major changes in vegetation in relation to climate change and human activity, whilst further details will be published elsewhere.

To facilitate interpretation, pollen taxa are attributed to several biogeographical zones and ecological groups. Arboreal pollen (AP) is sub-divided into:

1. upper montane forests (*Pinus diploxylon*-type, *Juniperus*, *Betula*, *Populus*, *Hippophae*, *Salix, Alnus, Sorbus* group, *Thymelea*, *Vaccinium*-type);
2. middle montane (*Abies*, *Picea*, *Carpinus betulus*, *Fagus*, *Corylus*, *Quercus robur*-type, *Tilia*, *Ulmus*, *Fraxinus excelsior*-type, *Cornus mas*-type, *Castanea*, *Acer*, *Myrica*, *Viburnum opulus*-type) and;
3. low montane forests (*Ostrya*, *Pinus haploxylon*-type, *Pterocarya*, *Juglans*, *Vitis*).

Identification and sub-classification of cereal pollen is often difficult. In general, cereals produce large pollen grains (>35 µm), normally labelled Cerealia-type. Unfortunately, identification of cereal pollen to species level, using light microscopes, is not possible. Furthermore, some wild grasses can produce similarly large pollen and it is impossible to determine, based



Fig. 22:10: Stepantsminda Mire.

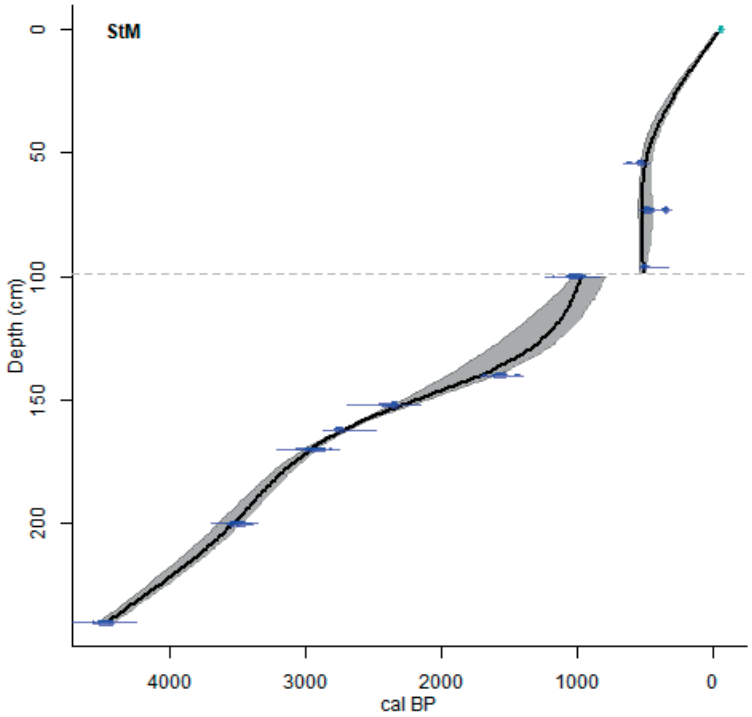


Fig. 22:11: Chronology of the Stepantsminda Mire.

Table 22:9: Radiocarbon dates of the sediment core StM-4.

Sediment core	*Master core depth (cm)*	*Material*	*Lab code*	*Date (BP)*	*Calibrated date at 95.4% confidence*
StM 3	54	bulk	Poz-90060	510±30	AD 1328–1341 (4.5%) AD 1396–1445 (90.9%)
StM 5	73	*Carex* seeds (2), indeterminate seeds (2), flower and fruit remains (2), node of *Equisetum* stem (1)	Poz-94111	389±28 (0.14 mgC)	AD 1441–1523 (70.6%) AD 1572–1630 (24.8%)
StM 1	96	grass charcoal particles	Poz-94112	437±19 (0.37 mgC)	AD 1430–1469 (95.4%)
StM 1	100	bulk	Poz-89920	1104±35	AD 779–789 (1.0%) AD 871–1019 (94.4%)
StM 1	140–141	bulk	Poz-77036	1655±30	AD 262–277 (2.0%) AD 328–431 (87.9%) AD 492–530 (5.6%)
StM 6	152	*Carex* tricarpilata (1), *Carex* bicarpilata (2), *Carex* inner part (5), Poaceae seeds (2), 1 part of tree leaf, 1 node of *Equisetum* stem	Poz-94113	2337±32 (0.12 mgC)	512–361 BC (95.4%)
StM 6	162	*Carex* tricarpillata seeds (3), *Carex* bicarpillata seeds (4), cf. *Chenopodium* seed (0.5), *Alchemilla* sp. (1), small charcoal particles (2)	Poz-94114	2616±35 (0.16 mgC)	890–880 BC (0.6%) 843–762 BC (94.8%)
StM 6	170	charred *Carex* seed (1), Poaceae fruit out part (1), indeterminate seed (1), cf. Brassicaceae (1), small charcoal particles (5)	Poz-94115	2828±46 (0.09 mgC)	1121–892 BC (92.7%) 878–848 BC (2.7%)
StM 2	200	bulk	Poz-89922	3265±35	1625–1491 BC (87.4%) 1484–1451 BC (8.0%)
StM 2	240–241	bulk	Poz-77037	4010±35	2620–2466 BC (95.4%)

on pollen morphology, whether the pollen comes from wild or domesticated grasses. Even if pollen of *Triticum* (wheat)*, Hordeum* (barley), *Avena* (oat), *Setaria* (foxtail millet) and *Panicum* (broomcorn millet) produce morphologically distinctive types, these types occur in wild grasses as well. Only pollen of *Secale* (rye) can be identified to genus level.[17] It is, however, difficult to interpret *Secale* or *Avena* in pollen diagrams from the Kazbegi region because *Avena ludoviciana* and *Secale segetale* occur naturally here as well. Bearing in mind all these problems, possible palynological evidence of agriculture should be interpreted with caution and used together with other palynological indicators of anthropogenic activities such as an increase in weeds, ruderal and pasture plants or coprophilous fungal spores.

Non-arboreal pollen (NAP) are diverse in a subalpine environment. For the identification of settlements, agricultural or pastoral activities, palynologists use weeds as indicators. Weeds represent a large group of plants. They were, of course, undesired on agricultural lands. There are three major groups of weeds occupying different habitats: crop weeds growing on fields, ruderal weeds close to settlements and resistant to tread, and pasture weeds profiting from increased pressure on pasture lands. In the highly variable environment of the Caucasus, all three groups can include a variety of species depending on the location. In the Central Caucasus, *Galium tricorne, Avena ludoviciana, Bupleurum rotundifolium, Melilotus officinalis, Convolvulus arvensis, Lolium temulentum, Secale segetale, Melampyrum*

Table 22:10: Local pollen zones (LPZ) of the master core StM.

LPZ	*Core depth (cm)*	*Age (cal. yr BP)*	*Calendar age (yr)*	*Dominant and indicator taxa*	*Interpretation*
StM-V	20–77	<200–500	AD 1450–1750	Cyperaceae-Poaceae-*Pinus*- Cerealia-coproph. fungi	Spread of pine in upper montane forest zone, agriculture and pasture, increase of fire, moderate erosion
StM-IV	77–98	~500	AD ~fifteenth century	Poaceae-Cyperaceae-*Ranunculus-Fagus-Pinus*	Heavy erosion event probably erases eleventh to fifteenth century AD sediments
StM-IIIb	98–134	950–1600	AD 350–1000	Cyperaceae-Poaceae-*Pinus*-Cerealia-coproph. fungi-*Juglans*	Subalpine meadows, higher altitude of mid–montane forests, agriculture and pasture, increase of fire events, walnut horticulture in lowlands, little erosion
StM-IIIa	134–164	1600–2800	850 BC – AD 350	Cyperaceae-Poaceae-*Pinus*-Cerealia-coprophilous fungi	Subalpine meadows, peak in agriculture and use of pasture, little erosion
StM-IIb	164–173	2800–3050	1100–850 BC	*Pinus*-Cyperaceae-*Hippophae-Alnus-Betula*	Spread of pine in upper montane forest zone, lowering of mid–montane forests elevation, low erosion, strong fire events
StM-IIa	173–224	3050–4100	2150–1100 BC	Cyperaceae-*Pinus-Poaceae- Hippophae-Betula-Fagus-Quercus*	Upper montane forest zone, higher altitude of mid–montane forests, moderate erosion, several major fires, agriculture?
StM-I	224–240	4100–4500	2550–2150 BC	*Hippophae*-Cyperaceae-*Pinus*	Subalpine meadows, high erosion, major fires, use of land as pasture

arvense, Vaccaria segetalis, Agrostemma githago, Salvia verticillata, Cephalaria syriaca, Geranium tuberosum, Ranunculus oxyspermus, Setaria viridis, Cichorium intybus, Falcaria vulgaris and *Daucus carota* are typical crop weeds. Ruderal plants include *Polygonum aviculare, P. cognatum, Sclerochloa dura, Taraxacum, Capsella bursa pastoris, Chenopodium album, Atriplex tatarica, Cichorium intybus, Centaurea micrantha, Verbascum spp.* and *Artemisia absinthum*. Pasture weeds are represented by poisonous, smelly, thorny or unpalatable plants, which are not favoured by animals. To this group belong *Veratrum lobelianum,* Ranunculaceae, especially *Aconitum nusutum* and *Delphinium, Cirsium* spp*., Festuca varia, Nardus glabriculmis, Elyna schoenoides, E. capillifolia, Cobresia persica, Verbascum, Macrotomia* spp*., Thymus* spp. and *Ziziphora* spp.[18] For the Stepantsminda pollen diagram, the major groups of weeds are essential for interpretation. Taxonomical resolution of pollen identification is generally rather low, going usually to family level only, sometimes to genus and occasionally to species level. Thus, I include higher taxonomical levels in the groupings:

4. crops and crop weeds (Cerealia-t., *Secale*, *Triticum*-t., *Hordeum*-t., *Galium*-t., Apiaceae, Fabaceae, Caryophyllaceae, *Salvia verticillata*, *Geranium*, Cichorioideae);
5. ruderal weeds (*Polygonum aviculare*-t., Cichorioideae, Brassicaceae, Chenopodiaceae, *Centaurea jacea*-t*., Artemisia*) and;
6. pasture weeds include unpalatable plants (*Allium ursinum*-t., *Ornithogallum*, *Cirsium*, *Euphorbia, Mentha*-t., *Gentiana pneumonante*-t., *Gentianella germanica, Rheum, Rumex acetosa, Valeriana officinalis, Valeriana saxatilis-t., Valerianella*).

Spores of coprophilous fungi are an additional indicator of pasture. These include a major group of saprotrophic fungi growing on dung. Some of them are facultative coprophilous, such as *Delitschia, Coniochaeta, Chaetomium, Arnium* and *Apiosordaria*, meaning that they can grow on decomposing organic material. Others, such as *Sporormiella, Sordaria* and *Podospora*, are classified as obligated coprophilous. They are mostly found on dung, although they can also grow on other substrates.[19]

Results of the pollen analysis

In general, the pollen spectra of the sediment core StM are dominated by sedges (Cyperaceae) and grasses (Poaceae) in NAP and pine (*Pinus*), blackthorn (*Hippophae*) and birch (*Betula*) in AP. This corresponds well to the high-altitude position of the core and its location within the zone of upper montane to subalpine vegetation. Based on changes of the dominant and indicative taxa, the palynological diagram is divided into five local pollen zones, abbreviated StM, based on the name of the master core from Stepantsminda (Fig. 22:12 and Table 22:10).

The first zone (StM-I of c. 2550–2150 BC) is characterised by high percentages of *Hippophae* (51%),

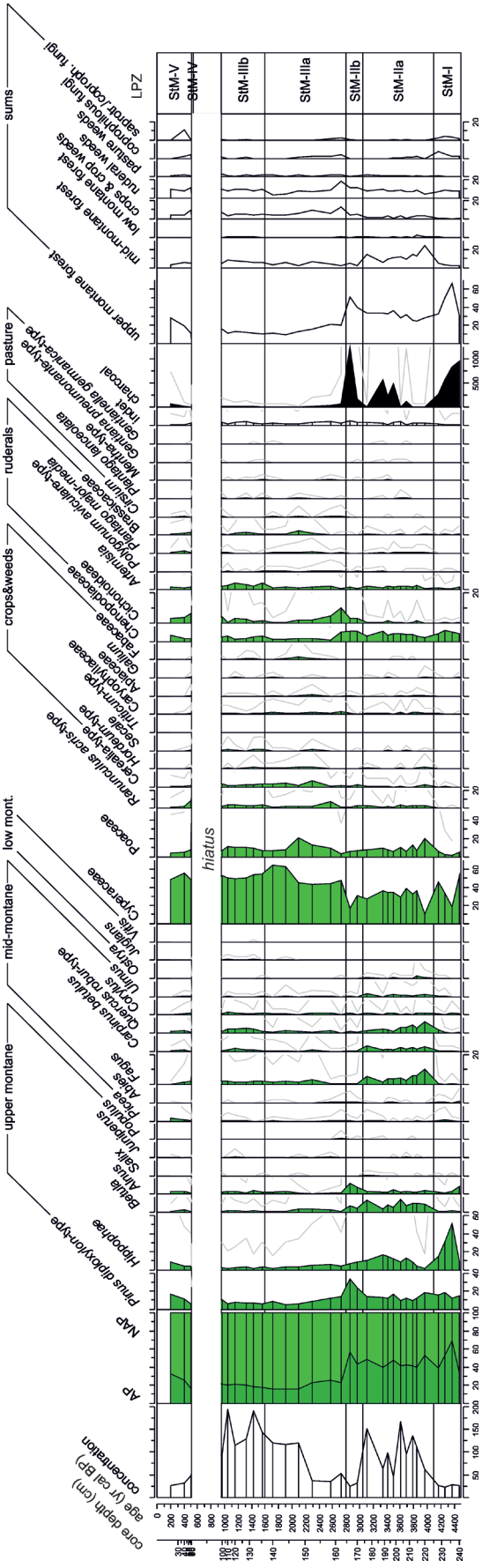


Fig. 22:12: Stepantsminda Mire Pollen Diagram.

Cyperaceae (52%), *Pinus* (19%) and Chenopodiaceae (7%), possibly reflecting subalpine meadows, with pine forests and erosion on mountain slopes or riverine erosion that lead to the development of ruderal vegetation. The rather high quantity of spores of the facultative (4%) and obligate (5%) coprophilous fungi indicates that grazing herbivores were present close to the site. A high concentration of charcoal suggests that there were forest fires (perhaps clearance operations or accidental fires) at the time.

In the subzone StM-IIa (c. 2150–1100 BC) pollen spectra change considerably. Whilst Cyperaceae (39%), *Hippophae* (17%) and *Pinus* (19%) remain dominant, there is a strong increase in upper montane forest element *Betula* (8%), mid-montane forest species such as *Fagus* (10%), *Quercus robur*-type (8%), *Carpinus betulus* (3%), *Ulmus* (2%), and low montane *Ostrya* (1%). Grasses increase, peaking at c. 20% of the overall pollen count, whilst crops and crop weeds slightly increase at the beginning of the period. There is little charcoal at the beginning of the phase but it increases markedly in the middle to second half of the period, indicating that there were again major fires.

In the subzone StM-IIb (c. 1100–850 BC), mid- and low montane forest elements rapidly decrease and AP are dominated by *Pinus* (34%), *Hippophae* (8%), *Alnus* (7%) and *Betula* (4%). NAP are represented by Cyperaceae (31%), Poaceae (7%), Chenopodiaceae (7%) and Cichorioideae (3%). Charcoal concentration reaches an all-time climax.

The subzone StM-IIIa (c. 850 BC-AD 350) is characterised by a sharp decrease in AP (down to 16–25% from c. 40–50% in previous phases). This massive reduction of arboreal pollen is mainly due to a decrease of upper montane elements. *Pinus* now accounts for as little as 7%, *Betula* is reduced to 2% and *Alnus* to just 0.5%. At the same time, we witness a strong increase in Cyperaceae (44–64%) and Poaceae (4–21%). Erosion indicators Chenopodiaceae and *Hippophae* decrease to 2 and 3% respectively and no longer play an important role. In this zone an increase in Cerealia-type is observed, peaking at around c. 2300 BP (350 BC) together with crop weeds, signalling an increase in agricultural activities in the region. The amount of charcoal remains relatively low, whilst spores of coprophilous fungi are on the rise again.

The main taxa of the subzone StM-IIIb (c. AD 350–1000) remain the same as before but there is an increase in mid-montane elements, up to 10%. One of the special features of the zone is a constant presence of *Juglans* (0.3%). Worth noting is also single *Vitis* pollen grain. Cerealia-type, *Hordeum* and *Secale* show a maximum between 1560 and 1420 BP (AD 390–530), indicating an expansion of agriculture. Also notable is an increase in ruderal weeds, up to 10%, with *Artemisia*, Chenopodiaceae and Cichorioideae being particularly dominant and pointing to a further intensification of human land use. Charcoal and coprophilous fungi increase slightly.

It appears that there was a hiatus in sedimentation for much of the first half of the second millennium. Perhaps the sediments belonging to this period were lost to erosion in this highly dynamic environment at the base of Mountain Kultsikhe and near the Tergi. Based on radiocarbon dating, the event happened around the fifteenth century, just before material of STM-IV was deposited above first-millennium levels.

In the next zone, StM-IV (c. fifteenth century), dominant taxa rapidly change to Poaceae, *Ranunculus acris*-type and Cyperaceae in NAP. We see a simultaneous increase in upper and mid-montane taxa, such as *Fagus* (9%), *Alnus* (4%), *Carpinus betulus* (3%), *Betula* (2.5%), *Quercus* (2.5%) etc. Coprophilous fungi, pasture and ruderal weeds, by contrast, decrease. Radiocarbon samples in this zone were found out of stratigraphic sequence, with an older sample being on top of two younger samples. The soil at this level is evidently mixed, it consists of clay with inclusions of stony sediments – perhaps evidence for material from elsewhere washed onto the site as a result of erosion or flash floods.

In the last zone StM-V (c. AD 1450–1750), *Pinus* (17%) and *Hippophae* (9%) increase again, perhaps pointing to forest regeneration, and mid-montane taxa occur in low quantities (7%). NAP is dominated by Cyperaceae (56%). Crops and crop weeds, as well as ruderal weeds and spores of coprophilous fungi, also increase.

22.3.5. Discussion

Unstable slopes, with extremely heavy erosion[20] and frequent landslides makes searching for palynological archives in the Kazbek region difficult. Cores, collected in 2014 and 2015 from five peatlands, represent different phases of peat growth. The last millennium is covered, if discontinuously, in four of them (Arsha, Gveleti, Tsdo and Stepantsminda), whilst the first millennium is represented only in the Stepantsminda core, which was therefore palynologically studied in detail.

Interpretation of sediments from high mountain regions is also difficult because many factors influence the formation of pollen spectra. Several studies of subfossil pollen spectra from mountain systems in the Caucasus[21] indicate that, in addition to the vegetation present near a sample site, also wind velocity, air humidity, distance from the coast and differences in pollen production play important roles in pollen distribution. They also show that long-distance transport is most important in sediments recovered in altitudes over 2,800–3,000 m, whilst near the upper forest line the spectra show the highest amount of locally produced pollen[22] and within forested land windborne transport has virtually no impact.[23] The surface pollen spectra, studied in the mountainous forests of the Lagodekhi reservation (in Eastern Georgia),[24] show that in general pollen and spore spectra are consistent with the present-day vegetation of the belt. These studies have also revealed that pollen grains of *Fagus, Betula, Acer, Salix,*

Rhododendron and *Buxus* are not widely spread by air within the Caucasus. Furthermore, experiments using pollen traps[25] indicate that pollen influx of arboreal trees represents a good indicator for distinguishing between forested and open landscapes.

Several studies on modern pollen spectra have been carried out close to Mount Kazbek. Pollen assemblages from surface samples collected in high altitude lakes (2,775–3,050 m) of Qeli Volcanic Highlands[26] located to the south-west of Mount Kazbek, are dominated by *Pinus*, *Alnus* and *Carpinus* in AP, and Chenopodiaceae, *Artemisia* and Poaceae in NAP spectra. Other studies from the Kazbek region[27] demonstrate that AP today, represented by *Pinus, Picea, Alnus, Betula, Corylus, Fagus, Quercus, Castanea, Tilia, Ulmus* and *Juglans*, do not exceed 10%, whilst the spectra are dominated by NAP. The core Stepantsminda at 1,756 m, located within the upper mountain forest belt, might be less influenced by long-distance aerial transport. Air blown material represents an important, but not the main factor in pollen spectra formation over time.

In the earliest phase covered by the StM pollen record, between 2550 and 2150 BC, the environment was dominated by subalpine meadows. There was heavy erosion of slopes and/or river valleys, as indicated by high values of *Hippophae*, and the evident occurrence of the major fires in the area. High quantities of coprophilous fungal spores signal that herbivores were grazing close to the coring site.

The most pronounced spread of mid-montane forests occurred between 2150 and 1100 BC; 40–50% of arboreal pollen with more than 20% of temperate tree taxa indicate an uplift of the vegetation zones in Kazbek to about 300 m, implying that Stepantsminda at that time was located at the border between mid- and upper montane forests. This interpretation coincides with mid-Holocene data from Tkasherskiy Peat, located at 1,980 m.[28] The chronology of this peat deposit is based on two radiocarbon dates: 6580±70 BP ^{14}C (ТБ-46) at 195 cm, corresponding to 5545 ± 54 BC, and 3470±50 ^{14}C (ТБ-45) at 30 cm, corresponding to 1801 ± 68 BC. The pollen from this peat contain a large amount of arboreal taxa (33–60%), indicating forest line uplift by 300–400 m between 5500 and 1800 BC. This hypothesis gains in strength with the discovery of leaf imprints of *Betula litwinowii, B. verrucosa, Fagus orientalis, Quercus macranthera, Salix* and *Populus* in travertines of the Tergi River Valley at 1,940–2,400 m,[29] indicating the presence of these trees at this elevation. Several maxima of charcoal in the Stepantsminda peat sediments (Fig. 22:12) indicate frequent strong fire events in the region between 2550 and 850 BC. Evidently there was forest in the surrounding area providing fuel. It is, however, not possible to identify the causes of the fires with certainty; they could be anthropogenic or natural. The presence of humans is possibly indicated by the first increase in Cerealia-type, *Hordeum*-type, *Secale*, together with spores of coprophilous fungi in the zone StM-IIa, possibly indicating that the earliest agriculture in the region, and the use of land as pasture, dates back to the Bronze Age.

Assuming we are right in thinking that our palynological evidence indicates that agriculture was practised in the area, we should explore to what extent agriculture is possible in this altitude. This question was investigated in a recent study of modern soils in the Kazbegi region.[30] It demonstrated that the widely present Cambisols and Cambic Umbrisols are characterised by a high humus content and have significant potential for the cultivation of crops such as rye, oats and summer barley. According to Vakhusht'i, wheat, barley and oats were grown in the area in the eighteenth century.[31] Rye is cultivated today in high mountainous regions of Georgia (at 1,800–2,000 m). Adaptability to climate, such as a requirement of vernalisation temperatures (5–10 days of max. 10 °C) and an ability to withstand frost (down to -6 °C), are also met by summer barley but it requires a soil pH-value above 6. Oat has similar requisites as summer barley but is less sensitive to a low pH. Based on these results, we may conclude that if agriculture in Stepantsminda is possible today, it should also have been possible during the Bronze Age, when temperatures were higher than they are now.

An abrupt decrease of the temperate mid-montane forests occurred around 1050 BC and was followed by a general decrease in AP around 850 BC (Fig. 22:12). Such a pronounced decrease can be caused by climate (drop in temperatures) or humans (as a result of forest clearance for agriculture or fuel) or both. In the coastal areas of the Black Sea, recent studies[32] highlight the importance of human impact for the vegetation history in the mid- and late Holocene, whilst we are on less firm ground in mountainous regions, which have not been investigated as much.

The reduction in tree pollen of a number of species, such as of *Fagus, Carpinus betulus, Quercus*, *Ulmus* and *Betula*, occurred simultaneously around 1050 BC, strongly suggesting that the lower limit of the mid-montane and upper montane forests dropped by several hundred metres. On a regional scale, it coincides with the lowering of the water level in Lake Van in Eastern Anatolia around 1050 BC[33] and with the formation of moraines in the Caucasus in c. 950–850 BC.[34] Possible reasons include a global drop in temperatures or precipitation, caused by a decrease of insolation, changing patterns in atmospheric circulation and/or an increase of Siberian winter anticyclones.

A further decrease in arboreal pollen, especially of pine, around 850 BC possibly indicate further cooling and reduction of forested land. In contrast to the first event, however, this coincides with an increase in crop and weed indicators together with spores of coprophilous fungi (Fig. 22:12), suggesting an intensification of agriculture and use of pasture in the Kazbek area. It is possible that

accelerated deforestation was a result of both climate change and human intervention, leading to a general reduction in tree cover and the spread of subalpine meadows around the area of modern Stepantsminda already in the first millennium BC. Based on our age-depth model (Fig. 22:11), Cerealia-type with *Hordeum*-type and *Secale* reached their peak around c. 350 BC. This coincides with an uplift of the forest line, as suggested by an increase of *Fagus* and *Carpinus betulus* pollen, indicating a general warming of the climate. Interestingly, this possible climax in agriculture occurs not long after the burial of the famous Kazbeg Treasure of the Achaemenid era (the sixth to fifth centuries BC), and the earliest archaeological traces of humans venturing to Dariali Rock.[35]

Pollen data from zone StM IIIa indicates further forest clearance, as well as agricultural and pastoral activities, long before construction of the late antique Dariali Fort. The period between AD 350 and 1000 (Fig. 22:12, StM IIIb) is characterised by increased percentages of ruderal weeds and charcoal (Fig. 22:12), which might indicate enhanced settlement activities in the area. Furthermore, a constant presence of *Juglans* from c. AD 550 to AD 1000 suggests possible walnut cultivation in the pollen catchment area. Restricted to subtropical and temperate areas, walnut trees cannot grow in the Stepantsminda region, but only in the Caucasian lowlands. *Juglans* belongs to the native vegetation of the Caucasus foothills as its pollen is sporadically but regularly found in the southern Black Sea records throughout the last 135,000 years.[36] A strong increase is, however, noticeable over the past 2,000 years, indicating walnut cultivations under Roman and Persian civilisations.[37] Thus, pollen-based analysis of agricultural practices in Persia indicate an intensification of walnut cultivation in the Taurus, Northern Zagros and Alborz during the Sasanian era.[38] Interestingly, pollen samples from Ispani-II in Colchis reveal an increase in pollen of olives and walnuts after AD 100, indicating possibly that the Romans introduced horticulture.[39] Alternatively, the increase of mid- and low montane forest indicators, including *Juglans*, might also be explained by strengthening southern and western winds leading to increased long-distance transport of pollen. An increase in wind strength in the second half of the Subatlantic (SA) has been suggested on the basis of samples from Mount Arkhyz.[40]

Unfortunately, the period between the tenth and the fifteenth century is not covered by the Stepantsminda sediments. We assume that slope erosion might have occurred in or before the fifteenth century, destroying the top of the archive. After this event, sedimentation continued and a further c. 70 cm of peat formed subsequently. Only the Gveleti archive covers some of the missing centuries (from around the thirteenth century onwards), an era that appears to have seen dynamic vegetation changes in the region, related to human agricultural and pastoral activities. This pollen profile would merit being studied in more detail in the future.

The upper part of the StM diagram reveals that the upper forest, especially pine, spread between AD 1500 and 1800 (Fig. 22:12). Furthermore, an increase of *Hippophae* suggests enhanced erosion on the slopes or in the river valley. One of the possible reasons could be an increased pasture pressure as indicated perhaps by large amounts of spores of saprotrophic/coprophilous fungi. This finding is in accordance with Badenkov *et al.*, who analysed environmental changes in the Caucasus and found a notably accelerated erosion in the mountains, resulting from human activity over the last 300 years.[41]

22.3.6. Conclusion

Our extensive search for palynological archives in the Kazbek region in the years 2014 and 2015 led to the discovery of five suitable mires to the east and south of Mount Kazbek. Coring was conducted with a peat sampler. Subsequently, the cores were radiocarbon dated and analysed palynologically. The sediments from only one core (taken at Stepantsminda) cover the period before, during and after Late Antiquity, even if, unfortunately, there is a hiatus between the tenth or eleventh and fifteenth centuries AD. Our palynological analysis has allowed us to shed significant new light on a highly dynamic environment and vegetation changes over the last 4,500 years. We have established that the area was densely forested between 2150 and 850 BC. Already at this time, there is evidence to suggest that agriculture was being practised. After 850 BC, we witness rapid forest clearance and a marked intensification of agriculture, reaching its peak around 350 BC, corresponding to the late Achaemenid era. Palynological data indicate that the landscapes in the valleys around Mount Kazbek was already intensively used by humans centuries before the main occupation phase at Dariali Fort started (in so far as archaeologically traceable) around the later fourth century AD. During the main occupation phase of the fort, lasting until c. AD 1000, intensive human occupation of the region continued and we see evidence for forest clearance, agriculture and the use of pastureland. Our study thus confirms that the time when Dariali Fort was heavily occupied there was much human activity in its hinterland. Yet already centuries before the construction of the late antique bulwark, there seems to have been much human settlement in the region – perhaps already supplying the frontier guards that feature prominently in the sources from the first century AD onwards[42] – and perhaps in turn benefitting from protection.

Notes

1 Gerasimov 1966; Nakhutsrisghvili 2013.
2 Nakhutsrishvili 2013; Walter 1974.
3 Gerasimov 1966.

4 Nakhutsrishvili 2013.
5 On animal husbandry, see also chapter 21.
6 Bohn *et al*. 2003.
7 Connor and Kvavadze 2008; Connor *et al.* 2007; Kvavadze and Rukhadze 1989; Kvavadze and Efremov 1996; Kvavadze and Kakhiani 2010; Margalitadze 1971; 1977; 1995; Neĭshtadt 1957; Shatilova *et al*. 2011; Yazvenko 1994.
8 Margalitadze 1995.
9 Neĭshtadt 1957.
10 Margalitadze 1995.
11 Badenkov *et al*. 1990.
12 See chapter 10.
13 Blaauw 2010. See R development core team 2013 for the clam package used.
14 Van Geel 2001; Kvavadze and Kakhiani 2010; Shumilovskikh *et al*. 2016a; 2016b.
15 Reimer *et al*. 2013.
16 Blaauw 2010. See R development core team 2013 for the clam package used.
17 Beug 2004.
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19 Doveri 2007; Schlütz and Shumilovskikh 2017.
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21 Kvavadze and Stuchlik 1990; *id.* 1991; Kvavadze 1993; Kvavadze and Efremov 1995.
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28 Margalitadze 1995.
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30 Hanauer *et al*. 2017.
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32 Connor *et al*. 2007.
33 Landmann and Reimer 1996.
34 Solomina *et al*. 2015.
35 See chapters 5.1, 10.4.3.4, 10.6.2, 10.7: DPS-23 and 25.1.
36 Shumilovskikh *et al*. 2012; 2013; 2014.
37 Zohary *et al.* 2012; Shumilovskikh *et al.* 2012; 2017.
38 Shumilovskikh *et al.* 2017.
39 Connor *et al*. 2007.
40 Kvavadze and Efremov 1996.
41 Badenkov *et al.* 1990.
42 See chapter 25.2.

23

Archaeomagnetic studies of features excavated in Dariali Gorge

Cathy M. Batt, David P. Greenwood and Tehreem Kainaat[1]

23.1. Abstract

This study presents the first published archaeomagnetic investigation in Georgia for over 20 years and the first time that archaeomagnetic data have been integrated with radiocarbon and optically stimulated luminescence dates for sites in Georgia. The primary aims of the research were to evaluate the potential of the method at Dariali and Gveleti Forts and to contribute to developing archaeomagnetic dating in the region.

One hundred and eighty-eight samples were obtained from eleven archaeological contexts with a variety of outcomes. Attempts to date mortar based on its magnetic properties (context F.004 and the road-blocking wall west of Dariali Fort) were unsuccessful, probably because magnetic particles within the mortar had not aligned with the geomagnetic field during setting or because the magnetisation was dominated by pebble inclusions. For some of the features investigated, the magnetic directions were too scattered to be datable, either because the material sampled had been disturbed since heating (deposits D.018 and Q.016) or because the material sampled had not been heated (second sampling of context F.129, context F.187).

Five contexts (F.096, F.129, F.139, F.146 and P.010) produced magnetic measurements which reflected the geomagnetic field at their last cooling and therefore can potentially be used to date the features (Table 23:1). The magnetic directions from each feature were reasonably well-grouped, demonstrating the reliability of the magnetic record. There were measurable differences between the magnetic directions of different features, indicating that the time-scale they cover is long, when compared with changes in the Earth's magnetic field. The magnetic directions obtained are comparable with those from other studies. There is currently no regional secular variation curve for Georgia, but dates can be obtained by comparison with the global record of magnetic change. This analysis produces a number of possible date ranges, some of which accord well with the radiocarbon and artefactual evidence. There are a large number of possible date ranges and in future it may be possible to obtain more precise dates for the material sampled in this study. Research into global models of the geomagnetic field is a fast-developing topic and it is likely that within the next five years the precision of these models will have improved to a point where they can be used to better interpret the magnetic directions presented here. The data collected add to existing historic archaeomagnetic studies in Georgia and lay the foundations for an archaeomagnetic calibration curve for the region, allowing archaeomagnetic studies to be used more widely in future.

23.2. Introduction

The aim of this research was to explore the possibility of using archaeomagnetic studies of archaeological materials to interpret the chronology of Dariali and Gveleti Forts and to contribute towards the development of an archaeomagnetic calibration curve for the region. In particular, it aimed to evaluate the potential for archaeomagnetic studies of fired materials and mortars encountered during archaeological excavations as part of the Dariali Project in 2013, 2014 and 2015. In the 2016 field season, excavations did not reveal any materials suitable for archaeomagnetic studies.

Archaeomagnetic dating is a valuable addition to the suite of chronological tools available to archaeologists.[2] Its particular strengths are the applicability to baked clays and fired stone, which survive well in the archaeological record, and the clear relationship between the event dated, typically the last cooling of the material, and human activity. Archaeomagnetic studies also have a wider significance as they provide the most detailed record of how the geomagnetic field has changed over recent millennia; crucial to understanding deep Earth processes, the space environment, palaeoclimate and volcanism. The principles

Table 23:1: List of archaeomagnetic samples with proposed dates.

AM Lab No.	*Context*	*ARCH3k.1 predicted age ranges constrained by independent dating evidence*
AM230	F.096	14 BC – AD 627
AM231	F.129	AD 224–598
AM230/1	F.096/F.129	AD 264–580
AM232	F.139	560 BC – AD 734
AM240	F.146	AD 1124–1373
AM241	P.010	1000–293 BC

of the method are well-established; the geomagnetic field in the past is recorded by fired archaeological materials or sediments and a date is obtained for this event by comparison with a dated record of changes in the geomagnetic field over time, known as the secular variation (SV) record. The SV record is obtained from direct observations of the Earth's magnetic field and, prior to that, magnetic measurements on materials with an independent date established using other scientific techniques (such as radiocarbon or luminescence), documentary sources or the archaeological information. SV is specific to a region (c. 1,000 km in diameter) as the geomagnetic field changes spatially as well as with time[3] and so the data need to be considered on a regional basis.

A total of 188 oriented *in situ* archaeomagnetic samples were removed from eleven archaeological features associated with the Dariali and Gveleti Forts in the Caucasus Mountains (Table 23:2).

This report details the sampling fieldwork undertaken and the magnetic measurements. The results are interpreted in the context of previous archaeomagnetic studies in the region and the evidence for global geomagnetic change. The sampling was undertaken by David Greenwood, with the kind assistance of Lisa Snape. Laboratory measurements were carried out by David Greenwood and Tehreem Kainaat; Cathy Batt interpreted the data. Detailed magnetic data are available.[4]

A series of methodological and archaeological research questions were identified:

- Were the horizons sampled burnt *in situ*?
- Do the fired materials sampled record a stable magnetisation?
- Do samples from a single feature all record the same magnetic direction?
- Do samples from different features record different magnetic directions?
- What is the magnetic mineralogy of the samples?
- What were the heating temperatures?
- Were the features all heated at around the same time or over a long period of time?
- Could features have been reused at a later date?
- Can the magnetic directions be dated using global secular variation records?
- How do the dates obtained compare with radiocarbon and luminescence dates for related contexts?
- Can we build an archaeomagnetic calibration curve for the region?
- Are mortars suitable for archaeomagnetic dating?

23.3. Background

During the excavations, there was high expectation of encountering the remains of domestic, and possibly industrial, fired features, such as hearths, ovens, and perhaps smithing-furnaces for the repair of tools and weapons; ideal candidates for archaeomagnetic investigation.

Modern directional archaeomagnetic studies have not been widely used in the region, and at present there is no regional geomagnetic secular variation curve for Georgia with which to directly compare archaeomagnetic data. Therefore, the primary aim of this study was to obtain archaeomagnetic data in order to help construct a regional geomagnetic secular variation curve using samples from suitable features for which radiocarbon and optically stimulated luminescence (OSL) samples were also collected.[5] This would also allow for comparison with the geomagnetic global field model, ARCH3k.1.[6] A further aim of the sampling was to determine whether the material was suitable for archaeomagnetic dating. For example, whether the sample material contained sufficient stable magnetic particles to record the direction of the earth's geomagnetic field. In addition, the integrated nature of the project meant that the results could be compared with data from other scientific dating techniques, as well as the relative dates interpreted from associated archaeological artefacts, such as pottery.

23.4. Archaeomagnetic sampling in the field

The aim of archaeomagnetic sampling is to remove small (c. 1 cm^3) samples of *in situ* material, upon which the current direction of magnetic north has been recorded.[7] There are a variety of methods available, depending on the condition of the feature being sampled (Table 23:2). Insertion of 2.5 cm diameter tubes was used for soft deposits, which represented the majority of contexts. Hard materials, such as the mortars, were

Table 23:2: Inventory of archaeomagnetic samples taken.

AM Lab No	*Date sampled*	*Location*	*Context*	*Feature*	*No of samples*	*Sampling method*
AM203	11.07.2013	Dariali Fort	F.004	Mortar from door sill	10	Buttons
AM204	12.07.2013	Road-blocking wall W of the Dariali Fort	n/a	Mortar from road-blocking wall	10	Buttons
AM205	15.07.2013	Gveleti Fort	D.018	Fired clay	7	Plaster of Paris
AM230	30.07.2014	Dariali Fort	F.096	Burnt horizon (upper)	20	Tube
AM231	31.07.2014	Dariali Fort	F.129	Burnt horizon (lower)	20	Tube
AM232	04.08.2014	Dariali Fort	F.139	Hearth	20	Tube
AM240	29.07.2015	Dariali Fort	F.146	Burnt horizon	40	Tube
AM241	03.08.2015	Base of Dariali Fort outcrop	P.010	Fired clay	20	Tube
AM242	03.08.2015	Dariali Fort	F.129	Burnt horizon (lower)	10	Tube
AM243	03.08.2015	Dariali Fort	F.187	Fired clay	11	Tube
AM244	31.07.2015	Dariali Fort	Q.016	Fired clay	10 10	Tube Buttons

sampled by attaching a 2.5 cm diameter plastic button to the surface and very friable material was encased in a block of plaster of Paris before removal. All of the samples were taken from cleaned horizontal surfaces within the features, and orientated using a magnetic compass, as there appeared to be no local disturbances to the geomagnetic field caused by the feature itself or other factors.

23.4.1. AM203 – F.004, Dariali Fort

During the first season of excavations at Dariali Fort an investigation was undertaken of the feasibility of dating mortars by archaeomagnetic methods. It has been suggested[8] that magnetic particles in suspension may be able to align to magnetic north. As mortar is made by mixing an aggregate, which is likely to contain magnetic particles, with water, it is possible that the magnetic particles have sufficient time to align before the mortar sets. As mortars are very difficult to date by other methods, the possibility is of great interest and so was tested using two sets of mortar samples. The first sample set comprised ten oriented samples taken from a small patch of *in situ* mortar located in a door sill[9] (context F.004) (Fig. 23:1) using the button method, as the material was extremely hard.

23.4.2. AM204 – Road-blocking wall, western side of Dariali Fort

The blocking wall, although now fragmentary (Fig. 23:2), once blocked the narrow gap between the mountain side and the Dariali Fort outcrop.[10] Ten oriented samples of mortar were collected from the exposed inner section of the wall (Fig. 23:3). Samples were collected from the same level on the assumption that the row of stones held in place by the mortar were set in place at the same time. It was noted that these mortar samples contained inclusions of river-rolled black pebbles which had not been visible in the AM203 samples.[11]

23.4.3. AM205 – D.018, Gveleti Fort

Gveleti Fort is situated to the south of Dariali Fort in a wider section of the Dariali Gorge. Trench D was filled with a mixture of loose stones, animal bones and pottery fragments.[12] At a depth of approximately two metres a patch of fire-reddened clay (D.018) was encountered. Initial interpretation proposed that this was the remains of a stone-lined hearth, but given the preponderance of loose stones throughout the trench this was soon discounted (Fig. 23:4). The fire-reddened clay appeared to be on top of other stones, and was extremely friable. To ascertain whether the clay reflected *in situ* burning, it was sampled using a modified version of Schnepp *et al*.,[13] employing plaster of Paris encased blocks of material (Fig. 23:5), which were then sub-sampled in the laboratory.

23.4.4. AM230 – F.096, Dariali Fort

Context F.096 appeared to represent a burning event, affecting parts of an outdoor porticus within the Dariali Fort complex.[14] Twenty oriented archaeomagnetic samples were recovered from a fire-reddened area using the tube method (Fig. 23:6). Another area of fire-reddened clay was situated below this context (see 23.4.5), and therefore this context was designated the upper burnt horizon. OSL samples were also taken from this context.[15]

23.4.5. AM231 – F.129, Dariali Fort

Context F.129 was a lower burnt horizon, underlying F.096. There appeared to be a lens of unburnt soil and clay separating the two burnt horizons, varying in depth between

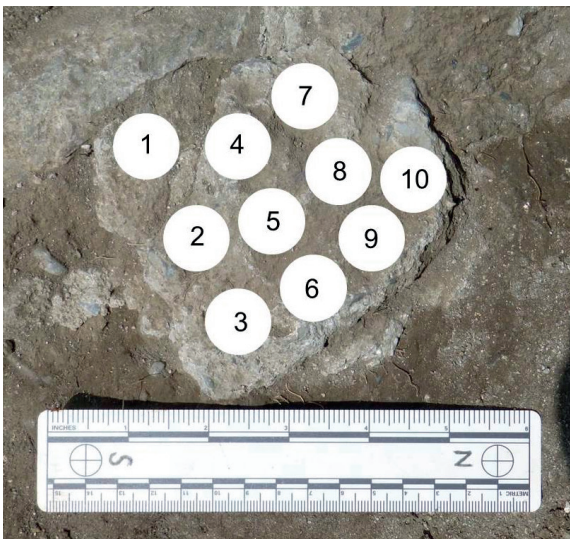


Fig. 23:1: Oriented sample buttons mounted on a patch of mortar in the door sill (context F.004).



Fig. 23:4: Fire-reddened clay (D.018) at the base of Trench D, Gveleti Fort.



Fig. 23:2: Remains of the blocking wall on the western side of the Dariali Fort outcrop.

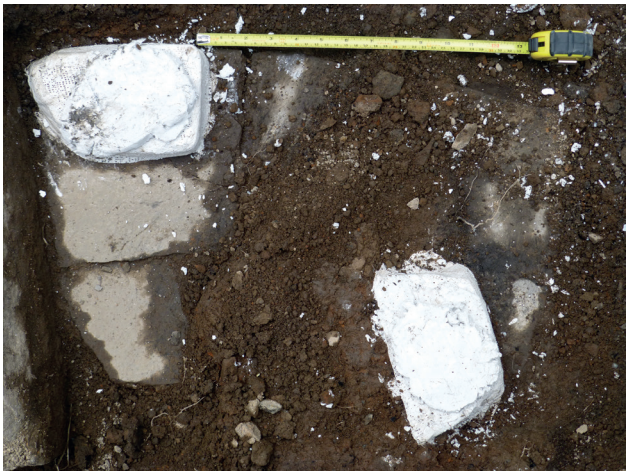


Fig. 23:5: Plaster of Paris encased sample blocks from Trench D, Gveleti Fort.



Fig. 23:3: Oriented sample button on inner blocking wall mortar, NB pebble inclusions.

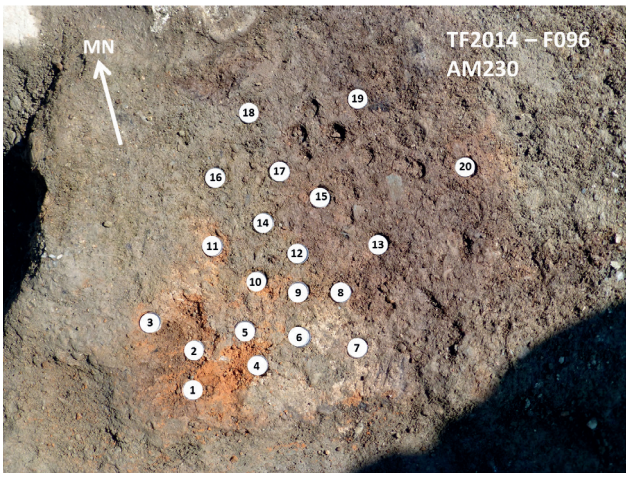


Fig. 23:6: Sampling positions for AM230 – F.096.

5 cm and 15 cm. The context was sampled to determine whether it reflected *in situ* burning and whether significant time had elapsed between the burning of this context and the overlying burnt horizon, F.096; thus whether they represented two separate burning events or a single one.[16] Twenty archaeomagnetic samples were taken using the tube method from directly underneath those taken from F.096 (Fig. 23:7), in order to compare the data from the two sample sets. OSL samples were also taken from this context.[17]

23.4.6. AM232 – F.139, Dariali Fort

Context F.139 was a stone-lined fire-reddened hearth, located some three metres below the present ground surface, and, therefore, subjected to the pressure of overburden over a period of time. It was the only positively identifiable fired structure to be encountered at Dariali Fort, and was interpreted as a domestic hearth, as there was no residue from industrial activity discovered in the immediate vicinity.[18] Twenty oriented archaeomagnetic samples were obtained (Fig. 23:8) using the tube method.

23.4.7. AM240 – F.146, Dariali Fort

Context F.146 was another burnt horizon, spread across a wall-lined room. Eight oriented archaeomagnetic samples were taken from each of five separate areas of F.146 (Figs 23:9–23:13), giving a total of 40 samples.[19] The investigation was intended to show whether the areas were burnt *in situ* and at the same time.

23.4.8. AM241 – P.010, base of rock outcrop south of Dariali Fort

Context P.010 was a small area of fire-reddened clay located at the bottom of a deep (up to 2.90 m) narrow trench excavated at the base of the Dariali Fort outcrop.[20] Twenty oriented archaeomagnetic samples were collected, using the tube method (Fig. 23:14), by Snape.

23.4.9. AM242 – F.129, Dariali Fort

The lower burnt horizon (F.129), originally sampled in 2014 (Section 23.4.5) was resampled in 2015 in an attempt to improve the archaeomagnetic data. Ten oriented samples were collected, using the tube method (Fig. 23:15). Care had to be taken in collecting these samples as the material was extremely friable.

23.4.10. AM243 – F.187, Dariali Fort

Context F.187 was another small area of reddened clay, initially thought to be fire-reddened but possibly just stained by leaching or an iron pan.[21] Eleven archaeomagnetic samples were collected using the tube method (Fig. 23:16) to see if the material was burnt *in situ*. Sampling was hampered by rain-water ingress soaking the context.

23.4.11. AM244 – Q.016, Dariali Fort

Q.016 was an apparently fire-reddened area of clay which contained large orange inclusions, identified as ceramic building material (CBM).[22] Initial interpretation of this feature was as the remains of an oven; however, no structural



Fig. 23:7: Sampling position of tube samples from F.129. These were taken from an area directly underneath the samples taken from F.096.

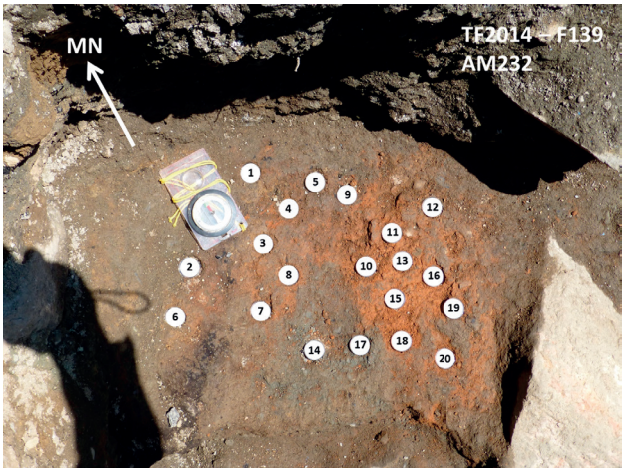


Fig. 23:8: Sampling positions from stone-lined hearth – F.139.



Fig. 23:9: Oriented archaeomagnetic sample tubes – F.146 area A.

features could be determined, and the possibility that it was no longer *in situ* could not be discounted. Ten oriented archaeomagnetic samples of the fire-reddened clay surrounding the CBM were collected using the tube method, and ten oriented archaeomagnetic samples were extracted from the CBM using the button method (Fig. 23:17).

23.5. Archaeomagnetic measurements

23.5.1. Sample preparation

All archaeomagnetic samples were stored in a field free space for several weeks prior to measurement to reduce the contribution of viscous remanent magnetisation arising from the present field and magnetic fields in the laboratory environment. The button samples were then trimmed to fit the instruments and, where necessary, consolidated using a solution of 10% polyvinyl acetate in acetone.[23] Eight of the button samples from context Q.016 did not survive transportation or the trimming process, and were, therefore, unavailable for further archaeomagnetic analysis.

23.5.2. Measurement procedures

Standard archaeomagnetic measurement procedures were followed (as summarised by Linford).[24] The direction of natural remanent magnetisation (NRM) of all samples was measured using a Molspin fluxgate spinner magnetometer. This is quantified by α_{95} which gives a measure of the scatter of the data; a value of <5° is generally considered to be appropriate for dating. The stability of the magnetisation was investigated by the stepwise demagnetisation of pilot samples in fields of 2.5, 5, 7.5, 10, 12.5, 15, 20, 30, 40, 50, 60, 80 and 100 mT (peak applied field), with the remanence being measured after each step. These results were then analysed using Demagnetisation Analysis in Excel (DAIE),[25] which uses principal components analysis from which the characteristic remanent magnetisation (ChRM) of archaeological significance can be determined. Statistical outliers were identified using the PMag Tools v4.2a programme[26] and removed from the final analysis.

23.6. Results

The results for all contexts are summarised in Tables 23:3 (magnetic directions) and 23:4 (magnetic characteristics). All of the samples were robust and measurable, with the exception of eight button samples (AM244) from context Q.016, which did not survive transportation and/or trimming. The NRM intensity of magnetisation (Table 23:3) of all samples was sufficiently high to be measurable, but generally low in comparison with UK fired materials.

23.6.1. Mortar samples

Mortar sample (AM203) had a particularly low intensity of magnetisation suggesting a low concentration of magnetic particles, whereas the mortar sample (AM204) had a variable intensity of magnetisation including higher values, probably due to the pebble inclusions. The two sets of mortar samples had very scattered magnetic directions, resulting in α_{95} values of 43.5° (AM203) and 23.7° (AM204). These values suggested that the magnetic particles within the mortar had not realigned to magnetic north before the mortar set or that the magnetisation was dominated by the pebble inclusions.



Fig. 23:10: Oriented archaeomagnetic sample tubes – F.146 area B.



Fig. 23:11: Oriented archaeomagnetic sample tubes – F.146 area C.

23.6.2. Possible fired features with high scatter

The fired sample sets showed similar levels of intensity of magnetisation to each other with the exception of AM242 and AM243. The initial measurement of NRM for some of the supposedly fired samples showed a wide scatter of directions, characterised by a high α_{95} value (Table 23:3). A decision was made not to conduct further analysis on sample sets with α_{95} >20°, as the scatter was too great and included some negative inclination values (AM205, 242, 243 and 244). The low intensity of magnetisation and scatter of results for AM242 and AM243



Fig. 23:12: Oriented archaeomagnetic sample tubes – F.146 area D.



Fig. 23:13: Oriented archaeomagnetic sample tubes – F.146 area E.



Fig. 23:14: Archaeomagnetic sample tubes in context P.010 at the base of the Dariali Fort outcrop.



Fig. 23:15: Archaeomagnetic sample tubes in the remnant context (F.129), between two rows of loose stones.



Fig. 23:16: Context F.187 showing position of archaeomagnetic sample tubes.



Fig. 23:17: Context Q.016 showing position of archaeomagnetic tubes and buttons.

suggest they may have only received partial heating or, in the case of AM243, may have actually been an area discoloured by leaching or iron pan, and not heated at all. AM242 was an attempt to resample context F.129, which had previously been sampled as AM231. However, it appears that the part of the context sampled on this second attempt had not been heated. The data suggest that the material sampled in AM205 and AM244 was not in the position in which it had been heated, and hence the features were not *in situ*. The material may have been redeposited as changes were made during the life and use of the fort.

23.6.3. Possible fired features with lower scatter

Only two sample sets (AM231 and AM240) had initial α_{95} values <5°. All sample sets with α_{95} values for the NRM of ≤10° were subjected to stepwise demagnetisation, with the results analysed in DAIE to identify the ChRM of archaeological interest, and statistical outliers were identified using the PMag Tools v4.2a programme, as described above. The scatter of directions did not significantly improve, and all sample sets analysed at this level fell within the range 4.0° to 9.1°. These values suggest that the material was *in situ*, albeit suffering from some slight disturbance over time, possibly caused by soil slippage on top of the exposed outcrop. Given the lack of data available for this region, all these sample sets were carried forward to the next stage of analysis.

Stepwise demagnetisation indicated that the median destructive field (the field in which the intensity of magnetisation is reduced by half) was in the range 6–23 mT with less than 21% of the magnetisation remaining after demagnetisation at 100 mT. This is consistent with the magnetic mineralogy being predominantly a soft magnetic mineral, such as magnetite, with a small contribution from a harder magnetic mineral, such as haematite. All the samples showed similar magnetic characteristics, indicating similar materials and heating temperatures. There are no indications of high temperature heating which is characteristic of industrial processes, or of frequent reheating at the same area. The stability of magnetisation was variable, ranging from 0 to 40[27] which may also indicate low temperature heating that was very variable across the area sampled.

It was decided to combine the results from two of the burnt horizons (AM230 and AM231). As discussed above, AM231 was taken from directly underneath AM230 and it was unclear whether the two burning events had occurred at similar or distinctly different times. A statistical test to see whether the comparison of mean directions of the two sets of archaeomagnetic observations could have been drawn from a common distribution was applied,[28] and the result, at the 95% level of confidence, showed the two sample sets had a common mean direction, allowing the results to be combined. This does not necessarily mean that they represent the same event but that the geomagnetic field has not varied significantly between the two events Table 23:3 shows both separate and combined results.

23.7. Interpretation of the archaeomagnetic results and comparison with the global geomagnetic field model

The ChRM directions, which are the most accurate measure of the past geomagnetic field, were corrected for local magnetic variation (Table 23:3). When plotted together it is clear that the results from AM230 and AM231 (contexts F.096 and F.129) overlap within their error bars and so combining them is appropriate (as discussed above). AM240 (context F.146) is widely separated from the other magnetic directions, indicating a significantly different date from the other contexts (Fig. 23:18).

As discussed above, there is no regional archaeomagnetic calibration curve for Georgia. However, a comparison with the geomagnetic global field model,[29] ARCH3k.1 can be made. Such a comparison produces a number of possible age ranges over the past 3,000 years, summarised in Table 23:5. There are a number of factors that will influence the number and size of the age ranges obtained:

- Scatter in the measured magnetic direction, arising from incomplete recording of the geomagnetic field by the feature, post-heating disturbance, sampling and measurement uncertainties.
- Uncertainty in the global geomagnetic field model.
- Spatial variation of the geomagnetic field.
- The geomagnetic field having the same value at different times.

The precision of the model varies according to the archaeological period; some have more data points than others. As the geomagnetic field has had the same direction at two, or more, different times, it is possible to have two or more age ranges for a single heating event.

In the case of the archaeomagnetic data obtained in this study, information provided by other archaeological and scientific dating methods can be used to determine which of the possible age ranges are most likely to be appropriate.

23.8. Previous archaeomagnetic studies in the region

A number of archaeomagnetic dating studies have been carried out in the region, with seven of the studies returning a total of 205 archaeomagnetic directions for Georgia itself. A search of the global database,[30] GEOMAGIA50v3 and relevant literature, revealed a total of 284 archaeomagnetic measurements from 12 studies within 1,000 km of Dariali Fort (42.739° N 44.626° E). A radius of 1,000 km was used as this is the maximum distance from which data can be gathered without introducing significant errors caused by the spatial variation of the geomagnetic field.[31] Approximately 72% of the data originated from Georgia, with another 10% from areas immediately surrounding the country (Fig. 23:19).

Archaeomagnetic studies within 1,000 km of the Dariali Gorge include 205 archaeomagnetic directions from Georgia,[32] 20 from the Crimean Peninsula,[33] 17 from Russia,[34] 12 from Ukraine,[35] 12 from Turkey,[36] ten from Azerbaijan,[37] five from Iraq,[38] two from Armenia and one from Iran.[39] Although many archaeomagnetic directions

Table 23:3: Summary of mean magnetic directions, corrected for local magnetic variation but not to a central location. N is the number of samples in the analysis; units for intensity are ×10^{-6} Am^{2}kg^{-1}.

AM Lab No	Context	Natural remanent magnetisation (mean in degrees)					Characteristic remanent magnetisation (mean in degrees)			
		N	Intensity	Dec	Inc	α_{95}	N	Dec	Inc	α_{95}
AM203	F.004	10	3–23	325.5	59.6	43.5	-	-	-	-
AM204	Road-blocking wall	10	3–403	42.8	78.2	23.7	-	-	-	-
AM205	D.018	7	43–218	343.6	75.1	54.3	-	-	-	-
AM230	F.096	20	5–431	2.6	58.8	9.0	16	3.9	59.0	9.1
AM231	F.129	20	17–363	5.6	63.8	4.3	17	1.2	59.1	4.5
AM230/1	F.096/F.129	40	5–431	4.0	61.3	4.9	33	2.7	59.8	4.2
AM232	F.139	20	10–392	355.4	57.6	10.0	17	354.0	58.4	7.2
AM240	F.146	39	29–472	13.7	59.2	4.3	39	14.0	56.5	4.0
AM241	P.010	20	27–556	358.7	61.7	8.3	17	358.7	63.7	7.0
AM242	F.129	10	6–78	22.0	70.4	37.9	-	-	-	-
AM243	F.187	11	9–175	357.3	60.3	26.3	-	-	-	-
AM244	Q.016	10	61–408	313.8	80.5	38.5	-	-	-	-

Table 23:4: Summary of typical magnetic characteristics of samples. N is the number of samples subject to stepwise demagnetisation.

AM Lab No	Context	N	NRM intensity ×10^{-6} Am^{2}kg^{-1}	Median destructive field (mT)	% Magnetisation remaining at 1T	Stability index
AM230	F.096	15	5–431	13–23	4–13	2–20
AM231	F.129	17	17–363	11–19	8–16	2–27
AM232	F.139	17	10–392	12–18	9–19	3–40
AM240	F.146	39	29–472	6–19	2–10	0–7
AM241	P.010	17	27–556	10–16	0–21	2–13

have been recorded in the region, it is difficult to evaluate their quality, as many of the older studies did not publish α_{95} or other measures of error. However, these are the only archaeomagnetic directions available and therefore need to be considered when studying the changes in the geomagnetic field in the region.

The plots of declination and inclination over time (Fig. 23:20) show that the data is scattered and unevenly distributed, particularly in declination. The inclination data are not as scattered, possibly due to the greater number available. Some trends can be identified, predominantly in inclination which shows an increase between 1000 BC and 500 BC, followed by a decrease between 500 BC and AD 1. There is a general increase in the inclination between AD 1 and AD 2000. The results for this study compare well with those for the earlier studies, although the historic data overall are scattered and would benefit from re-examination.

23.9. Summary and conclusion

Eleven features were investigated within the framework of the Dariali Project, with a variety of outcomes. All were successfully sampled and had a measurable magnetisation. The attempt to date two mortar samples proved unsuccessful and four contexts were undatable, either due to a lack of heating or post-heating disturbance. Five features had a stable magnetisation which appeared to retain a record of the geomagnetic field when they were last cooled. The scatter in the data is comparable to the values commonly deemed acceptable for dating, although relatively large, suggesting low temperature heating and

Table 23:5: Comparison of ChRM data with global geomagnetic field model,[1] ARCH3k.1.

AM Lab No	*Context*	*ARCH3k.1 predicted age ranges over past 3,000 years*	*Independent date for context*	*ARCH3k.1 predicted age ranges constrained by independent dating evidence*
AM230	F.096	1000–776 BC 600–469 BC 432–377 BC 14 BC-AD 627 AD 999–1621 AD 1703–1990	AD 652–766 AD 642–764 calibrated radiocarbon dates;[2] AD 775±120 OSL date[3]	14 BC – AD 627
AM231	F.129	1000–808 BC AD 224–598 AD 1078–1198 AD 1294–1468 AD 1747–1990	AD 432–596 calibrated radiocarbon dates;[4] AD 775±120 OSL date[5]	AD 224–598
AM230/1	F.096/F.129	1000–803 BC AD 264–330 AD 352–580 AD 1075–1215 AD 1270–1468 AD 1808–1990	See above	AD 264–580
AM232	F.139	1000–957 BC 560 BC-AD 734 AD 1087–1146 AD 1403–1577 AD 1668–1964	AD 690–870 (prob. no later than 8th century) calibrated radiocarbon date from F.166 probably above and AD 406–553 from F.175 below: c. 5th-8th century AD[6]	560 BC – AD 734
AM240	F.146	970–829 BC AD 1124–1373 AD 1942–1990	AD 1296–1406 calibrated radiocarbon date from transition of F.056 and F.146 above and AD 893–994 from F.196 below: c. 10th to 14th century AD[7]	AD 1124–1373
AM241	P.010	1000 -293 BC 162–144 BC AD 406–601 AD 793–922 AD 932–1796 AD 1813–1862 AD 1902–1990	703–387 BC (prob. no earlier than 6th c. BC) calibrated radiocarbon sample from associated charcoal horizon P.009: c. 6th to 4th century BC[8]	1000–293 BC

[1] Korte *et al*. 2009.
[2] See chapter 2.3.
[3] See chapters 2.3 and 24.
[4] See chapter 2.2.2.
[5] See chapters 2.2.2 and 24.
[6] See chapters 2.2.7 and 2.4.7.
[7] See chapter 2.5.
[8] See chapter 5.1.

infrequent use. The samples contained predominantly soft magnetic minerals, such as magnetite, with a small and variable contribution of a harder magnetic mineral, such as haematite.

The magnetic directions obtained for the different features were distinctly separated, suggesting significant changes in the geomagnetic field over the period of time under consideration, and indicating a long period of use overall. By comparing the magnetic directions with the global geomagnetic field possible archaeomagnetic dates for the features are proposed. Some of the date ranges suggested match well with the dating evidence available from other sources. For each context there are a number of possible dates and the date ranges are relatively large

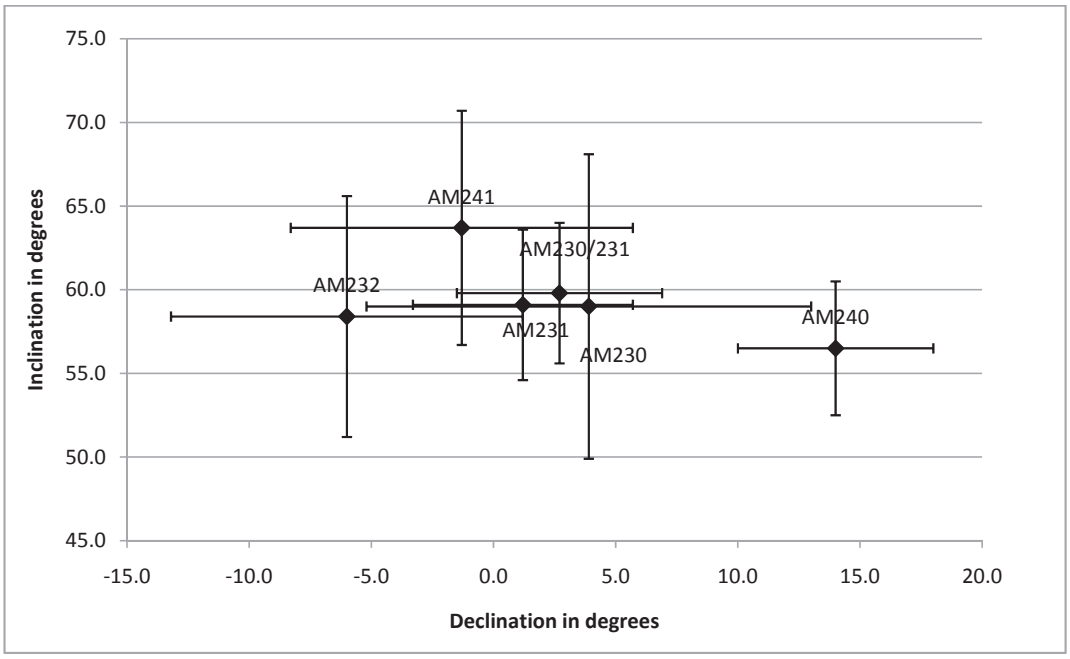


Fig. 23:18: ChRM directions for materials with lower scatter, corrected for magnetic variation.

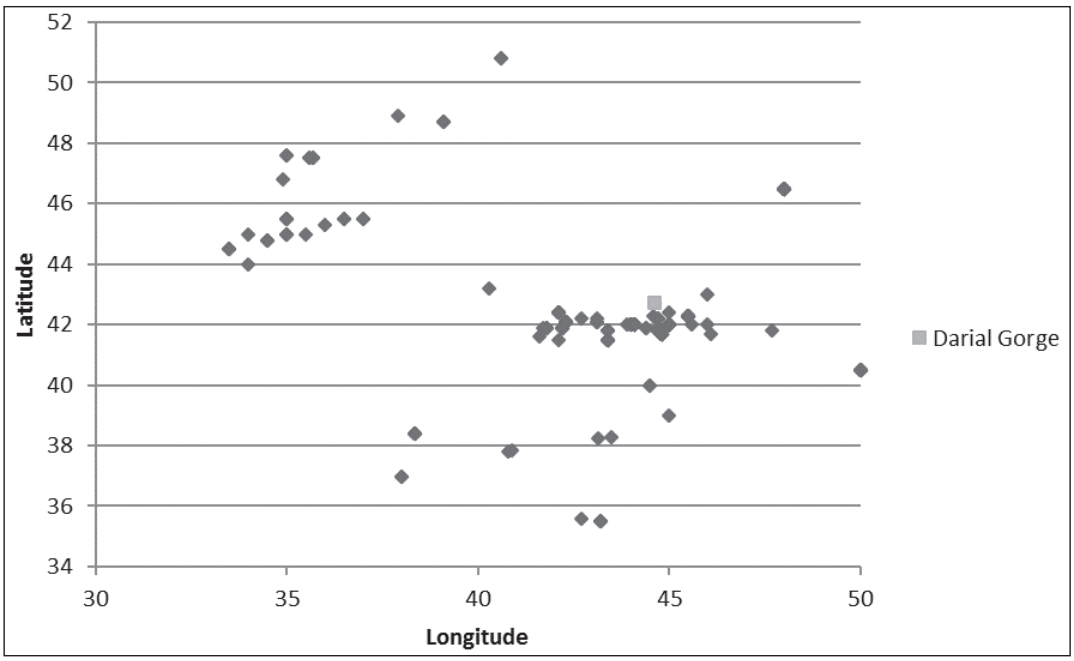


Fig. 23:19: Distribution of previous directional archaeomagnetic studies within 1,000 km of the Dariali Gorge.

for a number of reasons: scatter in the measured magnetic direction, uncertainty in the geomagnetic field model for this region and repeated values of the geomagnetic field at different periods.

In answer to the initial research questions, this study has shown that some of the materials were burnt *in situ* and record a stable magnetisation that is the same within a single feature and varies between features. Heating temperatures have been sufficient to impart a stable magnetisation, over 400˚C, but there is no evidence of high temperature or repeated heating over a long period of time. The magnetisation appears to be associated with the geomagnetic field at the last cooling of the features and therefore can potentially be used to date the features. The differences in magnetic direction between features indicate that the period of last use is not contemporary but covers an extended period of time. It is possible to date the magnetic directions using global secular variation records and this gives possible date ranges that correlate with the other evidence. There is a reasonable

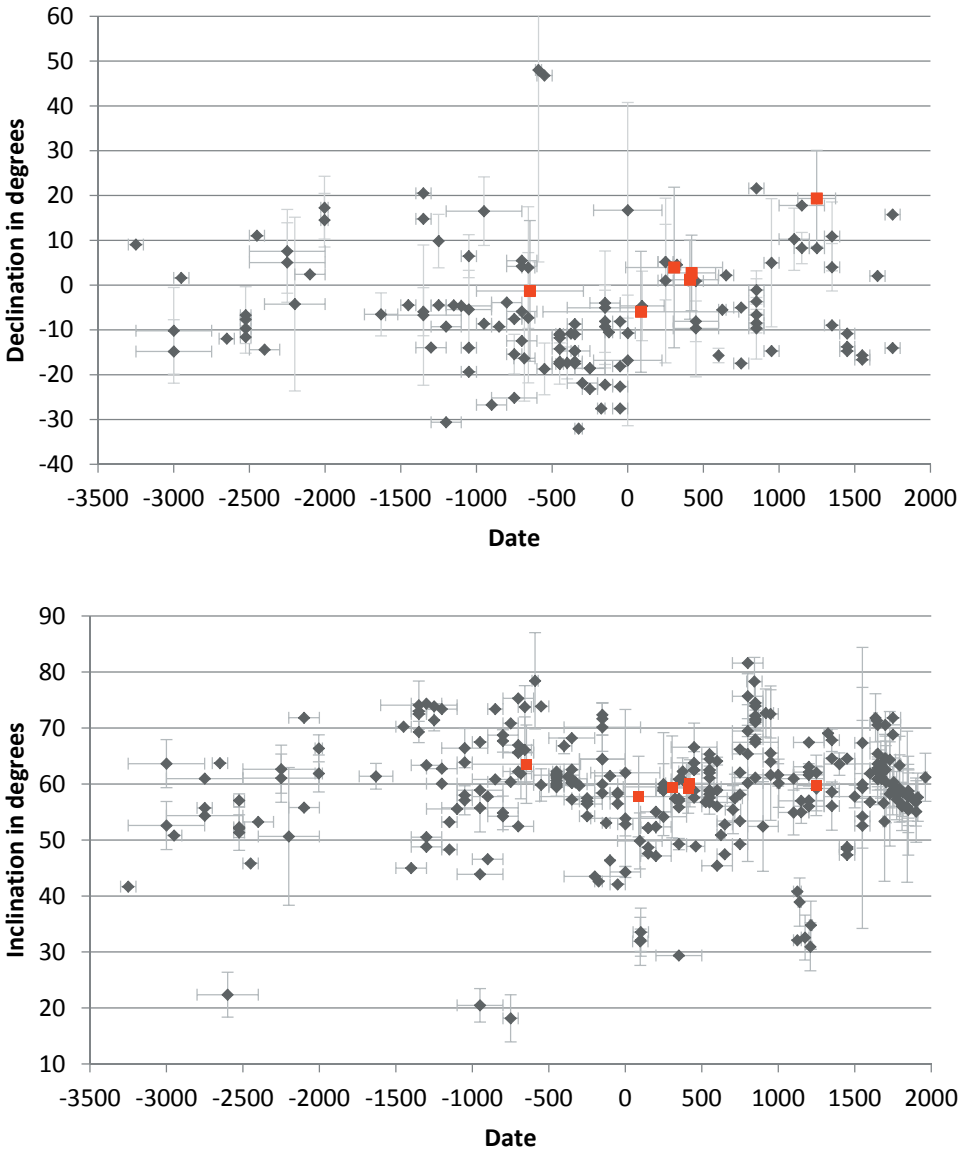


Fig. 23:20: All archaeomagnetic directional data from within 1,000 km of the Dariali Gorge, corrected to Dariali Gorge. Results for this study are shown as red squares.

correlation between the OSL dates and the archaeomagnetic dates for the two contexts where both were carried out, but it should be noted that the experimental uncertainty on both methods are substantial. The data collected contribute to an archaeomagnetic calibration curve for the region and will improve the use of the method on future sites. The mortars investigated are not suitable for archaeomagnetic dating. In addition, the project raised the profile of archaeomagnetic dating in the region and allowed international and local members of the team to be trained in sampling.

23.10. Further work

Whilst this study has fulfilled the objectives, it is clear that additional research would greatly assist in the interpretation of the data and in using archaeomagnetic studies to their full potential. Adding more archaeomagnetic measurements from well-dated sites will improve the precision of the calibrated dates and so, in future it may be possible to obtain more precise dates for the material sampled in this study. As mentioned above, research into global models of the geomagnetic field is a fast-developing topic and it is likely that within the next five years the precision of these models will have improved to a point where they can be used to better interpret the magnetic directions presented here. In addition, collection of samples for measurement of magnetic intensity would add supporting data and be most valuable for geomagnetic studies of the past field. Although there are a significant number of published magnetic directions for Georgia, many were produced over 20 years ago and

so a re-evaluation of those data, and their independent dating evidence would also improve our understanding of the geomagnetic field in the region and thus increase the potential of archaeomagnetic dating.

Notes

1 School of Archaeological and Forensic Sciences, University of Bradford.
2 Batt *et al*. 2017.
3 Jackson and Finlay 2015, 137–84.
4 Batt and Greenwood 2014; Greenwood and Batt 2015; 2016; Kainaat 2016; Kainaat *et al*. 2016.
5 See chapter 24.
6 Korte *et al*. 2009.
7 Clark *et al*. 1988.
8 Hueda-Tanabe *et al*. 2004.
9 See chapters 2.2.8, 2.5 and 18.
10 See chapters 18 and 25.3.1.
11 See chapter 23.4.1.
12 See chapter 8.3.
13 Schnepp *et al*. 2008.
14 See chapter 2.3.
15 See chapters 2.3 and 24.
16 It now appears there was just a single conflagration: see chapters 2.2.2, 2.2.5 and 2.3.
17 See chapters 2.2.2 and 24.
18 See chapter 2.4.7.2.
19 See chapter 2.5. One of the sample sets was recovered by Lisa Snape.
20 See chapter 5.1.
21 See chapter 2.4.7.2.
22 See chapter 3.4.4.
23 Clark *et al*. 1988.
24 Linford 2006.
25 Sagnotti 2013.
26 Hounslow 2006.
27 Tarling and Symons 1967.
28 McElhinny and McFadden 2000, 92.
29 Korte *et al*. 2009.
30 Brown *et al*. 2015.
31 Noel and Batt 1990.
32 Burlatskaya 1961; Burlatskaya *et al*. 1969; 1986; Nodia *et al*. 1971; Burlatskaya and Chelidze 1987; 1990; 1997.
33 Burlatskaya *et al*. 1969; 1986; Rusakov and Zagniy 1973.
34 Burlatskaya *et al*. 1969; 1986.
35 Burlatskaya *et al*. 1986.
36 Chelidze 1965; Saribudak and Tarling 1993; Ertepinar *et al*. 2012.
37 Burlatskaya *et al*. 1969.
38 Hammo Yassi 1987.
39 Burlatskaya *et al*. 1969.

24

Luminescence dating and micromorphological assessment

Lisa Snape and Ian Bailiff

24.1. Introduction

Archaeological excavations at Dariali Fort, and small-scale excavations of field systems identified in the landscape survey, provided the opportunity to apply OSL dating techniques to obtain a chronological framework for the late antique and medieval deposits. Previous application of OSL dating to sediments and soils in the Caucasus region has been limited, with the only few examples applied to fluvial sands and gravels,[1] wind-blown loess[2] and cave sediments.[3] This report provides the results of OSL testing of occupation deposits uncovered from Trench F, Dariali Fort, coupled with micromorphological analysis of key deposits, and two basal field deposits at DPS-6 and DPS-8 which are discussed within the wider landscape context.[4]

Samples

A series of OSL samples was taken from a sequence of deposits uncovered in Trench F at Dariali Fort (Fig. 24:1) and from several field systems identified in the field survey in 2013, 2014 and 2015. To supplement the chronological information provided by the OSL dating evidence, an assessment of the microstratigraphic structure of finely stratified deposits uncovered in Trench F was performed, with the aim of assessing the potential for bioturbation and disturbance of the sediments sampled.

Samples of bone and charcoal were also collected from the Dariali Fort contexts to compare with the results of the OSL dating and archaeomagnetic samples were collected from the same contexts sampled for OSL. Two contexts (F.129) and (F.096) (Fig. 24:1) were interpreted as burnt horizons based on the reddening of soil with frequent charcoal remains and they provided samples for the three dating methods.

Aims

The aim was first to assess the application of OSL dating to coarse grained quartz from the region, and secondly, to contribute to the building of a chronostratigraphic framework for archaeological deposits at Dariali Fort and two nearby field systems.

OSL background

To determine an OSL burial age of a sampled deposit, two main components determined experimentally; the cumulative amount of energy stored in the mineral grains (equivalent dose De), and the dose rate (Dr) to luminescent grains in the sample. An OSL age is calculated using the following equation:

$$\textbf{Burial age}\,(\textbf{years}) = \frac{Equivalent\ dose}{Dose\ rate} \quad \frac{De\ (Gy)}{Dr\ (mGy/year)}$$

Quartz is a commonly occurring mineral which acts as an internal energy 'clock'. During burial, it absorbs energy from ionising radiation (beta, gamma and alpha) from the surrounding sediment, and also from cosmic rays.[5] This energy can be release by heat or light; OSL requires light as the 'zeroing' event. Once buried in the sediment, the luminescence 'clock' is reset and energy builds up within the quartz structure. The date of the burial event is the last time of exposure to sunlight, enabling archaeological sediments to be directly dated.

24.2. Field observations

24.2.1. Introduction

An examination of the sedimentary structure of the contexts uncovered during excavation at Dariali Fort (Fig. 24:1), revealed that sediments modified by a range of anthropogenic processes (*e.g.* mixing, dumping, trampling and heating) and the extensive thick occupational deposits were heavily modified and disturbed. The complex burial history of sedimentary deposits resulted in heterogeneous strata, containing many inclusions, such as rock and heavy

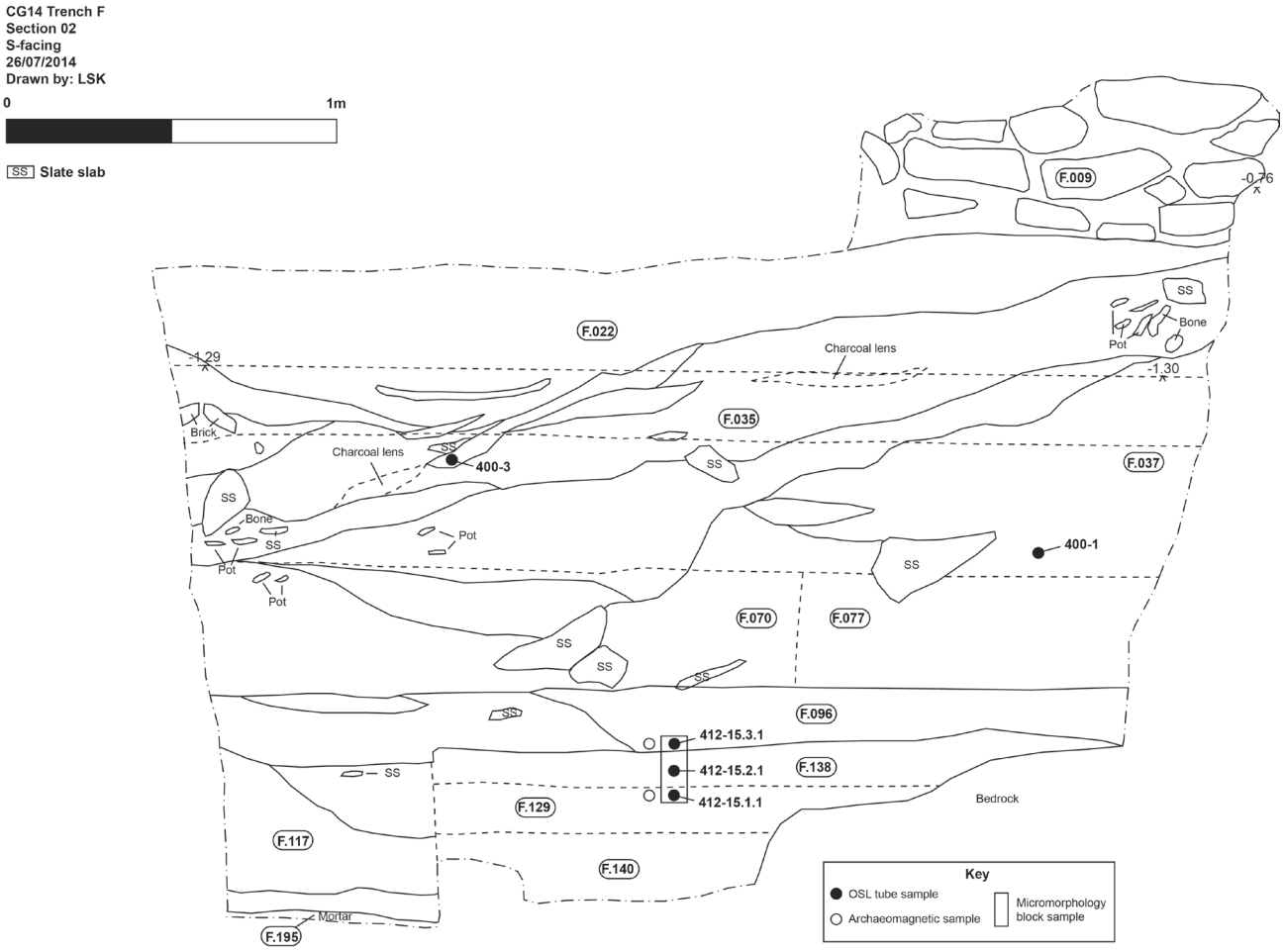


Fig. 24:1: South-facing section through the occupation deposits in Trench F, Dariali Fort.

mineral inclusions, carbonates, hearth debris (charcoal and siliceous aggregates) and heated sediments.

The main contexts uncovered composed of thick midden deposits; including contexts (F.022, F.035, F.037, F.070 and F.077), during the two excavation field seasons in 2013–2014. Two OSL samples, 400–3 and 400–1, were collected using opaque rigid plastic tubes (4 cm in diameter, and 20 cm in length), and wrapped in thick black plastic to avoid exposure to sunlight and loss of moisture. Below the midden deposits, finely stratified layers consisting of floors and levelling layers were uncovered (F.096, F.138 and F.129).[6] Due to the heterogeneity of the deposits (large stones in a silty matrix), a column (approximately 30×5×5 cm) was cut from a small section exposed in the sondage (Fig. 24:2). The location of the column and the OSL samples taken later from within the contexts is shown on the main section to indicate the relationship between the contexts (Fig. 24:1). The column was carefully removed from these deposits, wrapped, sealed and then sub-sampled under subdued red light. OSL sediment samples were stored in black film canisters and the remaining sediments were cut down to size (approximately 7×5×4 cm) and reinforced using Plaster of Paris bandages to prevent disturbance during transport. During the archaeological excavation a number of contexts were amalgamated due to time constraints, but differences in texture, sorting and colour were separated in the section drawings for both environmental and dating sampling purposes (Fig. 24:1). The following section provides brief descriptions of the contexts uncovered by the excavation team during the two seasons.

The deposit at the base of the section examined (as far as excavated in 2014) was context (F.117). This was a moderately compact dark grey brown sandy silt deposit with occasional gravel and charcoal inclusions. Overlying F.117 was F.129, an orange brown poorly sorted deposit with lenses of charcoal and ash; this was covered by a possible packing layer (F.096). The latter was composed of a moderately sorted dark grey brown deposit with some patches of burning and frequent pebble inclusions, which become more finely layered towards the top of the deposit. A large unit of dumped sediment mixed with collapsed construction material and large stones covered

these deposits. One of these contexts (F.037) was a loose mottled grey brown deposit with a sandy silt texture and abundant artefact inclusions. Above this deposit was a complex unit of finely stratified ash and charcoal lenses mixed with loose sandy silt midden material (F.035). Overlying the whole sequence directly beneath a wall (F.009) was a mid-grey poorly-sorted deposit with frequent pebble inclusions (F.022).

24.2.2. Field sampling and measurement procedures

Five OSL samples were collected from a continuous section through the sondage (Fig. 24:1). Samples 400–3 and 400–1 were taken as tube samples in 2013 collected by inserting opaque plastic tubes (20 cm long, 4 cm diameter) driven horizontally into cleaned sections. Samples 412–15.3.1, 2.1 and 1.1 were extracted from the block (Fig. 24:2), which had been carefully removed and sealed in black plastic. Sub-samples were extracted from the centre of tubes and blocks under subdued red light. A 25 g sample was dried, sieved and chemically treated to concentrate pure coarse grain quartz (90–150 μm) for equivalent dose measurements. An additional sample was extracted, weighed and dried for 48 hours at 40°C and reweighed for moisture content (%). The moisture content for the occupation deposits was based on a different sample collected from context (F.117) during the 2014 excavation, as the overlying sediments had dried during exposure between field seasons.

24.2.3. Equivalent dose measurements

The equivalent dose was measured using a single aliquot regenerative procedure (SAR)[7], with additional steps to correct for sensitivity change and thermal transfer.[8] Small aliquots (10–30 grains of quartz) were deposited onto stainless steel discs, and each was tested to ensure a sufficient natural signal was present before the full SAR measurement procedure.

OSL measurements were performed with an automated Risø TL/OSL reader. A calibrated $^{90}Sr/^{90}Y$ beta source was used for irradiation. Optical stimulation using filtered blue light emitting diodes with peak emission at 470 nm was used, and infrared stimulation was provided by IR LEDs to check for the presence of feldspars. The OSL was detected in the UV region using a photomultiplier (EMI9635Q) and filter pack (Schott U340).

Each disc was scanned following the method outlined in Bailiff *et al*.[9] to identify the number of bright quartz grains contributing to the detected OSL, whether from a single bright grain (SBG) or from multiple bright grains (MBG). Two age models were applied, the central dose model (CDM) to optically well-bleached samples, and the minimum dose model (MDM) was applied to those that were redeposited.

24.2.4. Dose rate measurements

Radioactive isotope activities of ^{238}U, ^{232}Th and ^{40}K were measured using a high-resolution gamma spectrometer and converted to dose rate using the most recent conversion factors.[10] The beta dose rate was measured directly using the beta thermoluminescence (βTLD) technique.[11] The cosmic ray dose rate was calculated on the basis of sample depth, geographical position (longitude, latitude) and sediment density.[12] Table 24:1 provides the sample depths and the calculated total dose rate for each sample.

24.2.5. Equivalent dose variability

A measure of overdispersion calculated using the central dose model (CDM) was applied to aliquots containing single bright grains to assess the level of variability in De.[13] Variability can arise from two sources: firstly, the intrinsic quartz characteristics; and secondly the variability in beta dose rate within the sedimentary material and also the incomplete resetting of the quartz grains.[14] Three samples (400–3, 400–1 and 412–15.1.1) were highly dispersed, 45% n=15, 65%, n=6 and 71% n=4, respectively. Sample 412–15.2.1 was moderately dispersed, 31% n=6, and 412–15.3.1 was moderately well-bleached, 27% n=7. The relatively small number of single bright grains found in most samples are caused by low luminescence signal intensities of quartz grains. Sample 412–15.3.1 was relatively well-bleached, and so a central dose model was applied (Fig. 24:3, left). To samples with large overdispersions, a minimum dose model (MDM) was applied, assuming that the lower De values represent the well-bleached component (Fig. 24:3, right).

24.2.6. Micromorphology

Three undisturbed block samples were dried and impregnated with resin to produce a cured block (75×50×3 mm). A representative thick section (~1 cm thick) from this cured block was prepared into a thin section (30 μm thick), which was achieved using precision machinery, involving various stages of cutting, slicing, grinding and polishing (by Julie Boreham, Earthslides, Cambridge, UK), following similar procedures outlined by C.P. Murphy.[15] Each slide was scanned at high resolution (900 dpi) using an Epson perfection V350 photo scanner. Thin sections were examined in Durham using a polarised microscope under plain polarised light (PPL), cross polarised light (XPL), oblique incident light (OIL), between ×4 and ×500 magnification. A series of photomicrographs of key features and deposit types (DT) were taken using Leica software V4.3 (Figs 24:4, 24:5 and 24:6) and slide descriptions followed standardised criteria.[16] Frequency class for the coarse and fine material present in a representative area of the deposit, observed in thin section and the occurrence of pedofeatures, followed Peter Bullock *et al*.[17] In total, six deposit types (DT) were found in the three thin sections, the

Table 24:1: Dose rate data for OSL samples.

Site	*Sample*	*Context*	*Sample depth (m BGL)*	*Total dose rate (Dr)*
Dariali Fort	400–3	F.122	1.38	3.34±0.07
Dariali Fort	400–1	F.037	1.78	3.22±0.06
Dariali Fort	412–15.3.1	F.096	2.28	3.23±0.07
Dariali Fort	412–15.2.1	F.138	2.38	2.92±0.06
Dariali Fort	412–15.1.1	F.129	2.47	3.36±0.07
Tsdo (DPS-6)	412–9.1	4	1.30	2.70±0.05
Qobi (DPS-8)	412–17.2	4	1.15	3.79±0.08

1. Sample depth measured from below the modern ground surface in metres.
2. The total dose rate was calculated by the external beta, internal grain dose rate (0.035 mGy a^{-1} – alpha and beta), gamma (dry) and cosmic dose rate. Corrections for beta and gamma using the average moisture content of 13% were applied to samples from Dariali Fort, 12% for samples from DPS-6 and 13% for samples from DPS-8.

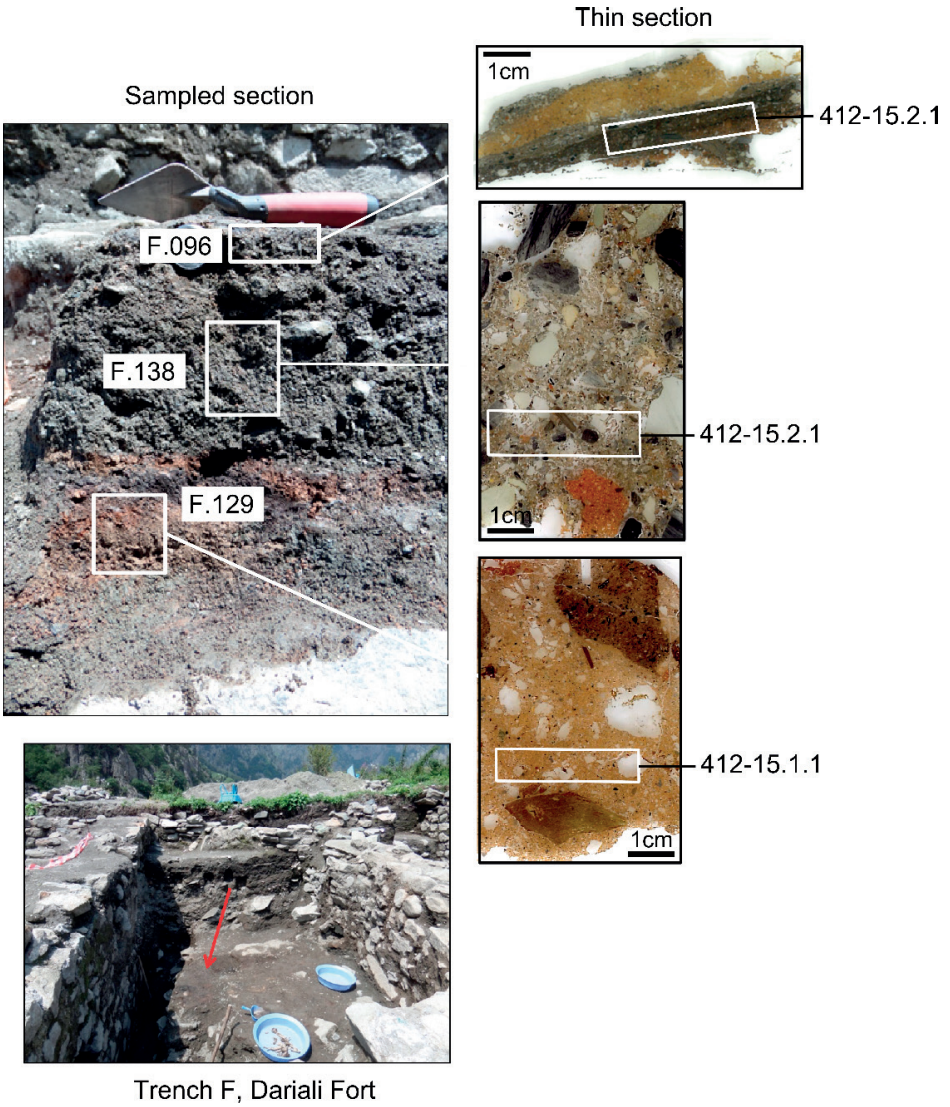


Fig. 24:2: OSL and micromorphological sampling locations collected in 2015 showing the location of the sondage (marked with a red arrow). Three flatbed scans of the micromorphological thin sections are also provided. The numbers indicated on the section photograph related to the OSL samples taken: 1) 412-15.1.1; 2) 412-15.2.1; and 3) 412-15.3.1.

inclusions and features present in each are summarised in Table 24:2.

24.2.7. Micromorphological results

In all deposits from Dariali Fort, rock inclusions were abundant; those found represent the geological signal of the region (metamorphic and igneous rocks). The dominant minerals present, such as feldspar, rutile, quartz and pyroxene, are the products of the chemical weathering of these rocks. Significant weathering was observed, where fissures and fractures had been subsequently infilled by clays. Large fragments of granite rock and degraded carbonate material were present, suggesting that these were remnants of collapsed walls with mortar and other architectural features (Fig. 24:5). Fragments of slate and mudstone were also abundant in these deposits, suggesting that this material was used for roof and building construction, which had subsequently collapsed.

Macro- and micro-charcoal was relatively frequent in most deposits, suggesting anthropogenic burning. Interestingly, occasional charred seeds were found along with frequent charred straw and husk remains (Fig. 24:6.2). These deposits were found as discrete thin units trampled into surfaces and as reworked lumps within occupation deposits. Pollen and grass phytoliths were present along with amorphous organic material. One calcite spherulite was also found which may indicate small scale animal stocking at the site or the deposition of soil originating from nearby pasture land. Other remains of interest, including burnt bone, eggshell and cereal remains, are indicative of domestic activities such as cooking and rubbish disposal (Figs 24:4.2 and 24:4.4). Many fragments of burnt soil/daub were also found in all of the deposits (Figs 24:5.2 and 24:5.3), suggesting that collapsed building material was incorporated into the deposit. All of the pedogenic features found appeared to be reworked. The microstructure of the deposits examined indicate different depositional histories, ranging from rapid deposition during a collapse event to compaction and trampling of floors and occupation surfaces during periods of stability.

24.2.8. OSL dating results

The OSL burial ages were calculated using the burial age equation provided (Table 24:3).[18] The samples were mainly dominated by low signal intensities, making it difficult to detect quartz grains with sufficiently bright signals. Most of the samples were partially reset by anthropogenic processes, and only a small proportion of grains were fully bleached. In such situations, the minimum dose values were assumed to form the well-bleached component of the sample (Fig. 24:3, right). Only sample 412–15.3.1 was considered to be well-bleached as De values formed a central dose distribution (Fig. 24:3, left). Outliers, particularly those of high doses potentially incorporated by anthropogenic disturbance, and low doses originating from quartz with unstable characteristics were excluded from the analysis.

24.3. Discussion

The micromorphological assessment of key archaeological contexts (F.096, F.138 and F.129) related to late antique occupation of the site revealed a range of interesting components and features not visible during excavation in the field. Micro-debris originating from domestic waste such as grass ash, bone, charcoal, ceramic fragments and degraded construction material appears to have been reused to form levelling layers. Combustion material above rubified substrate was identified, indicating small-scale burning event(s). Overlying this, a number of inclusions (burnt bone and charcoal) appeared to be pressed into the surface showing internal parallel organisation indicative of trampling either by people or animals. Frequent grass remains and ashes suggests burning of organic material in the form of turfs or dried animal dung at the site. Frequent slate and rock clasts present in the sediment suggests a collapsed roof and subsequent remobilisation of architectural materials at the site to form thick levelling layers. Such complex stratigraphy, with multiple phases of deposition, dumping and anthropogenic disturbance, suggests that the site was intensively occupied during the late antique period. Similar complex depositional processes found in deep medieval urban sites in England have been intensively studied.[19] The micromorphological assessment does not aim to provide a comprehensive study of the depositional processes at play across the site, which would require analysis of a wider range of different deposits and phases, instead, the observations provided here are used to supplement the OSL analysis.

The complex depositional processes and the occurrence of inclusions of varying radioactivity[20] can have an effect on the assessment of the dose rate. The thin sections revealed that the heterogeneous nature and variable coarse and fine components present were not uniformly distributed within the sediments. The quartz from the region displayed low luminescence intensities which meant that single bright grains were difficult to detect, and these are of key importance when analysing partially reset deposits. The quartz derived from various deposits in this geologically young mountainous region was dominated by volcanic-derived sources with limited cycles of erosion, deposition and transportation, characteristics that often cause OSL age underestimation. This complex characteristic has implications for sediments with grains that were not fully reset at deposition, as found in both basal field deposits and the occupational deposits at Dariali Fort.

As a result of these complexities, only a small number of samples from Dariali Fort produced sufficiently reliable data for OSL age calculation. However, OSL provides

Table 24:2: Micromorphology summary.

				A								*B*		*C*				*D*		
Slide	*Deposit type*	*Munsell colour*	*Boundary*	*Quartz*	*Feldspar*	*Rutile*	*Pyroxene*	*Amphibole*	*Basalt*	*Slate/mudstone*	*$CaCO^3$*	*Fine mineral material (PPL)*	*Birefringence Fabric (XPL)*	*Charcoal*	*Fungal spores*	*Seeds/straw frags*	*Pollen grains*	*Fine organic material (black particles)*	*Amorphous (red/brown)*	*Amorphous (yellow)*
3, 2	1	10YR4/2	S	*	*	*	°	°	*			DBS	SS M SS LM	***		***		**		
2	2	10YR5/4	G	**	*	**	*		**	***	**	LBS		**	°			***		*
3	3	10YR3/6	S	**	**	*	*		** **	*		DOBS	SS LGS	***				***		
1	4	10YR5/1	G	**	***	*	*	*	*	***	**	LBS	SS GS SS LM	***				***		
3	5	10YR3/3	S	***	*	°	*	*	*	*	*	DBS		***		*	°	***	*	*
3	6	10YR4/6	S	*	*	*			*	*	***	LBS	SS					**		**

1. Frequency class for inclusions: ° trace (<1%), * very few (1–5%), ** few (5–15%), *** frequent (15–50%), **** dominant (>50%).
2. Frequency class for pedofeatures: ° trace (<1%), * rare (1–2%), ** occasional (2–5%), *** many (5–10%)
3. Boundary: Sharp (S); gradual (G)
4. Coarse mineral component (>63 μm) (A); fine mineral material (<63 μm) (B); coarse organic component (>63 μm) (C); fine organic component (<63 μm) (D); other inclusions (E); pedofeatures (F); microstructure (G).
5. Fine mineral component: dark brown speckled (DBS); light brown speckled (LBS); dark orange brown speckled (DOBS)
6. Birefringence fabric: stipple specked (SS); locally (L); microcrystallitic (M); grano-striated (GS)
7. Microstructure: subangular blocky (SB); vughy (Vg); granular (G); channel (Ch); fissures (F); planes (P)
8. Coarse mineral arrangement: random (R); parallel (P)
9. C/F related distribution: porphyritic (P); open (O), closed (C), single spaced (SS), loose (L)

Table 24:2: (Continued)

E					*F*							*G*		
Bone (burnt/unburnt)	*Eggshell*	*Phytoliths*	*Ceramic*	*Ashes*	*CaCO3 hypercoatings*	*Dusty clay coatings*	*Limpid clay coatings*	*Soil aggregates*	*Rubified mineral*	*Fe/Mn nodule*	*Earthworm granules*	*Microstructure*	*Coarse material arrangement*	*C/F related distribution*
◦		***		**				*	*			SB, Vg	R	OP
			*		*		*	*	*	*		SB, G,Vg	R	CSSP
		*						*	***	***		Ch, Vg	R	CSSP
							**		*	**		Vg, Vs	R	CSSP
	*	*		*	*	*				*	◦	F, Ch, P	P	LP
*										**		SB, Vg	R	LP

Table 24:3: OSL dates and associated errors.

Sample	*Context*	*Calculated age (years)*	*OSL date*	*Overall Uncertainty (years)*
400–3	F.022	904	AD 1111	154
400–1	F.037	926	AD 1089	138
412–15.3.1	F.096	1240	AD 775	120
412–15.2.1	F.138	1462	AD 553	198
412–15.1.1	F.129	1426	AD 589	163

1. The calculated age is based on the reference year AD 2015.
2. Uncertainty errors are given at a 68% level of confidence (1σ)[1]

[1] Aitken 1985.

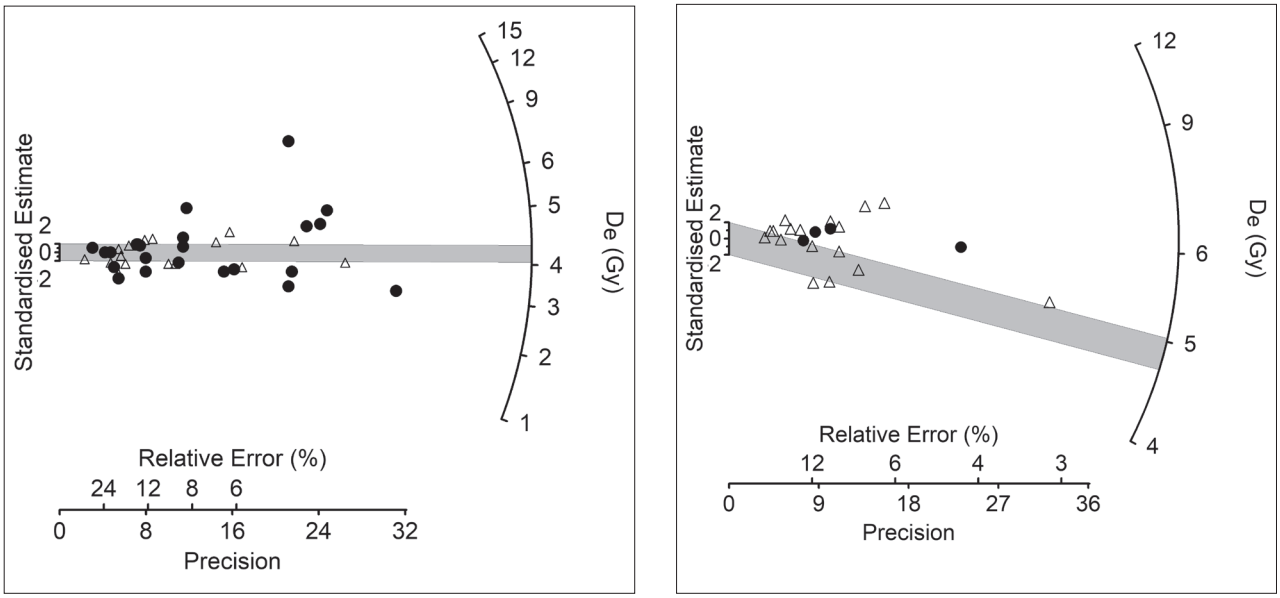


Fig. 24:3: Two examples of radial plots used to display De values, associated errors and level of precision. A) Well-bleached distribution (sample 412-15.3.1) with the central dose model (CDM) (grey region) indicated, the calculated De value is 4.22 Gy. B) Poorly-bleached sample (412-15.1.1) with a large spread in De values with the minimum dose model (MDM) indicating a De value of 4.72 Gy. The closed circles represent aliquots with dominant single bright grains, and the open triangles are aliquots with 2 to 4 bright grains.

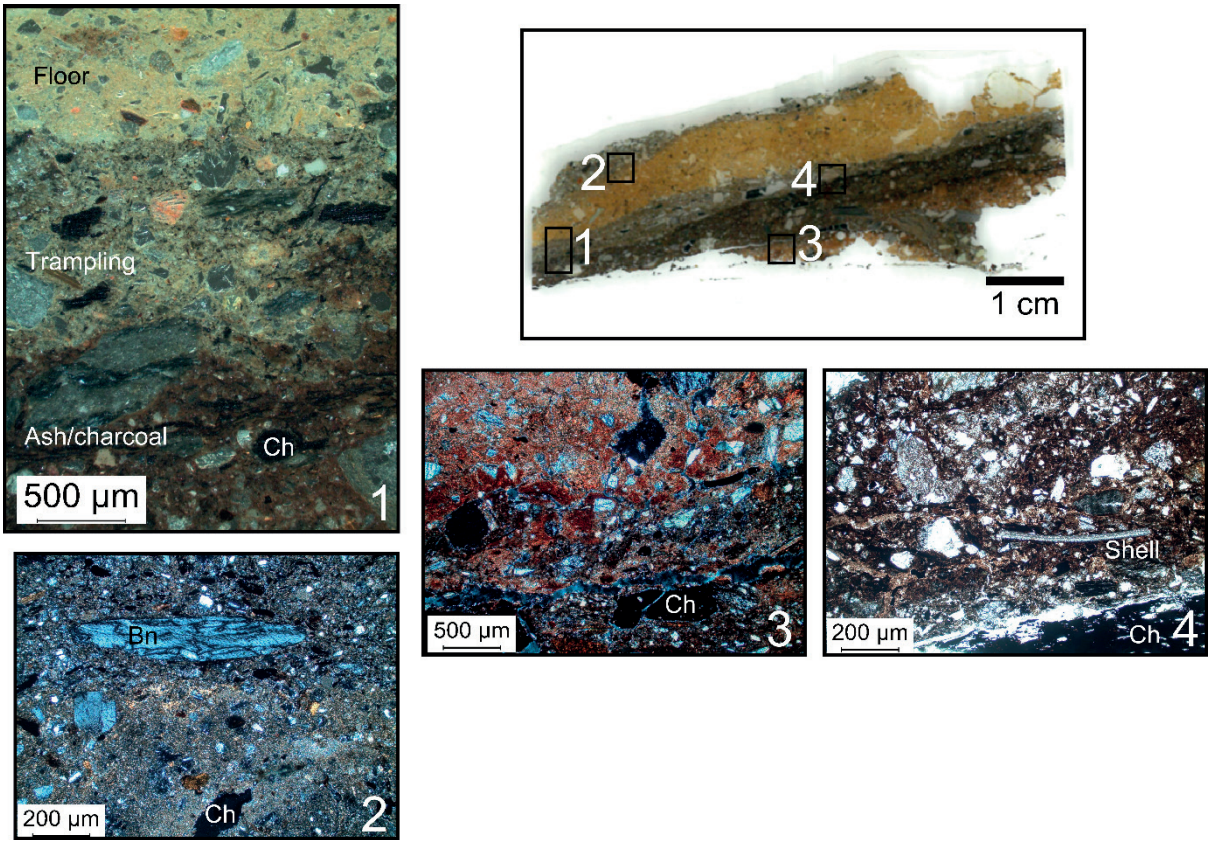


Fig. 24:4: Finely stratified deposits (F.096) showing selection of photomicrographs of key features, flat bed scan showing the microstratigraphy (top right). 1) Photomicrograph of section through microstratigraphic layers showing ash/charcoal (DT1), trampling, with layered inclusions such as shell and bone, (DT5) and compact floor/surface above (DT6) OIL. 2) Photomicrograph of bone fragment in ash later (XPL); 3) Photomicrograph of charcoal and overlying rubified burnt soil (XPL) (DT3); 4) Photomicrograph of trampling later with well-orientated parallel organic remains and eggshell (PPL). (DT = deposit type; OIL = oblique polarised light; PPL = plain polarised light; XPL = cross-polarised light.)

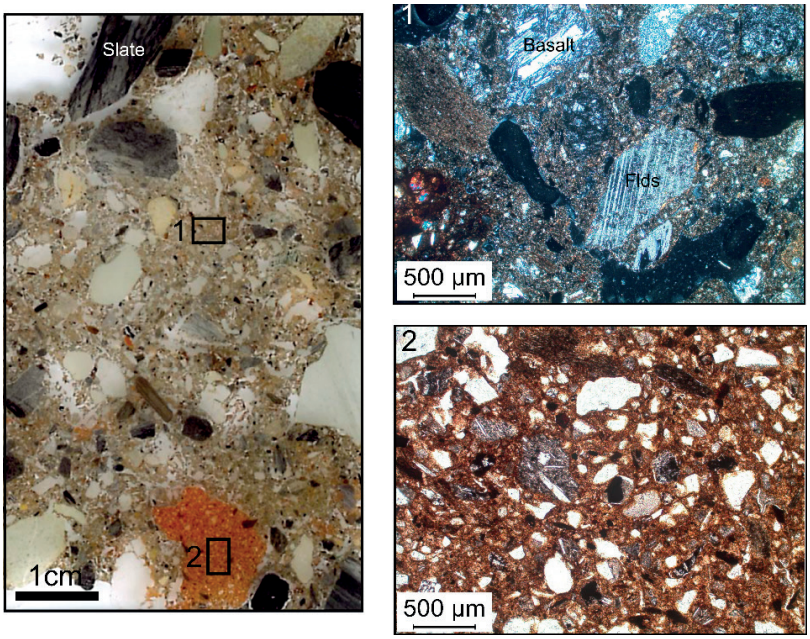


Fig. 24:5: Collapsed heterogeneous deposit (F.129). Thin section of context (F.129), flat bed scan of collapsed material containing soil aggregates and frequent rock fragment (left). 1) Photomicrograph of minerogenic-rich coarse and fine material showing complex mineralogy and vughy microstructure (DT4) (XPL). 2) Photomicrograph of soil aggregate showing relatively well-sorted inclusions of quartz minerals and basalt rock fragments (PPL).

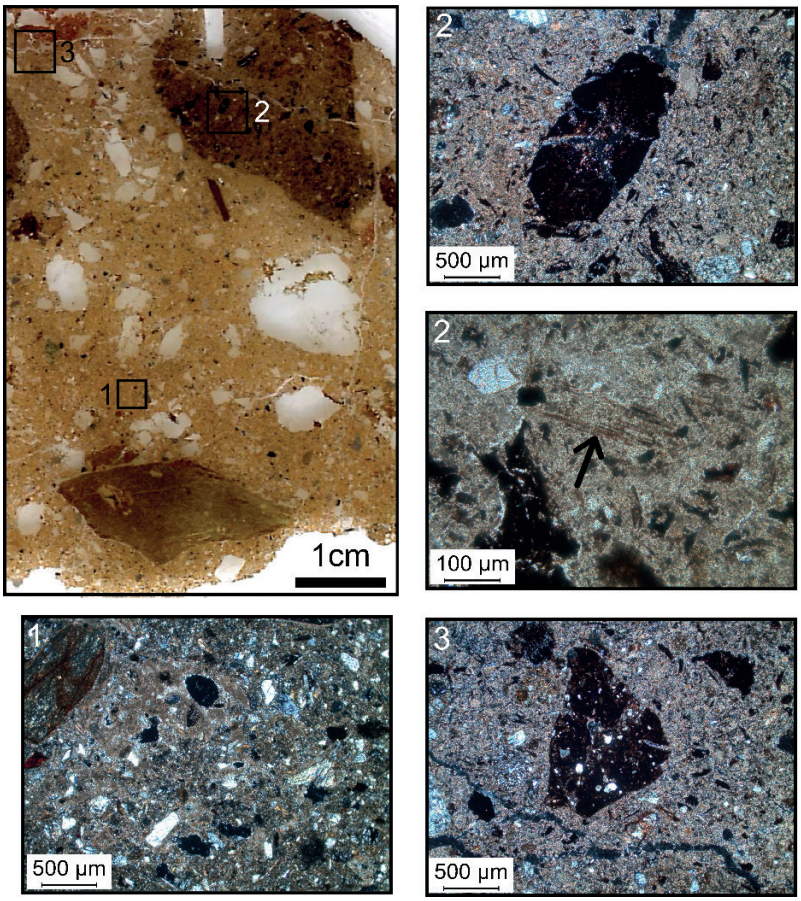


Fig. 24:6: Compacted occupation deposit with redeposited carbonate, burnt aggregates and ashes/charcoal from (F.129) (bottom). Flatbed (top left) scan of lowermost part of context (F.129), showing compacted occupation deposits with reworked carbonates, ashes and rock fragments. 1) Photomicrograph of DT2 showing carbonates and frequent rock and mineral inclusions (XPL). 2) Photomicrograph of ash and charcoal reworked aggregate containing grass phytoliths and seeds in ashy matrix (DT1) (top: XPL, bottom: PPL). 3) Fragment of ceramic found in ash deposit (XPL).

a direct measure of the burial period of the occupation deposits and has the advantage of detecting mixing and disturbance of sediments. This has implications for other dating techniques, for example radiocarbon of small short-lived mobile material such as seeds. The OSL dates obtained, ranging from the sixth to twelfth centuries, may indicate sediment redeposition. The chronostratigraphy suggests that two metres of sediment was deposited within approximately 500 years in the intramural outdoor yard in Trench F examined here, and that the site had been intensively occupied in Late Antiquity and the Early Middle Ages.

Notes

1 Suchodoletz *et al.* 2015; 2016.
2 Pánek *et al*. 2012.
3 Pinhasi *et al*. 2008.
4 See chapters 10.5.2.1, 10.5.2.4, 10.6.1–10.6.2, 10.7: DPS-6 and DPS-8 and 10.8.
5 Feathers 2008.
6 See chapters 2.2.5–2.2.6, 2.3, 2.4.3 and 2.4.5 on the deposits examined.
7 Murray and Wintle 2000; 2003.
8 Bailiff *et al*. 2015.
9 Bailiff *et al*. 2015.
10 Guérin *et al*. 2011.
11 Aitken 1985.
12 Prescott and Hutton 1994.
13 Galbraith *et al*. 1999.
14 Duller 2008.
15 Murphy 1986.
16 Bullock *et al*. 1985; Courty *et al*. 1989.
17 Bullock *et al*. 1985.
18 See chapter 24.1.
19 Macphail 2010.
20 Calcitic ashes, for example, have relatively high potassium (40K) content. See Mercier *et al*. 1995.

SECTION D

History

25

The history of the Dariali Gorge

25.1. Prehistoric colonisation, Cimmerian invasion and the earliest visits to Dariali Rock (third millennium to third century BC/up to Phase 2a)

Few sites in the ancient world have rivalled the strategic significance of Dariali Gorge. The Caucasus, Europe's highest mountain range, served as a natural barrier separating the steppes of Eurasia from Transcaucasia and the wider Near East. There were few viable routes across, and Dariali and the coastal route along the Caspian Sea's western shore were the most important. Their control was vital in safeguarding the emerging realms of Iberia, Albania and Armenia, as well as the Fertile Crescent to the south, from the threat of mobile forces from the north. Such unique military importance and its high alpine otherworldly grandeur eventually made Dariali Gorge the most famous mountain valley in the ancient and medieval worlds.

Few traces of the region's prehistory or early history have come to light. Exceptions include the discovery of pottery of the third millennium BC at Tkarsheti, some 8 km south-west of Stepantsminda, or the Achaemenid-era 'Kazbeg Treasure'.[1] The dynamic environment and the particular processes of construction in this high mountain zone no doubt account for the paucity of evidence. With frequent massive landslides, rockfall and floods, any sites safe from natural disasters, and with access to land suitable for growing crops, proved magnets for occupation. Defensible hilltops were particularly attractive, and successive occupants often cleared away sediments and earlier debris before constructing new stone walls. This provided greater stability to the buildings, but erased evidence for earlier occupation.

Information on prehistoric human presence and impact on the landscape has, however, been preserved at waterlogged locations. The work by Lyudmila Shumilovskikh has succeeded in retrieving pollen cores to the south of modern Stepantsminda that go back some two millennia before the earliest written records and before the first archaeological material recovered in the course of our project. These damp deposits provide a unique glimpse into Dariali's dark prehistory. Fires burning in the mid- to late third millennium BC may well have been lit by humans, to clear forest or for domestic purposes, and herbivores were grazing meadowland. Between the late third millennium and the later second millennium BC, agriculture may already have been practised at the southern approaches to the gorge. From the late second millennium BC onwards, forest pollen decreases. Charcoal concentration, suggestive of forest clearance by fire, reaches an all-time climax around the turn of the millennium or in the early first millennium BC, followed by a dramatic reduction in tree pollen (its proportion falling for the period of c. 850 BC – AD 1000 to roughly half of what it had been for the previous one-and-a-half millennia). This may in part be climate-related, but Shumilovskikh observes an increase in crop and weed growth around the ninth century BC – a clear sign that human occupation was gathering pace.[2]

The Caucasus, difficult to cross even in more recent times, would have been much more impenetrable when its valleys were overgrown with virgin forest and any traveller venturing into the wilderness lacked easy access to food.[3] The intensification of human occupation around 850 BC created the conditions for the movement of larger groups through the gorge, now being able find food en route. Increased human settlement in the Stepantsminda area may well have gone hand in hand with the exploration of less hospitable valleys, resulting in traffic routes being created or improved across the mountains. It is perhaps no coincidence that it was not long after pollen data indicate an increase in human activity that the first recorded significant population movement may have passed through the gorge. In the late eighth century BC, invaders from

the steppes of Eurasia, the Cimmerians and Scythians, reached the Near East, and it has been plausibly suggested, following Herodotus, that a number of these people had used the route via the Dariali Pass.[4] This was the first major migration via Dariali recorded by classical writers and it is difficult to reconstruct the precise travel routes. It is at least a tantalising possibility that human settlement expansion in the early first millennium paved the way for the Dariali Gorge becoming a Transcaucasian travel and invasion route – indeed for alerting people on both sides of the imposing mountain chain to the existence of land on the opposite side and of a way of making it across.

Cereal cultivation reached a first peak around the fourth century BC,[5] and it was no later than the early fourth century BC, although perhaps already in the fifth or sixth century BC (phase 2a), that a fire was lit at the base of the rock that was later crowned with Dariali Fort. At the same spot, a further fire may have burned in the fourth or third century BC, but it is also possible that it was part of the same fire if the earlier sample was from old wood. The spot next to the base of the rock could have provided a good overnight campsite for travellers, safe from flooding and rockfall and near a narrow passage on the route through the gorge. It is less likely that the campfires at the foot of the rock are the first signs of permanent occupation. Is it possible that there already was a settlement on Dariali Rock, but that passing strangers were forced to camp outside? Lack of all evidence for contemporary occupation or agriculture from our trenches rather points to the campfires predating any permanent occupation nearby.[6] What is clear is that by the fourth century BC at the very latest – and more probably already for a few centuries before – Dariali Rock (Fig. 25:1) was on a travelled route and no longer in unexplored virgin forest.



Fig. 25:1: The earliest archaeological evidence for humans travelling past Dariali Rock (seen from the south) dates back to between the sixth and fourth century BC.

25.2. From obscurity to world-fame: Iberians, Iranians and Romans in the Dariali Gorge (Phase 2b: second century BC to fourth century AD)

When did humans start to live permanently on Dariali Rock? The tenth-century author Mas'udi claims that Dariali Fort had been built by the mythical Persian prince Esfandiar[7] – perhaps correctly reflecting that the Persians had indeed built (if only in the late fourth to early fifth century AD) the fort that still stood in Mas'udi's days. Oliver Wardrop reports local traditions linking Dariali (if not the fort specifically) with the Achaemenid King Darius I (r. 522–486 BC) – this alternative myth of very ancient Persian influence undoubtedly based on a misinterpretation of the etymology of its name.[8] It was the Amazons who dwelled at this mythical rocky place, the *Pylae Caspiae* in the Caucasus, if we follow the sixth-century historian Jordanes – an appropriate abode for this race of female warriors thought to originate in the wilderness of the steppes of Eurasia. In Jordanes' tale, it was at a rock named after the Amazon queen Marpesia that Alexander the Great subsequently built the Caspian Gates.[9] Jerome and Procopius echo the attribution of the gates in Dariali Gorge to Alexander the Great (r. 336–323 BC), who had never been anywhere near it. These ancient authors clearly refer to Dariali in the Central Caucasus, but Alexander's legendary gate was also equated with other major northern barriers, such as the Caspian Gates in the Alborz and the Gorgan and Derbent Walls – only the first of which had indeed been on the king's itinerary.[10] According to the late antique Syriac tradition, Alexander had built the famous gates (with the support of up to 7,000 Egyptian smiths) and commissioned a building inscription that prophesied the future Hunnic incursions into Roman and Persian territory. The vital barrier, built by Alexander acting as the agent of God, was fated to be destroyed by the Almighty, unleashing a flood-wave of Huns onto all peoples of the earth – the prelude to the end of the world.[11]

Leaving aside such outlandish foundation myths, the medieval *Kartlis Tskhovreba* (*Life of Kartli*) provides the earliest dated event related to the site. King Mirvan I

(r. 159–109 BC?) reportedly blocked the gates with a mortared stone wall.[12] This second-century BC dating proposed in medieval literature is half a millennium older than all archaeologically dated mortared walls at Dariali found so far. One is inclined to think it was a surviving late antique mortared stone wall (probably the road-blocking wall west of Dariali Fort or possibly the Bakht'ari ridge-top wall),[13] that inspired the note in the *Kartlis Tskhovreba*. An existing monument will have been retrospectively attributed to the Iberian king, whether built from scratch or, more probably, replacing an earlier and more basic barrier. In all probability, however, there is a core of truth in the medieval Georgian chronicles. Any successful invasion would have affected Iberia first, and the natural gates may well indeed have been first controlled by the Iberians. When precisely the Iberians established control, when they first built a barrier and what it looked like is unknown. Interesting in this context is the discovery of pottery attributed to the first millennium BC (as well as medieval ceramics) and a bronze ear scoop, thought to date to the fourth century BC, when parts of the road-blocking wall were blown up in the course of pipeline construction in the early 1960s. Little is known about these findings, potentially as early as our campfires, and they do not prove that permanent settlement and traffic control reach back so far.[14] As we will see, written evidence suggests that the Iberians were in control at the very latest by AD 35 and an artificial barrier and a fort existed by the AD 70s. Yet, these dates may be reflecting the time when the gorge came to the attention of Roman authors rather than the earliest defensive efforts. A gate controlled by local powers dating back to the second century BC, before the Roman sources (Tacitus and Pliny) became aware of them, is certainly possible.

King Mirvan I's construction of a gorge-blocking wall is one of the earliest events or myths associated with Dariali Rock, but it was recorded only in the Middle Ages and is far from the earliest written source. Around the turn of the millennium, classical authors first became aware of the remote mountain pass through the Central Caucasus. Strabo (c. 62 BC – AD 24),[15] arguably the earliest author to specifically refer to the route across the Dariali Pass, describes a seven-day journey from nomad land into Iberia, so narrow that it reportedly required single-file traffic for four days. It is tempting to think that the unconquerable fortification (*τεῖχος δύσμαχον*) at its end was Dariali Fort. Strabo's geographic description admittedly implies a site much further south, seven days' march from nomads' land, including four days along the Aragos (Aragvi) River in a southerly direction. As there are evidently mistakes in the semi-legendary account, we cannot be sure whether greater significance should be attributed to the locational information or the emphasis on the walled site's key position and impregnability.[16]

Irrespective of how to interpret the account, it is probable that there was occupation on Dariali Rock in Strabo's days.[17] A little later, the gates were reportedly under Iberian control, with Iberian influence reaching beyond. In AD 35, the Iberians summoned Sarmatian/Alan reinforcements from beyond the Caucasus along the *Caspia via* (the route through the Dariali Pass) – whilst at the same time preventing hostile forces from crossing. They were helped by nature at the time, as the only other viable route, at Derbent, was reportedly flooded by the Caspian Sea. It was with the support of their northern allies that the Iberians and Albanians were able to inflict a decisive defeat on the Parthian army in Armenia. Evidently already in the first century AD, the Caucasus could effectively be sealed off, and the Iberians were in control of its central range.[18] This suggests the existence of some kind of barrier, and Dariali Rock would have provided the most obvious safe retreat for a garrison guarding the narrowest part of the gorge. Pliny the Elder (23/24–79) tellingly states that the *Portae Caucasiae* (the Caucasian Gates), are the *Portae Hiberiae, i.e.* the Gates of Hiberia/Iberia[19] or the gates to the territory under Iberian control, at their northern frontier.

According to Josephus' *Jewish Antiquities*, the northerners who had crossed the Caspian Gates with Iberian consent in AD 35 were Alans.[20] Even if this work was only completed in the AD 90s, this statement seems credible. It is common in classical literature for known ethnonyms and umbrella terms, such as the Scythians or Sarmatians, to be used, until subgroups, such as the Alans, became more widely known. Only then do they slowly begin to appear in writing, whilst the traditional ethnonyms often continue to be used simultaneously for decades or centuries. The Alans may well have settled in the Northern Caucasus already in the AD 30s, and quite possibly before, even if Tacitus uses the term '*Sarmatae*',[21] more likely to be known to his readers. Lucan, who died in AD 65 (a generation earlier than Josephus' testimony) and dedicated his work to Nero (r. 54–68), attests that the warlike Alans lived in the vicinity of the *Caspia Claustra* ('the Caspian Barrier'),[22] and it may have been the Alani rather than the Albani[23] who were the target of Nero's planned military campaign, which will be explored shortly. In the second century Ptolemy named the gates after the Sarmatians, whom we already encountered north of the gates in AD 35. Although ancient authors frequently attribute inhabitants of the steppes of Eurasia to broad ethnic groups and must be approached with caution, the famous geographer significantly locates the gates at the borders of Iberia.[24] Much more frequently, the gates bore the name of the Alans (widely considered of eastern/Iranian origins and overlords over subgroups of the Sarmatians[25]). Indeed, it was the Alans who gave Dariali its Persian name (*Dar-i-al*, literally translated 'the Door of the Alans'), featuring on Sasanian inscriptions[26] in the third century and in Islamic sources of the Early Middle Ages and still the gorge's name in the twenty-first century. This ethnic group settled north of Dariali for a millennium beyond the first century AD (and indeed until the present

day, if now known as the Ossetes). The name does not signify Alan or the Sarmatian ownership of the gates, as rightly observed by Davit Mindorashvili.[27] Even if the sources suggest that there was an episode of Alan control in the mid-first millennium and that there might potentially have been another towards the end,[28] most specific records imply that they were normally under the aegis of Iberia – or whichever power controlled Iberia or parts thereof – for most of the first millennium. Dariali provided a gateway to and for the Alans[29] (and more broadly all Sarmatians), but the gatekeepers were generally southerners.

Whilst still at the margins of Rome's orbit in the early first century AD, the gorge soon gained fame throughout the Mediterranean and Near Eastern world. It was the target of a planned campaign by Nero,[30] who withdrew from Britain the Fourteenth Legion, battle-hardened and famous through its role in crushing Boudicca's rebellion,[31] joined by eight Batavian cohorts.[32] He even raised a new legion for this expedition, with the telling, if unofficial, name, 'the phalanx of Alexander the Great' – implying that already then the pass was associated with the famous Gates of Alexander.[33] It is possible that an advance force had even reached the gates (*Claustra Caspiarum*).[34] Leonardo Gregoratti advances the hypothesis that the expedition aimed at Rome gaining control of over, and stationing troops at, the Dariali and Derbent Passes.[35] Whether direct or indirect control was envisioned, the emperor's ambitious plans were terminated through his early death in AD 68, but not Rome's strategic interest in the Caucasus.

In AD 72/73, the Alans launched a major invasion that was severe enough for the Parthian King Vologases I (r. 51–79) to seek (in vain) Roman military support. The route taken has been the subject of much debate. Josephus reports that it led across a mountain pass secured by Alexander with Iron Gates, with the approval of the Hyrcanian king (implying the Alans crossed the Alborz Mountains),[36] but they may have invaded via the Caucasus with approval of the Iberians,[37] via the Dariali Pass specifically[38] or, least probably (as neither under Hyrcanian nor certain Iberian control), via Derbent.[39] The first option can most easily be reconciled with the information provided by Josephus, notably also as Media was reached first and Armenia second.[40] A certain decision between an invasion via the Alborz Mountains or Dariali is, however, not possible. Josephus locates the home of the Alan invaders on the banks of the River Tanais (Don) and the Maiotis Lake (the Sea of Azov). If so, an invasion via Dariali seems indeed much more likely and may well explain why there was so much strategic interest in Iberia at the time. That the Alans, as already observed, are attested to have settled north of Dariali from the mid AD 60s at the latest and gave Dariali its name is a further powerful argument for assuming the invasion went via Dariali. A detour from the Black Sea shore or the Northern Caucasus around the Caspian Sea is hard to imagine. We cannot be sure, of course, if Josephus was broadly right in pinpointing the origins of the invasion and the ethnicity of the invaders and wrong in claiming it went via Hyrcanian territory or vice versa. A passage in the *Kartlis Tskhovreba* claims that the Iberians imprisoned the Armenian Prince Zaren on Dariali Fort in the course of a war against the Armenians, in which the Alans fought with the Iberians. Whilst the account was written centuries later and is very confused, the context suggests it may refer to events in the wake of the Alan invasion of AD 72/73. If so, the account offers support for the theory that the Alans indeed used the Dariali route, that the Iberians had granted permission and that there was already a solid fort, under Iberian ownership, on the rock at the time.[41]

A building inscription of AD 75, found south-east of Mtskheta, attests to Roman involvement in strengthening of walls, probably those of parts of the conurbation of Armazi/Mtskheta, Iberia's central city, where the road from Dariali crossed the Kyros (Kura/Mtkvari) River.[42] Should the Alans in AD 72/73 indeed have invaded via Dariali, their likely route would have gone past the Iberian capital, perhaps explaining why additional defences were thought necessary. Yet, the hypothesis that the invaders used the Dariali route is based on the assumption that it happened, not as stated with the approval of the king of Hyrcania, but that of Iberia. If correct, the Iberians were (as in AD 35) thought to have the power to stop or enable northern raids across the Central Caucasus. The heart of their kingdom was only in danger, if they failed to be vigilant, if their control over movement through the gorge was less watertight than the sources imply or if any invaders admitted through the gates decided to turn against their benefactors (rather than raiding targets outside Iberian territory). It is best not to speculate any further as to the invasion route of AD 72/73 and the construction works of AD 75, beyond acknowledging that there might be a connection and that the northern threat already loomed large in the AD 70s. Transcaucasia, wedged between the northern steppe world and Parthia, Rome's eastern rival, was a strategic asset.

With Dariali being the target of Nero's planned military campaign, it perhaps providing the Alans with an invasion route deep into Parthian territory just a few years later and the approaches to Dariali seeing Roman engineers in action, there can be no question that the gorge was propelled into the political limelight in the AD 60s and 70s. During this time, when Rome's interest in the Caucasus region had reached its first climax, Pliny the Elder (AD 23/24–79) produced an impressively detailed description of the now famous gates, probably informed by intelligence Rome had gathered during its operations in Iberia:

> 'Next, there are the Caucasian Gates, called in great error by many the Caspian [Gates], an enormous natural monument where there is an abrupt break in the mountains and where gates, of iron-covered timbers, have been installed. Centrally underneath them flows a rapid river of horrible smell, whilst on the defenders' side there is a small fort on a rock, called 'Cumania', fortified to hold back

> innumerable tribes from crossing [the mountains]. Here, lying opposite notably the Iberian town of Hermastus,* the world is divided by gates.'[43]
>
> * Hermastus (Harmozike/Armazi) forms part of the conurbation of Mtskheta[44] and lies to the south of the Kyros (Kura/Mtkvari) River, on the side opposite the centre of Mtskheta. The findspot of the above-cited building inscription of AD 75 appears to have been in the vicinity of Hermastus, perhaps explaining why Pliny placed so much emphasis on this site.

Except for the untrue claim that the waters of the river have a horrible smell, perhaps inspired by sulphur springs in the region (Fig. 25:2),[45] Pliny's description is remarkably accurate if, as seems likely, it refers to Dariali Fort. Everything else would fit: its location opposite Hermastus, the mountains abruptly breaking apart here and a defensible rock being located next to a fast-flowing river (Fig. 25:3–25:4). The Tergi/Terek River is of a width that it indeed could have been bridged by timber gates, perhaps opened when water levels were high and closed when they were lower, to make any break-through attempts even more difficult.

Even Pliny's Latin term for the defended compound at Cumania, *castellum*, would be appropriate for a smaller complex like Dariali Fort, rather than a large fortress or a tiny fortlet.[46] Julius von Klaproth claims that little was left of Dariali Fort already in the early nineteenth century as, during construction of the modern military road, parts of the rocks on which it stood were blown up. No doubt, rock formations in the area were destroyed when the military road was built more than 200 years ago,[47] but the survival of Dariali Fort's outer walls proves that the fort was unaffected and that the plateau on top is as large today as it had been in Antiquity. Klaproth was probably right in so far as the fort itself was partially destroyed through explosives, to prevent rebel reuse, but not the rocks it was standing on.[48] Pliny appears to be conscious of Cumania being smaller than hundreds of Roman forts for a typical infantry *cohors* or cavalry *ala*, let alone a legionary fortress. His belief in the small rocky stronghold's ability to prevent 'innumerable tribes' from crossing the Caucasus, when at other frontiers armies more than a hundred times the likely holding capacity of a *castellum* were required to achieve a similar outcome, implies a site of extraordinary natural advantages and in total control of Transcaucasian traffic.

It is interesting to note that Jacob Reineggs came some 1,700 years after Pliny to strikingly similar conclusions. With specific reference to Dariali Fort, which he had visited in the early 1780s, he writes:

> Whoever built this fortification or mountain castle, to protect the border of Armenia or Georgia from the hostile incursions of the tribes occupying the Northern Caucasus, could at the time not have chosen a better place for defence than this one, even now still adequate, where a thousand men can block the way for several hundred thousand and make their passage impossible.[49]



Fig. 25:2: Did sulphur springs such as this, further upstream on the banks of the River Tergi/Terek (in the background), inspire the belief that the river water was of horrible smell, picked up by Pliny from his sources?

Robert Lyall, visiting the fort in 1822, offers further corroboration of Dariali Fort's unique natural defences enabling a small garrison to withstand vastly superior forces:

> Were the above castle [Dariali Fort] in good order, with a hundred men, and a few pieces of canon, the *Thermopylae* might be defended against the combined forces of Russia. We were informed, that a few Ossetinians even kept command of the defile against a numerous corps of Russians, and killed all who attempted to pass; till, at length, they were starved out of their position. To prevent similar attempts for the future, the Russians destroyed the castle; but, probably, the natives rejoice that they cannot remove the mountain, which may very likely again become the seat of warfare.[50]

James Bryce traversing the gorge in 1876 could hardly imagine a stronger military post, easily controlled by a small force.[51] The tenth-century author Mas'udi had gone even further, claiming that a single man in the impregnable castle, towering high up in the air over the road, the river and a bridge, could bar all infidel kings from passing.[52] The





Figs 25:3–25:4: Dariali Fort (top: seen from the north; bottom: seen from the south) strikingly fits Pliny's description of Cumania: a small fort on a rock next to a fast-flowing river at a strategic key location. Machinery operating at the base (top) provides an idea of scale.

numbers of defensive and offensive forces may be inflated by Reineggs, and Mas'udi's claim of one person's ability to hold all northerners at bay is certainly hyperbole, but Lyall may provide credible figures for the necessary defensive forces. The overall picture of nature compensating for massive numerical imbalance painted by all four authors, from first-century Pliny to nineteenth-century Lyall, rings true.

Even in the age prior to the invention of canons, the fort's impregnability – enhanced by road-blocking walls and, presumably, an arsenal of missiles and rocks to be hurled at would-be assailants – meant that the occupants did not need to match northern adversaries in numbers. It is hard to imagine Dariali Fort would ever have accommodated more than a few hundred, whilst most invasion armies would not have exceeded tens of thousands at most.[53] Leaving aside such rhetorical embellishment, the earliest author to provide a detailed description in Antiquity, one of the best-informed medieval writers and two of the earliest European visitors of modern times, all believed that a small garrison in the strategic fort could have held in check a vastly greater number of would-be invaders from the steppe. Reineggs and Lyall had visited the fort, Pliny had not but wrote at a time when Roman eyewitness accounts probably would have been available. There is nothing in Pliny's account to imply that Cumania held a Roman garrison at the time, but there is every reason to believe in close cooperation between Iberians and Romans in military matters of mutual interest, as attested by the cited inscription of AD 75. It was probably in the course of such cooperation and/or any military expeditions that Rome gained detailed intelligence on the geography of the gorge.

In the light of the Caucasian/Caspian Gates' evident importance, it is astonishing that modern scholarly literature relies mainly on ancient literary sources, and archaeological evidence is rarely cited,[54] with the notable exception of Georgian scholars and those familiar with the country. Already Jacob Reineggs,[55] Julius von Klaproth,[56] Alexander Pushkin[57] and James Bryce[58] had no doubt that Pliny and the late antique sources referred to the Dariali Gorge and Dariali Fort. Reineggs' and Klaproth's 'Dariela' mountain-top fortification is, as their descriptions make clear, identical to the castle called elsewhere Dariali Fort. The early accounts refer to the remains of the castle on the west side of the Tergi as well as a staircase, leading down to the river to fetch water. Reineggs furthermore describes the rock-cut water channel and Klaproth the road-blocking wall west of the fort.[59] Eduard Eichwald also tentatively equated Pliny's Cumania with the mountain castle 'Dariel'.[60] Much more recently, David Braund,[61] Iulon Gagoshidze[62] and Gela Gamkrelidze[63] have argued persuasively that Cumania is indeed Dariali Fort (also known as Tamara's Fort[64]).

Wilhelm Tomaschek,[65] by contrast, favours K'umlis Tsikhe (ქუმლის ციხე), *i.e.* the so-called 'Castle of K'umli', a village further south near the Cross Pass, not far from Gudauri. Curiously he cites Klaproth, who (whilst also mentioning the latter site)[66] had come to the same conclusions as Reineggs, both authors locating the gates at the same place (on Dariali Rock).[67] S.N. Murav'ev,[68] Robert Hewsen[69] and Giorgi Leon Kavtaradze[70] similarly identify Cumania with the 'Castle of K'umli'. This hypothesis has been rightly rejected by Mindorashvili, on the grounds of its location in a wide section of the valley where it would not have been possible to hold back invaders.[71]

Any ancient sites near the Cross Pass, and none has to our knowledge been identified to date, will have served a different function. There must have been night shelters on the c. 140–160 km route from Mtskheta or Tbilisi to Dariali Fort. The journey may have taken five or six days (the former duration also attested by Mas'udi),[72] if travellers covered 25–30 km per day. Such a staging post may well have been near the Cross Pass, but topography would not have allowed to effectively secure this pass via a fort or a barrier. We know of no evidence (other than the similarity of the place name) to support the hypothesis that Cumania was the 'Castle of K'umli'. None of the distinct topographical characteristics Pliny attributes to Cumania (*i.e.* its location on a river, on a prominent rock dominating traffic and at a narrow gorge) apply to K'umlis Tsikhe, whilst they strikingly fit Dariali Fort. Nor are we aware of any record of suitable ancient defences surviving now or in the past at K'umlis Tsikhe.

A visit of the village of K'umlis Tsikhe by Davit Naskidashvili in January 2018 confirmed that no ancient remains survived or were known locally. There is, however, an old tower and ruined church, called Tsetskhlijvris (ცეცხლიჯვრის, *i.e.* 'fire cross') c. 1.5 km ENE of the village, thought to date back to the ninth to eleventh centuries. As yet there is no evidence for pre-medieval occupation from the site and Tsetskhlijvris is, furthermore, far from a river and not in a narrow gorge. It bears as little resemblance with the site described by Pliny as the village of K'umlis Tsikhe. Neither of the two sites has yielded evidence for pre-medieval occupation, even if this does not exclude the possibility of more ancient origins.[73] We may conclude that Pliny almost certainly referred to a predecessor of Dariali Fort and offered a broadly accurate assessment of its strategic significance. Nobody has in any case so far identified any other site that would fit his description and matched Dariali Fort's unique control over traffic across the mountains.

Disappointingly, archaeology has so far little to contribute to the history of Dariali Fort at Pliny's time, except for one small but not insignificant discovery. A bone fragment from the lower strata of a deep sequence of cultivation levels on the terrace to the south of the fort dates back to c. 37 BC – AD 67 (or, with 83.7% confidence, to 4 BC – AD 67). It suggests with a high degree of likelihood, if not proving the case beyond all doubt, that horticultural or agricultural activity next to Dariali Fort goes back to

at least the AD 60s, *i.e.* the time of Pliny or earlier.[74] Needless to stress that the dated bone fragment does not prove the postulated equation between Cumania and a fort on Dariali Rock. Horticulture and agriculture will have been practised near most settlements. Only if we accept that Pliny's description fits Dariali Rock remarkably well does the start of probable cultivation at the site become significant in the sense that the rock's occupation is likely to have started before the account was composed.

It is also important to note that Shumilovskikh's pollen cores from south of modern Stepantsminda indicate intensive land use and agriculture throughout much of the first millennia BC and AD. Intensity of agriculture and the use of pasture for grazing animals may even have peaked in the later first millennium BC and the earlier first millennium AD. Tree pollen seems to reach an all-time low around the beginning of the Christian era – followed by a slow rise again for the remainder of the first millennium and beyond.[75] This does not prove that Dariali Rock was heavily occupied at the time or at all – but there is little doubt that there was sufficient settlement and agriculture in the hinterland to sustain a garrison whenever needed. We are unlikely ever to know what first-century Cumania Fort looked like. The late antique fort builders stripped the top of the plateau to the bedrock. All, or almost all, pre-fourth-century architecture is likely to be gone for good. There is a much better chance that an assemblage of material goods used at the time survives at the western foot of the rock, but reaching it would require excavating a deep shaft, with solid shoring through loose debris.[76]

Dariali Fort reminds one of a major Early Iron Age hillfort in the area of South-West Germany. The Hohenasperg, at Asperg near Stuttgart, is surrounded by some of the richest burial mounds of the period and has yielded redeposited pottery of the era from the slopes. There is a second contemporary (and well-preserved) hillfort in the wider region, the Heuneburg of similar topography and also with a cluster of prominent burial mounds nearby, adding much strength to the hypothesis that the Hohenasperg was its vanished counterpart. Yet, a massive sixteenth-century fortification on the prominent hill-top plateau of the Hohenasperg erased all earlier structures, and it has as yet not been possible to find any surviving traces of earlier activity on top of the hill.[77] Dariali Fort, like the Hohenasperg, was a victim of its success as a naturally well-defended stronghold in a prominent location, inviting site reuse and destruction of defunct earlier architecture that stood in the way.

Powerful floods, which occur in the Tergi River Valley frequently,[78] will undoubtedly have swept away any artificial stone barriers to the east of Dariali Fort or at any other point in the valley. Obstacles made of other materials, such as wood, would have been even less durable. Successful later breakthroughs do not disprove the veracity of Pliny's description of iron-clad timber gates, reportedly in place in his own time. If on the banks of the river, they would have needed renewal after each flood-wave, perhaps on average once or twice per decade. It would have made sense to build also a barrier to the west of the fort, closing off the narrow passage between Dariali Fort and the rock cliff west of it (Fig. 25:5), and this would have been safe from flooding and landslides. We do not know if any road-blocking gated wall here might have been demolished when the late antique mortar wall was built west of the fort. Alternatively, it might have been damaged by tons of rocks and debris rolling down the slopes of Dariali Fort over the past two millennia or, to a lesser extent, the odd rock from the cliff opposite. It is possible that remains may survive buried at a considerable depth. In short, it seems unlikely that Iberian success in regulating who could pass Dariali Gorge, in the first century AD if not already before, relied solely on the effective use of nature. Pliny's testimony implies the existence of artificially enhanced natural defences by the AD 70s at the latest, since destroyed by later fort-builders – and in part no doubt washed away or buried by nature.

Northern pressure in the Caucasus region continued to cause concern long beyond Pliny's death in AD 79. Iberians reportedly stemmed the tide or channelled it to their advantage. Did they do so largely unaided, or did Rome assume a more active interest? In Eastern Georgia, c. 25 km apart, two interesting discoveries are worth noting: a probable Roman marching camp of just over 10 ha size and an imperial helmet of the Weisenau type, thought to date to the late first century BC or early first century AD, found in a grave at Kvemo Kedi. The camp cannot be dated with any precision, need not be related to the burial, and we cannot know how the person buried acquired the helmet. The marching camp, as most known parallels more likely imperial than Republican and large enough for a legion, points to Rome campaigning in the region.[79] Between AD 83 and AD 96 a vexillation of the Twelfth Legion was operating in the vicinity of modern Baku, suggesting that Rome was well aware of the major strategic significance of the entire Caucasus mountain chain and the territories bordering it in the south.[80] The poet Statius, writing in AD 95, implies that the Caspian Gate (*Porta Caspiaca*), as well as the peoples on the Rhine, the bank of the Danube and the sea-shores of Thule, were protected by Roman frontier guards. The inclusion of the semi-legendary island of Thule (probably Shetland in this context) in the list, reportedly the target of Roman naval reconnaissance under Domitian but never garrisoned, suggests that the poet indeed thought of the Caspian Gate as being within the Roman army's sphere of operation but (unlike the Rhine and Danube) not necessarily under permanent military control.[81]

Rome's short-lived conquest of Armenia (AD 114–117)[82] marked arguably a climax of Rome's interventionist policy in Transcaucasia, but certainly not its end.



Fig. 25:5: In Late Antiquity, a road-blocking wall connected Dariali Fort (centre) with cliffs opposite (right), one of several narrow passages resembling natural gates even before the late antique construction of masonry gates to bridge the gap (possibly replacing an earlier gated wall). Pliny's description implies the existence of gates over the Tergi/Terek River (left, here in low water in winter – water flow perhaps substantially reduced by a modern hydro-electric plant channelling river water into pipes). A little further north, the valley is much narrower and was blocked in Late Antiquity by Bakht'ari Fort (perhaps also replacing an earlier barrier). Drone image by Davit Naskidashvili.

The fourth-century philosopher Themistius claimed that Arrian, the famous historian and general, had crossed the Caspian Gates. Whilst recorded in a speech delivered in AD 384, a quarter of a millennium after Arrian's war against the Alans in c. AD 135/136 or his earlier probable participation in Trajan's Parthian Wars (AD 114–117), it is possible that the specific claim was based on fact. Ioannes Lydus (if writing more than 400 years after the events, but citing some of Arrian's lost works) also credits Arrian with fairly exact knowledge of the Caspian Gates.[83] Philip Stadter and Julian Bennett argue that Arrian may have advanced to the Dariali Pass already in AD 114, as a young officer during Trajan's conquest of Armenia, whilst Rome also tightened its indirect control over the Transcaucasian kingdoms, including those of Albania and Iberia. This suggestion is attractive, as Lydus indeed claims that he had been in command over the area under Trajan and participation in the Parthian War would explain why he devoted ten books in his *Parthika* to Trajan's Parthian War. Whilst it is possible that Lydus confused Trajan with Hadrian and the expedition took only place in the AD 130s when Arrian was governor of Cappadocia, on balance the Trajanic dating proposal seems stronger.[84]

A Roman army may also have ventured into the Caucasus later, apparently reaching the Tergi, as suggested by a dedication to the *Matronae Aufaniae* (a trinity of Germanic mother goddesses), by a soldier of *Legio I Minervia*, from Cologne, fulfilling his vow upon safe return from this daring mission (Fig. 25:6). The altar attests that he had been at the Alutus River (probably the Tergi) alongside the Caucasus Mountains.[85] Mostly thought to refer to Lucius Verus' eastern campaign (AD 162–166), it has also been suggested that it could be related to conflicts with the Alans in the 130s or 140s.[86] Most dedications to the Matronae from Lower Germany are no earlier than the AD 160s,[87] and the legion's participation in Lucius Verus' Parthian War is otherwise attested, supporting even if not proving the later dating proposal. Despite Rome's evident involvement in the region and close relations with Iberia, the kingdom remained independent.[88] How involved were Rome and Iberia in guarding the gates?

C.R. Whittaker postulated that there was a detachment of the Flavian army in the Dariali Pass.[89] Gela Gamkrelidze and Livio Zerbini have advanced a similar hypothesis in more detail. They argue that a contingent of Roman soldiers was already stationed in the Dariali Gorge by the Flavian era. And it was not just in the later first century, in their view, that Roman soldiers served in the Central Caucasus. A note in the *Historia Augusta*, of Hadrian (r. AD 117–138) having given to the king of the Iberians



Fig. 25:6: This altar from Cologne in Germany has been set up by a soldier who had probably participated in a military expedition to Dariali Gorge. Text: MATRONIS/ AVFANIB·C/ IVL·MANSVE/TVS·M·L·I·M/ P·F·V·S·L·M·FV[I]/T·AD·ALVTVM/ FLVMEN·SECVS/ MONT·CAVCASV = 'To the Matronae Aufaniae. Gaius Iulius Mansuetus, soldier of the First Legion Minervia Pia Fidelis, willingly and deservedly fulfilled his vow. He was at the Alutus [Tergi/Terek?] River next to the Caucasus Mountain.' (Fremersdorf 1963, pl. 132. We are grateful to Dr Friederike Naumann-Steckner (Römisch-Germanisches Museum, Cologne) for her kind permission to reproduce the photo.)

Pharasmanes/P'arsman II a *cohors quinquagenaria*, *i.e.* cohort of 50 men (probably an error and referring to a *cohors quingenaria*, *i.e.* cohort of the normal size of c. 500 men), is thought to refer to a special command of troops permanently based in the Dariali Gorge, implying that Dariali Fort was their likely base.[90]

Iulon Gagoshidze is, perhaps prudently, more cautious and recognises that the evidence does not allow us to prove or disprove the presence of any Roman garrison in Iberia. If there were Roman garrisons in Iberia at the time, and Rome did not rely exclusively on soft power as it may have done, Cumania would, in Gagoshidze's assessment, have been one possible base.[91] Manana Odisheli argues persuasively that the Iberian King Pharasmanes II was in charge of the Dariali Pass in the time of Hadrian, as Cassius Dio clearly implies that Pharasmanes II was the driving force behind an Alan invasion in c. AD 135/136 across the Caucasus, that affected not only Albania, Media and Armenia, but also, if probably to a lesser extent, Roman Cappadocia.[92] There is other evidence too that the Iberian Kingdom's area of control appears to have reached to the Dariali Pass also in the second century, including the epitaph of Amazaspos, brother of the Iberian King Mithridates, who had died fighting for Trajan in the Parthian Wars (AD 114–117) at Nisibis. The Greek inscription proclaims that his Iberian fatherland was beside the Caspian Gates.[93]

Complete clearance of the top of the rock in Late Antiquity has erased all traces of hill-top occupation prior to the fourth century. Unsurprisingly, we found no Roman imports or military-style structures, but neither did we find on the fort site any other artefacts or buildings of the first third of the first millennium or before. Everything early here has fallen prey to the efficiency of the late antique workforce. Should Gamkrelidze's and Zerbini's, neither proven nor disproven, theory be correct, evidence may well survive nonetheless. Early and high imperial Roman soldiers almost invariably lost a significant quantity of small pieces of armour and equipment at all their permanent bases. Early imperial layers, if as already mentioned hard to reach, are likely to survive at the western foot of the fort. Unless and until a sufficient quantity of such early assemblages has been unearthed, it is best to concede that the archaeological evidence uncovered so far neither offers support for Roman military presence on the fort nor does it disprove it. The absence of typical militaria from the early cultivation layers in Trenches M and P is insignificant, as even if we could be sure that Roman soldiers had been stationed nearby, such horizons would not normally yield a high concentration of armour or other diagnostic imports. Absence of evidence is thus not necessarily evidence of absence.

Worth noting here is the only Roman artefact known to have been found between the Cross Pass and Dariali Fort. A *denarius* of Augustus (27 BC – AD 14) was unearthed at Stepantsminda. Reportedly featuring the emperor's grandsons and adopted sons, the Caesars Gaius and Lucius, the coin was probably minted at Lugdunum (Lyons) in Gaul between c. 2 BC and AD 14. Interestingly, the discovery was made (in 1888) near the military highway. We do not know if it was lost by a traveller or came from a disturbed burial or settlement. *Denarii* of Augustus still form part of later coin hoards, found in Georgia, up to the AD 190s or beyond, proving that these silver coins stayed in circulation for up to two centuries beyond their date of issue[94] – as is also the case elsewhere in the Roman Empire and its zone of influence. It probably reached the north in the

first or second century. Loss or deposition long after the marked reduction of precious metal in Roman silver coinage under the Severans seems unlikely. As the earliest ancient coin found in the Tergi River Valley south of Dariali Fort, it is an important discovery. Whilst there is no way of telling if it was brought by an Iberian or a Roman or an individual affiliated to a third political entity, it may attest to the presence of a person engaged in the monetary economy on route to Dariali Gorge.

The written evidence suggests that at least Roman expeditionary forces found their way to the pass occasionally under the Flavian dynasty and in the second century, but we cannot be sure whether or not Rome ever stationed a permanent garrison in the gorge and, if so, from when to when. Whatever role Roman forces may have played, it appears that Iberia was in charge of the gates and their effective control, be it for defence or to employ northern allies to the kingdom's advantage. Control of the gates will have contributed to the kingdom's impressive wealth.[95]

Whether or not Dariali's gatekeepers in the late first and second centuries ever included Roman soldiers, there is no question that Rome had a significant strategic interest in the Caucasus in the first two centuries AD. At least from the Flavian era onwards, it was well informed. Arguably no other mountain pass in the ancient world featured as prominently in textual sources, and by the second century



Fig. 25:7: Prometheus' torments in the Caucasus were famous enough to inspire potters in Gaul. The fragmentary Latin inscription on this samian medallion, found at Orange, informs us that Prometheus (right) was tied up in the Caucasus, the eagle (centre) feeding on his inner organs: [PROMETHEVS IN] CAVCASO [VIN]CTVS VISCERA PA[S]CEN[S AQ]VILA. Relief is in sight: the eagle is about to be shot dead by Hercules (left): [HERC]VLES. (Déchelette 1904, 247 no. 7. According to CIL XII, 5687.15, the 'C' in Hercules' name was legible as well.)

it had become a place of legend. It was in the dramatic landscape close to the Caspian Gates in the Caucasus that Lucian of Samosata[96] envisages Prometheus, having stolen fire from the gods for the benefit of humanity, being riveted to the rocks, his liver eaten by an eagle (Figs 25:7–25:8). It was here, half-way up the sheer cliffs of the gorge beyond human reach but still visible as a deterrent, that the mythical rebel against Zeus suffered eternal punishment without hope mortals could come to his rescue. The belief that it was indeed in the Caucasus that Prometheus was tortured in near perpetuity, until eventually freed by Heracles, was widespread.[97] Already Diodorus Siculus, writing in the first century BC before any eyewitness accounts of the magnitude of the cliffs (Figs 25:9–25:11) in the gorge would have been available, offers a report, echoed by Curtius Rufus, that might have inspired locating Prometheus' suffering at Dariali. Alexander the Great was believed to have ventured to the centre of the Caucasus and the famous rock, rising to four stadia (c. 740 m) height, where traces of Prometheus' chains and the eagle's nest were still on view.[98] And, as we have seen, Alexander was also credited with erecting the Caspian Gates in the Caucasus – a variety of legends converging on a narrow valley.

A place of legend in the west, the gorge's fame also reached the heartlands of Persia. Already the second Sasanian King, Shapur I (r. c. AD 240–272), was in control of the crucial mountain pass. It is singled out as a major landmark and priced possession – the only site in all of Transcaucasia specifically mentioned and listed as prominently as entire kingdoms – in his famous royal inscription of the early AD 260s on the Ka'ba-ye Zardusht at Naqsh-e Rostam (Figs 25:12–25:13).[99] It was no doubt due to their key strategic importance that the gates attracted attention in west and east alike and were memorialised on stone at the centre of dynastic power in Sasanian Persia. Shapur gained indirect control over Iberia and the gates perhaps already in the aftermath of his conquest of Armenia in AD 252 or, at the latest, after the defeat and capture of Valerian in AD 260,[100] a victory that shifted the dynamic of power in the region. The gorge also features in chief priest Kerdir's inscriptions, implying that Shapur I's part-mounted army had reached the remote Gate of the Alans.[101] These Sasanian inscriptions are the first to refer to it under the name it still carries today (*i.e.* the Gate or Door of the Alans).

By the time this name was first carved in stone, it will have been known for centuries. We have seen that Transcaucasian invasions, affecting Parthian interests and territory, went via Dariali in the AD 30s, AD 130s and probably also in the AD 70s – and it may well have been crossed by hostile forces more frequently than we know. It is hard to imagine that only Rome knew the backdoor to Parthian territory used by successive invaders, whilst it remained concealed to the empire that suffered most. The Sasanian dynasty soon recognised the importance of strong protection of its north-western border zone. Unlike

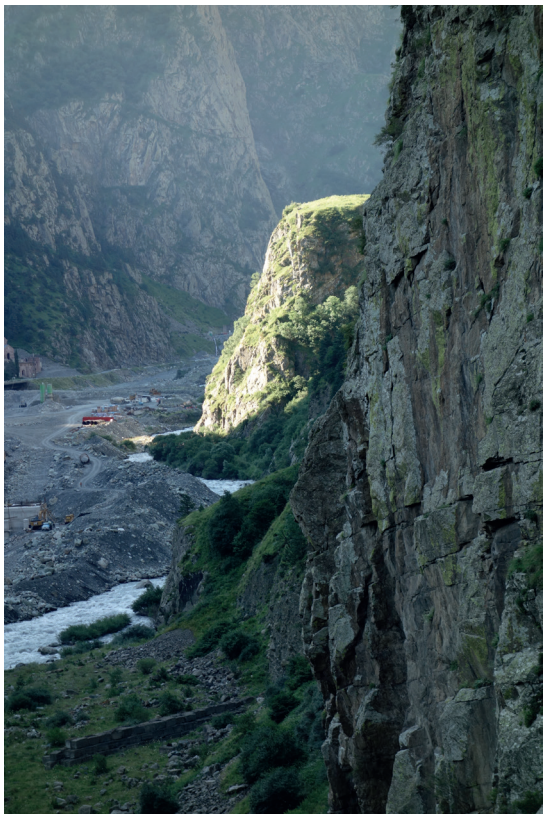


Fig. 25:8: Suffering Prometheus, riveted to a cliff in the Caucasus, is being freed by Heracles (Hercules) who has already killed the liver-devouring eagle (bottom left), responsible for inflicting excruciating pain onto the mythical fire-thief. The sleeved chiton of the mountain goddess (above) has been interpreted by Bert Smith as a reference to the cold and barbarian Caucasus. The probably Claudian or early Neronian relief from the Sebasteion at Aphrodisias, completed around AD 60, predates Rome's major military advances to Dariali Gorge. Yet it visually captures why the dramatic landscape of the Caucasus, with its sheer cliffs, provided a credible venue for the famous legend. Courtesy of New York University Excavations at Aphrodisias (G. Petruccioli). (Smith 2013, 263–65, 299, 309–10, 322, pls 152–53, 176, with references.)

their Parthian predecessors, it had the resources and resolve to plug this remote hole in their northern defences.

The Paikuli inscription indicates that the king of Iberia remained allied to Sasanian Persia in the mid AD 290s.[102] Despite Sasanian claims of suzerainty, Iberia's kings may still have been potent players. Allegedly, they opened the Caucasus passes and employed steppe people as allies against the Persians in the third century.[103] Sasanian control over the Iberians, Albanians and the Caucasus was far from stable and permanent and seems to have been lost and regained repeatedly in Late Antiquity. Whilst the gates formed a key element of the northern defences of the Sasanian Empire from the third century onwards, they do not seem to have been continuously under Persian overlordship. Even when they were, it is hard to tell whether the control was direct or indirect. Power shifted

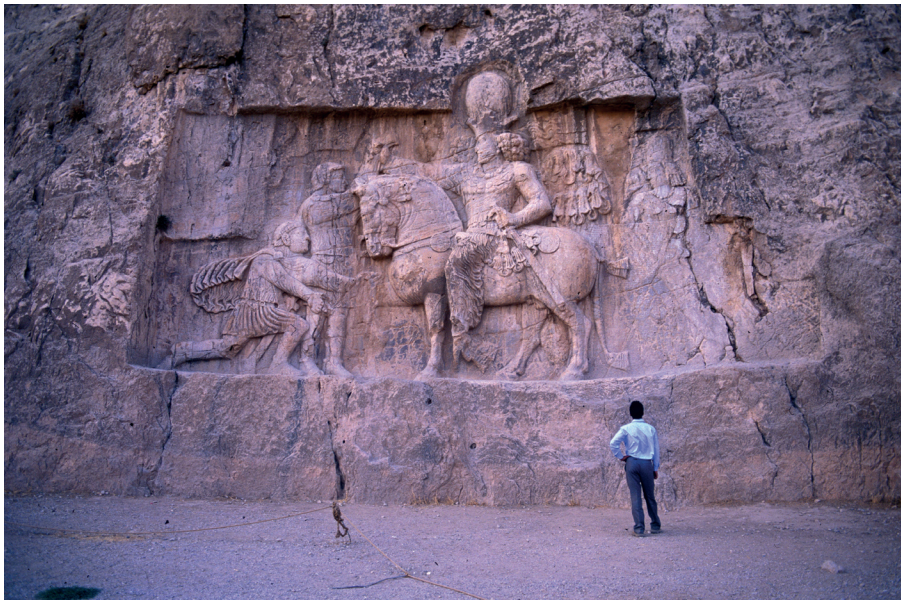






Figs 25:9–25:11: High vertical cliffs (top left: on the way from Dariali to Bakht'ari Forts, top right: view from near Bakht'ari Fort towards Dariali Fort, bottom: between Bakht'ari Fort in the foreground and Dariali Fort in the background) will have been the reason why the belief arose in Antiquity that it was here that Prometheus was chained to the rocks.





Figs 25:12–25:13: The Gate of the Alans (Dariali) was important enough to feature on inscriptions at Naqsh-e Rostam in the dynastic heartland of Sasanian Persia near Persepolis, 1,600 km SSE of the gorge: on that of Shapur I on the Ka'ba-ye Zardusht Tower (left) and on those of High Priest Kerdir, such as the one inscribed right of the relief featuring Shapur I (r. c. AD 240–272) and the defeated Roman Emperors Valerian (r. AD 253–260) and Philip the Arab (r. AD 244–249). Kerdir's inscription (right, behind the horse and under the bust of Kerdir) dates to the reign of Bahram II (r. AD 276–293). The lettering of the inscriptions is too small to be visible here, but the prominent location is worth noting.

back and forth between the great powers, and Roman influence over Iberia increased again in the wake of their victory over the Sasanians in AD 298, but without ever imposing direct rule. Meribanes/Mirian III (probably AD 330s-late 360s) is reported to have fought repeatedly against northerners, repelling an Ossetian (Alan) invasion of Iberia and launching a counter-attack well beyond the Caucasus.[104] Whilst it is hard to separate truth from fiction in these medieval chronicles, there is archaeological evidence to suggest that the Caucasus was a zone of rising political tensions in Late Antiquity. Michel Kazanski and Anna Mastykova have argued persuasively that Roman imports, including high-status crossbow brooches, from late third and fourth-century cemeteries in the North Caucasus, not far from Dariali, were diplomatic gifts – providing circumstantial evidence for an alliance between Rome and Persia's northern enemies.[105] Large fortified settlements in the Northern Caucasus provide a material context for the continued or growing pressure onto the northern frontiers of the Transcaucasian kingdoms and the Sasanian Empire.[106]

As late as the AD 360s and 370s, Roman troops operated in Western Iberia and were stationed there at least temporarily.[107] In AD 370, Iberia was divided along the River Cyrus (Kura/Mtkvari) – probably its upper course as David Braund has convincingly argued – Dariali Gorge now probably again being firmly in the Sasanian zone of influence.[108] Despite growing political dominance, Sasanian influence on Iberian material culture diminished, as Christianity became the mainstream religion in Transcaucasia.[109] Whether or not there was a permanent garrison at Dariali at the time is unknown.[110] What is certain is that the pass defences were not strong enough. The Hunnic raid across the Caucasus in AD 395 (to be discussed in detail in the next section)[111] was one of the few invasions to affect the core territories of both the Eastern Roman and Sasanian Empires, demonstrating that a major external threat to the dominant powers in the Levant and the Near East emanated from beyond the Caucasus. Strategic interests in Dariali reached a new climax in Late Antiquity, paving the way for an era of archaeological visibility after centuries of obscurity.

25.3. The late antique fort (Phase 3)

25.3.1. Stopping the Huns from crossing the Caucasus: construction of two gorge-blocking barriers and a state-of-the-art bastion on Dariali Rock (Phase 3a–c/d: later fourth to early fifth/ early sixth century)

Roman and Partho-Sasanian strategic interests in the first three centuries of the first millennium AD propelled Dariali Gorge from a *terra incognita* to the ancient world's most famous mountain valley. The same era of literary fame is Dariali's archaeological dark age. Our ignorance of what buildings may have stood on top of the rock in the days of Pliny the Elder or Shapur I is the

result of systematic soil stripping prior to the complete reconstruction of the fort. It appears that, in preparation of construction, virtually all of the hilltop was cleared from earlier occupation debris and natural soil. This enabled the late antique fort builders to erect the walls directly on the bedrock, giving them much greater stability than any stone structures built on soft soil. Our discovery of late antique buildings in the interior of the fort (in Trenches F and Q), resting like the wall circuit on the bedrock, implies that systematic clearance operations were not confined to a perimeter around the edges of the plateau and the road-blocking wall. Major masonry structures, which for reasons of stability had to be built on the bedrock rather than loose soil, covered much of the plateau. Rather than digging a multitude of trenches for the footings of the numerous walls, the late antique workforce seems to have systematically stripped the plateau of all loose sediments and any earlier buildings, probably dumping all debris over the cliff edges. This does not mean that they would have systematically emptied every cavity in the rock. Small pockets of natural soil thus appear to survive in places above the bedrock. It is possible, even likely, that remnants of the earliest occupation horizons may have escaped the erasure of archaeology in the wake of the fort's (complete re-?)construction. It is unlikely, however, that much early material, let alone buildings, on the hilltop have escaped the clearance operations, and little evidence for early occupation will survive *in situ*.

Indeed, ground clearance was so thorough, removing all soft sediments and earlier material, that some may doubt that there was any fort crowning the rock prior to Late Antiquity. Was Pliny's Cumania elsewhere? Was there little or no effort to create pass defences in the first third of the first millennium? Neither seems likely, and we have set out above our reasons for thinking that late antique Dariali Fort replaced an earlier prominent site, rather than being built on virgin land. Suffice it to stress here that no humus overlay the bedrock, suggesting that absence of earlier material was the result of systematic clearance, not the fort being built in cleared forest or on pasture land (or even if, that any loose soil, whether natural or cultural was removed). Evidence for the earliest occupation is likely to survive at the western base of the rock, and future archaeology should be able to shed some light into the dark.[112]

Whatever Dariali Rock's earlier occupation history, the lower sections of the well-built walls of the late antique fort survive to the present day, and so have associated levelling deposits. Despite our excavation team reaching the bedrock at various points and submitting many deeply stratified pieces of bone and charcoal for dating, there is as yet not even a single sample from the top of the wall-enclosed plateau likely to be earlier than the fourth century AD.

The earliest horizons from within the casemate in Trench F yielded bone samples (F.184/1603 and F.192/1634) with modelled *termini ante quos* of c. AD 394 and 400. A different model suggests AD 398 and AD 408 (and the unmodelled dates are AD 396 and 410). Even taking the latest of these dates suggests that at least one of the two samples is from an animal slaughtered (or perished) before the end of the fourth century.[113] Could these samples predate fort construction and attest an unrelated pre-fort occupation at some stage between the AD 320s and early 400s? If so, they would only provide a fourth-century *terminus post quem* for the late antique fort. If this was indeed the only surviving pocket of pre-fort material on top of the bedrock, one wonders why it only started accumulating in the fourth century and why there is so little.[114] The hypothesis that these horizons, and all bones from within, postdate a single clearance event and the start of construction works seems much more plausible.

A further sequence of samples is significant for the chronology of construction works. Parallel to the outer fort wall (F.058), and connected with it via perpendicular walls (F.050 and F.059), we find wall F.013. These four walls enclose the casemate, which has yielded the two early samples discussed above. Outside the casemate, on the north-east side of wall F.013, we encountered an early levelling horizon on top of the bedrock. Abutting wall F.013, this horizon is certain to be later than the new fort. Interestingly, it contains some samples that may be a little later than those from the earliest levels in the casemate. None of the five samples from this levelling horizon is likely to be later than the AD 530s. More probable *termini ante quos* for two of them fall within the AD 430s. A third of the samples is of similar date or perhaps up to the 470s. Four samples could date back to the late fourth century or before, whilst the latest sample has yielded a *terminus post quem* of c. AD 411. It is worth noting that there are no outliers amongst the early samples and that material from the horizons above is getting gradually younger – a clear sign that these are successive deposits with no mixed-up material of different ages.

As a result of partial excavation of the interior of the casemate in Trench F, with only the upper sections of the outer fort wall (F.058) exposed, we cannot be sure how the earliest sequence of deposits in the casemate, containing the two cited early samples, relate to the outer wall, although it is clear that they are cut by a foundation trench for wall F.050 (connecting the outer fort wall with the parallel inner wall F.013). Perhaps one may tentatively suggest the following sequence of events:

1. All soil on top of the bedrock was cleared first.
2. The outer fort wall (F.058) was built next (as also would have been prudent from a defensive perspective).
3. A levelling horizon, with the two bone samples of c. AD 340–400 and c. 336–394, built up inside it. If the wall was erected on bare bedrock, with no earlier material left behind, then all bones embedded in this

early horizon should be of food consumed during construction works. The likely *terminus ante quem* for the erection of the outer fort wall would thus be c. AD 394 (based on a Bayesian model for the whole trench).

4. A foundation trench for wall F.050 (perpendicular to the outer fort wall, F.059, and abutting it on the inside) was cut through these deposits. We may assume that at a similar time these deposits were also cut by foundation trenches for the inner wall (F.013, parallel to the outer wall, F.058) and a second perpendicular wall (F.059), connecting the outer and inner fort walls. An early medieval disturbance has erased all traces of the postulated foundation trench for wall F.013, whilst the lower section of wall F.059 has not been exposed. That the foundation trench for wall F.050 cuts the earliest deposits in the casemate is certain, that the same applies to walls F.013 and F.059 is highly probable, but unproven. Due to the steeply sloping terrain, a foundation trench for wall F.013 would have cut the earlier levelling horizon only on the downhill side, whilst on the uphill side the wall could have been built directly on the bedrock.
5. Walls F.013, F.050 and F.059 were erected next (and probably a ring of rooms all around the fort, which may have taken a few years or decades).
6. Material was deposited on the north-east side of wall F.013 to create a level walking surface, probably at least a few years or at most a few decades later than the outer wall, maybe between the AD 410s and 430s (although a wider chronological range is possible).

We may conclude that construction works on late antique Dariali Fort probably started towards the end of the fourth century (and certainly no later than the early fifth century at the very latest).[115] The road-blocking wall west of the fort, reinforced with at least one tower to guard the narrow passage, employs a strikingly similar masonry technique to the fort walls and is likely to be of a similar date.[116]

Just under one kilometre north of the Dariali Fort, we find a second barrier, the Bakht'ari ridge-top walls,[117] controlling one of the narrowest points in the gorge. Their masonry technique closely resembles that of Dariali Fort's surviving walls as well as that of road-blocking barrier west of the fort. Charcoal from the foundation layers of Bakht'ari ridge-top walls provides a likely *terminus ante quem* in the AD 530s and, most probably, in the 430s. We may conclude that both road-blocking walls and Dariali Fort were probably all built at a similar time, starting probably a few years or a decade or two before AD 400 (and in any case not long after) – all part of a single fortification programme to control the gorge.

Could fort construction have started decades earlier, maybe as early as the late AD 320s or the 330s, the earliest likely dates for the bones recovered from the casemate? Two arguments make a start of construction works at such an early date or even the middle or third quarter of the century unlikely:

1. There is no similarly early (or earlier) sequence from anywhere else in our trenches on top of the fort – hard to reconcile with the assumption of several decades or even generations of fourth-century occupation.
2. The relatively thin outer fort walls were probably never designed to stand on their own – nor would there have been any firm shelter for the garrison until the ring of rooms, leaning against the outer walls, were added on the inside. It is hard to imagine that the strategic fort would have stood as a half-completed monument for generations with nowhere for the garrison to weather the icy winter (Figs 25:14–25:15).

Without wishing to over-interpret the evidence, one is tempted to assign the earliest layers within the casemate towards the end of the likely date range (*i.e.* the AD 380s or 390s?), and those inside the inner fort walls, later of course than the inner fort wall, perhaps to the 410s or 420s. Fort construction may have commenced before the turn of the century and may have continued for a few years or decades beyond (disregarding internal structures to be discussed separately below). The garrison could not have survived the harsh winters in the open, and even the summer can be cold and very wet. It is unimaginable that much time passed between the construction of the outer fort walls and the completion of rooms for shelter. And the chronology of Trench F need not reflect that of the entire ring of rooms. Perhaps it took a few years to complete the ring of rooms; those on the strategically significant east or north side may well have been built first. A strong case can be made for a start of fort construction in the late fourth century and for work continuing for over a decade into the fifth century. Even allowing for some of the above assumptions being incorrect, the strong representation of fourth to early fifth century samples in the deepest deposits is worth noting and likely to be significant. It is tempting to think that construction works started towards the end of the fourth century, and it is hard to imagine that they commenced later than the beginning of the fifth century, at the latest.[118]

What was the likely historical context? It has become unfashionable in archaeology to link archaeological findings with events recorded in written sources, an (over-) reaction to frequent attempts by classically educated scholars of previous generations to explain their discoveries with known historical accounts, not always convincingly. In contemporary scholarship, field archaeologists lacking in many instances classical training or baggage, the pendulum has swung to the opposite extreme and archaeology is thought to tell a different story to literary sources, considered biased and unreliable.[119] Contrary to current ideology amongst archaeological theoreticians, ancient and medieval literary sources are, however, often





Figs 25:14–25:15: Inclement climate and the long cold season in the gorge (photos taken on 28 January 2017, top, and 17 April 2013, bottom) made it imperative for the late antique workforce to complete not just the defences but solid shelters for the garrison speedily.

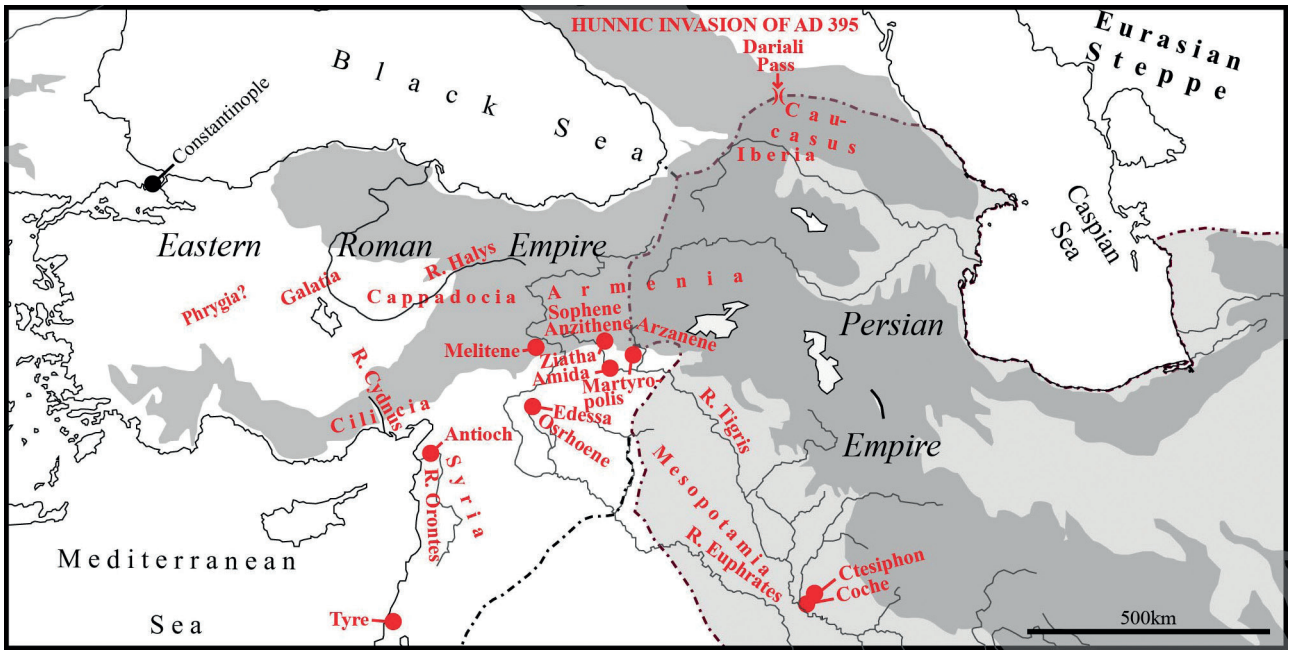


Fig. 25:16: In AD 395 the Huns crossed the Caucasus via Dariali Gorge, followed by the most far-reaching Hunnic raids in Near Eastern regions of all times. In red: towns and territories reportedly reached or affected. Did this devastating invasion of some of the Persian and Eastern Roman Empires' richest provinces provide the stimulus to build late antique Dariali Fort – or were construction works already in progress, the Huns perhaps succeeding in making it past before completion of the gorge-blocking barrier?

remarkably accurate, notably when referring to events in the then recent past that some of their readers would have known of, whatever their bias in interpreting them and whatever embellishments they added. There is thus no need for an apology when exploring how a start in construction works around AD 400, more probably some years before or, less probably, after, may relate to recorded history.

It was in AD 395 that a major invasion of the Huns shook the ancient world. Extensive territories were affected, both in the Eastern Roman and the Sasanian Empires and their common borderlands (Fig. 25:16): Iberia, Armenia, Arzanene, Sophene, Osrhoene, Syria, Cilicia, Cappadocia, Galatia and perhaps even Phrygia. Reportedly, the Huns reached the cities of Martyropolis, Amida, Ziatha, Melitene, Edessa and Antioch. The daring raid went along Mediterranean shores as far as Tyre, and panic spread to Jerusalem and even Egypt. The northerners also ventured into the heartlands of the Sasanian Empire, devastating the Euphrates and Tigris Valleys as far as the royal city of Ctesiphon and nearby Coche.[120] How did the feared new arrivals in the northern steppe succeed in projecting their power into unfamiliar rich and fertile lands? It was via the '*Caspia Claustra*' and the snows of Armenia that the Huns had made their way south, according to Claudian.[121] Jerome confirms this, referring to Alexander's Barrier (*Alexandri Claustra*) in the rocks of the Caucasus[122] – the attribution to the famous Macedonian king inspired by the frequent confusion of the Caucasus Passes with those in the Alborz, the latter indeed at least crossed by Alexander.[123] Both authors can only be referring to the Dariali Pass.[124] Once the Huns had made their way through the gorge, there was, it seems, nothing else to stop them from venturing over a thousand kilometres beyond, into Central Anatolia, the Southern Levant and the heart of Mesopotamia. The major devastation caused by this Hunnic raid would have provided a strong stimulus to control or block viable Transcaucasian traffic routes. The Hunnic threat on Transcaucasia and the Near East did not subside until AD 397 or 398.[125] Making a repetition of such a raid, endangering rich Roman and Sasanian territories alike, more difficult would have been in the joint interest of the Sasanian and Eastern Roman Empires. It is also worth noting that the Huns appeared some twenty years before the famous invasion of AD 395 in the Northern Caucasus and Black Sea region and our radiocarbon dates suggest that a start of activity on the fort site before the mid AD 390s is more likely than after. Dariali Fort need not necessarily have been built in response to the famous raid, but might have been built in anticipation of it, if perhaps not fast enough to stop it.

There is comparatively little archaeological evidence for Hunnic material culture in the Northern Caucasus,[126] and one should probably envisage them holding hegemonic power over this area – and certainly having good intelligence on the geography – whilst much of the population, notably the Alans, will have remained in place. Indeed, according to Ammianus Marcellinus, the Huns, having overrun Alan territory killing many Alans and robbing their possessions, entered into an agreement

with the rest to join forces.[127] Timo Stickler argues that the Caspian Gates/Dariali feature on the agenda of peace negotiations between Persia and Rome of AD 363, as the Hunnic threat in the Caucasus region may have been evident already then – even if it is only a few years later that the eastern arrivals are first attested in literature. The Huns must have gained control over Alan territory before the mid AD 370s at the latest.[128] The subsequent Hunnic onslaught on the Ostrogoths in the Black Sea region in AD 375/376 involved Alan contingents. Ammianus Marcellinus, in the context of the Huns attacking and overpowering the Alans, attests that Armenia and Media were within the sphere of Alan raiding.[129] This can only refer to those Alans settling in the northern foothills of the Caucasus, suggesting that all Alan territory, extending to the northern approaches to Dariali, became subject to the Huns. The Northern Caucasus was part of the Hunnic dominion, even if most of the Huns will have lived further north. Peter Heather's suggestion that, by the time of the Transcaucasian raid in the mid AD 390s, many Huns still inhabited the plains north of the Caucasus – rather than having travelled back from the Danube – is attractive.[130] With Alan territory forming the launch platform of the invasion of AD 395, we may be sure that the Huns could count on Alan support, as much or more so than for their western wars. Persia and Rome would have been aware of the new threat in the north at the very latest from the mid AD 370s onwards. Both, archaeologically and historically a start of construction works a few years before, a few years after or around the time of the invasion AD 395 would make sense. What seems certain is that it cannot have started very long after this major incursion and, if started before, the barrier does not appear to have been operational in time. It also seems likely that building works were not completed until at least the AD 410s and perhaps not until the 420s or 430s, although the barrier, outer walls and some accommodation units may well have been built around the turn of the century.

How does Dariali Fort's likely construction date fit with previous dating proposals – leaving aside those that can only refer to demolished predecessors? David Braund has argued that 'no very effective barrier on this pass seems to have been in place before the fifth century AD.'[131] This proved a remarkably accurate prediction as to the date when the pass defences were considerably strengthened. Noel Lenski argued, on the basis of circumstantial textual evidence, that Valens (r. AD 364–378) fortified the Caucasus passes and that Rome was initially in command of the Dariali Pass, only later taken over by the Persians.[132] This hypothesis now seems less likely. Our dating evidence indicates that it was probably only after Valens' death that the fort was built, without any obvious signs of Roman involvement. Of course, fort construction in the 390s or early 400s will have erased traces of earlier activity on the hilltop, and we can neither prove nor disprove the hypothesis of a late antique Roman presence in an old fort. Had, however, a fort been built under Valens, the Persians would probably have reoccupied and maybe upgraded it, rather than completely replacing it within a generation or so. The uniformity of the masonry style of all late antique walls suggests that the same tradition prevailed from the beginning to the end of construction works, an observation that is hard to reconcile with the assumption that some of the walls are Roman and others, Persian.

That the fort was built by the Persians, without Roman involvement, is furthermore clearly attested by Ioannes Lydus and Priscus.[133] Biraparach, the name used by Lydus, was almost certainly identical to Cumania and probably also to Ioureiopaach (Priscus' version of the fort's name).[134] Our sources are unambiguous in attributing the fort to the Persians, but less specific on the construction date. Negotiations started after Julian's ill-fated Persian campaign of AD 363, continued well into the fifth century, and the defences must have been built and operational by the time the Saraguri discovered that the Persian fort blocked their preferred invasion route in AD 466/467.[135] Already earlier, within the first five years of the rule of the Sasanian shah Peroz (AD 457–462), the Persians had opened the Pass of the Alans (*i.e.* Dariali) to unleash a strong force of Huns against the rebellious Albanians, implying that they were firmly in control of Dariali at the time (whilst the walled pass between Albania and the Huns, *i.e.* Derbent, had temporarily been seized by the Albanians then, who had killed its Persian garrison).[136] The Persian-born and Baghdad-based ninth-century author Ibn Khordadhbeh attributes the Alan Gate to Khusro I (r. 531–579) being one of allegedly as many 360 gates or forts in the Caucasus built under this monarch. This evidently incorrect dating proposal reflects Khusro I's fame, often credited by later authors with the construction of monuments that do not date to his reign, but may perhaps reflect an awareness that Dariali Fort was a Persian construction.[137] That the Huns were never able to carry out another raid across the Caucasus into the Near East, on the scale of that of AD 395, is worth noting too. It provides further circumstantial evidence for the major pass defences across the Caucasus having been made much more impenetrable soon after the breakthrough and long before the reign of Peroz, let alone that of Khusro I.

Dariali Fort, as built in the late fourth to early fifth century, consisted of an outer fort wall at the edge of the plateau and an internally c. five-metre wide ring of rooms in the shadow of the walls, providing shelter for parts of the garrison. At a later stage, between the early fifth and early sixth century (the most likely date being within the first third of the fifth century), two pillars were erected on the inside of this ring in Trench F and two similar pillars in a similar position in Trench Q. These four pillars almost certainly formed part of a roofed walkway on the inside

of the double-ring of fort walls, probably running around the entire plateau and certainly significant parts thereof.[138]

Between the fifth and mid-sixth century, a building (F.004) was erected on the summit of the hill, employing strikingly similar masonry to the fort walls. Like these, its walls rested on bedrock, employed mortar and medium stones covered in plaster, and even boasted a similar mortar ledge. This building was, furthermore, provided with a neat mortar floor. Its solid and once probably tall walls ensured that it remained standing (just like the fort walls) for a millennium or more.[139] We encountered the south-west side of a further large internal building, also with rectilinear mortar walls on bedrock, in Trench Q. No associated layers survived, but the masonry style of its mortar walls (not encountered in any medieval structures) strongly points to late antique workmanship.[140]

In conclusion, we may observe that the fort walls and all solid mortar buildings and structures are late antique. They could all date to within a few decades between the late fourth and early fifth century. A continuation of building works into the later fifth or up to the mid-sixth century is possible too, but more difficult to reconcile with the strikingly similar masonry technique and the period of highest probability being mostly between the late fourth century and the AD 430s. Analysis of the mortar has shown it to be of impressive quality[141] and in places it remains so solid to the present day that it is hard to take a sample with a geological hammer. Dariali Fort's skilled late antique architects laid the foundations for a fort that dominated Transcaucasian traffic and remained habitable, with only dry-stone walls added later, until at least the fourteenth century – perhaps even until blown up by Russians in the early nineteenth century.

Dariali may be one of the earliest examples of the Sasanian Empire using natural barriers for safeguarding its economic assets in the interior. Leaving aside the, as yet neither proven nor disproven, hypothesis that Rome had stationed soldiers on Dariali Fort earlier, it was the first major empire who took direct control of the major Caucasus passes. Judging by the textual evidence, there will have been, probably more basic, Iberian defences in the gorge before, and the Persians may in part have followed in their footsteps, rather than having pioneered the blockage of the major Caucasus passes from scratch. Later, similar strategies were applied elsewhere, notably when a series of barriers, the Ghilghilchay, Derbent and Tammisheh Walls were built to block the Caspian coastal corridor.[142] A particularly interesting parallel for Dariali Fort is provided by the probably late Sasanian fort of Bazyan, c. 60 km ENE of modern Kirkuk. This square, c. 45 × 45 m large compound was built immediately next to a wall blocking the Bazyan Pass. A wall existed here already as early as the ninth century BC. Whilst the fort itself, despite its projecting towers, was not as impregnable as Dariali Fort, it may have fulfilled a similar function in controlling traffic, in this case within the empire. A church in the interior and a Christian cross pendant of the sixth or seventh century have led to its interpretation as a monastery. The location, however, suggests its Christian garrison fulfilled not just religious duties.[143] Even if we discount this example, there is no question that the Sasanian Empire used and enhanced its formidable natural defences to a greater extent and more effectively than any previous (and probably also than any later) Near Eastern empire and that Dariali Fort was an important early stepping stone in the build-up of an empire-wide fortification programme on a massive scale.[144]

25.3.2. Persians, Alans, Huns and Iberians in the gorge and the ethnicity of the late antique garrison (Phase 3d–f: fifth to mid-seventh centuries)

Reportedly built by the Persians and still under Persian control in AD 467, Dariali Fort does not appear to have remained in Persian hands continuously for the remainder of Antiquity. Under Anastasius (r. AD 491–518) the fort guarding the gates was held by a man of Hunnic ethnicity, according to Procopius,[145] even if bearing a Persian name, Ambazoukes.[146] Károly Czeglédy suggested plausibly that he may have belonged to the Alans,[147] who spoke an Iranian language. When the Persians had lost control is not stated. Roger Blockley may well be right in assuming that this happened in the aftermath of Peroz's defeat by the Hephthalites in AD 484.[148] Whilst the Hephthalite realm was much further east,[149] other neighbours may have felt emboldened by their victory and taken advantage of the temporary reduction of Sasanian offensive capabilities. Already elderly at the time, Ambazoukes offered to sell the fort and the gates to the Romans, perhaps after a Hunnic raid across the Caucasus in AD 504/505,[150] an offer Anastasius refused due to their remote location far from Roman territory. Soon after Ambazoukes died of natural causes and was succeeded by his sons (if perhaps only briefly). Subsequently, the Persian king Kavad I (r. AD 488–496 and 499–531) captured the gates by force, bringing the pass defences back into Persian control. The Persian reconquest probably still dates to within the lifetime of Anastasius (who died in AD 518), but after the Hunnic raid of AD 504/505. The latter severely affected the northern parts of the Sasanian Empire, so much so that Kavad withdrew his troops from Roman territory to wage war against the northern invaders, during which the Persians may have re-established control over Dariali.[151] We do not know how long the 'Hunnic' ruler and his heirs, coming from the north, controlled the gates: perhaps from the AD 480s into the early sixth century or only for a shorter time, but probably at least until AD 505. Neither are we informed if the Persians had evacuated the fort, handed it over to Ambazoukes without a fight or were evicted by force. Procopius' Greek text, however, makes it clear that Kavad forcibly overpowered Ambazoukes' sons

(if not stating where precisely or how) before regaining possession of the gates.

There is no archaeological evidence for destruction, combat or fire engulfing the fort on any occasion in the fifth or sixth century. This does not prove that Procopius' account refers to combat elsewhere or is false. Even if the fort should have been stormed against armed resistance (on the occasion of the reported 'Hunnic' takeover or the Persian reconquest or both), one would not normally expect to find proof of fighting; the victors would have had no incentive for leaving valuable metal weaponry or rotting corpses in a compound they intended to reoccupy. (And the garrison might, of course, just as well have surrendered or changed allegiance without a fight if, for example, running out of supplies.) There is also no reason to think that a hypothetical capture by force led to a blazing inferno. Any fire missiles may have been ineffective in wet weather conditions. Roofs may have been covered in slate,[152] protecting the wooden roof truss from such hypothetical weaponry even during dry spells. Little else would have been combustible in our stone-built fort. Setting alight roofs, during or after a siege would, furthermore, have been an own goal for any new masters hoping to take up residence.

More surprising is that we observed no change in material culture on the fort during its late antique phase of occupation. There is no horizon of distinctly different artefacts and, throughout the era, the occupants are surprisingly and consistently tidy. Nor, leaving aside Gveleti Cemetery, c. 2.5 km south of the fort and to be discussed separately below, have any contemporary northern graves been found so far. We should perhaps not imagine large crowds of northerners loitering in the fort for decades. A small token garrison or perhaps even the new masters of the gates preferring to settle in the open and entering into negotiated cooperation with the existing garrison, would be easier to reconcile with the archaeological evidence.

According to Geoffrey Greatrex,[153] the Hunnic takeover was 'very probably encouraged by the Iberians seeking to maintain their independence.' Iberian support, be it militarily or by cutting off supplies, certainly may have facilitated the take-over. Procopius[154] informs us that the gates were just beyond the borders of Iberia, perhaps a detail reflecting that the 'Huns'/Alans had made temporary inroads.[155] The late antique name of the Persian fort, Biraparach,[156] is widely thought to mean 'fortification of the Iberians',[157] perhaps implying that (as for half a millennium before) administratively it continued to be part of Iberia.

The Iberians may have exercised control over Dariali and potentially other Caucasus passes in Late Antiquity at least temporarily.[158] Interesting in this context is a later interpolation in the late eighth- or early ninth-century *Life of Vakhtang Gorgasali* claiming that this famous Iberian king subjugated the Ossetes and the Kipchaks, the latter ethnic group otherwise not attested before the mid-eleventh century. The same interpolation credits Vakhtang I Gorgasali (r. AD 447–522?) with the construction of the Gates of Ossetia, *i.e.* the Alan Gates, and the erection of high towers – perhaps inspired by the towers of Dariali Fort, one still prominently surviving today. The king is reported to have placed a garrison of local mountain people at the gates, exercising total control over the strategic bottleneck – which the Ossetes and the Kipchaks could not pass without royal permission. This happened allegedly on the occasion of his victorious invasion of Alan territory via Dariali Gorge in AD 456, when he was just 16 years old, following a devastating Alan incursion in c. AD 450. The king's expeditionary force, allegedly over 200,000 men (larger than Roman or Persian field armies if we trusted the figures), reportedly included contingents from other Caucasian kingdoms as well as Persia. The teenage king accomplished heroic deeds and personally slew two giant northerners in one-to-one duels, before his army won a crushing victory over the Alans/Ossetians and freed 350,000 Georgian prisoners of war.[159] Actual fort construction under Vakhtang I Gorgasali is hard to reconcile with our radiocarbon dates, suggesting that the start of building works predates his accession by a generation or (more probably) two – and it is, of course, not the only claim in the account whose veracity is in doubt.

The retrospective ascription of works at the gates to the late antique Iberian king may however contain a core of truth. Dariali Fort was, of course, occupied under his rule, and the famous king probably took indeed an active interest in his realm's northern defences. It is tempting to think that, especially in the later decades of his rule, Vakhtang I Gorgasali played a leading role in keeping the northern approaches to Iberia secure. The Armenian historian Łazar reports that Vakhtang threatened to employ an overwhelming force of Huns against the Persians, following the Armenian and Iberian rebellion of AD 482 – implying the Iberians then indeed controlled (or had hopes of gaining control of) the Dariali route, directly or indirectly – if perhaps not for long, as the Persians invaded Iberia and re-established control in AD 484, forcing Vakhtang to flee to Lazica.[160] The power vacuum in the wake of Persia's defeat at the hands of the Hephthalites soon after in AD 484 could have resulted in local actors playing again a greater role. The inroads of the Alans/'Huns' and the Iberian king's postulated military response make sense in this new power constellation, if arguably more so in the 480s or 490s than the 450s. Perhaps this involved indeed combat against the Alans/'Huns' under Ambazoukes, perhaps a *modus vivendi* was reached at some stage.

Furthermore, the masonry of Dariali's plastered-over mortar walls, often employing medium stones in layers,

resembles that at some late antique fortifications elsewhere in Iberia, such as at mountain-top castles of Atskuri,[161] Khornabuji,[162] Lopota,[163] Psitiani[164] and Ujarma.[165] This raises intriguing questions: were Sasanian architects involved in the construction of these forts too or did Iberian architects construct Dariali or was there close cooperation between Persians and Iberians? If Dariali Fort predates the reign of Vakhtang I Gorgasali, are similar mortar walls elsewhere earlier too – or was the same technique applied over generations? One is inclined to think that the technique may well have been applied over some time rather than Iberia's major late antique fortifications being part of a single short-lived construction programme. As the more reliable sources suggest that Persia took the lead in construction and manning Dariali Fort, an exclusively Iberian workforce seems unlikely. It seems, however, just as improbable that the Persians independently constructed and occupied a series of remote mountaintop outposts all over Iberia, unsustainable in hostile surroundings. The analysis of the mortar employed in late antique defensive architecture and housing at Dariali points to skilful use of the most suitable local raw materials, which may have been hard to find and exploit without close cooperation with local communities.[166] If the late antique fortifications of Iberia are neither likely to be all Persian nor all Iberian-built, can we distinguish between Persian and Iberian-built strongholds? All empires depended on local cooperation, and the Persians would have made use of Iberian logistical support to build Dariali Fort and to maintain supply and communication lines. Similarly, the hegemonic power and the Iberian Kingdom are likely to have liaised closely in other defensive matters, if not during periods of rebellion. The late antique defensive infrastructure of Iberia will have been a joint venture between imperial and local agents and not one that can be neatly sub-classified.

Sources other than the *Kartlis Tskhovreba* confirm that Iberia had a stake in the Caucasian defences in Late Antiquity. According to the Armenian author Moses Khorenats'i, the Iberian saint St Nino reportedly preached across Georgia/Iberia to 'the Gates of the Alans and the Caspians, as far as the borders of the Massagetae' (*i.e.* steppe people) – circumstantial evidence for late antique Iberia stretching in the north to Dariali.[167] St Gregory the Illuminator reportedly preached the gospel also to the very borders of the Massagetae and the Gate of Alans. The alleged identical northern borderline for the Armenian saint's missionary endeavours provides further circumstantial evidence for Dariali being considered part of Transcaucasia.[168] The passion of St Shushanik implies Iberian involvement in the fight against the 'Huns' and the defence of Derbent in the mid-fifth century,[169] and even if hagiographical literature is seldom factually accurate in every detail, it makes sense to assume that cooperative local aristocracy and their following were used to guard and defend the Caucasus border, even when under Persian suzerainty.

According to Armenian historian Łazar, the Armenian prince Vasak (of Siwnik in Eastern Armenia) was *marzban* (a Sasanian viceroy or governor not just of Armenia, but also of *Virk*, *i.e.* Iberia) in the mid-fifth century. In the latter capacity, he controlled the 'Pass of Albania', able to bring large numbers of Huns across the Caucasus and employ them as allies, when needed, having reportedly forged close relations with them.[170] The 'Pass of Albania' would normally be Derbent, although Dr Tim Greenwood kindly alerted us to the possibility that the 'Pass of Albania', *durn Aluanits'* may have become confused with *durn Alanats*', 'Pass of the Alans', *i.e.* Dariali.[171] The latter, of course, would make even more sense in the context of the *marzban* of Iberia's sphere of control. The master(s) of either pass would have had the power to enable Hunnic allies to cross the mountain chain and employ them in wars in Transcaucasia and the wider Near East. Power constellations may have been complex, and the control of Caucasus passes may well have been a joint responsibility between Sasanian Persia and her Transcaucasian client principalities. One would not be surprised if the fort's garrison also included Iberians (be it in the turbulent times of the mid- and late fifth to early sixth century or even in periods of Sasanian suzerainty before or after), but archaeological evidence for late antique Christians at the fort, or late antique burials, remains elusive so far – quite unlike Kartana Fort, for example, with a Christian cemetery located prominently at the foot of the fort.[172]

Is there evidence for continued or renewed northern presence at the gates in the aftermath of the temporary 'Hunnic' or Alan conquest of Dariali under Ambazoukes and his sons? Dariali's name, 'the Gate/Door of the Alans', may well reflect who the gates were defended against, rather than defended by – even if according to Ferdowsi[173] the Alans were ordered to build a castle or large city by Khusro I (r. AD 531–579) somewhere in the frontier zone. Agusti Alemany[174] has argued, rightly or wrongly, that this legendary account may contain an element of truth and may refer to the Alans being compelled to defend the Dariali Pass. We have already noted that the name of the Dariali Pass, 'Dar-i Al' (Gate of the Alans), refers to the Alans north of the Caucasus and is of Persian origins.[175] The Alans, of course, spoke an Iranian language, as the Ossetes still do today.[176] Whether the gates were defended by local troops, ethnic groups or mercenaries from the north, soldiers from elsewhere in the Sasanian Empire or a mixture, potentially including locally raised sons of soldiers, would be of major historical interest. The sources may suggest that the garrison's ethnic composition may have changed considerably over time, but provide little detail. The testimony of an Islamic source seems to imply the establishment of garrisons in the Caucasus region consisting of Persian soldiers.[177]

Can archaeology shed light on ownership of the gates in this turbulent time? The absence of pre-medieval graves from the vicinity of the fort is perhaps an argument for the late antique garrison consisting indeed mainly of Zoroastrians, rather than Iberian Christians or northerners, both accustomed to inhumation. Zoroastrianism had been practised in Transcaucasia and fire-temples built during the period of Persian domination in Late Antiquity, up to the early seventh century, but we are not aware of evidence to suggest that Zoroastrian fire veneration in Transcaucasia continued to be of significance beyond the demise of the Sasanian Empire.[178] It is interesting to note that the earliest grave we found clearly post-dates the end of Sasanian rule. Whilst there is some as yet little-explored flat ground between Trench E and Dariali Fort, there would not have been much space for an earlier cemetery.[179] Even allowing for some suitable ground to have been covered by rockfall over the past one and a half millennia (or graves concealed under scree, to save the terraces for horticulture) and the Tergi having eroded the edges of the cliff, suitable land for burial next to Dariali Fort must have been in exceedingly short supply. And there is, of course, no proof that any or all of it was used for an earlier cemetery. The absence of early burials in the area of Trenches E and G is worth noting. There are only two likely explanations for the absence of a cemetery: either the deceased were, for whatever reason, buried at a greater distance to the fort (somewhere to the south of Trench G) – or their remains were disposed of in a way that leaves little if any material traces. The latter is possible for Zoroastrian fort occupants, anxious not to contaminate the soil. Zoroastrians could place bones, exposed to carnivores, subsequently into ossuaries, but such practises remained confined to a wealthy minority. Interments are far and few between in the Sasanian era; inhumation and even more so cremation were unlawful for Zoroastrians and hard to reconcile with mainstream religion. The exposed remains of the vast majority of Zoroastrians will have vanished without a trace.[180] Such an argument might offer support for the sources implying that the garrison of Dariali Fort in Late Antiquity might have consisted, even if not necessarily continuously or exclusively, of Persians[181] and thus probably Zoroastrians. Admittedly, the argument is tenuous. Future fieldwork may well unearth earlier burials at a greater distance to the fort, or it may lead to the detection of a pre-medieval graveyard near the fort. The lack of suitable land and our failure to find even a single early grave so far suggests, however, that there cannot have been a very large cemetery for generations of fort occupants – unless there was a so far untraceable burial rite that avoided the use of scarce cultivable land. This does not mean that the sources are wrong in claiming that there was a period of northern control or perhaps also episodes of Iberian suzerainty, only that there was probably no large Christian or northern garrison in the fort for an extended period of time. Perhaps it was even the same garrison that stayed in charge, obedient to whoever was in control of the all-important supply chain.

A silver coin of Kavad I of AD 529, issued in distant Khorasan, from the small cemetery at Gveleti, some two and a half kilometres south of Dariali Fort, in distinctly northern tradition, is intriguing. It is, to our knowledge, the only late antique coin ever found in Dariali Gorge. Did it belong to a (non-Zoroastrian?) garrison member, perhaps to one of the 'Huns' in the entourage of Ambazoukes or his sons? The late date of the piece within Kavad's reign, just two years before the king's death, suggests otherwise. It was probably well after the reported reconquest of the Caspian Gates under Kavad, when the 'Huns' (or Alans) no longer were in charge, that the 'Charon's obol' was placed in the grave. Indeed, the text implies that the Persian reconquest took place during the reign of Anastasius (r. AD 491–518), perhaps even before the Romano-Persian truce of AD 506,[182] many years if not decades before the coin had been minted.

The inventory of the graves is, furthermore, thought to date to between the late sixth and late seventh or early eighth centuries, long after the defeat of the Ambazoukes dynasty.[183] Highly significant is also a finger ring with a seal carrying a Pahlavi inscription referring to 'justness', amongst the grave goods in another tomb (Grave 15), just two to three metres south of Grave 13 with the coin, parallel to it and probably belonging to the earlier graves, thought to date to the late sixth or early to mid-seventh century.[184] There is, furthermore, a later burial (Grave 12) on top of Grave 15, proving clearly that there were at least two phases of occupation and that the grave with the gem belongs to the earlier phase. Interestingly, the same two graves contain bronze items with equestrian iconography: in Grave 13 a broken brooch, featuring a horseman, was found attached to a leather belt. There are parallels as early as the third and fourth century, but the more stylised shape of the Gveleti piece is compatible with a sixth-century date, according to Davit Mindorashvili. In Grave 15 there was a pendant in the shape of a naturalistic horse wearing bridle gear.[185] Davit Mindorashvili and Medea Tsotselia attribute Grave 15 with the Sasanian gem to the first half of the seventh century, on the basis of the grave inventory, but do so tentatively. This allows for two options: the graves with the Sasanian artefacts could date to the era of Sasanian rule or, notably if indeed belonging to the end of the proposed chronological range, they might be post-Sasanian. In the absence of secure evidence to decide between these two alternatives, it seems prudent to allow for both options. We will discuss first the possible significance of the cemetery, assuming that it was indeed established in the Sasanian era, whether still in the sixth or only in the early seventh century, before exploring the possibility that it might be post-Sasanian.

The only two artefacts with clear Sasanian connections curiously come from graves in distinctly non-Zoroastrian tradition, whilst not a single such object has been found to date on Dariali Fort itself. These possessions suggest that the warriors or peasant soldiers, armed with spears[186] and buried with otherwise mostly northern grave goods at Gveleti some 2.5 km south of Dariali Fort, were perhaps part of an auxiliary force in Sasanian services. The absence, so far at least, of any graves from the immediate vicinity of Dariali Fort suggests that those buried at Gveleti were not part of the main garrison. The small number of individuals (16 in total) buried at Gveleti, not to mention our failure to find any more graves in trial trenches next to Gveleti Cemetery,[187] points perhaps also to Gveleti being associated with a small hinterland post rather than serving as a remote burial ground for Dariali Fort. Gveleti Cemetery was too small and too distant from Dariali Fort to account for much, if any, of its garrison. It is hard think of an alternative scenario to the hypothesis of the Gveleti burials being for Sasanian auxiliary forces, except for any later graves that may be post-Sasanian, a possibility explored further below. (A late seventh or eighth century date has been suggested for the latest graves.)

The coexistence of a Sasanian garrison on the fort and hostile armed elements so close and on the main supply route certainly seems inconceivable. Alemany's above-cited hypothesis of Alans being involved in the defence of Dariali may contain a core of truth, if there is no positive evidence for the presence of northerners in the garrison of the actual fort. Did perhaps Zoroastrians provide the core garrison, in close collaboration with Iberians as well as cooperative northerners in the hinterland to safeguard supply lines?

Does the written evidence inform us about Persia's relations with northerners at the time? In AD 515, the Sabir Huns made their way through the Caspian Gates, overrunning Armenia and plundering Roman Cappadocia, Galatia and Pontos, as attested by Theophanes Confessor and, with less information on the territories affected, by John Malalas and John of Antioch.[188] Several sources inform us that the Huns passed through Armenia[189] before turning west, suggesting that the Caspian Gates were again Dariali. Does this imply that Persia was not firmly in control of the gates then or that the garrison was not strong enough to hold the advance? Perhaps, but Geoffrey Greatrex's and James Howard-Johnston's[190] suggestion that the Persians had deliberately deflected the Huns and used for a proxy war against the Roman Empire is attractive. No exclusively Persian possessions are listed amongst the territories affected and, unless this represents our sources' western perspective, there must be a reason why the Sabir Huns targeted more remote Roman lands. A little over a half a century before, the Persians had, of course, unleashed the Huns, let through Dariali, on the rebellious Albanians.[191] Already in the mid-fifth century, Hunnic allies, admitted through the Derbent Pass, after a joint force of Albanian and Armenian rebels had ousted and slaughtered the Persian garrison, had been employed against the Persians.[192] Whoever controlled the passes was in a powerful position to strike deals with northerners attracted by the wealth of the south, but only able to reach it, if admitted through the major passes. This was a powerful tool in the hands of Persia. The terror spread by the raid of AD 515 was great enough that it was, it seems, specifically alluded to in Syriac apocalyptic writing – that anticipated that a future Hunnic invasion via the same gates would herald the end of the world.[193]

In AD 531, the Sabir Huns are reported to have invaded Roman territory again, reaching Armenia, eastern Cilicia and the Upper Euphrates region. Malalas attests that they once again took the route via the Caspian Gates, whilst according to a sixth-century Syriac church history, based in part on the work Zacharias Rhetor, they had been hired by the Persians.[194] It seems Dariali formed a convenient 'people sluice' at the time, through which northern raids could be channelled towards Roman territory. There are various ways how the gatekeepers could have exercised pressure on the Sabir Huns (*e.g.* taking hostages, military threats or denial of future raiding opportunities) not to turn on Persian possessions – but perhaps the most powerful was that they were in control of the return route home. It is best not to speculate if and how precisely the small group of northerners buried at Gveleti may be related to these events that must have involved vastly greater numbers of men – and, in all probability, included Northern Caucasian Alans. The sixth-century historian Procopius interestingly attests that the Alans, settling next to the Caucasus and the Caspian Gates, whilst an autonomous nation, mostly fought as allies of the Persians against the Romans and other enemies.[195] That there appear to have been alliances between the Sabir Huns and the Persians (probably also including the Alans) under Kavad I and early in the reign of Khusro I provides a possible context for the presence of armed northerners in the gorge, even if we cannot be sure what precise role they played. It was via the Dariali and Derbent Passes too that Sasanian gems and coins found their way north, and there were many more Sasanian coins north of Dariali than Derbent.[196] That not even a single Sasanian gem or coin has been found on Dariali Fort itself (but one each at Gveleti Cemetery) suggests perhaps that these were precious items given to Persia's allies rather than its own frontier troops, those buried at Gveleti probably belonging to the former and those occupying Dariali Fort to the latter group. Admittedly, graves often yield more unusual finds than settlements, but coins and gems are small enough that one would expect the occasional loss, had they circulated on the fort in significant numbers. (Even silver coins and gems are far from uncommon amongst ordinary site finds in many earlier settlements in the Roman Empire.)

Occasional cases of head deformation from late antique Iberia, a practice that originated on the steppe and spread widely to the south and west at the time, probably belong to northerners, perhaps allies of the Persians and/or Iberians as well.[197] Written sources and material evidence are consistent, and there is no serious doubt that the Persians controlled the gates in the mid-sixth century and employed northerners as allies. Jordanes' claim, by contrast, that it was the Lazi who guarded the Caspian Gates then as the agents of Rome[198] is not credible, even if it is true that the Lazi (never the masters of Dariali as far as we know) in Western Transcaucasia were under Roman control then and that the Lazi and Rome indeed guarded parts of the Caucasus. The author's geographic expertise did not stretch much beyond the Bosporus.[199] If some of the armed northerners at Gveleti were Sasanian allies and if we follow the proposed chronology of the cemetery with the latest graves thought to date up to the late seventh or early eighth century, then the group seems to have stayed in the area into post-Sasanian times.

Persian rule over Iberia did not remain stable throughout the sixth century. In AD 571/572 the Turks sent an embassy via Alan territory to Rome. According to Theophanes Confessor, forts (*φρούρια*), which must include Dariali, were then still held by Persia, with Roman financial support.[200] Also in AD 571/572, the Iberians, under their ruler Guaram I (or Gorgen) rebelled against the Persians, but he was forced to seek refuge in Constantinople in AD 575. In AD 572 war broke out between Persia and a Turkish-Roman alliance, with the Alani on board too (but the Sabir Huns temporarily at least being pro-Persian), and in AD 575 and 576 Roman armies advanced as far as Albania. One wonders if a Sasanian garrison at Dariali remained loyal to central government, despite likely supply problems in the 570s or if the Iberians gained at least indirect control. By c. AD 580, Persia was again in control of Iberia and abolished the Iberian monarchy. In AD 588/589, parts of Iberia became a Roman protectorate, and Guaram I/Gorgen was reinstated as a ruler (r. AD 588/589–602) based at Mtskheta, issuing his own coinage imitating that of Hormizd IV (r. AD 579–590), but supplementing or replacing the holy fire by a Christian cross.[201] In AD 591, Persia officially ceded substantial territories to the Roman Empire, the border now being immediately to the west of Tbilisi, which itself remained in Persian control.[202] The two powers now both possessed territories close to the gates, and we do not know under whose suzerainty they were at the turn of the century.[203]

Relations between Rome and Persia deteriorated dramatically in the wake of the murder of Maurice in AD 602. The violent death of his imperial benefactor provided Khusro II (r. AD 590-628) with a pretext for war. Persia not only re-annexed all its former possessions in Transcaucasia, but large parts of the Roman Empire, from Syria to Egypt. The Caucasian frontier remained significant right to the end of Antiquity. Heraclius (r. AD 610-641) campaigned extensively in Transcaucasia in AD 624–627. In AD 626 and 627, his powerful Turkish allies broke through the Caucasus defences, and the Turkish-Roman coalition eventually captured Tbilisi and won decisive victories in Transcaucasia in the late AD 620s. They appear to have chosen the Derbent route on this occasion. Movses Daskhurants'i refers specifically to the Gates of Ch'or, *i.e.* Derbent, on both occasions, whilst Theophanes Confessor reports that they broke through the Caspian Gates, followed by an invasion of Adraigan (*i.e.* Azerbaijan/Albania), suggesting that the Caspian Gates on this occasion meant Derbent. The heavily fortified Derbent Wall would have formed a most formidable obstacle, even if allegedly a flood wave caused heavy destruction to Derbent, facilitating the second Turkish invasion of AD 627.[204] One wonders why the Turks invaded via Derbent. There could have been multiple reasons, including that the targets of the invasion were in part closer to Derbent, but indeed only in part. It is hard to imagine that the risk would have been taken of trying to break through the Derbent Wall, notably on the first occasion when there was no report of a natural disaster paving the way for the invasion, had there been a safer route. If so, this would suggest that the Dariali Pass retained its, probably Persian, garrison and offered no easier alternative to the formidable Derbent Wall, guarded one assumes by a substantially greater number of soldiers. The Sasanian 125 ha-fortress of Torpakh Kala some 20 km south of the Derbent Wall could easily have accommodated a garrison of perhaps 30,000 horsemen, perhaps one hundred times or more the likely number of soldiers at Dariali.[205] Torpakh Kala may have been a temporary campaign base, but even if unoccupied or partially occupied at the time, Derbent itself and the Derbent Wall with its associated fortlets will have sheltered a substantially greater number of soldiers than Dariali.

There may well have been further soldiers in the hinterland of Dariali too, but no other fort, certainly none dating back to Late Antiquity, has been found to date. This may be unsurprising as a small garrison was sufficient for Dariali Fort with its unrivalled natural defences and location to control traffic along the gorge, whilst it would have been hard to maintain a garrison large enough to withstand any enemy force succeeding in making its way past the gates in less favourable terrain further south.

Derbent and probably Dariali remained in Persian possession into the early AD 640s.[206] If this is accepted, it seems improbable that Gveleti Cemetery was established only after the end of Sasanian rule. Even if the cemetery was post-Sasanian, or if its foundation dated to a brief interlude in the late sixth/early seventh century when Persia might have lost effective control over the gates, it would be no easier to explain. The absence of similar graves from the vicinity of Dariali Fort is worth noting – suggesting that neither the northerners buried

at Gveleti nor any of their kinsmen were ever in charge of Dariali Fort itself. The armed group in the hinterland at Gveleti and the garrison of Dariali Fort seem to have found a *modus vivendi* – perhaps indeed first settled as a Sasanian auxiliary force, perhaps staying on beyond the end of Sasanian rule.

Circumstantial evidence suggests that Persia maintained its Caucasian defences almost to the end and unsurprisingly so. Frequent Turkish-Roman alliances in the late sixth and early seventh century[207] made it vital for Persia to make the Caucasus as impenetrable as possible for Rome's Turkish allies north of the mountains. Already before the appearance of the Turks, there had been temporary alliances between Rome and ethnic groups north of the Caucasus, as suggested by both written sources and rich Roman imports, quite possibly diplomatic gifts, from the steppes north of the mountains.[208] Such alliances no doubt aimed to ensure that northern aggressors targeted Persian interest rather than Rome's north-eastern provinces. Seth Priestman's analysis shows that southern pottery supplies increased in the early to mid-seventh century (phase 3f), whilst northern sources diminished,[209] perhaps adding strength to southern links being maintained and strengthened when the conflict between Persia and Rome's allies in the Northern Caucasian steppes reached their climax in the early seventh century.

25.3.3. Use of space and the size of the garrison

Leaving aside the steep eastern slope, almost certainly unoccupied,[210] there was only some 0.4 ha of habitable space available to the fort occupants (Figs 25:17–25:18). How large was the garrison of Dariali Fort? The precise number is impossible to estimate and depends on a number of unknown variables:

- How large the F.004 building and the long late antique building in the north-east of Trench Q were.
- How many more of these internal buildings (with how many rooms units of how much living space) existed across the hilltop, bearing in mind its partial excavation and the likelihood that some late antique walls will have been demolished to make way for medieval buildings or modern trenches.\
- Were internal buildings single, double or multiple-storey? The substantial mortared walls could easily have risen to some height.
- Was there a single row of similarly-sized casemates all around the perimeter?
- To how many storeys may these have risen? Excavations on Trench F suggests a minimum of two, but the well-built mortar walls could easily have reached a much greater height, which would not only have increased indoor living space, but also enhanced the fort defences.

Not only the extent of indoor space is crucial, but also its use:

- How many of the rooms were, partially or exclusively, dwellings, how many served storage or other purposes?
- How many soldiers might there have been on average per room and how many non-combatant family members or other civilians?\
- How may this have changed over time?

As there is no trace so far of an extramural settlement – nor much suitable ground for it in the fort's vicinity – it seems likely that women and children lived with their husbands and fathers on the hilltop plateau. One is inclined to think that they made up a similar proportion of the population as in other pre-industrial societies. The scant literary evidence also points to Sasanian soldiers living with their families rather than in solitude.[211] Whichever customs the Persians may have followed, they need not apply to those in Sasanian services or other groups in control of the fort. Reportedly, there were of course periods when the gates were manned by northerners under the command of Ambazoukes and the presence of Iberians is possible

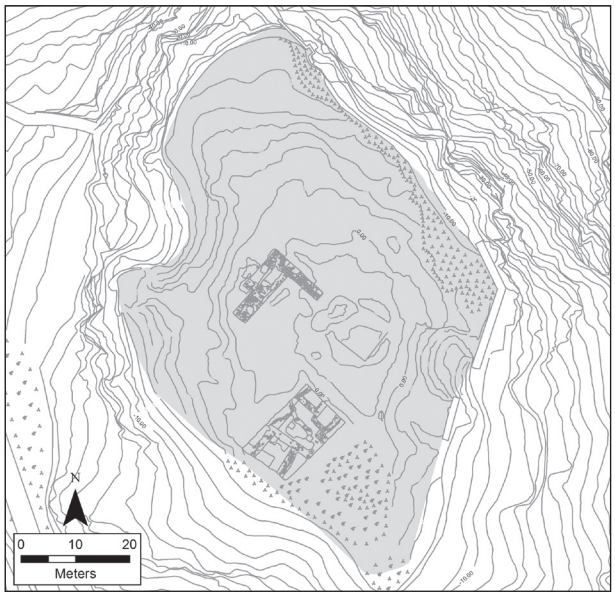


Fig. 25:17: Dariali Fort was, at c. 0.4 ha habitable intramural area (shaded in grey) not counting the extremely steep eastern slope, minute in comparison to other Sasanian forts and fortresses. It could not have held a large garrison and, on its own, cannot have cost the Sasanian state more than a small fraction of the subsidies demanded from the Eastern Roman Empire. Laser-scanning plan by Malkhaz Datukishvili and Giorgi Kvaratskhelia, with approximate extent of intramural area plotted by Kristen Hopper. (Note that the map was compiled in 2015, prior to further extension of Trench Q.)



Fig. 25:18: Dariali Fort seen from the west. Note the fairly straight outer wall in the foreground (hidden by vegetation during laser scanning), at the very edge of the plateau, running from Trench F to the fort's north-west tower. Drone image by Davit Naskidashvili.

too.[212] No changes of garrison in the late antique era are archaeologically traceable, nor do we know much about relevant ethnic customs. There is no reason to assume that any potential long-term garrison would have been mainly or exclusively adult male. The cemetery population, whilst exclusively early medieval and thus not necessarily representative of pre-medieval occupants, also points to a local community in which men and women were equally present, as well as many children.

There are too many unknowable factors to venture an estimate with any great confidence, nor any reason to think the population was static in an age of infectious diseases and unreliable supply networks. Perhaps it is possible nonetheless to provide a rough estimate of approximate holding capacity. The strategic significance of the site and the circumstantial evidence for multi-storey occupation would suggest that occupation density was higher than in an early imperial Roman fort and perhaps closer to what has been proposed for heavily defended late antique compounds. Given the overall size of roughly 0.4 ha (not counting the steep eastern slope), it seems unlikely that there were more than a few hundred occupants in the small fort. For late antique fortlets, credible estimates for occupation density range from c. 5–16 square metres intramural space per occupant, suggesting that Dariali Fort may have been designed for 250–800 persons (and only a minority of these may have been fighting men).[213]

25.3.4. Worth 500 pounds of gold per annum? Persian demands for Roman financial contributions to guard the Caucasus passes.

25.3.4.1. The purpose of monetary demands

Dariali Gorge – still mostly called the Caspian Gates in Greek and Latin sources – features as prominently in late antique sources as it had done in early imperial times.[214] Whilst invasions affecting Parthian territory had already passed the gorge in the first and second centuries AD, it was in the fourth, fifth and sixth centuries that the narrow pass increasingly became one of the cornerstones of the defensive cordon of the south against hostile forces in the north. The gates feature prominently in negotiations between the Great Powers of Persia and Rome on how to share the responsibilities and financial burden for keeping this cordon as impenetrable as possible. As already observed, it was the Persians, more exposed to barbarian incursions via the Caucasus passes, who eventually built a fort (*i.e.* Dariali Fort) unaided by Rome.[215] Persian defensive investment, to the mutual benefit of both empires, formed the reason or pretext for negotiations, demanding Roman financial contributions, that were to last from the fourth or fifth well into the sixth century. In this chapter, we will explore how to explain monetary demands of seemingly disproportionate magnitude, centred on a tiny fort. We will also investigate its role in the defensive cordon as a whole.

How onerous and costly was it to guard the Caucasus passes? Ioannes Lydus claimed that the Persians were not strong enough to guard their own territory and the additional land gained, notably in Transcaucasia, following Julian's defeat in AD 363.[216] Was it really the case that Roman participation or financial support was needed for the maintenance of Persian defences in the Caucasus? The archaeological evidence, certainly for the following centuries, paints a rather different picture. The Sasanian Empire, capable of building the Gorgan Wall in the fifth century, whose forts had a combined size of some 80 ha – not to mention even larger fortifications in the hinterland of this and other walls covering a combined area of many hundreds of hectares[217] – should have had no difficulties in manning one small fort at the Dariali Pass. Dariali Fort (c. 0.4 ha)[218] was less than one four hundredth the size of the largest known Persian fortress (Qal'eh Iraj near Varamin of c. 175 ha internal size[219]) on its own – and a few thousand times smaller than all known Sasanian forts and fortresses combined (and there are likely to be many more that we do not know).

Even assuming Dariali Fort was densely occupied, the number of occupants can hardly have exceeded a few hundred, not all of which will have been fighting men.[220] This is a small fraction of the estimated garrison of 30,000 each 125-ha campaign base or camp at Qal'eh Pol Gonbad, Torpakh Kala or at Dura-Europos would have been capable of holding, not to mention Qal'eh Iraj at Varamin comfortably accommodating 40,000 or more.[221] And it will have been a minute fraction of the Sasanian army that will have numbered hundreds of thousands of men.[222]

Yet, the literary sources record repeated Persian requests for substantial Roman subsidies – which, if concerning the Caspian Gates alone, would have been for the maintenance of arguably less than one thousandth of the Sasanian Empire's armed forces. In AD 532, as much as 11,000 Roman pounds of gold (c. 3.6 metric tons of gold or 792,000 Roman gold *solidi*, enough for the annual pay and upkeep of some 66,000 soldiers, or that of 500 soldiers for more than a century) was requested. In AD 561/562 annual payments of 30,000 Roman gold *solidi*, or even as much as 500 Roman pounds (36,000 solidi, enough for the annual pay and upkeep of some 2,500–3,000 soldiers at Roman rates) were agreed.[223] For empires of the size and wealth of the Roman or Sasanian realms,[224] these were no exorbitant sums, but surely large enough not to be given without good reason. Eleven thousand pounds of gold was the price Khusro I demanded for the promise of eternal peace, for the Romans not being required to raze the fortress city of Daras and for the Persian forces guarding the Caspian Gates without Roman participation.[225] Our source, Procopius, clearly refers specifically to Dariali Gorge here and whenever using the term 'Caspian Gates',[226] implying that the defence of this one mountain pass alone was thought to be worth vast sums of money. Other sources suggest that defensive efforts on a broader front underpinned Persian demands. Menander Protector, in the context of the events, 30 years later refers to more than one passage route; it was the first obligation under the treaty that the Persians would not grant passage to the Huns, Alans or other barbarians via the narrow route at Tzon (Derbent) or the Caspian Gates towards the Roman Empire.[227] Payments evidently were demanded for the entire Caucasian defences of the Sasanian Empire.[228] Ioannes Lydus implies an even broader scope: Biraparach (Dariali Fort) was in the Caucasus, but built against barbarians living around Hyrcania – a confused account that might perhaps reflect that Persian negotiators had the entire northern border defence system from Dariali to the Gorgan Wall in mind.[229] A confusion between Hyrcania/Ὑρκανία and Hiberia/Iberia/Ἰβηρία cannot be excluded. Both were known as 'land of the wolves' (Vrkana/Vrkan) in Old Persian.[230] But in light of Roman ambassadors having been to Hyrcania in AD 464/465 and c. AD 474,[231] there may have been more knowledge of the Trans-Caspian defensive system at the Eastern Roman imperial court than the surviving written evidence directly attests.

The question thus arises what motivated the repeated Sasanian requests for Roman cost-sharing:[232]

- Did Caucasian defensive efforts (in fact very much in Persia's own interest as those invading via Dariali Gorge, let alone barriers further east were likely to inflict more harm on Persian than Roman territory, if left to their own devices) form a convenient pretext for demanding monetary subsidies, or a convenient excuse for raiding Roman territories in case payment was refused?[233]
- Did these demands refer indeed to all defensive installations in the region, including any further west (such as the Mamison Pass[234]) and those in the east (notably the Ghilghilchay (Figs 25.19–25:20)[235] and/or Derbent Walls on the Caspian Sea shore)? Did proposed cost-sharing perhaps even apply to the major barriers east of the Caspian Sea, notably the Gorgan Wall, even if the latter would have been of no benefit to Roman interests?
- Was there a much more substantial Sasanian military presence in the Dariali Gorge than could have been accommodated within Dariali Fort?

The fact that already in the late fourth century, before the erection of any of the major Sasanian long walls, plans to build a fort at the Caspian Gates were discussed in negotiations between Persia and Rome,[236] is worth noting. It suggests that the Dariali Gorge was at least a key part of the defensive cordon maintained to the mutual benefit of the two empires, all the more so as invasions via this route were more likely to affect Roman interests than any further east. When Rome started to comply with the demand for financial contributions is a matter of academic



Fig. 25:19: Did Persian demands for Roman financial subsidies relate to the entire system of Caucasian defensive barriers – a scheme on a much grander scale than Dariali Fort alone? The Ghilghilchay Wall, surviving to a height of up to seven metres in places (see human scale and horse in front) and undoubtedly much higher prior to decay of its mud-brick architecture, ran from the Caspian shore high up into the Caucasus. It would have required formidable manpower to construct and guard, yet it is dwarfed by the even grander, more solidly built and more heavily defended Derbent and Gorgan Walls.

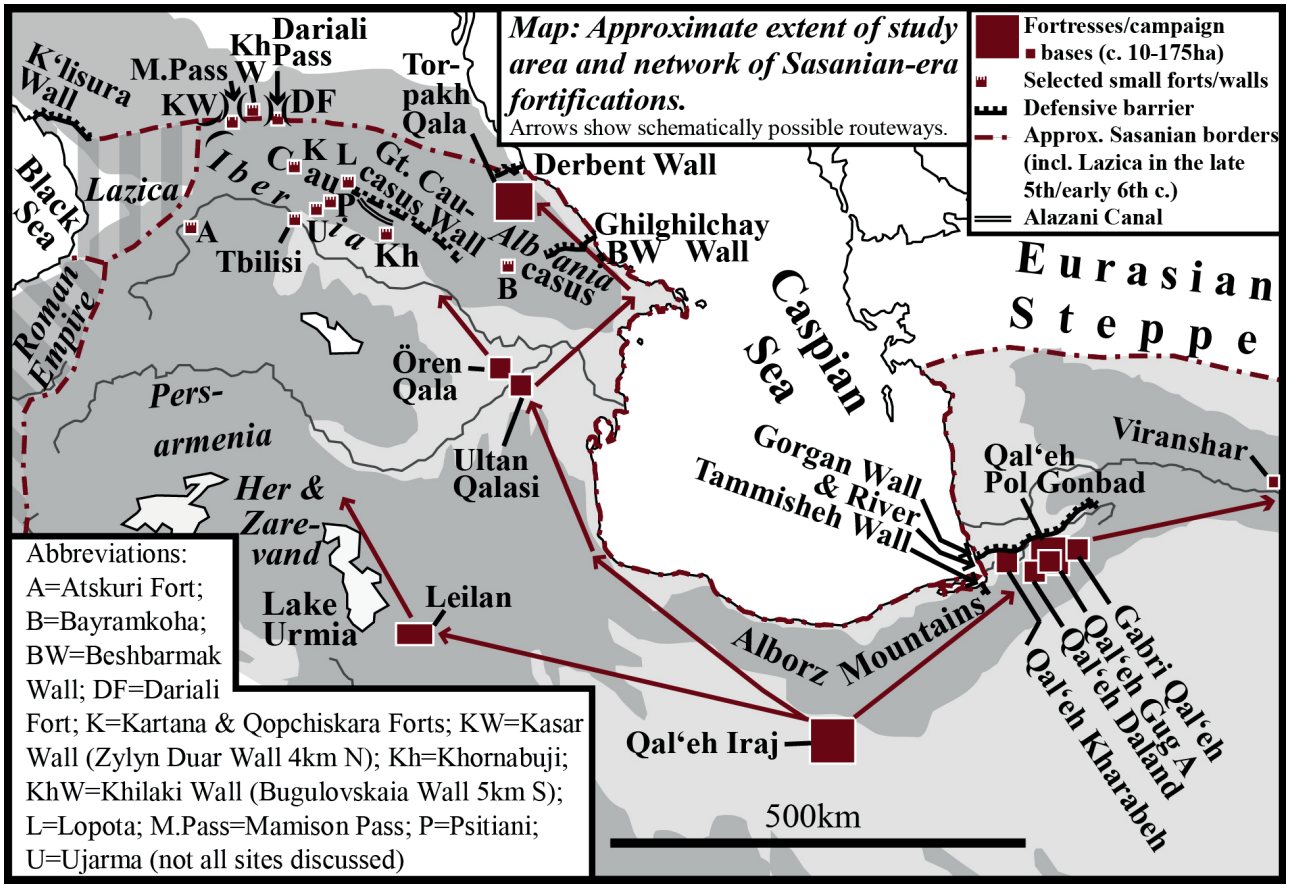


Fig. 25:20: Hypothetical Transcaucasian deployment scheme of the Sasanian army. The relative size of the rectangle symbols reflects that of the postulated Sasanian campaign bases. Some of these (Gabri Qal'eh, Ören Qala and Ultan Qalasi) were/developed into urban sites, but their plan suggests military foundations. Arrows show schematically possible routes of field armies towards Transcaucasia and the Gorgan Plain. Only a selection of small forts and walls (not to scale), of certain or likely Sasanian-era foundation, has been plotted.

debate. For the sixth century we have specific sums, but it is possible that payments commenced already in the fifth century.[237] It seems, as further explored below,[238] that the demands related to the entire defensive system in the north, if Rome's interests focused on the Central Caucasus. There is no reason to think Persia was only able to maintain its northern defences at times when it received subsidies from Rome, but it used them effectively for the protection of its own territories and economic interests, as well as a bargaining token in negotiations.

25.3.4.2. Demilitarised hinterland and low-cost defence at Dariali?

The Persian request that Rome should send money or soldiers to man the fort at the gates (named Ioureiopaach) in the AD 460s,[239] and the claim of Kavad I to have stationed a numerically strong army at the Caspian Gates following its capture from the barbarians (*i.e.* the 'Huns' under Ambazoukes and his sons),[240] makes one wonder if there was more than a small fort capable of accommodating no more than a few hundred men. Is it possible that there were forces of far greater numbers than those occupying the fort, with many of them living in undefended settlements to the rear of the barrier? If so, the alleged high costs in defending the gates might not refer to the comparatively small garrison of Dariali Fort, but to a more populous group of warriors/soldiers living perhaps in as yet undetected settlements nearby.

So far, however, there is no evidence that the fort's garrison or any settlements nearby received generous payments in cash. Apart from a Sasanian coin of Kavad I from Gveleti Cemetery,[241] not a single late antique coin appears to have been found in the area. Those buried at Gveleti, with spears amongst the grave goods, may well have been part of a back-up allied force, as argued above.[242] Yet with as few as 16 burials unearthed, and nothing to suggest that the cemetery was much larger, this was not likely to be a large contingent, nor is it easy to imagine that vast numbers of people ever lived on the few suitable plots of land around Gveleti.

It seems indeed highly improbable that there was any extensive settlement in the immediate hinterland of Dariali Fort, as suitable ground not at risk of rock avalanches is in limited supply. Landslides once every few years would have made settling in the Tergi River Valley below its confluence with the Amali River a suicidal undertaking.[243] More suitable land for settlement would have been available from the area of modern Stepantsminda southwards. This may also have been an area that produced food for the garrison. Whilst undoubtedly occupied, there is no evidence to date for any ancient fortified sites, ancient weaponry or other signs of military presence that we are aware of.

Not only the lack of positive evidence for troops stationed in the hinterland of the Dariali Fort, but also more general observations make us doubt there ever was a large back-up force in the hinterland. Due to its superior position, a small body of men at Dariali Fort could have held a much larger number of opponents at bay. Any northern force strong enough to break through at Dariali could not have been stopped by a substantially larger number of troops (not the numbers that could have been fed in the long term in alpine valleys) on an 'even playing field' in the hinterland. Settlements south of Dariali were vital for food production and safeguarding the supply lines from the south. Any hypothetical back-up forces were probably small in number and of use only if put into play before an enemy had succeeded in making it past the gorge's defensible bottlenecks. There is nothing to suggest that there was a further line of defence south of Dariali Fort (or later south of Gveleti Fort).

Even if one accepts that the gates were naturally so well defended that a few hundred men could have effectively blocked the passage of much larger armies, they certainly could only have done so, if the local community to the rear was firmly on their side and supplied them with the necessities of life. The importance and difficulties involved in maintaining supplies to Dariali has been stressed by Benjamin Isaac.[244] Archaeologically it is difficult or impossible to distinguish between sites occupied by Iberians, Persians or other ethnic groups. There is no known string of bastions that may have guarded a supply chain. Indeed, we are not aware of any late antique fortification between the heavily defended Narikala Fort at Tbilisi and Dariali (except for forts in a side valley to be discussed below).[245] The lack of known fortified night shelters for any supply convoys suggests that Dariali was provisioned by, or in cooperation with, the Iberians and local communities – rather than by heavily armed units travelling through hostile mountain valleys. Such a symbiosis makes sense. A malnourished garrison may have been susceptible to bribery. In case of a major raid or invasion via Dariali, the population on the route to Tbilisi would have been the first to suffer. For those living on the supply route, feeding a few hundred occupants of Dariali Fort – or enabling others to do so – would have been a small price to pay for safeguarding their own lives and livelihood. Matters may, of course, have been more complex. Travellers will have faced risks (probably, like in more recent times, including robbery and theft), and we are not attempting to paint a picture of peace and tranquillity prevailing on the southern approaches to the fort. Yet, the lack of fortified sites suggests that a way was found to supply the fort in cooperation with the communities on the route and without incalculable dangers.

Could alimentary needs have been satisfied without long-distance supplies? Over two centuries ago, Reineggs[246] believed that there was enough land suitable for agriculture and pasture in the immediate vicinity of the fort to sustain even a garrison as large as a thousand men. Whilst this was undoubtedly an exaggeration,[247] archaeology suggests that there is a core of truth to Reineggs' hypothesis. A deep build-up of cultivation layers on the terrace to the south of the fort attests horticulture or agriculture starting probably around the first century AD or even before and continuing until at least the eighth or ninth century and probably well beyond. There was no *in situ* late antique sample amongst the few samples processed, and build-up of soil was at its most rapid in the Early Middle Ages (the period that also saw the most intensive intramural rubbish deposition and perhaps most manuring). Worn pottery from the area of the early medieval cemetery suggests that prior to its creation even more land

in the vicinity of the fort was used for growing food.[248] We assume that the terrace was used for horticulture or agriculture for much of the first millennium, but whether continuously or intermittently is impossible to tell.

Looking a little further afield, our landscape team has estimated that the land of arable potential between Dariali Fort and modern Stepantsminda could have fed at least 775 and at most 6,200 people[249] – and substantially more if produce from the wider valley beyond modern Stepantsminda is taken into account. Landscape survey has, furthermore, revealed how effectively suitable land in the gorge was used for food production in recent centuries. Post-medieval terraces normally appear to have erased the traces of earlier field systems. Yet the discovery of probably pre-medieval pottery from Tsdo is important, suggesting that the largest expanse of land suitable for agriculture in the immediate hinterland of Dariali Fort was already under cultivation in Late Antiquity.[250]

It is, however, hard to imagine that any garrison could have held out for long, if left isolated – nor could an isolated garrison's commitment to defending the gates have been relied upon. Possible evidence for episodes of stress or malnutrition amongst the fort's early medieval guardians, to judge by the skeletal evidence,[251] demonstrates that life could be harsh on the alpine outpost. And even if we are right in thinking that the population in the hinterland had an interest in keeping the garrison well fed, avalanches and landslides could have disrupted supplies temporarily. Whilst much staple food and meat may have been sourced from north of the Jvari (Cross) Pass, there will also have been convoys bringing further supplies from the lowlands of Transcaucasia.[252] Not only are these attested for later, in the Early Middle Ages, but archaeobotany has yielded evidence for millet that is unlikely to have grown anywhere in the Central Caucasus, accounting for about 30% of identified cereal remains in Late Antiquity (phase 3) – rising to over 40% in the Early Middle Ages (phase 5) – and lasting from the start (phase 3a) to the end (phase 3f).[253] Worth noting is also a peach stone from the upper fill (F.178) of the foundation of wall F.050, unique evidence for such a fruit from the southern lowlands consumed whilst construction works on the fort were ongoing.[254] Frustratingly little unusual items were lost or left behind by Dariali Fort's tidy pre-medieval inhabitants, but a piece of glass (F.190/1599) of likely Sasanian manufacture, from the foundation trench for wall F.050, is worth noting.[255] The impression remains nonetheless that little glass was in use at the site in the pre-medieval period (fourth to seventh centuries) in comparison with the Early Middle Ages (eighth to late tenth or early eleventh century), bearing in mind the fragility of the material, making it difficult even for tidy occupants to avoid the occasional breakage and loss. The fort was supplied from the south, but not lavishly and at great expense.

Troops in Dariali Gorge probably did not exceed three-digit numbers. Irrespective of the precise number of troops present, the gorge, at the crossroads of the nomadic and sedentary world, will have been the most critical element of the Caucasian defensive cordon west of the Caspian coastal corridor and the most important from an Iberian and a Roman perspective. Maintaining the fort, would not have cost more than a small fraction of reported Persian demands. Yet, it was part of a system. No chain is stronger than its weakest link, and blocking off either only the Dariali or only the Derbent route would have left a dangerous loophole.

25.3.4.3. Dariali: a link in the wider Caucasian defensive chain

Undoubtedly, people were already in Late Antiquity and the Early Middle Ages conscious of the fact that the fortification programme in the Caucasus was all part of a single system. Symptomatic is the testimony of the ninth-century Baghdad-based historian Baladhuri that Kavad I (r. AD 488–496 and 499–531) erected a brick barrier between the land of Sharwan and the Alan Gates, implying that there was a continuous wall from Derbent on the Caspian Sea to the Dariali Pass. Whilst undoubtedly untrue, the passage may reflect an awareness of the interdependence of the various links of the defensive chain, much of it being formed by the rugged Caucasus itself, rather than manmade barriers.

Very interesting in this context is the little-known Great Caucasus or Qala Divarlari Wall running along the foot of the Caucasus Mountains. Thought to date to the fifth or sixth century, there is charcoal in the mortar, which should enable scholars to date this major monument in future. This mortared stone wall survives to over three metres height at Katex in Azerbaijan and reportedly once ran for over 150 km from Sabue to Sheki, but it will require a survey to try to trace preserved sections of the wall elsewhere, as much of it appears to have been demolished. It boasted towers, but no known forts, except for a small round enclosure, perhaps suggesting it was a control line guarded by locals. It is hard to imagine that this wall once joined up with the Derbent Wall, let alone Dariali Fort, but there may have been an element of truth Baladhuri's report; long walls, if often using stone rather than brick, may have secured significant segments of the Transcaucasian frontier. As a result of modern stone robbing, we may never know the full extent.[256]

Intriguing is also the foundation of no less than 360 cities reportedly lining this wall. Whilst Kavad I is credited with the wall and the 360 cities, Derbent and the Alan Gate itself were only built under Khusro I (r. AD 531–579), if we follow Baladhuri. Writing also in the ninth century, Ibn Khordadhbeh mentions 360 gates or forts controlling the mountain valleys, whose construction he attributes

to Khusro I. Ibn Khordadhbeh only lists a small number of these 360 sites, including the Alan Gate (Dariali) and Derbent. The number of 360 attested by both authors, if unlikely to be literally true even if all forts on the Derbent Wall were included, may imply a belief in a more complex system than one that was focused on Derbent and Dariali alone. That, according to Baladhuri, the 360 cities reportedly all fell into ruins after the erection of Derbent on the other hand implies that these numerous sites were thought to be in the vicinity to this portal city rather than in the Central Caucasus. If unlikely to number 360, there may well be many minor gates/control points that are not well known or still to be discovered.[257]

Can archaeology solve the question if the Caucasian defensive system was two-pronged or multi-faceted? Attempting to identify all fortifications in use in late antique Transcaucasia and Caucasus would be a massive undertaking. Neither would it be easy and straightforward to establish which of these may have formed part of defensive networks (Fig. 25:20).[258] All we can do here is to identify and discuss a small number of fortified sites that may have played, for shorter or longer periods, part in defensive chains or guarded the hinterland and supply corridors. These may include the Kartana and Qopchiskara Forts controlling a narrow natural gate formed of two rock cliffs in the Pshavi Gorge, a side valley to the Aragvi. All traffic from and to Khevsureti, had to pass this strategic bottleneck with space for no more than the Pshavis Aragvi River and a track on its bank between the imposing cliffs. A nearby graveyard suggests sixth to eighth century origins.[259] Late antique Lopota Fort on a defensible hill next to a synonymous river, some 23 km north-east of modern Telavi, employs mortar construction. Access to advanced construction techniques may suggest that it was more than a local refuge, perhaps a royal stronghold, temporary residence and outpost, possibly also controlling traffic. Whilst Lopota Fort is not on a traffic route today, the valley is leading towards the Northern Caucasus, and Laghiashvili has persuasively argued that the region has much to contribute about political and economic relations with the Northern Caucasus.[260]

Potentially much more significant than these two minor side valleys was a route further west. Braund[261] has persuasively argued that 'there were many routes across

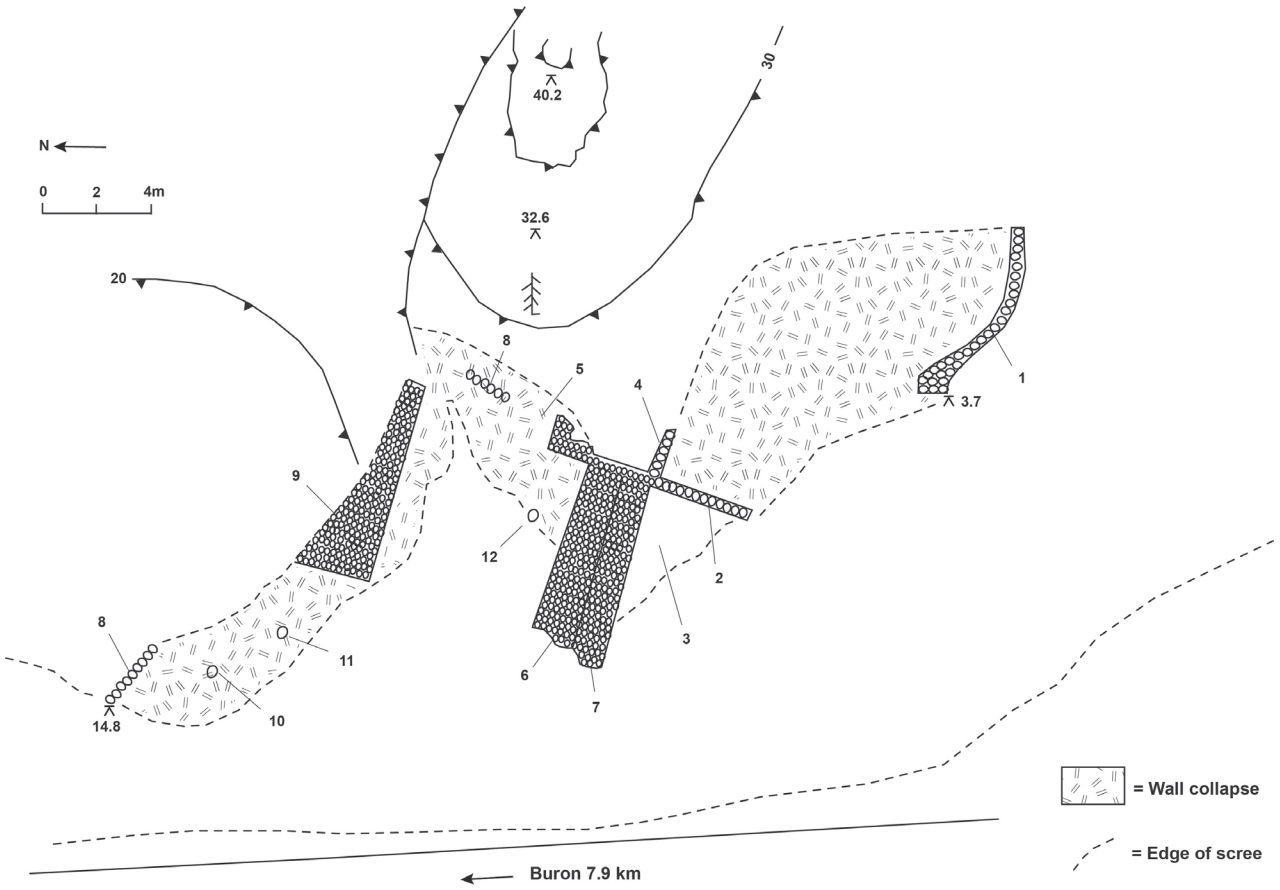


Fig. 25:21: Plan of the Kasar Wall, employing mortar and a masonry style that resembles Dariali's late antique walls (after Kuznetsov 1990, 183 fig. 38: topographical survey of 1986 by the engineer and surveyor S.A. Pigorov). (Key: 1: Southern face of the platform; 2: Western face of the platform; 3: Accumulation of cultural material; 4: Edge of an aperture (an embrasure?); 5: Collapsed masonry; 6: Wall B; 7: Wall A; 8: Wall fragments; 9: Wall C; 10–12: Cavities of rotted beam structures.)

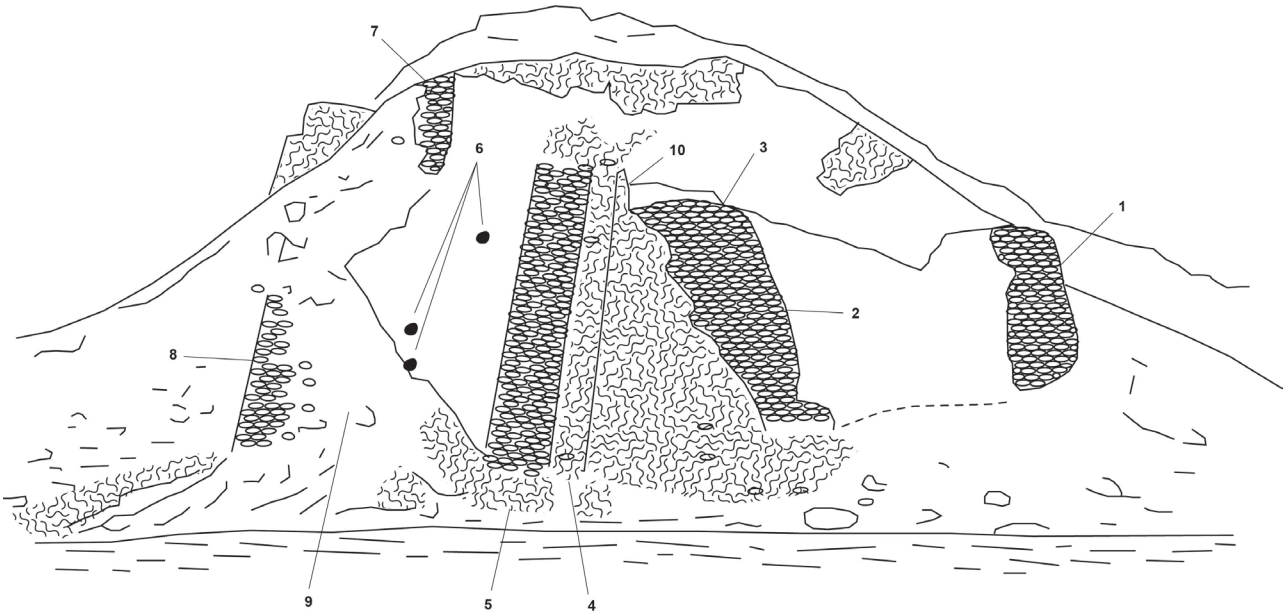


Fig. 25:22: The Kasar Wall seen in profile from the south-west (after Kuznetsov 1990, 184 fig. 39. There is no scale, but the plan above will give an idea of dimensions). Its sloping walls, to increase stability (and withstand water pressure during floods?) resembles a Gorgan Wall bridge over the Sari Su River, also employing strong mortar: perhaps the Kasar Wall was a gorge-blocking Sasanian gated bridge barrier on the approaches to the Mamison Pass? (Key: 1: Southern (rounded) face of the platform; 2: Western face of the platform; 3: Cavity of rotted plank; 4: Defensive wall A; 5: Defensive wall B; 6: Cavities of rotted beam structures; 7: Collapsed masonry and face of the wall, directed against the north; 8: Defensive wall C; 9: Remains of the material to fill the space between the walls; 10: Edge of a destroyed aperture.)

the Main Caucasus' and that the Mamison Pass 'deserves more attention'. The Kasar Wall (Figs 25:20–25:22), c. 4.5 km north of Zaramag in Ossetia and c. 53 km west of Dariali (as the crow flies), once appears to have formed a barrier blocking the narrow gorge of the Ardon River, on the north-eastern approaches to the Mamison Pass. A seventh-century date was proposed, on the basis of scientific analysis of the mortar. Charred material, from soil to the south of the monument, has been tentatively dated, via radiocarbon analysis at Moscow, to as early as the first century AD, but doubts have been raised as to the reliability of the date. The first century is indeed questionable, being just the uncalibrated average (1950±250 BP), whilst calibration (731 BC – AD 601 at 95.4% probability) leaves a wide range of options. Furthermore, it appears to be unclear if the sampled deposit is part of a soil bank of redeposited material, alluvial material building up on the upstream side of the monument or an occupation horizon of uncertain relation to the monument. In other words, we cannot be sure if the sample is earlier or later than the wall and it could date to the Sasanian era or up to a thousand years before.[262]

Much more significant are burial grounds in the vicinity of the wall. The small Galfandag Cemetery, 50–60 m south of the Kasar Wall, has yielded two Arabic silver coins dating between AD 800 and 808.[263] A much larger burial ground, the Mamisondon Cemetery, is located c. 5 km south of the Kasar Wall on the north-eastern approaches to the pass. The graves are early medieval (c. late seventh to early ninth centuries). They are west-east oriented and faces often (if not always) look south (perhaps towards Mecca?), but the variety of body positions and the presence of finger rings with Christian crosses and figurative art points perhaps to a multi-faith community. Grave goods, notably glass rings and bracelets, have parallels at Dariali.[264] On the basis of these associated finds, an eighth-century date for the wall has been suggested.[265] Albegova and Vereshinskiĭ-Babaĭlov argue for a construction no later than the seventh or eighth century.[266] The wall appears to have been garrisoned at the height of the Arab-Muslim conflict in the eighth to early ninth century. Yet, the late seventh to early ninth century date of the cemetery does not necessarily prove a peak of pass use or defensive efforts then, let alone wall construction. Dariali Fort, with its mortar walls, predated the earliest grave in the associated cemetery by three to four centuries. The occupation of Dariali Cemetery (late seventh or eighth to late tenth or early eleventh century, as far as unearthed), is no reliable yardstick for fort occupation or traffic, evidently commencing long before and continuing well beyond. Similarly, the Kasar Wall is not likely to be younger than the, probably associated, cemeteries, but could be earlier.

The architecture of the Kasar Wall may provide more reliable clues as to its date. The massive wall, of eleven metres thickness closing off the gorge, has an ashlar facing

employing stones of similar size in rows, a masonry technique that is similar to that of the Trench L tower and the well-preserved eastern walls of Dariali Fort. Using building blocks of similar size is, of course, characteristic for large-scale Sasanian construction projects, like its long walls, built of millions of bricks of almost identical size and shape to ensure a seamless fit.[267] Whilst stone walls cannot match brick construction, in standardisation of component size and shape or in neat coursing, it is perhaps no coincidence that there is a degree or regularity in stone size in some Sasanian construction projects in the Caucasus. A further possible indication for Sasanian origins is that the Kasar Wall also appears to employ strong mortar. Its construction technique would be compatible with Sasanian origins, all the more so as in the region (certainly at Dariali Fort) there is no evidence for such mortar walls in pre-Sasanian times or in the Middle Ages – if admittedly in wider Transcaucasia there are medieval castles with mortared stone walls. The wall resembles in section, furthermore, a dam – with some similarity to a section of the Gorgan Wall, between Forts 2 and 2A, forming a bridge.[268] The Kasar Wall, just as this Sasanian defensive bridge in Northern Iran, negotiated a river valley and was designed to withstand water pressure and to control traffic. A report by the eighteenth-century geographer Vakhusht'i may add strength to this interpretation. He describes a gate at a narrow passage of the valley built of rocks and mortar with a large arch, either at the river or over the river, which he believed the kings of Georgia had built to prevent the Ossetians/Alans from venturing past this point.[269] This mortar gate is probably the Kasar Wall (or potentially the Zylyn Duar mentioned below) whose arched gate evidently still stood in the eighteenth century, whether it only spanned the road next to the river or, more probably, also led across the Ardon River and effectively controlled the whole passage. The massive construction, boosting a wall-walk, leaves little doubt that it was a defensible gate.[270] A second tower-reinforced road-blocking barrier, c. 4 km north of the Kasar Wall, the Zylyn Duar, is undated.[271] Its mortar masonry, as far as one can base a judgement on published photographs, also bears some similarity to that observed at Dariali.

A further set of gorge-blocking barriers 5 km apart, the Khilaki Wall, 335 m long and reinforced with six towers, and the Bugulovskaia Wall, was built in the Fiagdon River Valley. We are very grateful to Professor Dmitry Korobov for having alerted us to these important, if enigmatic, barriers. They block narrow sections of Kurtati Gorge. Like the Kasar Wall, Dariali Fort, the associated road-blocking wall and Bakht'ari Fort, they employ strong mortar. If all four gorge-blocking walls in the Northern Caucasus are late antique, as the gorge-blocking walls at Dariali and Bakht'ari Forts certainly are, then one wonders if the construction of a set of two barriers in each gorge (at the most suitable bottlenecks created by nature) was part of a defensive strategy. Were such double-barriers designed to make opposed crossing more difficult and dangerous, potentially trapping the enemy in between two walls? On the basis of scientific dating of the mortar, Anatoliy Nagler proposed a seventh-century date for the Khilaki Wall and suggested it played a role in the wars of the AD 620s between Khusro II and Heraclius.[272] We have no way of assessing the reliability and accuracy of the dating proposal. Irrespective of scientific dating, it is significant that the well-built wall employed strong mortar. As in the case of the Kasar Wall, one is tempted to think that it may date to a similar time as the mortared walls in Dariali Fort, *i.e.* between the late fourth and sixth centuries. It employs medium stones of similar size in neat rows, a masonry style that we also find in late antique Dariali Fort and the Kasar Wall. There is no evidence for mortar masonry at Dariali or Gveleti Fort at any point between the seventh and the early twentieth century, despite intensive occupation of the former until the fourteenth or fifteenth century and the latter until the sixteenth or seventeenth century. This argument renders it also unlikely that these barriers, notably the Khilaki and Kasar Walls, were built under the auspices of the Arabs or regional Caucasian or Transcaucasian principalities in the Middle Ages. Dariali Fort was reportedly under the control of the Caliphate, the Emirate of Tbilisi and the Kingdom of Georgia in the Middle Ages, not to mention other potential local powers, yet there is no evidence for the construction of anything more elaborate than dry-stone walls for more than a millennium. Why should the same medieval powers have blocked minor Caucasian valleys with sophisticated masonry structures, if they failed to employ such technology in Dariali Gorge?

If there are no obvious medieval parallels, who might have built the wall in pre-medieval times? According to Nagler, the Khilaki Wall was built to prevent the western allies of Khusro II from joining the war effort, implying it was built by Rome or her allies in AD 620s, close to the scientific dating proposal of a construction in AD 638. Yet, Nagler also believed that the Dariali Pass was under the control of an Alan-Khazar/Turkish alliance supporting Rome. If so, one wonders why even western allies would have chosen such a difficult route in lieu of a minor detour via Dariali.[273] The sources, furthermore, imply that the Khazars/Turks invaded via Derbent, making it likely that Dariali was under Sasanian control.[274] Whilst late Roman origins of the Khilaki and Kasar Wall are possible, architectural parallels and the repeated emphasis in the sources of Persia shouldering most of the Caucasian defensive efforts, not to mention the relative proximity of the walls to Dariali, all point to Sasanian rather than Roman workmanship. This argument gains strength if we allow for the possibility that the walls, whilst likely to be later than the main pass defences in Dariali, could be earlier than the proposed early seventh-century date.

The Khilaki Wall is located between Dariali Gorge and the Mamison Pass. It also blocks a north-south-aligned river valley. It does not lead to any major pass across the Caucasus, but there are high altitude mountain passes across the main watershed that are not considered difficult.[275] If indeed part of a Sasanian defensive system, and the case is not proven, it would imply that the Persian state and its Iberian allies anticipated enemies might even venture via difficult and dangerous routes across the Caucasus. It is hard to imagine they would have taken such a risk, had there been an easy way to break through the Dariali or Derbent defences – perhaps indirect evidence to suggest that the latter two main passes were hermetically sealed at the time.

Whilst the Mamison Pass, let alone any high-altitude paths across the mountains south of the Fiagdon Valley, is significantly higher than the route via Dariali and the Cross Pass and was far less used in the recent past, perhaps there were indeed more Sasanian barriers and strategically placed forts blocking other routes than we know to date.[276] Indeed, the masonry of the gorge-blocking Kasar and Khilaki Walls may suggest that they are of Sasanian origins and that Persia and her Iberian allies also blocked the Mamison Pass or even more difficult routes across the Caucasus. The claim of Baladhuri and Ibn Khordadhbeh that there were 360 Persian cities, forts or gates in the Caucasus implies an awareness of the sheer scale of investment into what was considered a single system encompassing all of Persia's Caucasian frontier. Archaeology implies that there appears to have been a significant core of truth in the reports of Baladhuri and Ibn Khordadhbeh.

Massive Persian investment into defences of the Caucasus is also attested by a c. seventh-century Georgian manuscript found in Saint Catherine's Monastery in the Sinai. The listed works include three Ossetian gates plus a large Ossetian Gate – the latter perhaps Dariali – two further gates, the Gates of Khazaria (Derbent) and an even grander rampart of K'lisura. The latter appears to be a 58 km long wall (c. 100 km including the gaps where mountainous terrain provided natural protection), running from the Black Sea coast 5 km south-east of modern Sokhumi into the Caucasus. The manuscript provides a seventh-century *terminus ante quem* for its construction. This impressive monument, surviving to 8–10 m height in places and reinforced with 279 towers, has also been tentatively dated to as recently as the seventeenth century and would merit further investigation. If Sasanian, it certainly was not under permanent Sasanian control, as Rome was in control of Lazi territory under Justinian.[277] Yet, it is possible that in the later fifth/early sixth century there was a Persian defensive chain from the Caspian to the Black Sea, not continuous, but blocking coastal plains and major passes. If indeed Persian-built, the western section must either have been abandoned or have come under the aegis of Rome, once Lazica became part of the Roman Empire.

Persia will have had an interest in the maintenance of the entire system. It also had an interest in making the case for Roman financial support palatable to her western neighbour. Hence negotiators appear to have placed the main emphasis on Dariali, a lesser emphasis on Derbent and little if any on the colossal defensive efforts to the east of the Caspian Sea. The sums agreed in the AD 560s were a modest contribution, but Rome withholding payment would not have put the upkeep of the defences into jeopardy. Persia's frontier troops do not normally appear to have been paid in cash.[278] Had they been remunerated at estimated Roman rates, the sums would have sufficed for a far larger garrison than could have been accommodated in Dariali Fort, but would have been almost certainly insufficient for the Caucasus, including Derbent, as a whole. According to the Nihayatu l'Irab, Khusro I stationed 12,000 horsemen to guard the Derbent Wall,[279] whereas Tabari provides a figure of just 5,000 for the permanent garrison (cavalry and infantry) in Armenia/the Caucasus frontier.[280] Whilst these sources may not necessarily be reliable, there was a large rectangular fortress south of the Derbent Wall, Torpakh Qala, large enough to house perhaps up to 30,000 men on its own, if probably only at times of crisis.[281] It is thus likely that the Sasanian garrison in the Caucasus was substantial. For the entire system, including the Gorgan Wall with its estimated garrison of quite possibly 20,000–30,000 men[282] not counting that of hinterland defences, capable of holding some 5,000, 10,000 or 30,000 more men each (if not all simultaneously),[283] the payments were the proverbial drop in the ocean. Persia and her allies possessed the resources to defend the system on their own.

There is no evidence to suggest that the defences were weakened at times when Rome did not pay or that they were stronger when it did. Perhaps, however, payment bought Rome a temporary relief from northerners being channelled via the Persian-controlled passes towards Roman territory. And this may well have been worth the money. The gates, if well-guarded, would have been an asset to the Eastern Roman Empire, protecting its richest provinces, in Asia Minor, the Near East, Egypt and Northern Africa. These were protected by natural barriers, *i.e.* the Black Sea, the Bosporus, the Sea of Marmara, the Dardanelles and the Mediterranean Sea, as well as deserts and major mountain chains, and they were beyond the reach of most of its enemies – as long as the Caucasus passes were sealed.

In other periods, Rome appears to have focused material support on those settling north of the Caucasus – as a different form of insurance policy. The Sasanian Empire was not dependent on Rome's subsidies to maintain its military apparatus, but will have welcomed subsidies in

precious metal nonetheless. It used its military strength to economic advantage and used the gold for purposes other than military pay.[284] And there may also have been a genuine and perfectly rational belief that preventing northern invaders from crossing the Caucasus did indeed protect the Roman Empire and that asking for a financial contribution was far from unreasonable.

25.3.5. A frontier garrison paid in kind?

The occupants of Dariali Fort were no direct beneficiaries of Roman subsidies. Just as there is no evidence for coinage from the forts on the Gorgan Wall, not a single ancient coin has been found on Dariali Fort during our four years of excavations nor, to our knowledge, ever before or since. This cannot be explained by tidiness, and the value of metal alone. In earlier forts in the Roman Empire, where we know soldiers to have received monetary payment, excavations regularly yield, depending on the scale of fieldwork, the size of the compound and local circulation patterns, dozens, hundreds or thousands of coins. Had soldiers in Dariali Fort and on the Gorgan Wall received pay in coinage and engaged in monetary transactions on a regular basis, it is inconceivable that not even the odd piece would have been lost or concealed. Ammianus Marcellinus probably told the truth when stating in the later fourth century that Persian foot soldiers received no pay in coinage[285] and this still appears to have been the case in the fifth, sixth and seventh centuries. Even in the Late Roman Empire, few low-denomination coins were issued and lost at forts after c. AD 400 – and payment in kind made up for parts of soldiers' earnings.

One silver coin of Kavad I of AD 529 issued in Khorasan, from a grave in Gveleti Cemetery, has already been mentioned.[286] Whatever the deceased's identity, perhaps a member of a northern allied force, this single coin amongst grave goods may have been kept or acquired for the journey to, or use in, the afterlife and proves no widespread possession of coinage, let alone a fully-fledged monetary economy in the gorge. The huge payments demanded from Rome do not appear to have reached the guardians of the gates. Payment in kind may suggest that they were lower status frontier troops, or perhaps that possession of coinage was of limited use, as there was little money could buy from mountain folk who had never used or even seen coinage. Barter economy prevailed in the gorge not just in Late Antiquity, but throughout the first millennium. We know of only four coins minted before the fifteenth century to have been found in the Tergi River Valley upstream of Dariali Fort: in addition to the Sasanian coin from Gveleti, one *denarius* of Augustus (issued c. 2 BC – AD 14) and two half dirhams of AD 786–809 or 802 and AD 810 or 821/822. The latter two were pierced and found in a grave – evidently used as jewellery and not for monetary transactions.[287]

Payment in kind is hard to trace archaeologically, but there is potential negative evidence. Post-Sasanian (mid seventh to early eighth century) deposit F.096 contained the earliest of 12 spindle whorls found on and around Dariali Fort.[288] The fill of an early trench (F.208), containing both redeposited late antique and early medieval material, produced a spindle whorl too that could date to any time between the fourth and ninth century. In short, there is no firm evidence for pre-medieval textile production on Dariali Fort so far, but clear proof for early medieval spinning of wool. It is perhaps worth noting that also in Fort 2 on the Gorgan Wall, most spindle whorls come from later phases of occupation, in this case of the sixth to early or mid-seventh century. The original garrison of Fort 2, of the fifth to sixth century, appears to have engaged in little, if any, textile production, whilst the later garrison did.[289] In Fort 2, the change occurred within the Sasanian era, on Dariali Fort, on the basis of the finds available to date, only after the end of the Sasanian era. The sample size, it should be noted, at both Dariali Fort and the Gorgan Wall is small and future fieldwork could easily alter the picture. Should future fieldwork confirm that textile production started only in the later phases of Sasanian occupation or after the empire's fall, then one is inclined to think that initially clothing was supplied as part of free provisions for the frontier armies. Later, such payments in kind seem to have diminished too. As crucial as clothing for the soldiers who guarded the Caucasus frontier, often in freezing weather, was food. And here it seems they could also rely on state support. Priestman observed a switch from a high proportion of giant cooking vats in Late Antiquity (phase 3) to small cooking pots in the Early Middle Ages (phases 4 and 5), suggesting a switch from mass to household catering[290] – perhaps a further indication for occupants in the Sasanian era benefitting from a central supply system that broke down in post-Sasanian times – and perhaps replaced by a less generous system, where individuals had to make greater contributions.

Interesting too is that at Dariali Fort the proportion of pottery imports from the south is growing throughout the Sasanian era from the later fourth century/early fifth century (phases 3a and 3c) to its peak in the first half of the seventh century (phase 3f), if admittedly the sample from phases 3e and 3f is comparatively small and all coming from the same area outdoors. The gradual growth of southern supplies shows no interruption in the fifth to sixth centuries (phases 3d-3e); Ambazoukes' postulated conquest of the fort in the late fifth/early sixth century evidently entailed no traceable disruption of southern supplies. For some of the southern wares, Priestman found Iberian parallels,[291] probably implying Iberian involvement in the supply. This does not disprove that the fort was under Persian control, as the Sasanian state had no incentive for bringing heavy and fragile pottery from more distant lands, if readily available in Iberia. Perhaps pottery too was part of a payment in kind system, whatever the

reason for the growing dominance of southern supplies over time.

25.3.6. Dariali's strategic significance

The remarkable attention ancient authors pay to the Dariali Pass reflects, no doubt, its strategic importance. The case is made perhaps most clearly by Procopius. The sixth-century historian offers an assessment as to the significance of the Dariali route similar to that by Pliny almost half a millennium earlier, even if providing less detail on topographical features (but also referring clearly to the Dariali Pass[292] and not to Derbent), if, unlike Pliny, calling it the 'Caspian Gates':

> The Taurus Mountain Chain runs from Cilicia first through the lands of the Cappadocians, the Armenians and the so-called Persarmenians and then to the Albanians and Iberians and all the other ethnic groups, independent or under Persian rule, living there. It stretches out over a wide expanse of land, and all along its course, it always reaches an extraordinary breadth and height. After one has crossed the Iberian border, there is a path in an extremely narrow gorge, 50 stades [c. 9 km] long. This path terminates at a precipitous and totally impassable place, and there is no way through, except a narrow gate, nature has created here, looking like a man-made construction, called 'the Caspian' since ancient times. From there on there are plains, fit for riding horses and with plenty of water, much land suitable for horse-grazing and in any case flat. Here live nearly all the Hunnic tribes, up to Lake Maeotis [the Sea of Azov]. If these Huns go through the aforementioned narrow gate and into Persian and Roman territory, they travel with horses unexhausted, without having to make any detours and without encountering any precipitous mountains except for those 50 stades, where they, as mentioned, reach the Iberian border. If they go via any other routes, they arrive only with great difficulty and are no longer able to use the same horses, as they are compelled to make extensive detours, via steep mountainous terrain.[293]

Whilst Procopius[294] acknowledges that the Caucasus can be crossed via other passes, the terrain was so difficult that he considered it impossible to get horses across safely – so that no mounted raid could easily have bypassed the gates. Few cavalry raiding parties would have taken the suicidal risk to be left stranded on the enemy side of Europe's highest mountain range without their horses nor an easy escape route. Furthermore, a successful crossing of the Caucasus via a difficult route did not guarantee a safe return; a deterioration in weather conditions could easily have resulted in the same elevated route being blocked by deep snow. Even in the late nineteenth century 'the road through this narrow gorge', *i.e.* Dariali, was considered 'the only passable one that crosses the Caucasian range', and even if there were 'one or two other tracks', they were not 'practicable for wheeled carriages'.[295] This is not to imply that it was an easy route, and nineteenth-century travellers vividly describe gaping precipices at the side of the narrow track and the risk of being buried by avalanches, which often blocked traffic.[296] Even after initial road improvement, travellers in the 1810s and 1820s often progressed as little as ten miles a day, not to mention the dangers posed by hostile mountaineers forcing them to join large armed convoys.[297] Even today crossing in winter or early spring is not without its challenges, as we experienced ourselves when being driven from Tbilisi to the gorge on 17 April 2013, witnessing lorries stuck in deep snow, blocking all traffic until dug or pulled out (Fig. 25:23). A crossing in late January 2017 was less eventful, but also taught us that road conditions in winter can deteriorate rapidly, with black ice and snowfall posing grave risks.

The almost universal agreement amongst classical, medieval and modern authors on the unique strategic significance of the Dariali Gorge would be hard to explain, had it been regularly bypassed via alternative routes further west. Ioannes Lydus clearly states that after the Persians had built the fort (*φρούριον*) of Biraparach (Dariali Fort) no enemy invaded.[298] A notable exception is formed by the Saraguri who, whilst also not succeeding in making their way through the Caspian Gates in the AD 460s, finding a Persian frontier post (*φρούρά*, *i.e.* Dariali Fort) blocking their way, took another unspecified route to Iberia.[299] Perhaps it was events like these that stimulated the blockage even of less trodden paths and the construction of the above-cited Kasar and Khilaki Walls, the former at the approaches to the Mamison Pass. The Mamison Pass, discussed above,[300] whilst higher, more difficult and less travelled in the past, was perhaps one of the most important alternative routes. Whilst there are other paths across the Central Caucasus (and it has not been possible as part of this project to survey and assess the difficulty of alternative routes) the preeminent



Fig. 25:23: Even in spring (photo taken on 17 April 2013) the route over the Cross Pass poses major challenges today. Dariali Fort's garrison could not have relied on regular or any supplies over the cold season.

role of Dariali is not in doubt, and Braund persuasively interprets the 'fortifications' at Cumania' as 'the principal line of defence for the [Roman] empire'.[301] It is safe to conclude that effective control of the Dariali Gorge and the Caspian coastal route, whilst certainly not preventing all unauthorised traffic across the Caucasus, would have greatly reduced the risk of any successful major incursion.

In the narrowest part of the Dariali Gorge there was no alternative route to that via the valley bottom, not even for the lawless: in the 1840s the risk of robbery was considered much lower than at the northern approaches to the gorge in the foothills and the steppe. It was too difficult for robbers to get away with their booty, where almost vertical rock walls blocked any escape from the main valley.[302] Effective control of the narrowest part of the gorge sealed off, more or less hermetically, the entire route.

The efficacy of the system of Sasanian barriers in the Caucasus has been rightly emphasised by modern authors,[303] such as Howard-Johnston: 'The Caucasus and its multitudinous highland peoples formed a virtually impenetrable barrier (save for the central Dariel Pass and the Caspian Gates at the eastern end [*i.e.* Derbent]) which sheltered both Persian and Roman sectors of Transcaucasia from the northern nomadic world.'[304] Controlling crossing points meant controlling Transcaucasian traffic. Any hostile forces attempting to break through the barriers in Dariali Gorge or at Derbent, whilst vigilantly guarded, risked probable defeat and, even if victorious, heavy losses and possible annihilation trapped in enemy territory. The combined effects of deterrence of most would-be invaders, and decimation of the undeterred, will have greatly reduced raiding and its corrosive economic repercussions.

Dariali Fort may only have been a tiny compound, but it was a major asset to whoever controlled it. Its garrison punched well above its weight, due to its command of one of the most vital Transcaucasian traffic arteries and invasion corridors. Sasanian fort and barrier construction here, as well as at Derbent (not to mention the Ghilghilchay Wall and further barriers on the eastern flank of the Caucasus and remote mountain passes), is symptomatic of the Empire's strategic vision. It was the first Near Eastern Empire to recognise the importance of using and enhancing the Caucasus as a formidable natural barrier. Investment was unequal: the combined size of the forts on the Derbent Wall plus Derbent itself and the vast 125 ha campaign base of Torpakh Kala in the hinterland dwarfs Dariali Fort. And even the over 60 rectangular fortlets on the mountain section of the Derbent Wall (measuring c. 20 × 10 m to 36 × 33 m), plus the much larger bases in the coastal plain, do not approach the dimensions of all Sasanian fortifications in the Gorgan Plain combined.[305] This should not imply that Dariali was unimportant – quite the reverse. That a small fort sufficed was a result of natural defences in the gorge being far more impenetrable than walls in the Caspian coastal corridor. A breach of the latter would have been easier to accomplish and far larger numbers of troops were required to guard the Derbent route. Dariali Fort dominated a much narrower bottleneck. An overdose of military personnel was neither needed, nor would it have been easy to sustain, in this extreme alpine setting.

25.4. Power vacuum: mid-seventh century collapse of Sasanian rule to eighth-century Islamic conquest (Phase 4)

After the military campaigns of Heraclius in Transcaucasia and the peace treaty with Persia, Roman influence in the region increased, and it appears that after AD 630, more Roman coins entered circulation in Iberia, at the expense of Sasanian issues (even if none has been found so far in Dariali Gorge). The Roman/Byzantine Empire became a dominant force in the Caucasus for significant parts of the later seventh century.[306] We do not know who was in charge of Dariali Fort in the century following the reduction of Sasanian might in the late AD 620s and its eventual collapse in the middle of the century. At Derbent, the Persian garrison was in place until AD 642/643 when it surrendered to the Arabs.[307] No Arab armies reached remote Dariali for another three quarters of a century, except perhaps in passing: a Muslim raid against the Alans, via Armenia, is reported for AD 662/663.[308] Did Dariali also retain a Persian garrison until the AD 640s – and perhaps well beyond, if left to its own devices after the fall of the Sasanian state? A Khazar take-over has been postulated, but not proven.[309] There is nothing to suggest that Dariali was abandoned at any stage in the seventh century. A geographical work of the seventh century informs us that the Gates of Alans were in the territory of the Tsanars/Kakhetians settling in the Upper Tergi River Valley. Constantin Zuckermann, dating this source to the third quarter of the seventh century (*i.e.* the immediate post-Sasanian era), understands it to mean that the Alan Gates belonged to the Tsanars. Zuckermann and Hewsen attribute the work to Ananias of Širak (AD 610–685), but according to Hewsen the description relates to the period prior to AD 636, *i.e.* late Sasanian times. The English and French translations of the Armenian text imply simply that the gates were in the territory inhabited by the Tsanars, not that they necessarily were the political masters of the fort.[310] Irrespective of the precise date and interpretation of the text, it is hard to imagine that any relic Sasanian garrison outliving the Empire they had served could have survived without close cooperation with the local population. The Tsanars may well have been in charge in the late seventh and early eighth century, whether directly or indirectly.

In the early AD 710s, when the Arabs were already in control of Iberia, the Roman/Byzantine Empire tried entering into an alliance with the Alans[311] – Dariali once

again lying on a political fault line. We do not know who controlled the fort at that time, perhaps the Alans, possibly the Tsanars, perhaps a small independent entity between the major power blocks.[312] It was only in the following decade that Arab control expanded further north. Mas'udi attests that the place was held by an Arab garrison stationed here by the Umayyad general and regional governor Maslama.[313] First reached by Muslim forces in AD 724, Maslama reportedly captured the fort in AD 727. This marks one of the turning point in Dariali's fortunes. Its history under Muslim rule, with Muslim power gradually waning and that of local principalities and northerners growing, will be explored in the next chapter.

What can archaeology contribute to the question as to the ownership of the fort between the mid-seventh and early eighth century? Our fieldwork implies continuous occupation, with the same tidiness prevailing throughout the seventh century that we have also observed in the fifth and sixth centuries.[314] Except for one post-hole, likely to date to the mid-seventh to early eighth century,[315] there is no evidence for any construction within the fort in the aftermath of the Sasanian Empire's demise. Only following a localised conflagration in the second half of the seventh or early eighth century, do we observe a marked change of cultural behaviour. This involved a massive increase in intramural rubbish disposal, the reuse of open space for refuse heaps and the construction of new dry-stone walls – a pattern of activity that lasted to the end of the millennium. The earliest grave in the cemetery (of c. AD 671–770) could date to this phase or the next, but the latter seems more likely as all other graves belong to phase 5. One has the impression that the same garrison remained in place until the later seventh or early eighth century and was only then replaced by a new group of occupants – bringing with them different traditions.

If the same (in part Persian?) garrison remained in charge beyond the fall of the Sasanian state, it cannot, of course, any longer have been under the same political command chain. Left to its own devices, and probably entering alliances with emerging powers in Transcaucasia and/or the steppes, such a garrison may have lacked the initiative, resources or technical skills to embark on a major new construction programme. The solid late antique buildings would probably have provided enough accommodation and storage capacity. The continued reluctance to dump large quantities of food remains or other refuse in the intramural area is best explained by such habits passed on from generation to generation – rather than an entirely new garrison being implanted.

It is in this phase that we see a sharp rise of a new pottery class identified by Priestman, grey or black burnished stone tempered cooking pots (GREBS), for which there are few parallels in Georgia. Not represented in any noteworthy quantity in previous eras, they account for as much as a quarter of the phase 4 assemblage. Perhaps sourced from the north, possibly more locally, they may hint at a degree of disruption to southern supply networks and the occupants having to seek new suppliers more locally.[316]

These conclusions are tentative. As we have observed, Ambazoukes' reported temporary possession of the gates is archaeologically unproven so far. Archaeology may suggest that his conquest in the late fifth/early sixth century and any possible political realignment in the seventh century may not have involved the wholesale expulsion or slaughter of all previous occupants, but may have been much subtler. Perhaps many generations of the same core garrison remained on Dariali Fort, from the fort construction in the late fourth (to early fifth) century to the seventh or early eighth century. It might have been supplemented by newcomers who adapted to the garrison's lifestyle. It may have been willing to cooperate with whoever was in control of the vital supply lines.

Such, admittedly hypothetical, negotiated changes of alliances would have been in the mutual interest of fort occupants and those in control of the hinterland. No new power could realistically hope to storm the fort, or even just to make its way past it against the will of the garrison, without suffering a heavy blood toll. Control of both southern and northern supply lines, plus a potentially lengthy siege would have been required to starve the garrison into submission. Conversely, the garrison's medium to long-term wellbeing and sheer survival was wholly dependent on it receiving provisions from either or both directions. Shumilovskikh's investigation of plant remains has established that the garrison received supplies of food from the south, such as millet, already around the time of fort construction in the late fourth or possibly early fifth century.[317] Anadromous fish also must have come from afar, as the fast-flowing Tergi near the fort is poor in fish,[318] with the species represented at Dariali only available much further downstream. And it need not have been a northern import. The trout and sturgeon consumed by the late antique and medieval occupants of Dariali Fort may well have come from the south too, *e.g.* the Kura or potentially Aragvi Rivers (although the latter was thought to be poor in fish in the eighteenth century).[319] Sturgeon and trout, whether brought over the Cross Pass from the south or potentially from the steppes in the north, will no doubt have been a rare treat, rather than on the daily menu. Staple foods, such as grain even if in part grown much closer to Dariali, were more vital for survival. The fort's garrison could not have held out for long, if not provisioned by, let alone actively resisted by, the population in the hinterland. We know of no other late antique fortifications near Dariali Fort, let alone a fortified supply chain. The stronghold's isolated location suggests that its garrison was, if not well integrated, at least accepted by the local community, perhaps in part as it offered protection from raiding. With the most forbidding sides of Bakht'ari

and Dariali Fort both facing north, their garrison could normally have withstood any threat from the north, so long as it received dependable supplies from the south. Whenever the system broke down, be it as a collapse of the southern support system or any northern neighbours gaining a firm foothold on both approaches, the garrison would have had no choice but to seek collaboration with whoever could provide the necessities of life.

25.5. The gates and their garrison in the Early Middle Ages (Phase 5)

25.5.1. A stable frontier in an unstable world

The seventh century brought about arguably more decisive changes to the power constellation in the Mediterranean and Near Eastern world than any previous century in the first millennium AD. Soon after Persia and Rome had ceased hostilities in AD 630, following 27 years of war, which had pushed the Roman Empire to the brink of annihilation and had undoubtedly also weakened Persia, a formidable new force arrived on the scene and began to make inroads into both empires. The rapidly expanding Caliphate reduced the Roman Empire,[320] the dominant military and economic power in Europe and the Mediterranean for the previous eight centuries or so, to a regional player. The Sasanian Empire ceased to exist altogether, and its similarly extensive territories were taken over by the Caliphate. Despite this seismic shift in the political landscape, the strategic significance of the Dariali Gorge remained as great as ever before. Whilst the political fault lines dividing the western and Near Eastern world shifted, and changed beyond recognition, nature ensured greater stability in the Caucasus. Europe's highest mountain range not only formed the natural limit of Sasanian Persia's imperial expansion, but also that of the Caliphate. The Khazar Khaganate's formidable military forces controlled a vast expanse of land on the opposite side of the Caucasus, dividing these two great powers, engaged repeatedly in war. Possession of the gates would have been attractive for both: for the Caliphate, to block a frequently used invasion route and to enable it to launch expeditions north, as it did in AD 737. Furthermore, even if northern enemies succeeded in crossing the Caucasus in one direction, Dariali Fort controlled their escape route – meaning they faced double jeopardy so long as southerners held the fort. Whether or not the Khazars were ever in control of the gates,[321] conquest of this key position would have been of interest to them as well. Being masters of the gates would have enabled them to launch invasions into Transcaucasia at will, and to block any counter-offensives by armies from the south.

Medieval authors attest the gates' continued significance. Most important amongst these is perhaps the tenth-century author Mas'udi, describing the 'Castle of the Alans', which must be Dariali Fort.[322] He ascribes this castle to the legendary Persian King Esfandiyar – perhaps reflecting his sources' awareness that it had played a prominent part in Persian history, even if in the Sasanian era rather than a much more distant and nebulous mythical past. Considering it one of the most famous fortifications in the world, the widely-travelled author was in no doubt as to the stronghold's great significance. The castle on a massive rock towered over a substantial river, undoubtedly the Tergi. The only viable route south led via a bridge over the river immediately under the castle. The impregnable stronghold commanded, due to its position high above, total control of the bridge,[323] the river, the route and all traffic, in either direction, and it was impossible to get past without the garrison's blessing. A single man in the fort could block passage to all infidel kings. Whilst clearly an overstatement, Mas'udi's assessment of the advantages possession of this key site offered, and the difficulties inherent in any breakthrough attempts, contains unquestionably a significant element of truth. In the early nineteenth century, when Russia envisaged reoccupying Dariali Fort, 40 foot-soldiers were thought a large-enough garrison. The situation then was, of course, different to that in Mas'udi's days some nine centuries before. Modern firearms were more effective than medieval archery, and the fort would have been part of a chain of Russian posts rather than an isolated outpost. Yet, all would-be trespassers would have been in reach of archery or stone missiles, certainly in the narrow parts of the gorge north of the fort, and the modern assessment of a small garrison being sufficient provides further circumstantial evidence to suggest that no large number of occupants were needed to control traffic.[324] The stronghold's unique strategic advantages and the Caucasus' continued role as a political watershed ensured that Dariali Fort featured as prominently in early medieval history as it had done in Antiquity.

25.5.2. Muslim arrival and conquest of Dariali Fort (Phase 5a: eighth century)

In this and subsequent sections, we will summarise Dariali's history in the Early Middle Ages. Whilst our dating and phasing is fairly precise, there is a margin of error of approximately half a century in dating the beginning and end of our (potentially overlapping) main sub-phases. Phase 5a starts in the late seventh or early eighth century (more likely the latter); it is followed by 5b in the late eighth or early ninth century, then by 5c in the late ninth or early tenth century, ending probably between the late AD 980s and the 1030s. Some historically attested events cannot neatly be attributed to one of these sub-phases.

The first of our early medieval sub-phases (5a) may start around the time of a major historical turning point, *i.e.* the time when the Caliphate gained possession of the fort. Mas'udi not only offers the most vivid description of the early medieval fort, he also provides unique information

on this event, attesting that it was Maslama who posted an Arab garrison on the fort.[325] Maslama's conquest of the fort in AD 727 was followed by an invasion of Khazar territory. In AD 728 he attacked the Khazars again near Dariali Fort. Fighting continued for almost one month, the Muslim army suffering in the heavy rain so typical for the region. In AD 730, however, the Khazars succeeded in breaking through Dariali Gorge. The famous general continued to campaign in the Caucasus until he left the region in AD 732. When was it during this five-year period that Maslama left a garrison on Dariali Fort? Douglas Morton Dunlop argued tentatively for AD 727.[326] This may well be correct, as it appears to have played an important role in Maslama's campaigns of this year and the next. The Khazar breakthrough of AD 730 does not necessarily prove that the fort had been lost, merely that its garrison (if still in place) did not succeed (or try) on this occasion to stop the large Khazar army from passing. If the Khazars indeed broke through the defences against the will of an Arab garrison, this would undermine Mas'udi's claim that a minimal garrison could stop any unwanted traffic. Perhaps the Arabs were still unaccustomed to mountain warfare, perhaps there were other factors we cannot know.

The garrison of the border post, whether continuously obeying orders from the south or also being under intermittent northern control, had an important role to play, and the sources attest repeated military campaigns to or across the Dariali Gorge in the eighth and ninth centuries AD, notably from AD 724 to AD 737.[327] It is interesting to note that recent research has revealed much activity in one region of the Northern Caucasus, the Kislovodsk Basin, in the Early Middle Ages (c. AD 400–900), indeed a five-fold increase of known settlements in comparison with the 300-year period before (AD 100–400) and a 12-fold drop in the period after (AD 900–1200). It is interesting to note that this coincides with a peak of activity on Dariali Fort (c. AD 400–1000) and one wonders if there was a general population growth and increased pressure from the north in the last two thirds of the first millennium. Yet, the evidence does not necessarily prove that population levels rose in the Kislovodsk Basin, rather that patterns changed from more nucleated to more dispersed settlement.[328] Much work remains to be done to examine settlement density in other parts of the Northern Caucasus and the steppe. It is hard to know to what extent the pressure the gates appear to have faced in the Early Middle Ages were related to local developments in the Northern Caucasus and to what extent to 'global' population movements across the steppes of Eurasia, but there is little doubt that there was strong pressure from the north.

In AD 742/743 an earthquake reportedly struck the Caspian Gates, but we are not informed on its effects.[329] At some stage in the later seventh to mid-eighth century a wall collapsed in Trench F, and a heap of stones (F.092) hit the ground next to ancient pillar F.082. This could potentially be related to this earthquake, but it is also possible that a localised conflagration nearby, that led to the formation of a burnt horizon (F.096), destabilised structures – although there is no evidence it extended quite as far as the wall affected.[330]

In the AD 750s, Alans fought on the side of the Roman/Byzantine Empire,[331] implying that Dariali was again at a political fault line. The ninth-century historian Baladhuri informs us that a cavalry guard with a stipend was stationed at the Alan Gates in AD 758.[332] If we can trust both Baladhuri and Mas'udi, this mounted unit may have supplemented the earlier garrison, rather than having replaced it or reoccupied the site. Mas'udi certainly believed that the descendants of Maslama's garrison of c. AD 727 were still in residence in the mid-tenth century.[333]

Is there any correlation between the postulated arrival of an Islamic garrison and our archaeological findings? What is certain is that there is a marked change of cultural behaviour in the late seventh or, more probably, early eighth century. Up to the localised conflagration in Trench F in the second half of the seventh or early eighth century (at the end of phase 4), when parts of the roof of an old walkway burned down, the garrison had been remarkably tidy. On top of the burnt horizon (F.096) a massive rubbish dump built up, starting in phase 5a. It is tempting to think that this marked change in attitude to intramural rubbish deposition is linked to the arrival of a new garrison. Chronologically, the arrival of the Arab garrison in AD 727 would fit. There is no evidence for an ousting of the garrison following the mid seventh-century collapse of the Sasanian state, although we cannot exclude the possibility that a hypothetical later Tsanar takeover of the fort heralded the change of behaviour.

It is not only the overall volume of deposits that increases rapidly at the onset of phase 5a, but also the quantity of more unusual items. Glass vessels had been scarce at Dariali in Late Antiquity and the transitional period (phases 3 and 4). They increase massively in number in phase 5. The most distinct imports from Islamic lands date to phases 5b and 5c, but vessels apparently using recycled Islamic glass and Persian cobalt already arrived in phase 5a[334] – perhaps easier to reconcile with Dariali Fort becoming part of the cosmopolitan Caliphate at the start of phase 5a than the local principality of the Tsanars. Whatever happened in the c. 80-year interlude between Dariali Fort forming an imperial frontier post, first of the Sasanian Empire and then of the Caliphate, it seems likely that it was the Muslim conquest that heralded major changes, not least the start of the most intensive phase of artefact and bone deposition in the stronghold's history.

A further important change can probably be dated to phase 5a, even if phase 4 is possible. Not a single grave found at Dariali so far can reliable be dated to the time before the late seventh or eighth century – perhaps implying that the earlier garrison followed Zoroastrian practices

and did not wish to contaminate the soil. Whichever way the pre-Islamic garrison disposed of the mortal remains of their dead, it has left no traces found to date.[335] There is no doubt, however, that the fort had been occupied in pre-medieval times and continuously through the ancient to medieval transition without any major gap. Yet, we do not know how densely or thinly, whether by the same garrison or a new one, whether it obeyed commands from the north, the south or was entirely local and left to its own devices. Interestingly, there are graves of similar date to our phases 5a and 5b also in the immediate hinterland of the Kasar Wall, on the approaches to the Mamison Pass. The Kasar Wall, if also likely to be of pre-medieval origins, was apparently heavily guarded in the eighth and ninth century.[336] As in Late Antiquity, early medieval defensive efforts in the Caucasus were not solely focused on Dariali and Derbent. It is possible that both the Dariali Pass and the approaches to the Mamison Pass had originally been guarded by soldiers of Zoroastrian faith, with new garrisons practising burial arriving at both only in the Early Middle Ages.

The earliest dated grave (E2) in Dariali Cemetery might potentially belong to the interlude (phase 4),[337] but is more plausibly attributed to the time after the new garrison had taken up residence (notably as none of the other dated graves is pre-Islamic). Its probable date range is AD 671–770, but no other grave is likely to be earlier than AD 770. If the earliest grave dated to late seventh or early eighth century, this would mean a gap of half a century or more until the second grave was dug. Even in our small sample such a long gap seems unlikely and would imply that burial was exceptional. The earliest grave is much more plausibly assigned to the second or third quarter of the eighth century, to be followed in the later eighth and/or ninth century by the other similar graves in Trench E.

The new faith and traditions the Arabs brought with them will have guided their treatment of the dead and may have stimulated the establishment of an orderly cemetery. Seamless continuity of the cemetery from its foundation not before the late seventh century or, much more probably, in the eighth century to the turn of the millennium or slightly beyond, may potentially corroborate the postulated occupation of the fort by descendants of the same garrison for centuries. This need not imply that the garrison was ethnically and religiously homogenous when established, let alone that it remained so for centuries, but our observations suggest that there was a strong element of continuity rather than a complete rupture with traditions at any stage during the cemetery's period of use (as far as excavated). Evidence for possible Asian-derived ancestry of the female in the earliest grave (E2) as well as some later burials[338] is worth noting, but we cannot pinpoint precise origins, and the observation neither proves nor disproves that the individuals in question were of Arab ancestry.

Whilst it is tempting to assign the foundation of the cemetery to the new Muslim garrison on the grounds of chronology, the burial practises observed in the earliest grave (E2) are easier to explain with Christian parallels. This and the other collective graves in Trench E are, in design and ritual customs, remarkably close to contemporary Christian family tombs, if such graves are not unheard of either in Islam, as discussed in more detail elsewhere.[339] It is best not pretend any certainty as to the religion of those buried, and it is possible that a symbiosis developed between the new arrivals from afar and the local population, perhaps even merging into one group. The latest of the collective tombs is not likely to be earlier than the 770s and, more probably, later than AD 867, suggesting that collective burial at Dariali was not a transient phenomenon, but continued for a century or more. Christian burial customs, or burial customs influenced by Christianity, were practised at the fort during the phase of reported Arab occupancy (c. AD 727–943 or beyond). The earliest perhaps Muslim-style burial (G8) dates to AD 770–942 (probably to AD 770–896), but there could of course be earlier graves of this type in unexcavated areas. If Dariali's garrison was Muslim in the eighth and ninth centuries, it was evidently profoundly influenced and shaped by local traditions. More probably, there was more than a single faith community that occupied the fort at the time.[340]

Not all archaeologically attested developments can be tightly dated. At some stage between the late seventh century and the late eighth and early ninth century, *i.e.* between phases 4 and 5b, provisions were made to store supplies within the fort. This included digging a pit (Q.177) to the south-west of a large probably late antique building, perhaps for storage purposes, subsequently filled up with debris including the stem of a goblet (Q.166/1129) that may have been used for drinking wine.[341] A nearby bone sample (Q.166/1125) of c. AD 686–774 suggests that this happened later within phases 4 or 5, before or after the Islamic conquest. Nearby, four large storage vessels were interred at some stage between the late seventh and ninth century (phases 4–5b) – probably no later than the early or mid-ninth century at the latest, as they appear to have been covered with a building platform and subsequently an annexe to the late antique building, probably still within the ninth century. This type of vessel is commonly associated with wine, even if storage of a different product is possible. It is tempting to follow Priestman's suggestion that high-quality cream coloured ribbed ware (CEMRIB) was used for serving wine, notably as there are close parallels from Iberia (if, of course, usable for non-alcoholic beverages as well). This category of vessel is well represented at Dariali, with no drop in the Early Middles Ages, indeed reaching one of its peaks in phase 5b, in the late eighth to ninth century.[342] It appears that people storing and drinking wine were amongst Dariali's occupants around the time the

sources attest first or second generation Muslim occupants or just before and/or after – unless one assumes all the vessels were used for a different purpose. Does this attest non-Muslim occupation, a nominally Muslim garrison adapting to their environment or, most probably perhaps, a multi-faith garrison? Wine was already prohibited in early Islam, if in reality not all Muslims abstained from alcohol.[343] Evidence for pork consumption in the Early Middle Ages,[344] even if vastly greater quantities of mutton and beef were on the menu, and a graffito of a Georgian with a Christian name from probably eighth-century levels[345] also raise doubts if all garrison members shared the same religious conviction and ethnicity.

The Chronicle of Theophanes Confessor, compiled in the early ninth century, mentions the Gates of the Iberians in the Caucasus in a late seventh-century context. Whilst wrongly placing here the source of the River Tanais (the modern Don), the statement implies that also in the Middle Ages, the gates were still associated with the Iberians and probably still thought of as a part of Iberia.[346] It is safe to conclude that we witness a complex interplay of cultural and religious influences in a multi-ethnic and multi-religious environment. There will have been an element of truth in Muslims from Arab lands residing on Dariali Fort from the eighth century onwards, but probably not on their own, but in symbiosis with a local/Iberian Christian community.

25.5.3. Contested Dariali: Arabs, Alans, Georgians, Armenians and Khazars at Dariali (Phase 5b–c: late eighth to late tenth or early eleventh centuries)

The picture in phases 5b and 5c is just as complex as it had been in 5a. Archaeologically, it seems that goods reach Dariali from even further afield, both from the south and the north. And it is interesting to note that a whole range of local and foreign powers reportedly made temporary inroads. It is impossible to neatly correlate these to our archaeological phases. Khazar advances intensify already in period 5a and continue into 5b, whilst Arab occupation is postulated from period 5a to at least the middle of 5c, the Armenians allegedly captured the fort at the transition from 5b to 5c, the ethnically Georgian Tsanars/Kakhetians were influential throughout phases 5a-c, with Alan pressure perhaps increasing again towards the end of 5c. Archaeologically, however, there is much common ground between 5a, 5b and 5c. After no evidence for stone structures being erected in phase 4, construction in stone recommences in phase 5, employing exclusively basic dry-stone architecture that cannot be attributed to any particular ethnic group or architectural tradition. Some of the dry-stone walls could be as early as phase 5a, but none is certain to be earlier than 5b. Already in phase 5a, around the eighth century, however, the use of roofing tiles, reaches an all-time peak,[347] perhaps evidence to suggest that the early medieval building boom may have started already in phase 5a or just that the roofs of the old late antique building were in need of repair to keep the indoor living space dry. With the exception of one mid-seventh to early eighth century posthole (F.136), there is no certain evidence for the erection of any stone or timber structure on the fort between the late antique building boom (ending between the early fifth and sixth centuries) and the resumption of, now exclusively dry-stone, construction in the eighth or ninth century, after a gap of two to four hundred years.[348] It is in phases 5b and 5c that we see the erection of a series of terracing walls, as well as makeshift annexes to existing late antique buildings. Interestingly, there is also a short dry-stone wall leading from the solid tower-like mortar masonry structure, overlooking the road-blocking wall to a further vertical rock face further west. Whilst undated, it is tempting to think that this dry-stone wall is, like most of its counterparts, early medieval. If so, it suggests that the late antique road-blocking wall was not only maintained, but further enhanced, if by more primitive means.[349] Phases 5b and 5c have much in common and thus shall be discussed together, with a particular focus on the ethnicity of those who controlled the gorge or the approaches to the gorge.

Despite Mas‘udi’s claim of watertight control exercised by the Alan Gates’ permanent garrison, Khazar armies did occasionally break through and retreat via the Dariali route. One such incident is reported to have occurred in c. AD 762/764 or AD 799/800 when a Georgian princess of legendary beauty, captured by Khazar troops, committed suicide on the journey to Khazar lands on this route, not wishing to become the wife of the Khazar khagan.[350] Duke Nerse of Iberia and 300 followers, including the future saint and martyr St Abo, allegedly fled the Caliphate, via the Dariali Pass, to the Khazars in AD 779/780 – which, if true, implies that there was no garrison loyal to the Caliphate at the time or that it was not sufficiently reliable, vigilant or strong to exercise firm control over traffic.[351] Indeed, from the AD 770s or the early ninth century onwards the Tsanars/Kakhetians appear to have controlled the southern access routes to Dariali Fort.[352] It is interesting to note that much pottery of likely Eastern Georgian origin reached Dariali throughout the Early Middle Ages, if matched or more than matched by local or northern ceramic products, material easily accessible to the Tsanars/Kakhetians – suggesting that fort occupants were well integrated in the Transcaucasian economic network.[353]

The Dariali Pass also features in ninth-century sources. An expedition dispatched by Caliph Wathik Bi’llah in AD 842 in search for the famous Wall of Dhu‘l-Qarnain (Alexander), featuring in the Qur‘an (a modified version of the pre-Islamic legend of Alexander’s Gate), probably used the Dariali route when crossing the Caucasus. Led by the interpreter Sallam, who spoke no less than 30

languages, the mission reportedly eventually found the wall much further east, 16 months after its departure from Samarra. Sallam and his escort probably saw the barrier at Dariali, but evidently did not think it was the legendary gated wall. Perhaps it was not considered remote enough and it certainly did not fit the Qur'anic description of a monument made of iron and copper. Yet allegedly they eventually found such a metallic gated wall, and it is hard to imagine that any real barrier further east would indeed have employed these metals on a grand scale.

The passage is an interesting testimony for the great fame of Alexander's Gate or Wall. It also attests that a Muslim mission equipped with a letter of the Tbilisi-based Muslim governor of Armenia to the Tsanar ruler had no difficulties in making its way via the territory of the Tsanars to the Alans and subsequently the Khazars.[354] This adds credence to Mas'udi's later claim of food provisions being sent from the Emirate of Tbilisi to Dariali via territory that was not under Muslim control.[355]

A large-scale resettlement of one hundred households of Alans, brought across the Dariali Pass, is attested for the AD 850s (as well as of 300 Khazar households across the Derbent Pass). This occurred under the auspices of the Abbasid general, of northern Turkish origins, Bugha the Elder, indicating that Dariali Pass was under Muslim control then and that not all movement of people from the steppe to the south across the gorge signals invasion and conquest of the fort by northerners. Before overseeing the migration of northerners across the Caucasus passes, Bugha had captured and destroyed Tbilisi, whose Emir had broken away from the Caliphate, probably indicating that also the Dariali Pass had been temporarily lost to the Caliphate (whether or not it had remained under Muslim ownership as an exclave of the Emirate of Tbilisi) until Bugha briefly re-established control.[356] Mas'udi claims, of course, that the fort was under uninterrupted Muslim control not only throughout much of the eighth and all of the ninth centuries, but beyond and that descendants of the Arab garrison stationed at Dariali by Maslama (in c. AD 727) still held the fort during his time in the mid-tenth century.[357]

One wonders if the two bone objects with carvings with clear Khazar parallels, probably dating to c. AD 779–900, identified by Lana Chologauri, might be an archaeological reflection of the movement of people from north of the Caucasus to the south. The state-sponsored migration in the mid-ninth century provides one possible context. Even if the one hundred households were Alans, rather than people from the heartlands of Khazar territory, and their new homes were reportedly at Dmanisi, there may well have been similar migrations involving other population groups moved to a variety of territories. The Khazar invasion of c. AD 799/800 might provide another possible context, and there will have been many population movements that have left no trace in the written record. Might the Khazars even have conquered Dariali Fort at some stage and may the distinctive bone artefacts have been in the possession of the garrison as Chologauri has tentatively proposed?[358] This is a tempting hypothesis and that they were found in the casemate may add strength to it. The fort's armed guardians were perhaps the most likely occupants of rooms in the shadow of the walls.[359] Interestingly, there are also new classes of cooking pots, plain grey (PLAG), black ribbed (BLARIC) and brown shell tempered (BROSH) that all are first securely attested in the late eighth to ninth century (phase 5b), if gaining even greater prominence in tenth century (phase 5c). Priestman has suggested that these could be of northern origins too, and for BROSH there are close parallels from Khazar lands.[360] Perhaps these pots signal indeed an influx of northerners and not just northern goods – whether mercenaries, allies or masters of the fort. On the other hand, a hypothetical Khazar (or Alan) conquest, whether for a long time or even if only for a brief episode, is incompatible with Mas'udi's claim that many generations of the same garrison, of Arab origins, were in charge for over two centuries, from c. AD 727 until at least the AD 940s.[361]

Perhaps the truth is more complex. Mas'udi's claim of the same Muslim garrison holding the fort for more than two centuries may be supported by a similar rubbish disposal pattern and southern imports prevailing throughout much, or all, of the final three centuries of the first millennium, not to mention that burials in possible Islamic tradition (starting probably between the eighth and ninth centuries) continue to be dug up to the later tenth or even early eleventh century.[362] Yet, even if the same garrison remained on the fort, it may well have been supplemented by multi-ethnic newcomers, probably not all sharing the same faith. That the Khazars succeeded in invading Transcaucasia via Dariali and returning via the same route does not necessarily prove conquest. The garrison may have been open to offers from all sides and may have shifted alliances, without being ousted. The bone artefacts, carrying non-Islamic imagery, were of no intrinsic value. It seems unlikely they were priced spoils of war Muslims would have considered worth keeping, let alone items worth acquiring through trade. They probably attest indeed that people of Khazar origins were present on Dariali Fort in the late eighth or ninth century, but we cannot be sure whether or not they were the masters of the fort at some stage in the late eighth and/or ninth century. Even if, the cited evidence for continuity suggests a form of cohabitation with the previous occupants, rather than wholesale slaughter or expulsion. Whether affiliated to the Emirate, the Khazars, the Tsanars/Kakhetians or of shifting alliance, the garrison will have depended on the goodwill of those in control of the approaches to the fort from either or both directions. It is not likely to have acted against the interests of both at any one time. The Khazars controlled the northern access route, the Tsanars (probably

the 'infidels' who, Mas'udi informs us, inhabited the land between Tbilisi and Dariali) the southern supply lines. The survival of the garrison depended on receiving provisions from the south or the north or both, and the presence of outsiders may have been part and parcel of arrangements to receive food in exchange for allowing passage to suppliers and denying it to their opponents.

Zuckermann doubts the veracity of Mas'udi's account, arguing that the then small Emirate of Tbilisi would neither have had the need nor the means of maintaining Dariali as an outpost fort and of bringing provisions through Tsanar/Kakhetian land.[363] Bernadette Martin-Hisard, whilst also stressing that the southern approaches to Dariali were controlled by non-Muslim principalities for significant parts of the Early Middle Ages, and sceptical about Mas'udi's claim of continuous Arab occupation of Dariali Fort from Maslama into the tenth century, considers it unlikely that the account is complete fiction. In particular, the food supplies from the Emirate of Tbilisi, enjoying good relations with its Christian neighbours, seem credible to her[364] and isotope analysis[365] carried out as part of our project have very much strengthened the case of the garrison continuing to receive supplies from the south. Plant remains tell the same story. Millet was brought to the fort in periods 5a, 5b and 5c, from the eighth to the turn of the millennium without any hiatus long enough to be archaeologically traceable. Admittedly, millet accounts for similar proportions of recovered plant remains in Late Antiquity and does not prove that suppliers or consumers were Muslim. The frequency of millet seeds certainly suggests, however, that Mas'udi was right in attesting a largely uninterrupted flow of provisions from the south throughout the Early Middle Ages.[366]

Furthermore, a proportion of the glass that reached Dariali Fort, not just in the eighth but also in the ninth and tenth centuries, was clearly produced in the Islamic world. The analyses of Yoshinari Abe and Ryuji Shikaku have revealed striking similarities between the composition of glass found on Dariali Fort and Near Eastern parallels. Notably, their type A-1 is of great interest, probably produced in Islamic workshops in Iran or Iraq and imported to Dariali in phases 5b and 5c. Imports started no later than the ninth century at the latest. The piece from deposit F.114 in the casemate suggests that imports continued at least until the late ninth or first half of the tenth century. Most of these precious imports of type A-1 were found within the casemate or just outside in the rubbish dump north-east. One piece from Trench X may have been discarded by inhabitants of a different casemate. Except for one fragment from the soil matrix of dry-stone wall F.090 there is none from the interior parts of the fort, perhaps suggesting that those stationed in the casemate (probably garrison members) had greater access to imported glass. Other types of glass are more strongly represented in the interior of the fort (*e.g.* Trench Q, where A-1 imports are absent, if admittedly the sample is small). Glass employing cobalt as a colouring agent, probably imported from Persia, already occurs in the eighth century (phase 5a), as does glass of type A-2, interpreted as a more local product made of recycled glass of Egyptian, Syrian or Palestinian origins. The latter continues to be used until the tenth century at least (phase 5c). There was also much glass that may have been produced locally (type C), whilst only a few pieces may have come from Roman/Byzantine Anatolia (type B-1) and most of these were not well stratified, although one piece was embedded in deposit F.043 of the tenth century.[367] Pottery will not have come from quite as far as glass, but there remained a strong component of southern supplies in the late eighth to ninth centuries (phase 5b) and, if less so, the tenth century (phase 5c), including some glazed pottery.[368]

Whilst glass and pottery have limited potential in revealing the faith or ethnicity of their users, three inscribed rings found in the gorge provide probable evidence for Muslim presence. One, from the Gigias Satibi Cemetery to the north of Dariali Fort refers to Allah, and the same cemetery yielded two Arabic half dirhams minted in AD 786–809 or 802 and 809/810 or 821/822, both pierced and probably worn on a necklace. Two undated silver rings from Sioni belonged to Hassan Ibn Daiaq and Ibrahim Ibn al-Fadl – evidently southerners of Muslim faith.[369]

It is hard to know how much civilian traffic and trade there was across Dariali in the Early Middle Ages. In the late eighteenth to early nineteenth century slave traders, as well as Muslim pilgrims, seem to have crossed the Dariali Pass, sometimes spreading infectious diseases.[370] Yet, other than the two cited half dirhams used as jewellery pendants, no coinage has been found at Dariali. Does this indicate that there was little traffic? More probably, tolls may have been levied in kind, reflecting the lack of a functioning monetary economy rather than the gates forming an impassable barrier. Early medieval glass vessels and rings, almost certainly coming from the south, were found both at Dariali and at sites in the Northern Caucasus. It seems likely that these products reached the north via trade across the gorge. Glass vessels and rings were not the most obvious diplomatic gift, but even if they were, it would still indicate that the gates were permeable at the time.[371] We do not know what the north sent in return: perhaps some of the northern-style pottery as well as merchandise that is difficult or impossible to prove archaeologically, such as furs and slaves.[372] The apparent early medieval surge in trade across the Central Caucasus may have been a result of smaller landlocked Transcaucasian principalities wishing to receive a share of a lucrative business, but unable to participate in maritime trade. The mercantile interests

of the Khazars may have further boosted Transcaucasian trade, via land and sea routes.

Whether Zuckermann is right or wrong in doubting continued Muslim presence at Dariali in the tenth century, Mas'udi was correct in claiming that food supplies from the south reached Dariali. At the same time, glass from Islamic workshops found its way to the site. No doubt, such vessels would have been attractive for Muslims and non-Muslims alike. We cannot be sure who used these sought-after imports, but we can be sure that strong links with the Islamic world were maintained from the eighth to the tenth century. Archaeologically it is, of course, impossible to test who was in charge, whether indeed Muslims in cooperation with the 'infidels' controlling the supply route – or the Tsanars ('infidels') themselves or a range of peoples. The precise power constellations are indeed hard to reconstruct reliably. Perhaps Dariali Fort was indeed an Emirate exclave, maintained with the cooperation of other principalities, as keeping the Caucasus passes secure was in mutual interest. It was probably even a joint venture, with non-Muslims making up part of the garrison.

Khazars, Tsanars/Kakhetians and Alans are not the only powers that may have exercised political control in the gorge in the Early Middle Ages. According to the tenth-century Armenian *catholicos* and historian Yovhannes (John) of Draskhanakert, the Armenian King Smbat I (r. AD 890/891–914) extended the boundaries of his realm to the Gates of the Alans and seized the fort guarding the pass (*i.e.* Dariali Fort). Even this testimony by a contemporary influential and probably well-informed author need not necessarily be taken at face value. Nina Garsoïan points to the author's possible bias in favour of the ruling dynasty and concludes that the extensive territory 'all the way to the Darial Pass in the main Caucasus chain, probably reflects Smbat's sphere of influence rather than his actual domain'.[373] Zuckermann, by contrast, considers the reported Armenian conquest of Dariali Fort credible, indeed evidence for Mas'udi's claim of continued Muslim control being biased and false. However much or little truth there is in the alleged Armenian capture of Dariali Fort, by c. AD 918/920, the Tsanars had again taken over the land south of Dariali.[374] That the Tsanars (Serir in Arabic – probably identical to the infidels between Tbilisi and Dariali) controlled the land is of course also confirmed by Mas'udi.[375] Archaeology has yielded no evidence for an Armenian conquest of Dariali Fort, but a potential short-lived occupation need not have involved the loss of distinct Armenian artefacts. Should the fort have been taken by force, it is hard to imagine that the defeated garrison would have been allowed to stay on, but matters may have been different if it nominally accepted Armenian suzerainty without a fight (and not even this is certain). The level of continuity in rubbish disposal, style of construction and cemetery occupation from phases 5b to 5c renders it improbable that the garrison was ousted and replaced by a new Armenian garrison in the late ninth century, only to be replaced by a third garrison in the early tenth century. Most probably, the same core occupants remained in residence, perhaps supplemented, but not replaced, by newcomers and almost certainly striking deals with regional powers. Other Transcaucasian communities, notably the Tsanars/Kakhetians, will have exercised greater influence than the Armenians, even if there should be a core of truth in the alleged Armenian seizure of Dariali Fort.

The picture may have been complex, with northern influences perhaps surging again as the first millennium drew to a close. Ibn Rusta, writing in the early tenth century, attributes Dariali to the Alans – the Ases or Ossetians according to Zuckermann who established a small anti-Khazar principality in the early tenth century (as opposed to the main group of Alans who were allies to the Khazars). There is a second interesting, if not entirely persuasive, testimony for some form of Alan ownership of Dariali in the tenth century. The '*Hudud al-'Alam*', a Persian geographical work of the late tenth century, claims the Alan Gates were a town on the summit of a mountain and guarded by 1,000 men, seemingly in rotation. Not only was it thought to be an Alan possession, but, regardless of its location in economically marginal land, the most flourishing of all Alans towns.[376] However implausible this embellished story may be, there is likely to be a core of truth in growing Alan influence in the tenth century. In terms of pottery supply, likely southern imports diminish from the ninth to the tenth centuries (phases 5b to 5c), whilst northern material increases in volume.[377]

Distinctly northern practices, furthermore, also make a sudden appearance in a funerary context. Graves in clear northern tradition occur at the turn of the millennium, towards the end of phase 5c and shortly before abandonment, or near abandonment, of the fort. One of these (Grave G4) was furnished with 161 beads, three bells and other items of personal adornment, the other (Grave G9), with a sword, three arrowheads and a fire striker. What do these northern-style graves, not attested at Dariali before, reveal about the religion and ethnicity of those occupying the fort around AD 1000? Little definite is known about the status of the sword-bearer in Grave G9 and the garrison as a whole. Whilst young, the individual had perhaps just reached fighting age (15–20, probably 15–17). Combat weapons in the Early Middle Ages tend to be found in the graves of adult males, rather than women or children, suggesting that the person buried in Grave G9, even if unsexed due to poor bone preservation, was male. We may assume that he had carried these weapons also in his lifetime, and there certainly must have been many men prepared for combat at such a strategic site. It is possible that he was a descendant of the same garrison attested by Mas'udi[378] earlier, adopting the traditions of northerners in his surroundings. More probably, in the light of the

distinct northern grave goods and burial customs, he was of northern origins himself.

A Y-shaped and a bolt-shaped arrowhead from Trench G, both unstratified and probably from disturbed burials,[379] suggest that Grave G9 was not the only grave furnished with weapons. Can we tell if the individuals, armed for the afterlife, belonged to a northern (Alan?) group that had taken over the fort around the turn of the millennium – or if they were members of a mercenary or allied force, serving under Muslim or Christian (Tsanar?) command? The two other male graves from this part of the cemetery (G1 and G6), both without grave goods, are likely to be earlier than G9. There is, however, also a female burial (G2) of similar date to G9, and this is also without grave goods. The woman in Grave G2 could have died earlier or later than, or at the same time as, the sword-bearer in Grave G9. The abundance of typically female grave goods in Grave G4 furthermore suggests that the group burying their dead, or some of them, with rich grave goods did not restrict these to either sex. In short, we cannot be sure whether the presence and absence of grave goods in late graves reflects differences in chronology, tradition, origins, religion, status, rank, profession, wealth or a combination of several of these factors. Whilst it seems clear that the heavily armed individual in G9 was influenced by northern burial practise and was, most probably, a military man at the beginning of his career, provided with effective and reasonably valuable metal weaponry, little else is certain. Whether the absence of precious metal, in contrast to some pagan burials further north,[380] was a result of him not owning any or reflects a religious or practical choice by his relatives cannot be established. We may be confident that he was only one of a fair number of men bearing arms, required at a site which, despite formidable natural protection, was also under considerable threat.

Evidently, the sample of weapons recovered is very small, but it also provides us with a snapshot of what was in the garrison's arsenal around AD 1000. The arrows would have been particularly useful weapons in this particular setting. Not only were they widely used by all neighbouring communities, notably in the steppe in the north, but they were also of particular advantage for the garrison of an almost impregnable stronghold at a narrow mountain pass. As the most widely used long-range weapon, they would have provided the obvious means of holding any hostile forces trying to break through the barrier at bay. Whilst the sword proves, unsurprisingly, that weapons for hand to hand duel were available too, close-range combat would have been far more dangerous and all strategic advantage from occupying a vantage point overlooking the gorge would have been lost. Mas'udi[381] undoubtedly overstated how the position of the stronghold would have outweighed an enemy's numerical superiority, but he was surely right that the garrison would have exploited the advantage of height.

In case of a large-scale enemy attack, the sword would have been a weapon of last resort – even if the fatal injury suffered by a man from a disturbed grave (G3), between c. AD 989 and 1029, proves that bladed weapons were indeed employed at the time. The individual in question appears to have been killed with a sabre. Perhaps this had been the result of interpersonal violence between members of the garrison, perhaps the unfortunate victim had been a member of the garrison on patrol or customs duty. He had been struck from behind, maybe suggesting that he had been caught whilst fleeing. Only a small part of his mortal remains were found, but we do not know if incomplete recovery is a result of later disturbance or partial burial. He was not granted a burial in a cist grave, but the bones were buried between stone boulders. Whether an unceremonious burial or a place of special significance, accommodation within the garrison cemetery suggests that he was no enemy.

And there is further evidence to imply he was a garrison member. He had benefitted from food supplies from the south, based on isotope analysis. Interestingly, he appears to have consumed more food grown in warm climate with long growing seasons and/or fish towards the end of his short life than in his youth. Perhaps he had grown up in the mountains or steppe and joined the garrison (which appears to have enjoyed food imports from the south to the end of its early medieval occupation in the late tenth or early eleventh century) for a period before meeting his violent end. Alternatively, the availability of food imports from the south may have fluctuated over time and improved in the last years of his life. It is unlikely that it was just a question of status, e.g. that he was given a more varied diet when he reached fighting age, as children at the time (*i.e.* the 4–8-year old from Grave AB4) could benefit from imported foods too. The isotope analysis seems to rule out that he was born and bred in a remote part of the Caucasus or the steppes, never had access to anything other than local foods and died during an assault on the fort. Whatever the precise circumstances of his death, it cannot have involved wholesale slaughter of the previous garrison as enemy combatants would hardly have been buried in their established cemetery by the victors.[382]

The fatal attack suffered by the person from Grave G3 provides unsurprising evidence for violence, but not for the fort having been taken by assault. Was there a change of ownership at all? Despite the small sample of burials examined, some patterns emerge. Even if Grave G2 is accepted as a Muslim (or potentially Christian) burial, the radiocarbon dates allow for it to be contemporary to, or up to a few decades earlier or later than, Grave G9. Should G2 be earlier than G9, then it is theoretically possible that a Muslim garrison was replaced by a pagan group or a nominally Christian garrison practising northern burial customs. Whilst indeed within the realms of possibility, the continuous occupation of the same cemetery, with burials of similar construction and orientation as before,

are strong arguments against a northern take-over. Furthermore, isotopic evidence suggests that the individuals in Graves G4 and G9, despite following northern burial customs, had enjoyed food of southern origins – implying maintenance of the long-standing southern links in their lifetimes. This is easier to reconcile with them joining, rather than expelling, the existing garrison. It appears that the garrison still consisted of, or included, members of the same garrison and it might still have obeyed orders from the south.

After copious evidence for heavy occupation on Dariali Fort in the tenth century, archaeologically traceable activity abruptly ceases. The latest radiocarbon samples from the early medieval phase of occupation of Dariali Fort and the associated cemetery fall probably between the late 980s and the 1030s. The two cited, northern-style, burials (with *termini post quos* of AD 975 and AD 988) are both amongst the latest graves, as are some other burials without grave goods. It is not possible to decide whether in the last few decades of Dariali Fort's intensive occupation burials with rich northern grave furnishing and with no grave goods at all were dug simultaneously, or if the rich northern graves may be later (or earlier) than the last simple inhumations in Muslim or Transcaucasian Christian tradition.

Alan invasions in AD 1062 and 1065 went via the Dariali Pass, and it is not clear from the sources who was in control of it at the time. There is no mention of any resistance against the invaders.[383] This does not prove, of course, that there was indeed none, but certainly none that was effective. Perhaps Dariali Fort was an unoccupied ruin at the time, in light of our excavations failing to reveal any evidence for occupation of the fort in the mid- and late eleventh century. Alternatively, there may have been a much-reduced token garrison perhaps in a keep or upstanding habitable room units or towers outside the area explored. Such a garrison, if present at all, may have been too weak to resist, may have been given an incentive to allow thoroughfare or may have been politically aligned with the invaders. We cannot be sure whether or not the garrison still consisted, to a greater or lesser extent, of descendants of the garrison attested by Mas'udi and, if so, whether the exclave was still nominally under the control of the Emirate of Tbilisi at the time or had cut all ties with the weakened city state that had long lost control over the land corridor to Dariali.[384] Perhaps Dariali Fort was under local control or had been taken over by the Alans eventually, with no more than a shadow of its former garrison – if not abandoned altogether.

25.5.4. Density of occupation in Late Antiquity and the Early Middle Ages: population growth or decline?

The overall quantity of possible or likely pre-medieval deposits (up to phase 3f) and those of the transitional mid-seventh/early eighth century phase 4 is vastly smaller than that of the Early Middle Ages (phase 5 of the eighth to tenth or early eleventh centuries). The limited evidence for early occupation does not indicate, of course, that the fort interior was virtually empty prior to the Middle Ages. The late antique garrison and medieval occupants appear to have followed different traditions. As far as it is possible to base conclusions on negative evidence, the late antique garrison may not have buried their dead, at least not in graves found to date in the vicinity of the fort, quite possibly observing Zoroastrian customs. They also apparently avoided extensive intramural rubbish dumping. By contrast, what had been a level walkway on the inside of the double fort walls, up to the seventh or early eighth centuries, was transformed into wasteland, serving no purpose other than rubbish disposal for the remainder of the first millennium. The sloping ground would not have permitted occupation, nor are there signs of intramural traffic (such as tracks or hollow ways crossing the rubbish heap) or any other use. Gradual growth of the heap, furthermore, indicates that it remained an unoccupied dump for centuries.[385] This is the largest intramural rubbish tip we have encountered, but much more pottery and bone was discarded also elsewhere in Trenches F and Q in the Early Middle Ages than had been, in Late Antiquity. Already in the 1930s, Kruglov found in a sondage, excavated somewhere on top of the hill, a cultural layer, three metres thick and rich in pottery and glass of the eighth to tenth centuries.[386] We do not know the location of Kruglov's excavations, but there was clearly no recent archaeological sondage within our trenches – and the results of the excavations of the 1930s thus provide evidence for a similarly substantial build-up of early medieval material elsewhere on Dariali Fort.

Whilst in part no doubt reflecting changing habits, we also need to explore what, if any, conclusions we may be able to draw about population levels. Does the much-increased amount of intramural rubbish prove that the number of occupants producing it had increased too? Or could the reverse be true, as evidently not all space within Trench F was needed for dwellings and intramural traffic lanes? Intriguing questions arise:

1. Did the population decrease? The availability of intramural space for large-scale rubbish deposition may imply a reduced garrison in the Early Middle Ages requiring less space than their more numerous late antique predecessors – contrary to what the much-increased amount of occupation debris may suggest. Whilst the area affected had served as a walkway and not a habitation before, it still implies that alternative avenues for intramural traffic and outdoor activities had to be found. In theory, of course, people could still have clambered over uneven heaps of refuse, but the regular gradient of the successive surfaces of the growing heap proves that people

did not walk over the dump on a regular basis. The scarcity of late antique debris within Trench F, as opposed to the abundance of early medieval deposits, implies perhaps not lesser occupation earlier, but different disposal patterns – *i.e.* orderly disposal outside the fort in Late Antiquity as opposed to inside in the Early Middle Ages. We do not know, assuming this hypothesis is correct, to what extent this reflects different traditions as opposed to necessity (intramural rubbish disposal being permitted only at times when there was superfluous space).

2. Did the population remain stable or increase slightly? The existence of a large early medieval rubbish dump within Trench F does not necessarily prove a reduction of inhabitants. Even if less outdoor space should have been needed for traffic, commercial or social activities, the garrison of the eighth to tenth or early eleventh centuries may just have lived in more crammed conditions in the available indoor space, such as the, probably tall, F.004-structure. A similar or greater numbers of people could thus have been accommodated even if the occupied area should have shrunk a little.
3. Did the population increase markedly? If neither in Late Antiquity nor in the Early Middle Ages the fort was fully occupied, the much greater quantity of deposits from the latter period could imply heavier occupation.

There is no certain answer to these questions. It is hard to imagine, however, that the heavy rubbish deposition from the eighth century to the turn of the millennium can be the result of anything other than dense occupation at the time, even if not every backyard was needed for habitation or outdoor activities. Population levels will have fluctuated and may, on average, have gone up or down, but there is no reason to believe that any potential decrease was massive.

Further factors need to be considered when comparing quantities of remaining deposits of different periods of occupation. A number of early medieval pits in both Trenches F and Q reach down to, or near, the bedrock, erasing traces of earlier occupation. This is true for Trench F, and even more so for Trench Q, where extensive pit digging, both in areas of shallow and deep stratigraphy, obliterated most traces of earlier life, with just the odd pocket of pre-medieval material surviving. Space was at a premium within the small, but pivotal, stronghold. We need not be surprised that earlier deposits vanished unless they were worth preserving as floor surfaces or building platforms safe from flooding.

To summarise, there are several likely explanations to explain the smaller amount of late antique (fourth-seventh centuries) deposits and finds (including those of the transitional phase) in comparison to those of the Early Middle Ages (c. eighth to tenth or early eleventh centuries):

- A change in rubbish disposal practises, with much more extensive intramural deposition in the latter period.
- The abandonment of formerly terraced land, transformed into sloping rubbish tips.
- The erasure of earlier deposits in places through deep pits.

The terraced ground between walls F.013 and F.004 was probably used for traffic rather than housing in Late Antiquity and the subsequent transitional period (phases 3c-4). Its transformation into a rubbish dump from the eighth century (phase 5a) onwards need not indicate a reduction in population. The casemate in Trench F (as well as probably similar rooms all around the fort) and the intramural buildings on the flat plateau (in the north-east of Trench F and of Trench Q) appear to have been occupied intensively from Late Antiquity until the end of the millennium. Their early medieval inhabitants are probably responsible for the extensive build-up of debris outdoors. Annexes added to the late antique intramural buildings in Trenches F and Q in the eighth or ninth to tenth centuries provide further evidence for these old buildings remaining in heavy use.

Whilst we cannot be sure whether the much smaller quantity of late antique debris implies just a tidier, or also a slightly smaller, garrison than in the Early Middle Ages, there was probably a sizeable number of inhabitants already in Late Antiquity. Even leaving aside the textual evidence for the major efforts devoted to pass defence from, at the latest, the fifth century onwards, why should such substantial outer walls, casemates and internal houses have been built for a token garrison? All substantial, potentially multi-storey, buildings are of late antique origins, whilst no more than dry-stone (and probably single-storey) annexes were added in the Middle Ages. Even assuming all storeys in all late antique buildings remained habitable for 600 years or more, from their construction until the end of the first millennium, the available indoor space can only have grown a little in the Early Middle Ages, and we do not know how much of this was used for housing, how much for storage or workshops or how densely rooms were occupied.

Furthermore, as we have seen above,[387] the floors of the casemate and in the F.004 building were both raised repeatedly. By around the mid-tenth century, the floor level (F.085) in the casemate had risen c. 1.80 m above that of the fifth or sixth century (F.175), being now a mere 65 cm below the original ceiling (as opposed to c. 2.45 m in Late Antiquity). Then (and quite possibly well before) the number of storeys must have been reduced by one. We may assume that this affected not only the one excavated room, but probably the entire ring of

rooms around the fort (or a large proportion thereof). In the F.004 building, the floor level only rose by c. 0.55 m, less than a third as fast as in the casemate over the same 500 year-period. As a result of the uneven rock surface there never had been much usable space in the F.004 basement. Assuming the upper storeys of the F.004 building were kept in good repair, the loss of space in the F.004 building may have been negligible. No occupation horizons survived within the probably late antique mortar building in Trench Q. We may assume that here, as in the F.004 building, hill-top location facilitated drainage and outdoor rubbish slid down the slope, rising much more rapidly on the inside of the outer fort walls than in the immediate vicinity to the F.004 and Q.096 buildings. To keep pace with the rising outdoor surface levels, in a continuous effort to keep indoor living spaces dry, indoor floor surfaces had to be raised more in the downhill casemates (notably in the tenth century) than in the uphill F.004 and, probably, Q.096 buildings. If this assumption is correct, there will have been significant loss of indoor space in the casemates, but far less so in central hilltop housing.

Worth noting too is that the charcoal analysis by Imogen Poole and Lyudmila Shumilovskikh indicates that the proportion of pine decreased from phases 3 to 5, whilst that of buckthorn increased, suggesting that pine was getting scarcer on the most accessible slopes in the vicinity of the fort. The garrison now had to rely on secondary vegetation that colonised the erosion slopes such as buckthorn that still grows on the slopes near the fort today.[388] This suggests growing pressure on the environment in the eighth to tenth centuries (phase 5). Whether this also implies an increased population or the cumulative effects of the activity of a, more or less, stable population over centuries is impossible to tell. One needs to bear in mind that easily accessible land, not covered by rockfall and capable of sustaining forest, is in short supply in the vicinity of the fort. It would not have required a massively large population, needing firewood for survival, to clear accessible wooded slopes. And it may have been easier to use secondary shrub than to venture onto more remote precipitous slopes. Priestman's hypothesis that the increased use of cooking pot lids in phases 4 and 5 (as opposed to phase 3) may have been for reasons of fuel-efficiency is worth noting too, if a new garrison's changed culinary tastes or traditions provide an alternative model.[389] No doubt, there will always have been firewood in reach of the fort, but the efforts involved in sourcing it from perhaps greater distances and more difficult terrain may have provided an incentive to use it more sparingly. Clearing forest at the northern approaches to the road-blocking wall would not only have yielded firewood, but also made any unnoticed approaches to the barrier even more difficult. Environmental impact adds strength to the assumption that Dariali's population in the Early Middle Ages was sizeable in relation to the small compound it occupied, but does not prove that it increased massively, if at all.

Perhaps more significantly, *Hordeum* and *Secale* cultivation reaches a climax around AD 390–530 based on Shumilovskikh's research, indicating an expansion of agriculture around the sample site south of modern Stepantsminda. The dating is approximate and only a small proportion of the food grown will have been consumed by the garrison of Dariali Fort. Despite these caveats, this pre-medieval peak allows for the possibility that the gorge (and perhaps the fort) may have been at least as densely occupied in Late Antiquity (phase 3) as at the time when intramural rubbish disposal reached a climax in the Early Middle Ages (phase 5). Tree pollen, interestingly, remain low throughout the period from c. AD 350–1000, but there appears to be a slight and gradual increase from the beginning to the end of the first millennium. A slow expansion of forested land in the wider region (as opposed to the likely reduction in the immediate surrounding of the fort) need not imply a drop in population levels, but the pollen cores from Stepantsminda certainly do not point to a population explosion towards the later first millennium. Generally, intensive land use seems to continue throughout the last two thirds of the first millennium – perhaps indicating a more or less stable demography.[390]

There were undoubtedly major changes in the nature of occupation between Late Antiquity and the Early Middle Ages, but, contrary to what the much-increased rate of surviving deposits suggests, the amount of habitable indoor space may have remained fairly constant: that in the late antique mortar building will have decreased, but poorly built, probably single-storey, dry-stone structures may have made up for the loss. The size of the garrison (quite unlike the volume of bone and pottery left behind) is not likely to have multiplied massively. It may have stayed at a similar level to that in Late Antiquity, it may have increased or decreased a little. In pre-industrial societies population levels are not normally stable over long periods. In Dariali too, infectious diseases will have taken their toll, not to mention supply disruptions through avalanches, landslides or political upheaval. Whilst such theoretical considerations and comparative evidence would suggest that there must have been substantial demographic fluctuations over the c. 600–650 years under discussion (late fourth to late tenth or early eleventh century), these are not archaeologically traceable. In all probability, there was a fairly sizeable garrison within the limited intramural space throughout both eras.

We may conclude that the fort walls and the most substantial internal building date back to Late Antiquity. The much-increased amount of occupation debris of the Early Middle Ages may be deceptive. Undoubtedly, Dariali Fort remained heavily occupied until the end of the first millennium, but there is no way of telling if the number of inhabitants increased or decreased or did not

fluctuate massively over the six, to six and a half, centuries between Dariali Fort's construction and the temporary end of archaeologically traceable activity in the late tenth or early eleventh century.

25.6. Abandonment and resurgence: Dariali and Gveleti Forts in the High and Late Middle Ages (Phase 6a–b: eleventh to late fourteenth or fifteenth centuries)

There is evidence for renewed occupation on Dariali Fort starting in the thirteenth or fourteenth century, but not a single sample that is certain to date to the eleventh or twelfth century. By contrast, on Gveleti Fort, two of the eight radiocarbon samples processed, date probably to the period when there appears to be a hiatus of occupation within our trenches on Dariali Fort (*i.e.* the eleventh to twelfth/thirteenth centuries). Gveleti Fort may perhaps have served as a local refuge for peasants from nearby sections of the valley at the time, rather than as a strategic asset.[391] Was Dariali Fort abandoned from the early eleventh well into the thirteenth century (phase 6a)?

It seems more likely that a reduced garrison occupied parts of the plateau, perhaps a keep, towers or upstanding casemates overlooking the east cliff and the river, for some, if not all, of these archaeological dark ages. The reported conquest by the Georgian King Davit IV the Builder, in AD 1118 is incompatible with complete abandonment and not likely to lack a core of truth.[392] Queen Rusudan reportedly opened the gates of Dariali in AD 1226 to northern allies, to be employed in her ill-fated war with Djalal al-Din and the Chorasmians.[393] The rock was now again under control of a regional power, as it had been repeatedly since the likely construction of the earliest fort more than a millennium before. King Davit's conquest implies the existence of an occupation force and probably also a pre-conquest garrison from which the fort was taken. Queen Rusudan's control of the gates a century later also suggests continued or renewed Georgian occupation, even if Davit's and Rusudan's forces in the gorge are archaeologically elusive so far. Had pressure from the north diminished temporarily, so that a smaller garrison was thought to offer adequate protection? Perhaps, but if there had been perpetual peace, why did people seek safety on Gveleti Fort – not to mention the reported Alan invasions of the 1060s?[394] We probably should neither assume that Dariali Fort was an unoccupied ruin for much of the first quarter of the second millennium, nor that its, undoubtedly much-reduced, garrison achieved hermetic closure of the gorge to hostile elements. The situation may have been fluid, probably marked by an overall lesser threat level and lesser defensive efforts than in the later first millennium, perhaps with periods of particular neglect or total abandonment. Raiding may not have reached the same radius or intensity as before, but smaller parties may have found it easier making their way past a thinly occupied fort or empty ruin – explaining why people at Gveleti sought refuge on their local fort, at a time of no traceable activity on Dariali Rock.

If Dariali Fort reportedly became a bastion at the northern frontier of the Kingdom of Georgia in the early twelfth century, now a strong regional power, it was not until the late thirteenth or fourteenth century that we have material evidence for reoccupation. It was in this era, coming to an end in the fourteenth or early fifteenth century (phase 6b) that we see renewed occupation of the late antique F.004 building. The duration of this phase cannot be estimated precisely, but successive floor horizons within the building, and the construction of new dry-stone annexes outside, suggest a minimum of a few decades. It is not likely to have lasted for much more than a century at most, to judge by our three radiocarbon samples all falling between c. AD 1288 at the earliest and AD 1413, at the latest. Priestman's analysis has shown that pottery in this period came predominantly from the south, more so than in any previous phase (with the sole exception of phase 3f in the early to mid-seventh century) – perhaps adding strength to Dariali being under firm Georgian control. The reasons for a resurgence of defensive efforts in the late thirteenth or fourteenth century are not difficult to guess. The fort was now again at the interface of major power blocks. For much of the Mongol era, the Caucasus divided the spheres of influence of the Ilkhanid Empire and of the Golden Horde, explaining why the fortifications in the Dariali Gorge regained their role as key strategic assets.[395] Intensity of archaeologically traceable activity on the fort in period 6b, however, did not come close to that in the Early Middle Ages.[396] It seems to have been centred on one building complex in Trench F, with little happening in the area of Trench Q. At no stage in the second millennium did the fort regain its former grandeur, not even during the fourteenth-century resurgence.

At Gveleti Fort, a stone floor (in Trench W) also dates to the Late Middle Ages, and it appears that there was permanent housing on the fort at the time.[397] A reduction in arboreal pollen at Gveleti Mire (some 2.6 km from Gveleti Fort and 2.9 km from Dariali Fort, as the crow flies) between an unknown earlier date and around the thirteenth century, followed by a renewed increase in such tree pollen in post-medieval times, may perhaps also point to a temporary rise in population levels in the gorge in the High to Late Middle Ages.[398] Building works and a possible peak in human activity at Gveleti Fort may well be related to the site serving for a brief period as a royal refuge. King Davit VIII (r. AD 1292–1311) fled from an Ilkhanid army, the latter supported by his brother, Vakhtang III (r. AD 1302–1308), along the Aragvi River towards Dariali Fort, but established his base at Gveleti Fort. Afraid of his powerful enemy, the beleaguered Georgian king evidently considered Gveleti Fort a safer place than any other fortification in his reach. The strategy proved successful. The Mongol army failed

to capture the impregnable stronghold, even though it did not abandon its siege (in c. AD 1302) until forced to do so by snowfall – suffering heavy casualties at the hand of mountaineers as they retreated.[399] Interestingly, two of the radiocarbon dates from the fort could coincide with Davit VIII's presence. The charcoal sample from under the stone floor in Trench W dates to c. AD 1299–1410 (or, with a probability of 69.7%, to AD 1299–1370, even if the sample is not certain to be young). A sample from Trench U next to the only access to the Upper Fort, dates to c. AD 1275–1384 (with a 76.9% chance of it falling between AD 1275 and AD 1304).[400] It is possible that the latter sample, a sheep or goat bone, belongs to an animal slaughtered whilst the king was in residence at the site. Perhaps at the hour of greatest danger, the king retreated to the dwindling heights of the Upper Fort, knowing that it was a suicide mission for any hostile forces to ascend. So long as a garrison had enough food to last to the winter, Gveleti Fort could withstand even the armies of the Near East's most powerful empire at the time. We cannot tell if the stone floor in Trench W was laid whilst the king was there – or if the high to late medieval investment in the fort partially post-dates the siege. As the stronghold had saved the king's life, he or one of his successors may well have decided to improve its housing, to be better prepared for any future emergencies forcing the royal entourage to flee to the mountains again. The contemporary occupation and reflooring of the F.004 building on Dariali Fort and the construction of basic annexes may well have been part of an effort to create a network of defensible mountain retreats.

And there may have been more strongholds than Gveleti and Dariali Forts. Interestingly, the *Hundred Years' Chronicle* attests that the Mongols, with Ossetian support, prior to their advance onto Gveleti Fort, unsuccessfully besieged the village of Stepantsminda. It is hard to imagine that villagers dwelling at the site of modern Stepantsminda (positioned in the valley bottom and lower slopes), would have had any chance to withstand the combined Mongol and Ossetian forces. Does the report perhaps refer to an impregnable fort, towering high above the modern town, with a dry-stone lookout tower protecting the one access route where it is not protected by cliffs or steep slopes (Figs 25:24–25:26)?







Figs 25:24–25:26: A dry-stone fort overlooking modern Stepantsminda.

Without excavation we cannot tell if the fort was already occupied at the time, in the early fourteenth century, or if it is of more recent construction – but it may be a strong candidate for the site that withstood Mongol might. Some of the investment, notably at Dariali Fort, may, of course, have been directed against the Golden Horde in the North rather than the Ilkhanids in the south. Whilst Davit VIII sought the Horde's alliance, being in control of the Caucasus passes was advantageous, whether used to bar entry to northerners or allowing them passage when needed.[401]

25.7. End of the Middle Ages to Soviet Invasion: Dariali Gorge in the second half of the First Millennium (Phase 7)

Following the end of phase 6b in the late fourteenth or early fifteenth century, there is no archaeologically traceable activity in any of our trenches on Dariali Fort for the next 500 years, until the early twentieth century. According to a Russian map of 1733, the fort was already abandoned at the time[402] and, based on the lack of archaeological evidence, quite possibly already up to three or four centuries before. Perhaps the waning of Mongol power meant that Georgia's northern borders no longer faced the same threat level. Whilst no distinct occupation layers later than the fourteenth or early fifteenth century appear to survive on Dariali Fort, we do not know if the strategic stronghold was abandoned for good some 600 years ago or if a much-reduced garrison may have stayed on for decades or centuries beyond. There may have been enough space for a few border guards in the tower that Sir Robert Ker Porter (1777–1842) saw in 1817 and that probably featured in one of his paintings (Fig. 25:27).[403] The most substantial wall of the fort surviving today (parts of which have collapsed only recently and still feature on old photographs[404]) may well form part of it (Fig. 25:28). Our project lacked the time, expertise and resources to carry out archive research as to whether or not there is any documentary evidence for continued occupation of the fort between the latest archaeological evidence for occupation, in the fourteenth or early fifteenth century, and the time when it had fallen into ruin in the eighteenth century.

By contrast, on Gveleti Fort we found evidence for continued occupation between the mid-fifteenth and mid-seventeenth century from three separate trenches.



Fig. 25:27: Dariali Gorge, probably featuring the fort and the ruined tall walls on the left, drawn by Sir Robert Ker Porter who saw it in 1817 and sketched it in situ.



Fig. 25:28: Were the fort's most substantial walls surviving today those featuring on Sir Porter's painting? Drone image by Davit Naskidashvili.





Figs 25:29–25:30: Defensible lookout towers, such as one of those at Pansheti (left) and Sno (right), corroborate travellers' accounts that robbers and raiders posed a danger to life into the nineteenth century.

All three samples could only be dated with a precision of one and a half to two centuries, so we cannot be sure when precisely, within these parameters, the fort was occupied. One of the samples is likely to be later than AD 1512, suggesting continued occupation at least into the sixteenth century. Occupants at the time built basic dry-stone houses, including some at the cliff edge. Perhaps the fort, surrounded by more cultivable land than Dariali Fort, was a local refuge rather than a state-sponsored asset – explaining the divergent fate of the two strongholds.[405]

Undated watchtowers at Gveleti, Tsdo and further south (Figs 25:29–25:30), if, as the landscape analysis has shown, not forming long signal chains but only inter-visible with one or two towers, if any at all, seem to form part of local early warning systems. Some (of more recent date?) employ mortar, whilst others (such as those on Gveleti Lower and Upper Forts) do not.[406] They are likely to date to recent centuries, but some at least seem to predate 1822 when Lyall appears to describe them.[407] Such lookout posts and defensible retreats suggest that the risk of raids continued to concern locals even after Dariali Fort had diminished in importance or even been temporarily or totally abandoned.

In the eighteenth to early nineteenth centuries, Russia advanced to the Dariali Gorge and beyond and annexed Georgia.[408] According to Lyall, Dariali Fort was destroyed by the Russians, after a few 'Ossetinians' (*i.e.* Ossetes/Ossetians) in command of the fort killed all from a numerous Russian corps who attempted to pass, defeated only when food ran out, and the garrison faced starvation.[409] The alleged Russian destruction makes perfect sense, and there may well be records which provide more detail.[410] For an empire controlling territory on both sides of the strategic mountain pass, the north as well as Transcaucasia, a reoccupation of Dariali Fort by rebel forces presented a real threat. There may have been further destruction later, as Porter's drawing (if admittedly somewhat abstract) may imply that more of the tower or outer walls survived in 1817 than today. Whenever the tower, probably the keep of the castle and/or part of the original casemates, perished, probably blown up with modern explosives, much of the evidence for the fort's occupation in recent centuries may have vanished. It seems likely that the Russians were not solely concerned with any habitable structures, but also with the outer wall circuit. With the exception of the mentioned tall wall and a tower in the north-west of the fort, virtually none of the outer or inner walls of the fort survive much above modern ground level. Such surprisingly poor preservation of solid mortar masonry is unlikely to be the result of natural decay only. It is undoubtedly, to a significant extent, the result of modern efforts to erase anything that might have offered protection or shelter to rebel forces.

The fort, at a nodal point in Transcaucasian traffic, was of key strategic significance for much of the past two millennia, and it did not cease to do so with the slighting of much of its upstanding architecture. Those holding the fort could decimate enemy forces attempting a breakthrough, whilst the prominent rock offered protection in the age of mechanised warfare almost as much as it had done in ancient and medieval times and at the time of the Ossetian road-blockage.

Destruction did not diminish the strength of Dariali Rock's natural defences, and neither did the ruin cease to be a place of myth and legend. The awe-inspiring mountain landscape of the Caspian Gates/Dariali Gorge, where Prometheus was thought to have suffered eternal punishment, was a place of legend two millennia ago, and it has remained so up to the recent past. Dariali Fort is popularly known as 'Tamara's Fort' or 'Tamara's Castle', after the legendary ancient mistress of this place. She features as an evil queen in a poem, which the Russian poet Mikhail Lermontov (1814–1841) wrote in the last year of his life, seducing and murdering travellers in the ancient fort towering over the Tergi – the wild river carrying away the corpses of her victims.[411] The gruesome deeds of mythical Tamara (thought to be different from Georgia's famous queen) were not Lermontov's brainchild, but based on an older folk tale immortalised by the poet.[412]

The twentieth century saw a sudden revival of strategic interest in Dariali Fort. There is a ruined modern bunker south-west of Trench Q, and further west, near the old round tower on the west side of the fort, one finds a typical stone-lined military trench. These modern gun emplacements face north, where the main road and any enemies approaching from the north could be shelled. There are also at least two deep cellar-like structures lined by mortared stone walls on the hilltop, likely to be of modern date, one to the south-east of Trench F, the other in the centre of the plateau (and explored via Trench O). Northwest of Trench F, there is a further small bunker with a preserved concrete roof overlooking the track passing the west side of the fort.[413]

Arguably the most impressive piece of modern military infrastructure is formed by a tunnel system underneath the fort, leading to concrete-reinforced gun emplacements overlooking the Tergi (Figs 25:31–25:33). From here any vehicles or foot-soldiers passing through the valley on the east side of the rock would have been within close firing range, whilst the rapid river waters placed the marksmen beyond enemy reach and the solid rock would have shielded them from any oblique gunfire. The tunnel system, even if filled now with sediments and stones (probably as a result of landslides) to a level that the visitor has to crawl in places, is still accessible. Like the military trenches on top of the fort, it is evidently of recent date.

Any modern force from the north, succeeding in making their way past the artillery positions on the top and at the base of the fort, faced the risk of further shelling as it progressed. The road to the south is guarded by at least two small pillboxes (Fig. 25:34), one to the east of







Figs 25:31–25:33: Three modern concrete-lined gun emplacements overlooking the Terek/Tergi River (left), part of the tunnel linking them (top right) and view from one of them over the river (bottom right).



Fig. 25:34: A pillbox between the Amali Valley and Gveleti.

medieval Dariali Cemetery, where there is also a further stone and concrete-lined military trench east of Trench E,[414] the other between the Amali-Tergi confluence and Gveleti Cemetery. These modern military installations at Dariali Fort and at the edge of the cliff above the Tergi further south, ideal for observing and shelling enemy forces, provide material evidence for twentieth-century forces anticipating that this strategic bottleneck could once again become a major theatre of war.

What is the date of these installations? Whilst Dariali Fort turned from a strategic asset into a security threat once no longer at the edge of a state, but within Tsarist Russia, this changed again during the brief period of Georgian independence (1918–1921) when Georgian liberty was at threat from, and eventually terminated by, Soviet forces. A generation later, the Soviet Union faced invasion during the Second World War. In 1942, in the wake of Nazi-Germany's attack on the Soviet Union, the German army, conscious of significant oil reserves south of the Caucasus, such as the oil fields of Baku, was the most recent northern foe to head towards the Dariali Gorge. In the twentieth century, as in the two millennia before, Dariali Gorge offered the most viable route across the Caucasus, and it surely was no coincidence that the German army aimed for this route in preference to all others. Yet, the tide was turning. Beaten back by Soviet troops in November 1942, barely 20 miles north of the Dariali Pass,[415] and soon after, suffering a crushing defeat at Stalingrad, the German army rapidly lost territory and never advanced as far as the gorge.

Was it the Soviet army preparing for a German assault in 1942 that built all the trenches, bunkers, pillboxes and tunnels? A used gun cartridge produced in 1916 from a deep pit in Trench Q, probably a material extraction pit for a nearby bunker, allows for the

possibility that at least some of the modern military installations could have been built earlier, perhaps under the independent Democratic Republic of Georgia in the aftermath of the First World War shoring up defences against the Soviet threat. As its Iberian, Persian, Arabic and Georgian predecessors, it took all precautions to make any breakthrough attempts as difficult and perilous as possible – if evidently unable to stop the Red Army.

With the demise of the Soviet Union and Georgia regaining independence in 1991, the northern state border is again where it appears to have been for much of the past two millennia, at one of the narrowest passages of Dariali Gorge. This long period of continuity as borderland territory includes phases of Iberian and Georgian self-determination as well as times when Near Eastern states exercised hegemony over parts of Transcaucasia. Only periods of northern control formed exceptions to the rule. In Late Antiquity and the Middle Ages, northerners appear to have been in control for shorter episodes only, whilst in modern times Tsarist Russia and the Soviet Union exercised control for almost two centuries. Leaving these anomalies aside, Dariali Gorge, including the fort and Bakht'ari Ridge, were frontier posts of the south, dividing Transcaucasia from the steppes of Eurasia. The border is today where it had been already at the start of the Christian era, or even before.

Notes

1 See chapters 5.1, 10.4.3.4, 10.6.2, 10.7: DPS-23 and DPS-46; Knauss 2006, 81; Tallgren 1930; cf. Bayern 1885, 42–56, 58–60, pls III, VI. XIII. See also Kruglov 1937, 245 and Mindorashvili 2005, 176 on Bronze Age finds from the Tergi/Terek River.

2 See chapter 22.3.

3 See also Morgan (1889b, 37) doubting that the Dariali route was known in the Bronze Age and arguing that it was only later that it became a Transcaucasian traffic route.

4 Herodotus 1.103–04; 4.11–12, writing much later and offering little geographical precision, but enough to suggest that the Caucasus was crossed via the Derbent route and at least one pass further west. There is widespread agreement that Dariali was probably one of the main passes used, even if modern authors disagree how to interpret the account and which of the attested ethnic groups crossed the Caucasus via the Dariali route, probably the Cimmerians or possibly contingents of the Scythians: Anderson 1928, 138; Burney and Lang 1971, 165; 1983, 522 map 10, cf. 505; Lehmann-Haupt 1921, especially 398–99; Minns 1925, 188 (if differing from the hypothesis proposed in the 2nd edn. of the *CAH*: Sulimirski and Taylor 1991, 556–59); Morgan 1889b, 110–12 with pl. X and fig. 6, 117–18, 126; Rayfield 2012, 17; Rolle 1989, 69–72 with fig. 43; Talbot Rice 1957, 44. For another postulated early, anachronistic, invasion via the Dariali Pass, which may refer to the same events, see *Kartlis Tskhovreba/Life of Kartli* 12 (14 in the Armenian version) = trans. Thomson 1996, 14; cf. Shapira 2007, 321–23.

5 See chapter 22.3.

6 See chapter 5.1. Our failure to find early occupation on top of Dariali Fort, where all material pre-dating the fourth century AD may have been cleared off the plateau, is less significant than the cultivation layers in Trench M not reaching back beyond the first century BC or AD, as far as we can tell. We do not know if a cave near the spot is of natural origins or artificial; in the former case, it would have added much to the attractiveness of the place as a night camp.

7 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 43, Marquart 1903, 166 and Minorsky 1958, 156; Alemany 2000, 264; Dubois de Montpéreux 1840, 298; cf. Yarshater 1998.

8 Bryce 1878, 74–75; Wardrop 1888, 62.

9 Iordanes, *De origine actibusque Getarum* 50, 52, citing Vergil, *Aeneid* 6.471 who may have had a different rock in mind (Grillone 2017, 311; Paro 1996; Thomas 2014). See also Anderson 1928, 139–40, 151–52. Contrary to Mayor (2014, 39, 49–51, 324–26 with map 20.1, 363, cf. 444 no. 7) the Iordanes passages is more plausibly attributed to Dariali than Derbent, the former much closer to Lazi territory, in so far as such legendary accounts can be localised at all. On Jordanes' Amazonian hypotheses and his limited geographic knowledge of Asia Minor (and territories beyond) see Doležal 2014, 159. Already Valerius Flaccus (*Argonautica* 5.124–25) alludes to the Amazons crossing the *Caspia Claustra*; cf. Spaltenstein 2004, 417–18; Wijsman 1996, 76–79.

10 Hieronymus, *Epistulae* 77.8; Procopius, *Bella* 1.10.9; cf. Fredegar, *Chronicae* 4.66, probably referring to Derbent. Josephus, *Bellum Iudaicum*, 7.245 is the first to attribute the gates to Alexander (cf. Anderson 1932, 20) and may well refer to Dariali, even if some uncertainty remains as to which mountain pass he had in mind, as further discussed below in this chapter. Ptolemaios, *Geographia* 5.9.15 (cf. 5.9.11) mistakenly plots Alexander's boundary markers to the north of the Sarmatian Gates (*i.e.* Dariali), the latter erroneously plotted twice (in a plausible location in 5.9.11, as opposed to 5.9.15); cf. Stückelberger and Graßhoff 2006, 534–37 with nos 163–64, 850–51 map 2. See also Pseudo-Hegesippus 3.5.2 = ed. Ussani 1932, 193. Even in the nineteenth century, Eichwald (1837, 766) attributes the military road to Alexander. See also Sauer *et al.* 2013, 6–14, Anderson 1928; 1932, especially 15–26; Bosworth 1978, 342; Czeglédy 1957; Demandt 2009, 286–88; Djurslev 2019 (we are grateful to Dr Christian Djurslev for having shown us this important article prior to publication); Dumas 1884a, 11–12; Gießauf 2017, 138–39; Kavtaradze 2001, 191; Nawotka 2017a, 179; 2017b, 538; Rapp 2014, 133–40; Schmidt 2008, especially 95–97; Stoneman 1991, 186–87, cf. 196 no. 139 (on the mis-attribution of various northern barriers, including that in the Dariali Gorge, to Alexander); Van Donzel and Ott 2002, 232.

11 There is no space here to explore the various versions of the legend and its evolution over time. For more detailed discussion, see Reinink 2005, chapter III: 266–71, chapter IV: 446–52; Anderson 1932, 20–25; Czeglédy 1957, 242–44; Demandt 2009, 288–94, pl. 12a; Djurslev 2019; Greisiger 2014, 217–51; Klęczar 2016; 2017, 388–90; Maas 2018, 33–34; Nöldeke 1890, 27–33.

12 *Kartlis Tskhovreba/Life of Kartli* 28 = trans. Thomson 1996, 41. See also *Kartlis Tskhovreba/Life of Kartli* 12 = trans. Thomson 1996, 14 for anachronistic earlier Khazar invasions via the Dariali Pass, also known as the Aragvi Pass; cf. Anderson 1928, 143–44; Blanchard 1861, 127 no. 2; Vakhusht'i = ed. and trans. Brosset 1842, 228–29; Dubois de Montpéreux 1840, 290; Gagoshidze 2008b, 3, 9–10, 13–14, 17–18; Gille 1859, 243–44 Kavtaradze 2000, 209; Klaproth 1812, 671–72; Rayfield 2012, 25, cf. 23–24, 32–33. Wardrop (1888, 62) reports that the castle was said to have been founded in 150 BC, based no doubt on the same source, but believed it to be older. Mtskheta was as early as in the third or second century BC surrounded by a solid mud-brick wall, evidence for a fortification programme in the centre of Iberia and at the southern approaches to the Transcaucasian route via the Dariali Gorge at a similar period (Mindorashvili 2013d). Modern scholarship has raised doubts as to the reliability *Kartlis Tskhovreba* on early kingship in Iberia. Meißner (2001, 187; cf. Furtwängler 2001, 275–76) argues that the Iberian monarchy emerged in the second century BC, Schottky (2012) favours the early first century BC.

13 See chapters 4.4 and 7.

14 Ts'itlanadze 1971. Further excavation in this area could potentially shed significant light on early occupation, but would be very difficult, due to the massive amount of fallen stone and gas pipelines cutting across the narrow passage. See chapters 5.1 and 25.1 on the early campfires.

15 Strabo 11.3.5.

16 See also Heil 1989, 175 and 1997, 229–30 on similarities between the accounts of Strabo and Pliny. Ritter (1818, 815, 838) assumes that Pompey's soldiers were Strabo's source for the *τεῖχος δύσμαχον*. There is nothing to suggest that they ventured so far north, but Pompey's invasion is indeed mentioned by the geographer in the same paragraph, and it is possible that hearsay picked up by the army may have informed the author. If so, this may point to the existence of a fort on the rock in 65 BC, but this is far from certain. Lasserre's (1975, 60 no. 1) claim, that the fortification has left no trace, is questionable, even if we cannot be entirely certain which one Strabo referred to or whether he may have conflated information on more than one stronghold. See also Dubois de Montpéreux 1840, 291.

17 See Strabo 11.3.3 on Iberian alliances with the Sarmatians and Scythians.

18 Tacitus, *Annales* 6.33–36; Josephus, *Antiquitates Iudaicae* 18.97–98; Anderson 1928, 144–45; Borjian 2015, 168; Bosworth 1977, 221 with no. 15; Braund 2001, 38–39, with sources; cf. Dąbrowa 2017, 176–77; Gagoshidze 2008c, 126–27; Gamkrelidze 2008, 151; 2012a, 97; Giardina 1996, 131–32, 136–37; Kavtaradze 2001, 207, 219; Kazanski and Mastykova 2003, 21; Koestermann 1965, 321; Meißner 2001, 189; Odisheli 2013, 149 pl. 1; Olbrycht 1998, 146–50, 193 and 2012, 221–23; Pchakadse 1995, 65, 68; Zerbini 2012a, 60.

19 Plinius Secundus, *Naturalis historia* 6.40, cf. 6.30. See also Theophanes, *Chronographia* 356/A.M. 6171 on the Gates of the Iberians (Ἰβερίων πύλαι) in the Caucasus.

20 Josephus, *Antiquitates Iudaicae* 18.97; cf. Bachrach 1973, 5–6.

21 Tacitus, *Annales* 6.33; cf. Alemany 2000, 23–25, 90–91.

22 Lucanus 8.222–23; cf. Alemany 2000, 13; Bachrach 1973, 4; Braund 1994, 225 no. 116 (preferring 'Albanos', but various Latin editions of the text consulted, *e.g.* Shackleton Bailey 1988, 202, all refer clearly to the Alani, 'Alanos'); Grosso 1955, 42–43; Kavtaradze 2001, 208–09; Tomaschek 1894a, 1282; cf. Baumer 2012, 259–60.

23 Tacitus, *Historiae* 1.6.2; see below for secondary literature discussing whether the Albani were the target of the expedition, as Tacitus states, or (more logically, as they settled north of the gates) the Alani.

24 Ptolemaios, *Geographia* 5.9.11, cf. 5.9.15, the latter entry is a mistake: Stückelberger and Graßhoff 2006, 534–37 with no. 164, 850–51 map 2. This must be Dariali Gorge, Alans and Sarmatians being closely related. There is no reason to think that the Sarmatian Gates refer to Derbent (Miller 1916, 653) or the hard to control Cross Pass (as considered by Hewsen 1992, 116 no. 71 and 2001, 317; Hewsen and Bandomer 1987, even if also allowing for the Sarmatian Gates being at Dariali: Hewsen 1992, 116 no. 70, 122–23 no. 106).

25 The written sources are too numerous to list, whilst any tentative attribution of material culture to particular ethnic groups is always risky; see Symonenko 2012 for a recent attempt to shed light on the interaction between Alans and Sarmatians; cf. Alemany 2000, 1–2; Golden 1980, 93–94.

26 Huyse 1999a, 22–23; 1999b, 25–26; MacKenzie 1989, 58, 65, §15.

27 Mindorashvili 1998, points out that early Georgian historical sources use the term 'Gate of the Tsanars' and 'Aragvi Gate' and argues persuasively Northern Caucasian pottery may have reached the fort via trade. See Anderson 1928, 142–43 on further names. Cf. Martin-Hisard 2000, 509 on the relation between the Alans and the Ossetes; cf. Kavtaradze 2001, 191 with no. 74. On the material culture of the Alani in the first half of the first millennium, see for example Arzhantseva *et al*. 2000; Härke and Belinskij 2015. Reineggs (1796, 225) and Morgan (1889a, 12–13) argue that Darial comes from the Tatar language and signifies a narrow path – similar to Dar ('door') in Persian. According to Reineggs, there was also a local tradition, if untrustworthy, that the fort had been built by a giant named Dariel.

28 The chapter 25.3.2 and 25.5.3.

29 See also Zuckermann 2000, 542 and Kazanski and Mastykova 2003, 6 on the gates being predominantly under the control of southerners.

30 Braund 1994, 224–26, with sources; Dąbrowa 1989, 70–71; Giardina 1996, 99–100; Greatrex 2007, 137–39; Heil 1997, 159, 162–63, 170–82, 224–31; Isaac 1992, 43–44; 404; Kakhidze 2008, 307–08; Kavtaradze 2001, 207–08; Kolendo 1982 and 1987, 142–45; Meißner 2001, 189–90; Mitford 2018a, 32–33, 37–38, 58, 331; 2018b, 554, 562–63; Odisheli 2013, 151; Schur 1923, 62–69; Wheeler 1997, 62–63; cf. Bais 2001, 87; Bârcă 2013, 108–09; Staccioli 2017, 106. A minority of scholars argue that the expedition aimed at Derbent. There is no space for detailed discussion here, but it seems improbable that Rome would have aimed exclusively at Derbent, neglecting the closer and equally important Dariali Pass. Already in the first century BC Roman armies had ventured into Iberia: see Gagoshidze

2008b, 10–13 and Giardina 1996, 89–97, with sources; Mittelhaus 1921. Already then Rome may in part have been motivated to do so by recognising the strategic significance of the Caucasus (Zerbini 2012b, 71–74).

31 Sauer 1996, with sources.

32 Hoffmann 2013, 108, 110; Holder 1982, 113.

33 Suetonius, *Nero* 19; cf. Cassius Dio 63.8.1; Tacitus, *Historiae* 1.6.2; Plinius Secundus, *Naturalis historia* 6.40; Anderson 1928, 145–46; Heil 1997, 177–80.

34 Tacitus, *Historiae* 1.6; Braund 2001, 38 no. 9.

35 Gregoratti 2013, 540–41.

36 Josephus, *Bellum Iudaicum*, 7.244–51; Suetonius, *Domitianus* 2.2; cf. Cassius Dio 65.15.3; Alemany 2000, 91–93; Bennett 1997, 188; Levick 1999, 165, 168–69; Olbrycht 1998, 196–203, especially 202; Sinisi 2012, 21; Wheeler 1997, 64–66.

37 *Kartlis Tskhovreba/Life of Kartli* 45 = trans. Thomson 1996, 53–54; Meißner 2001, 190; Treister 2001, 44; cf. Braund 1994, 210–11 and 2001, 38; Gagoshidze 2008b, 17–18; Kavtaradze 2001, 209–10, 213; Kouznetsov and Lebedynsky 1997, 28; cf. Moses Khorenats'i 2.50 = trans. Thomson 2006, 188–90; Schottky 2014, 138 and 2015, 88–89.

38 Anderson 1928, 146–49; Czeglédy 1957, 234–37; Hartmann 2016, 396–98; Wheeler 2013, 327–28.

39 Carrata Thomes 1958, 13; Schottky (1993, 122–24, 2014, 137–42 and 2015, 95, 97), hypothesising (2014, 139 no. 29) that there was an Iberian garrison at Derbent at the time and that the Alans may have returned via Dariali (2014, 141–42). Schottky (2014, 137) significantly points out that Hyrcania had no king.

40 Bosworth 1976, 67–70 and 1977, 223; Halfmann 1986; Sauer *et al*. 2013, 12, 22 no. 59, 619; cf. Thomson 1996, 54 no. 2. It should be noted that a few years ago Sauer *et al*. 2013 argued that this invasion went via the Alborz, but, reconsidering the evidence, acknowledge now that the arguments for a possible invasion via Dariali are strong, if the case is far from proven. Josephus' claim that the pass had been closed with iron gates by Alexander (who had indeed campaigned in Hyrcania, but never in the Caucasus) is worth noting too, but does not solve the problem as a whole range of barriers in the north were erroneously attributed to Alexander.

41 *Kartlis Tskhovreba*/*Life of Kartli* 49 = trans. Thomson 1996, 58–59. Moses Khorenats'i 2.53 = trans. Thomson 2006, 193 also reports that the Iberians captured and imprisoned 'Zareh' in the Caucasus; see also Rapp 2014, 226; Schottky 2015, 88–89.

42 *SEG* 20, 1964, 112 = *ILS* 8795 = *The Epigraphic Corpus of Georgia* 2.0, no. 77 http://epigraphy.iliauni.edu.ge/en-US/Inscription/Index/114?name=The%20inscription%20of%20Vespasianus; cf. Anderson 1928, 149; Austin and Rankov 1995, 149; Bäbler 2019, 20; Bennett 1997, 18, 188; Boltounova 1971; Bosworth 1976, 74–75; 1977, 226; Braund 1991b, 422; 1994, 226–30; 2001, 37–38; Carrata Thomes 1958, 12–15; Crow 1986, 80; Dąbrowa 1989, 71–73; Gagoshidze 2008b, 13, 17–19; Gamkrelidze 2012a, 90–91; 2012b, 155; Giardina 1996, 102–03; Greatrex 2007, 139; Halfmann 1986; Heil 1989; Isaac 1992; 44–45; Kavtaradze 2001, 210–12, 216; Khatchadourian 2008, 251; Levick 1999, 169; Lordkipanidse 1991, 159; 1996, 272–74; Lordkipanidse and Brakmann 1996, 18–19; Mitford 1980, 1193; 2018a, 32, 37–38, 57; 2018b, 556–58; 562–63; Pchakadse 1995, 64–65; Plontke-Lüning 1995, 318; Rayfield 2012, 32–33; Schottky 2014, 139–42 (interestingly, as Braund 1994, 229, pointing out that construction works may have started years before); 2015, 95; Spagnesi 2011, 54; Spring 2015, 81; Taylor *et al*. 2011, 97; Todua 2012, 20–21; Wheeler 1997, 62, 65–66; 1999, 218; Whittaker 1994, 56; 2000, 309; Williams 1996, 22; Zerbini 2012c, 42. Plontke-Lüning (1998, 878) argues that the fortification works at Mtskheta are related to securing the Caucasus passes against northern steppe peoples. Staccioli (2017, 106) suggests that Rome offered military support to the Iberians in AD 75 to fortify the Dariali Pass. I am grateful to Dr Irina Demetradze-Renz for drawing my attention to a potentially significant archaeological discovery at Armazi. This is unpublished and cannot be discussed here, and one has to await publication to see if it sheds light on events at the time.

43 Plinius Secundus, *Naturalis historia* 6.30, cf. 6.40; Braund 1994, 14, 216, 225.

44 Braund 2000, 1260, map 88; Lang 1987.

45 Cf. Freshfield 1869, 212 on the 'abominable stench' probably from a sulphur spring further upstream in the Tergi River Valley; cf. Güldenstädt 1787, 201; Lyall 1825, 479–80.

46 Dietz 1983; Forni 1959–1962, 1087–88; Ruggiero 1900, 129; Wesch-Klein 2001.

47 Klaproth 1812, 671. Work on the road started in 1803 (Brosset 1857, 278; Nachtigal 2016, 65–66). For further landscape destruction through road building in the 1850s, see below: appendix II.

48 Lyall 1825, 472–73.

49 Reineggs 1796, 225–26 (translation by EWS); see Nachtigal 2016, 58 on Reineggs' activities in Georgia. See also chapter 4.5.

50 Lyall 1825, 472–73.

51 Bryce 1878, 74 referring to the narrow gorge north of the fort: see chapter 7.

52 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 43–45, Marquart 1903, 166–67 and Minorsky 1958, 156–57.

53 See chapter 25.3.3 below and Priestman *et al*. forthcoming 2020 on the likely garrison of small forts in Antiquity. Written sources (corroborated by the size of early imperial marching camps and late Sasanian campaign bases) imply that even Roman and Persian field armies operating in fertile lands did not normally exceed five-digit numbers. It is hard to imagine that steppe-based groups could have mustered and fed larger armies when crossing an alpine environment. The fort's garrison and the size of invasion armies will, no doubt, have varied greatly over time. Reineggs may have overstated the ratio too, but there is no question that the fort could only have accommodated a small fraction of those posing a threat.

54 Wheeler 1999, 218, for example, believed that neither Cumania nor the Sasanian fortifications in the Dariali Pass had been found, if accepting (Wheeler 1997, 56) that Bryce (1878, 74–75) had spotted the remains of a fort, *i.e.* Dariali Fort.

55 Reineggs 1796, 225–26, cf. 15.
56 Klaproth 1812, 671–75, cf. 526–28; Freshfield 1869, 441–42. Lyall 1825, 463 and Porter 1821, 472–73 are undecided, if the latter considers Dariali Fort 'the citadel of the pass'. Ritter 1818, 815 (cf. 814, 816) also locates Cumania in the Dariali Pass.
57 Pushkin 1835, 534 = trans. Ingemanson 1974, 28–29.
58 Bryce 1878, 75–76, with no. 1; see also Dubois de Montpéreux 1840, 291–92.
59 Klaproth 1812, 671; Reineggs 1796, 225–26; see chapter 4.5 on the staircase and water channel.
60 Eichwald 1837, 765. See also Anderson 1928, 143.
61 Braund 2001, 40–41, citing Ts'itlanadze 1971; Braund 2000, 1257, 1259; 2015, 143; cf. Mitford 2018b, 617.
62 Gagoshidze 2008b, 19; cf. Wheeler 2013, 324.
63 Gamkrelidze 2012a, 91.
64 See chapter 25.7.
65 Tomaschek 1901.
66 Klaproth 1812, 671–75.
67 Klaproth 1812, 693; Reineggs 1796, 225–26; 1797, 78, 80, 154; Nachtigal 2016, 301.
68 Murav'ev 1988, 157, 158 fig. 1, 160–61.
69 Hewson 1992, 116 no. 71, cf. 56. See also Hewsen 2001 (62, 106 map 81) equating Cumania with 'Kumlisc'ixe' and convincingly placing it in the Dariali Gorge, but less convincingly to the east of the Upper Tergi, south-east of the Dariali Pass, probably a mistake, as we are not aware of a site of this name or any major fort in this position. Hewsen acknowledges that the Gate of the Alans was at Dariali (1992, 116 no. 70). The site is described as a typical mountain village (without proposing ancient origins) by Dubois de Montpéreux 1840, 256.
70 Kavtaradze (2001, 201) equates Cumania with 'the Georgian fortress of K'umli'. Lund University's *Digital Atlas of the Roman Empire* (http://dare.ht.lu.se/places/34722.html, accessed on 8/1/2018), locates Cumania too far north and, illogically, in a side valley. The source cited (Pleiades: https://pleiades.stoa.org/places/863772) is similarly incorrect. This is probably a result of a technical error, as Pleiades claims to be based on Braund 2000 who persuasively locates Cumania at Dariali Fort.
71 Mindorashvili 2005, 123–24.
72 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 167 and Minorsky 1958, 157.
73 See Javakhishvili 2016, interestingly also referring to Parthian, Sasanian and medieval coins (of c. AD 43/44–51, 579–590, 590–628 and 1200) from an identically named site near Nadibani in the Aragvi Valley. A place of religious gatherings up to the present, these coins may have been found in the area and re-used as modern religious offerings. We are grateful to Professor Nikoloz Javakhishvili for providing information, advice and photos of his discoveries. For other Parthian and Sasanian coins from the Aragvi Valley, often from burials, see Tsotselia 2010, *passim*.
74 See chapter 5.2.
75 See chapter 22.3, with fig. 22:12.
76 See chapter 4.2.
77 Biel 2010; Bolay *et al*. 2010, especially 126–29 (expressing hope some Iron Age layers might survive).
78 See appendix I.
79 Furtwängler and Ludwig 2005, 179, 181, 186–87, 191–92; Löhr 2006; cf. Braund 1992; Junkelmann 2000, 78; Fischer 2012, 146–50.
80 *AE* 1951, 263 = Heidenreich 1983; cf. Austin and Rankov 1995, 149; Bennett 1997, 18; Bosworth 1976, 75; 1977, especially 226–27; Carrata Thomes 1958, 15–16; Chaumont 1985, 807; Crow 1986, 80; Dąbrowa 1989, 71–73; Gagoshidze 2008b, 16, 19; Gamkrelidze 2012a, 92; 2012b, 155; Giardina 1996, 103; Grosso 1955, 51; Heil 1989, 175; Isaac 1992; 44–45; Kavtaradze 2001, 216–17; Keppie 1991, 89; Kolendo 1987, 143; Mammadova and Hajiyeva 2013, 26, 31 fig. 23; Mitford 1980, 1193–94; Mitford 2018a, 32, 37–38, 60, 71; 2018b, 562–63; Schottky 2015, 95–96; Taylor *et al*. 2011, 69–70; Wheeler 1997, 63–64; 1999, 220; Whittaker 2000, 309; Williams 1996, 22; Zerbini 2012c, 42.
81 Statius, *Silvae* 4.4.61–64; cf. Bosworth 1976, 75; 1977, 227; Giardina 1996, 104; Grosso 1955; 50–52; Hanslik 1962, 1745; Kavtaradze 2001, 216. Coleman's (1988, 149–50) suggestion that this passage refers to the Caspian Gates in the Alborz is unconvincing, but her observation that Statius 'simply cites four regions where Domitian is known to have concentrated military activity' is persuasive. See Tacitus, *Agricola* 10 on Thule. There is no space here to list modern scholarship on the island's location if Shetland, in our context, seems the most plausible suggestion: see, for example, Wolfson 2008; cf. Breeze and Wilkins 2018. According to Mitford (2018a, 60), Themistius, *Orationes* 34.8 refers to Antistius Rusticus advancing to the Caspian Gates under Domitian, in c. AD 92–94. Schneider (1966, 11–14) by contrasts argues that Themistius had Q. Iunius Rusticus (suffect consul in AD 133 and *ordinarius* in AD 162) in mind. See also Grosso 1955, 37–39 on Valerius Flaccus's (*Argonautica* 5.124, 6.106–07) prominent references to the Caspian Gates, perhaps inspired by events in the Flavian era; cf. Wijsman 1996, 78–79; 2000, 59; Spaltenstein 2004, 417–18; 2005, 36–37.
82 Cassius Dio 68.18.3; Eutropius 8.3; Festus 20.2–3; Bennett 1997, 194–96; Lepper 1948, 6–8, 14–16, 50–51, 136–41, 205–07; cf. *AE* 1968, 510.
83 Themistius, *Orationes* 34.8; Ioannes Lydus, *De Magistratibus* 3.53; cf. Eutropius 8.3; Festus 20.2–3. Bosworth (1977, 229–30) may well be right in arguing that this claim, in the context of additional information on Arrian's boundary regulations between the Iberians and Albanians, is an unlikely invention; cf. *id*. 1976, 67; Alemany 2000, 81–82; Birley 1997, 287–88; Braund 1994, 233; McLynn 2009, 148; Mitford 2018a, 60, 71; Schottky 2015, 98–99; Wheeler 1997, 69 (doubting that Arrian crossed the Caspian Gates).
84 Bennett 1997, 194–95, 271 no. 5; Stadter 1980, 9, 143–44, cf. 5–8, 47, 208 no. 45.
85 *CIL* XIII, 8213; Bishop 2018, 102; Braund 1991b, 422; cf. *id*. 2000, 1258; 1991a, 218; Eck 2004, 533; 2017, 230–31 (kind reference by Professor Anthony Birley); Fremersdorf 1963, 65–66, pl. 132; Galsterer and Galsterer 1975, 30 no. 93, pl. 20; 2010, 129–30 no. 129; Janssen 1845, 49; Keppie 1991, 89; Magie 1950, 1530; Mitford 1980, 1203–04; 2018a, 73; 2018b, 617; Premerstein 1911,

357–58; Ritterling 1925, 1298, 1427–28; Spickermann 2008, 138, cf. 201, 242–43, 276; Tomaschek 1894b; Zerbini 2012c, 45 with no. 19. Kennedy (1987, 282) contrary to Braund (1991b, 422) argues that the soldier had crossed the Dariali Pass. The Latin text implies that the Alutus River flows alongside/beside the Caucasus Mountain. The Tergi flows through the Caucasus and the Plain north of it into the Caspian Sea. This early visitor may have thought of the river as flowing alongside the highest peak of the Caucasus Mountains. Assuming he approached the gorge from the south in clear weather conditions, he would have seen the Tergi flowing at the foot of towering peaks, notably Mount Kazbek. It is tempting to think the soldier had reached, if not necessarily, crossed the gates. The hypothesis that the soldier had fought under Trajan at the Alutus (modern Olt) River in Dacia (Ihm 1887, 72, 145 no. 277; *ILS*, 4795; Poulter 1986, 522, 526–27 no. 19; Wheeler 1997, 70–71, undecided between Dacia and Armenia and suspecting the soldier 'simply did not know his geography') is hard to reconcile with the specific reference to the Caucasus or the chronology of the dated Matronae dedications.

86 Braund 1991a, 218; cf. Carrata Thomes 1958. According to Malalas (11.33) Verus fought against Hunnic tribes. Kerler (1970, 43 with no. 39) doubts the veracity of Malalas' anachronistic account and argues that the war against the Alans, in which the soldier participated, was in the late AD 140s.

87 Rüger 1987, 10.

88 Braund 1991a.

89 Whittaker 1994, 56 and 2000, 309. See also Bosworth (1976, 77, cf. 75) believing that under Flavians 'the crucial Caucasian passes were in Roman hands.'

90 Gamkrelidze 2012a, 91, 97–98; Zerbini 2012c, 42; 2013, 36–37, 39, citing the *Historia Augusta, Vita Hadriani* 17.11–12 (not 'XIII'), interestingly refers to Arrian's fairly exact knowledge of the Caspian Gates (Ioannes Lydus, *De Magistratibus* 3.53; cf. Gagoshidze 2008b, 19). Should Zerbini's hypothesis be true, the elephant reportedly presented to the king on the same occasion, may have been intended for a different purpose. Presumably, there would have been sufficient knowledge of the geography and climate of the Caucasus at the time to appreciate that a war elephant was unlikely to survive long. Of course, Hannibal's crossing of the Alps or the use of war elephants during the Roman invasion of Britain, proves that these giant animals were sometimes deliberately employed outside their normal habitat to achieve maximum surprise and terror. Bryce (1878, 74–75) wonders if the fort is Roman, and a current guidebook (Kvastiani *et al*. 2015, 262, cf. 52) claims that it is certain that the Romans erected a fort in the gorge and that its remains, later further strengthened by Georgians, are those that survive to the present day at Dariali Fort. See also Zerbini 2012a, 68–69 and Giardina 1996, 104–16, the latter arguing for Roman military control then reaching the principal passes across the Caucasus and Rome having garrisons stationed in Iberia. Bosworth (1977, 230) also considers the unit a probable garrison of 500 men nominal strength, but does not commit himself as to the whereabouts of its base. Wheeler (2013, 327), by contrast, is highly sceptical towards the hypotheses that Roman troops were stationed in Iberia during the Principate. Schottky 2015, 95 suggests that the *cohors* was involved in construction work, as attested earlier by the inscription of AD 75. Braund (1991a, 214–15; cf. *id*. 1991b, 422) argues that the note in the *Historia Augusta* refers to a present, not a garrison, and that the number of was indeed 50, rather than 500 men. See also Hartmann (2019, 31 with nos 19–20) on this passage. On more modest diplomatic gifts in the second century, see Plontke-Lüning 1995, 318–19, 323, pl. 17 figs 6–7. Contrary to Toumanoff (1969, 16–17), dating the reign of Pharasmanes II to AD 116–132 and that of Pharasmanes III to AD 135–185, it is now generally accepted that Pharasmanes II was still in power in the AD 140s (Bosworth 1977, 230; Braund 1991a; 1994, 233; Gamkrelidze 2012c, 185; Juntunen 2013, 123–24; Schottky 2000; 2015, 99–102; Tseretheli 2012, 166). Spring (2015, 193, cf. 70) postulates Roman control of the Dariali Pass until as late as AD 251.

91 Gagoshidze 2008b, 19 with no. 181 citing Todua's doctorate (*non vidimus*) who considers the presence of a Roman garrison in the Dariali Valley to be almost certain, cf. 16, 20.

92 Odisheli 2013, 151; Cassius Dio 69.15.1–2; cf. Alemany 2000, 84–85; Austin and Rankov 1995, 30, 123, 149; Bosworth 1977, 219–20; Braund 1991a; 1994, 232–33; Juntunen 2013 (arguing for a date in the AD 120s, as opposed to the mid AD 130s); Hartmann 2019, 26–40; Schottky 2015, 93–99, arguing the invasion went via Derbent; Wheeler 1997, 66–70.

93 *IGR* I.192 = Moretti 1979, 10–12 no. 1151; cf. Bennett 1997, 195; Bosworth 1977, 219, 224; Braund 1994, 230–31; 2015, 144–45; Kavtaradze 2001, 218; Lepper 1948, 170–71; Mitford 2018b, 557; Odisheli 2013, 151; Schottky 2014, 143–44.

94 Pakhomov 1949, 21–22 no. 1387; 1940, 17 no. 782; Tsotselia 2010, 78 no. 448. For hoards with Augustan *denarii*, see *ibid., passim, e.g.* 102 no. 593 with a *terminus post quem* of AD 193. Pakhomov's brief description suggests it was *RIC*^{2}, I, Augustus nos 207–08 or 210–12. Lucius died in AD 2 and Gaius, in AD 4, but some of the coins may have been memorial issues (*ibid*., pp. 28, 55–56; Woytek and Blet-Lemarquand 2017). A small subgroup may even be as late as the early second century, but the bulk of the issue is Augustan (Woytek and Blet-Lemarquand 2017). The type circulated widely across the empire as well as in Iberia: see also Gagoshidze and Rova 2016, pl. XIVb, cf. 22.

95 Odisheli 2013.

96 Lucianus, *Prometheus* 4, cf. 1; see also Bryce 1878, 78 and Treidler 1953, 326.

97 For discussion of the evidence and sources, see Gisler 1994a, 532, 540–41 no. 65, 542–43 nos 77–79; cf. 1994b, 427 nos 77–79; Braund 1986, 41; Déchelette 1904, 247 no. 7; Eckhart 1957; Erim 1990, 20; Ivantchik 2017, 17; Kraus 1957, 689, 698–700; Linant de Bellefonds 1990, 26, 36–37; Nercessian 1990a; 1990b; Pattoni 2015, *passim*; Smith 1990, 97, 99 fig. 12; 2013, 263–65, 299, 309–10, 322, pls 152–53, 176; Wagner 2015; Wuilleumier and Audin 1952, 22, 24–25 no. 4.

98 Diodorus Siculus 17.83.1; Curtius Rufus 7.3.22–23; cf. Rapin 2013, 45.

99 § 2 = trans. Huyse 1999a, 22–23; 1999b, 25–26; cf. Alemany 2000, 2, 342; Altheim 1969, 14; Braund 1994, 239–40; Chaumont 1975, 102–03; Christensen 1944, 238–39; Giardina 1996, 119–20; Kettenhofen 1995, 16, 18, 25; Marquart 1901, 95; Rapp 2009, 657–58; 2014, 28; Sprengling 1953, 14, 79. The strategic importance of the Caspian Gates/Dariali in the AD 260s has inspired a recent novel: Sidebottom 2011.

100 Hartmann (2019, 45–49; cf. Kettenhofen 1995, 144; 1982, 38–43) postulates a conquest in AD 252. Spring (2015, 193) favours AD 251. Schottky (2016, 162–71) argues for c. AD 260, Schleicher (2019, 71), for AD 253–260.

101 MacKenzie 1989, 58, 65, § 15; cf. Braund 1994, 243–44; Hartmann 2019, 46; Rapp 2014, 28–29; Sprengling 1953, 52, 58, 79.

102 § 92 = trans. and ed. Skjærvø 1983b, 71; cf. *id.* 1983b, 13, 126; Braund 1994, 240–42; Hartmann 2019, 49–50; Kettenhofen 1995, 2–3, 46; Klein 2001, 43–44; Rapp 2014, 29.

103 See *Kartlis Tskhovreba/Life of Kartli* 59–63 = trans. Thomson 1996, 70–75 on alleged joint Iberian and Armenian resistance, with the help of the steppe people (for whom the Iberian King Asp'agur had opened the Caucasus passes), against the Persians – underlining the strategic significance of these passes. For an alternative version, see the Armenian historian Agathangelos (19 = trans. Thomson 1976, 37) that the Armenian King Khosrow, having gathered the armies of the Albanians and Iberians, opened the Alan and Derbent Gates in the third century, and that the 'Huns' invaded Persian territory reaching the vicinity of Ctesiphon. It is hard to know how much or little truth is in these accounts, listing later ethnic groups and probably influenced by later events; cf. Alemany 2000, 279–80, 315; Drost-Abgarjan 2019, 245; Kavtaradze 2001, 197–98; Kazanski and Mastykova 2003, 38; Kettenhofen 1995, 141–42. See Braund 1994, 242–43 on third-century Sasanian finds from Iberia.

104 *Kartlis Tskhovreba/Life of Kartli* 66–68 = trans. Thomson 1996, 78–80; cf. Alemany 2000, 316; Kazanski and Mastykova 2003, 38; cf. Schottky 2017a, 207–13, opposing Toumanoff's (1969, 21–24) hypothesis of a very long reign (AD 284–361); see also Schleicher 2019, 70–71. The Alani feature also on the *Tabula Peutingeriana* (ed. Miller 1916, 620–22 with fig. 200, 631–32 fig. 203), perhaps dating to the late third or early fourth century (Talbert 2010, 133–36) or compiled over many centuries with the latest amendments dating to c. AD 425 (Rathmann 2016), if their territory is plotted with little precision; cf. Alemany 2000, 23.

105 Kazanski and Mastykova 2003, 46–48, cf. 55; Abramova 1997, 6–7 fig. 1, 54 fig. 32.15, 56 fig. 34.2, 77–78, 80 fig. 51.6, 87 fig. 58.1–5, 88 fig. 59.14–15.

106 Kazanski and Mastykova 2003, 56–58.

107 Braund 1994, 238–71, Greatrex and Lieu 2002, 58; Isaac 1992, 229; Kettenhofen 1995, 22–24, 72, 133; Lordkipanidse and Brakmann 1996, 34–39; Bíró 1997, with sources.

108 Ammianus Marcellinus 27.12.16–17, 30.2.2; 30.2.7, cf. 27.12.4; Braund 1994, 260–61 with no. 120; Jones *et al*. 1971, 117–18, 809; cf. Drijvers 2016; Gamkrelidze 2012a, 103–04; Hartmann 2019, 55; Kavtaradze 2001, 212–13; Schleicher 2019, 91; Schottky 2016, 168–71; Toumanoff 1963, 360. Whittaker (1994, 143) postulates that Theodosius I withdrew Roman troops from Iberia only in AD 394 for civil war in the west – implying that this paved the way for the invasion of the Huns in AD 395. Kettenhofen (1995, 23–24 no. 151) argues that the Persians regained control over Iberia only in AD 387. Börm 2008, 330 argues that the Persians had gained control over the Caucasus passes already in AD 363. Isaac (1992, 230) only refers more generally to troop withdrawal from the east. See *Kartlis Tskhovreba/Life of Kartli* 136 = trans. Thomson 1996, 149 on the Iberian king allegedly resisting Armenian suggestions to open the Caucasus passes to employ northerners against the Persians; cf. Kavtaradze 2001, 198.

109 Tsetskhladze 2001.

110 Ioannes Lydus, *De Magistratibus* 3.52 (cf. Blockley 1992, 50) implies that there were negotiations between Persia and Rome from AD 363 onwards over the defence of the Caspian Gates, even if it may have taken some time before the Persians built a fort (Dariali Fort) on their own.

111 Blockley 1992, 47; 1998, 429–30, 434; Golden 1996, 46; Sauer *et al*. 2013, 268, with references.

112 See chapters 4.2 and 25.2.

113 See chapter 2.2.3 and 2.2.7 for details.

114 Is seems unlikely that a small number of people should have decided to establish a settlement on an undefended hilltop at some stage in the fourth century, a few years or decades prior to fort construction. It is similarly doubtful that the top of the rock was cleared down to the bedrock twice within less than a century, the first time systematically and the second time with pockets of soil remaining.

115 See chapter 2.2.

116 See chapter 4.4; see also Wardrop 1888, 62–63, image of Dariali Fort, potentially showing the road-blocking wall, if not very clearly. Kruglov (1937, 247, cf. 249 fig. 3) refers to two road-blocking walls at Dariali Fort, but the second, further south, is an aqueduct (as further discussed in chapter 4.5). Whilst the aqueduct is incorporated into a wall on the western slope of Dariali Fort, there is no evidence that it formed part of a wall on the opposite slope. Much of the aqueduct opposite the fort is now buried under scree and the valley is much wider here, making effective blockage at this point impossible. Interestingly, Kruglov provides also a reference to two collapsed ruined possible towers at high elevation on the right bank of the Tergi. We do not know where these potential structures are and are not aware of any surviving ancient or medieval ruins on the right side of the river. Mindorashvili (2005, 131) doubts their existence.

117 See chapter 7.

118 The hypothesis that construction works started in AD 390–396 (Sauer *et al*. 2016, 21) was in part based on what now seems an over-interpretation of the significance of individual samples, made before we applied Bayesian modelling. A start of construction within the AD 390s still seems a strong possibility, but it is safer to allow also for a start of construction work in the AD 380s. A start in the early fifth century seems improbable.

119 See Sauer 2004 and 2017a on the phenomenon.

120 See Greatrex 1999, Greatrex and Lieu 2002, 17–19, 251–52 and Maenchen-Helfen 1973, 51–59 for a summary of the sources. That the Iberians and Phrygians were affected, as well as the Galatians, the Persians and allegedly even the

Ethiopians, is attest by Theodoretus (*In Ezechielis* 38 = *PG* 81, 1204). The inclusion of the Ethiopians, *i.e.* Africans, in the list raises some doubts as to the accuracy of the account, and we cannot be sure if Phrygia was reached, but other sources confirm that the Iberians, Galatians and Persians were affected. Hieronymus (*Epistulae* 77.8) attests that the invasion forced the people of Tyre to retreat to the old city on an island; cf. Anke 2007, 40: map for the proposed route of the invasion, not including all territories affected. There is no space here to discuss the Transcaucasian raid of the Huns Basich and Kursich (Priscus 11 = ed. and trans. Blockley 1983, 276–79). The extent of the territories affected, involving Media and Albania, differs suggesting that this was not part of the AD 395 invasion, but a later separate event or that indeed the AD 395 invasion affected even more extensive territories: cf. Blockley 1983, 386–87; Czeglédy 1957, 237–39, 245, 249; Janßen 2004, 47, 53–56; Kazanski and Mastykova 2003, 72–73; Kim 2013, 68–69; Kuosmanen 2013, 86–88 with sources (favouring AD 395); Marquart 1901, 96–97; Reinink 2005, chapter III: 268 no. 25; Rosen 2016, 78–80 and Schottky 2017b, 218–23 (both also arguing for AD 395).

121 Claudianus, *In Rufinum* 2.28–30, cf. 2.31–35.

122 Hieronymus, *Epistulae* 77.8, cf. 60.16. See also Anderson 1928, 149; Lang 1956, 59; Spring 2015, 182. Kazanski and Mastykova 2003, 72 are undecided between Dariali and Derbent, but the evidence points clearly to the former.

123 Cf. chapter 25.2; Sauer *et al*. 2013, 6–14; cf. Rapp 2014, 133–40.

124 There is no obvious reason to follow Frye 1983, 142 (cf. 138, 141, 145, 150) in assuming that this invasion went via Derbent – and that Derbent was the sole focus of defensive efforts in the Caucasus.

125 In AD 397 or 398 Eutropius repelled the Huns (Claudianus, *In Eutropium* 1.234–86; 2, *praefatio* 56; cf. Albert 1979; Blockley 1992, 47; Cameron 1970, 125; Greatrex and Lieu 2002, 19, 252; Janßen 2004, 44, 95; Martindale 1980, 441–42), perhaps still part of the invasion force of AD 395, perhaps part of a second wave of Huns crossing the Caucasus (Rosen 2016, 80–81; 276 no. 15 postulates the latter).

126 Kazanski 2007.

127 Ammianus Marcellinus 31.2.12–31.3.1.

128 Stickler 2007, 47, arguing for the Huns gaining full control of Alan territory by c. AD 370. See also Alemany 2000, 35–42; Altheim 1969, 57, 78, 342, 344, 347–50; Boeft *et al*. 2018, 32, 39–40; Heather 1998, 503; Rosen 2016, 49–50; Schottky 2017b, 220.

129 Ammianus Marcellinus 31.2.21, 31.3.1–3; cf. Bachrach 1973, 18–19, 26–27; Baumer 2014, 106–08; Boeft *et al*. 2018, 35–36; Zuckermann 2000, 549. See also Bierbrauer 2008, 19–24 (cf. 64, 97–102) on the extent of Alan territory, arguing unconvincingly that the Huns clashed with the Alans in the Danube area and for a possible later expansion of the Alans towards the Caucasus.

130 Heather 1998, 501–02, with fig. 11; cf. Albert 1979, 626.

131 Braund 1991a, 209.

132 Lenski 2002, 173–74 with no. 117, cf. 157–58, 166, 176, 310–11; Ioannes Lydus, *De Magistratibus* 3.52. Colvin *et al*. (2014, 6, cf. 5) also postulate that by the later fourth century 'the Byzantines had given up control of the Darial', implying a belief in control (as the hegemonic power, if not directly) before.

133 Ioannes Lydus, *De Magistratibus* 3.52–53; Priscus 41, 47 = ed. and trans. Blockley 1983, 344–47, 352–55.

134 Greatrex and Lieu 2002, 252 no. 4, Anderson 1928, 143, 150 and Braund 2000, 1259–60 (cf. Isaac 1992, 230 no. 62) – contrary to Marquart 1901, 100–07 who, whilst accepting that Biraparach was in the Dariali Gorge, argues, less convincingly, that Ioureiopaach was at the Derbent Wall, a place Rome would have had less strategic interest in; according to Tomaschek (1897) Biraparach and Ioureiopaach refer to the same site in the Dariali Gorge, whilst he believed Cumania to be further south (*id.* 1901). Santamanto argues for Ioureiopaach being at Derbent (Santamanto 2014, 311 no. 18), the Caspian Gates being at Derbent and Dariali (*ibid*. 315), observing that it makes no sense for either to be located in the Alborz (*ibid.* 2014, 303–04 no. 13, 315). Santamanto, more concerned with the narrative techniques of Priscus than geography in his examination of three passages in Priscus (41, 47, 51 = ed. and trans. Blockley 1983, 344–47, 352–55, 358–61), argues that they relate to the same event. A sequence of related events is, however, much easier to reconcile with the text, referring to defensive efforts at the Caspian Gates (Priscus 41), the Saraguri bypassing the very same defences (Priscus 47) and events at various theatres or war, some clearly further west (Priscus 51). Brosset (1849, 154–55 no. 2) locates the late antique fort named in the sources at Derbent, believing that the passage across the Dariali Gorge would have been very difficult any time before modern Russian road-works. Dunlop (1954, 19 with no. 19) also implies it being at Derbent. Kavtaradze (2001, 201, 214) equates Cumania with 'the Georgian fortress of Kumli' (cf. Tomaschek 1901) and Biraparach and Ioureiopaach, tentatively with Udabno – the latter a long way south of the Caucasus and not at an obvious location. Bandy 1983, 327 also assumes Biraparach was on the Upper Tergi in the Dariali Pass (if accidentally locating the latter between Baku and Derbent).

135 Ioannes Lydus, *De Magistratibus* 3.52–53; Priscus 47 = ed. and trans. Blockley 1983, 352–55; cf. *id.* 1992, 50–51, 196; 1985, 63–66; Bíró 1997, 54. According to Blockley (1992, 50), the Lydus passage implies construction of the fort prior to the reign of Yazdgerd I, *i.e.* prior to AD 399, but it is not clear what precise statement this chronology is based upon, not to mention that Blockley acknowledges that the account is confused and points out that Lydus may have mixed up Theodosius I and II. (See Isaac 1998, 442–43 for an alternative interpretation.)

136 Elishe 198–99 = trans. Thomson 1982, 242–43; Movses Daskhurants'i 1.10 = trans. Dowsett 1961, 9–10; Łazar 35 = trans. Thomson 1991, 108; cf. Bais 2001, 126–27; Chaumont 1985, 808; Greatrex 1998, 125; Marquart 1901, 98; Bíró 1997, 55–56, dating the raid to Peroz's third or fourth year, AD 461–463 – or 459–461, if his reign started in AD 457, rather than 459.

137 Ibn Khordadhbeh 123 = trans. De Goeje 1889, 94; cf. Alemany 2000, 246; Bosworth 1998; Ritter 1818, 835. For the misattribution of monuments to Khusro I, see, for example, Sauer *et al*. 2013, 5, 7, 10, 598–99.

138 See chapters 2.2.4 and 3.2.2.

139 See chapter 2.2.8.
140 See chapter 3.2.3.
141 See chapter 18.
142 To these can probably be added the much shorter Beshbarmak Wall: see Abercromby 1890; Aliev *et al*. 2006; Chaumont 1985, 809–10; Gadjiev 2008; 2017; Gadzhiev 2008; Gadžiev and Kudrjavcev 2002; Kazanski and Mastykova 2003, 98–99, 200–01, 207; Kettenhofen 1996; Kudrjavcev and Gadžiev 2002; Lawrence and Wilkinson 2017; Mammadova and Hajiyeva 2013, 180–81, 187–94; Powell 2008; Ritter 1818, 834–38; Sauer *et al*. 2013; *id. et al*. 2017.
143 Amin Ali and Déroche, 2016; Budge and King, 1902, 303; Déroche, 2017; Ebeling, 1932; Grayson, 1982, 254, 259; Priestman *et al*. forthcoming 2020. The precise chronology of Bazyan Fort and Church are, however, uncertain (Simpson 2018a, 10–11). See also Menander Protector, *Historiae* 6.1.155–62 = ed. and trans. Blockley 1985a, 62–63 on the Persians fortifying a monastery, if in a different context.
144 Sauer *et al*. 2017, 252–63.
145 Procopius, *Bella* 1.10.9–12; cf. 1.16.4–5.
146 Maenchen-Helfen 1973, 390; Martindale 1980, 68; Alemany 2003, 3.
147 Czeglédy 1960, 77.
148 Blockley 1992, 215 no. 34, cf. 93, 219 no. 26.
149 Kurbanov 2013; 2014; Rezakhani 2017, 125–46; Sauer *et al*. 2013, 596.
150 Greatrex and Lieu 2002, 78; cf. Procopius, *Bella* 1.8.19, 1.9.24–1.10.15, *id., De aedificiis* 2.1.5; Blockley 1992, 91; Christensen 1944, 352; Greatrex 1998, 110 with no. 104, 128–30; Meier 2009, 208, 213; Stickler 2019, 157. See also Kavtaradze 2001, 213–14.
151 Procopius, *Bella* 1.10.12: 'But Ambazoukes died not long after from a natural disease, and Kabades [Kavad] overpowered his sons and gained possession of the gates'; cf. Procopius, *Bella* 1.16.4–5. See also Baladhuri 194 = trans. Hitti 1916, 306 on Kavad's activity at the Alan Gates, even if elsewhere attributed to Khusro I (Baladhuri 195 = trans. Hitti 1916, 307); cf. Kim 2013, 138–39.
152 See chapter 24.2.7.
153 Greatrex 1998, 129.
154 Procopius, *Bella* 1.10.3, 1.10.7.
155 Cf. Bíró 1997.
156 Ioannes Lydus, *De Magistratibus* 3.52–53.
157 Tomaschek 1897; cf. Marquart 1901, 103; Bandy 1983, 328; Braund 1994, 270 no. 8.
158 *Kartlis Tskhovreba/Life of Kartli* 66–68, 136 = trans. Thomson 1996, 78–80, 149; cf. Kavtaradze 2001, 198–99.
159 *Kartlis Tskhovreba/Life of Kartli* 145–57, Q156 = trans. Thomson 1996, 161–72, 362–63, Jones 2014, 80–85, 118–23 and Pätsch 1985, 208–21. See also Łazar 66, 73 = trans. Thomson 1991, 172–73, 188–89 on a biased Armenian perspective on King Vakhtang and attempts to win the Huns as allies; cf. Alemany 2000, 316–17; Golden 1984, 51–53, cf. 47; Jones 2014, 82; Kavtaradze 2001, 196, 199, 227; Kazanski and Mastykova 2003, 73; Rapp 2003, 151 no. 193, 229; 2009, 678–80; 2014, 283–84, 380; Sagona *et al*. 2017, 207; Toumanoff 1963, 362–63; cf. *id*. 1969, 28–29 no. 32; Zuckermann 2000, 543–44. Pierre Razoux (2009, 37, cf. 36), by contrast, takes the passage at face value.
160 Łazar 66, 73, 79–80 = trans. Thomson 1991, 171–72, 188–89, 205; cf. Jackson Bonner 2015, 132; Schindel 2004, 411; Toumanoff 1963, 364–68.
161 Licheli 1998, 31–32.
162 Muskhelishvili 2011. Also featuring in the *Kartlis Tskhovreba/Life of Kartli* (199, 298, 312 = trans. Thomson 1996, 217–18, 290, 303; cf. *ibid*. 45, 199, 201 = trans. Thomson 1996, 54, 218, 220 on Kambeč'ovani) from the time of Vakhtang Gorgasali onwards, attributing construction works to the famous king; see Muskhelishvili 2011 for a history of the fort.
163 Located at UTM 38T, 0552624, 4659347, 728 mt, taken with a hand-held GPS in dense forest). We are grateful to Giorgi Laghiashvili for having shown us this site. See Laghiashvili 2015–2017, 70–72, cf. 54, 81; see also *Kartlis Tskhovreba/Life of Kartli* 200 = trans. Thomson 1996, 219 for a reference to the Valley of Lopoti (if not the fort specifically) at the time of Vakhtang Gorgasali.
164 Located at on a prominent hilltop at UTM 38T, 0530237, 4634372, 1337 mt, taken with a hand-held GPS in forest). The site also boasts a cistern with waterproof mortar. We are indebted to Giorgi Laghiashvili for having shown us this impressive site. See Laghiashvili 2015–2017, 19 fig. 20, 66.
165 Gamq'relidze *et al*. 2013, 516–20. Featuring prominently in the *Kartlis Tskhovreba/Life of Kartli* (59, 71–72, 121, 126–28, 185, 199–202, 219, 233, 236, 263, 268, 312 = trans. Thomson 1996, 69, 83–84, 135, 140–42, 202, 217–21, 230, 240, 243, 265–66, 270, 303) from the third to the eleventh century, but ascribing major building works to Vakhtang Gorgasali.
166 See chapter 18.
167 Moses Khorenats'i 2.86 = trans. Thomson 2006, 237. The date of the work (fifth to eighth century) is disputed (Garsoïan 2012; Rist 2000; Thomson 2006, 1–60). On the location of the Caspians/*Kaspk*, see Hewsen 2001, 58–59; cf. Thomson 2006, 192 no. 362. See also Alemany 2000, 291.
168 Agathangelos 842 = trans. Thomson 1976, 377, cf. 495; cf. Agathangelos 19 = trans. Thomson 1976, 37 for a further passage postulating that Armenian suzerainty extended to the Gates of the Alans; see also Alemany 2000, 279–81; Toumanoff 1963, 458–60 no. 98.
169 Lang 1956, 44–56, especially 51, 53–54; see Rapp 2014, 43–45 on the date of her martyrdom. See also *Kartlis Tskhovreba/Life of Kartli* 66, 68 = trans. Thomson 1996, 78, 80 on King Meribanes/Mirian III's earlier alleged involvement in the defence of Derbent.
170 Łazar 45 = trans. Thomson 1991, 129; cf. Rapp 2014, 81, with no. 251, interestingly also drawing attention to the coexistence of Iberian kingship and Sasanian marzbans. See also Farrokh 2017, 14 and Hewsen 2015, 167.
171 We are grateful to Dr Tim Greenwood for this important observation (e-mail correspondence, 7/11/2016 and 2/7/2018).
172 Rcheulishvili 2008, 468. Kartana was visited by our team on 29/5/2018; see chapter 25.3.4.3 for further information.
173 Ferdōsī, *Shāhnāma* = ed. and trans. Mohl 1868, 190–91.

174 Alemany 2003, 2–3; cf. Abaev and Bailey 1985. See also Kazanski 2006, 160 arguing for Sasanian influence on Alan sword design.
175 Cf. Allen 1932, 31; Brosset 1842, 506 (undecided between this and an alternative interpretation); Gille 1859, 243; Chaumont 1975, 102–03; Gnoli 1996, 836.
176 See, for example, Alemany 2000, 5; Ball 2015, 152–53; MacKenzie 1978, 351; Pstrusińska 2015.
177 Kramers 1936, 616, citing Ibn-al Faḳīh 291 (*non vidimus*), 618; cf. Blockley 1985b, 72.
178 Cf. Gagoshidze 2008a, 43 and 2008b, 26; Lordkipanidse and Brakmann 1996, 60; Rapp 2014, *passim*, e.g. 45–51, 90–103, 140–42. 150–60; 179–84, 320–22.
179 Gagoshidze 2008b, 19 (citing Ts'itlanadze 1977), cf. 20 refers interestingly to a stone-built grave thought to date to the second-fourth century south of Dariali Fort.
180 On Zoroastrian practices of exposure of the dead and treatment of bones, see Farjamirad 2015, 25–32, 251–376, 390–93; Grenet 1984, especially 247–53; 1990; Russell 1990; cf. Jong 2013. See also Menander Protector, *Historiae* 6.1.406–07 = ed. and trans. Blockley 1985a, 76–77, cf. 259 no. 67 on strong Persian opposition to interment of the dead.
181 Priscus 47 = ed. and trans. Blockley 1983, 352–55.
182 Procopius, *Bella* 1.10.9–12; cf. Greatrex 1998, 128–30.
183 On the coin, see Mindorashvili 2005, 57, 164, 199, 203, 214 pl. IX.73; cf. *ibid*. 19–101, 176–77, 202–04, 211–20 pls VI-XV and *id*. 2000 on the cemetery in general; cf. chapter 9.1. See also Dzattiaty 2014 and Kazanski and Mastykova 2003, 149 on late antique graves further west with Sasanian grave goods.
184 Mindorashvili 2005, 72, 81–83, 200, 203, 211 pl. VI, 216 pl. XI.124; Simpson 2015, 88; cf. Tsotselia and Mindorashvili 1999 and *id*. (T͡sotsel͡ia and Mindorashvili 1999), attributing the grave to the first half of the seventh century.
185 Mindorashvili 2005, 81–83, 200, pl. XI.64, pl. XI.117; we are grateful to Lana Chologauri for her advice on relevant passages.
186 Mindorashvili 2005, 199, 203, 213 pl. VIII and 2000, 95 pl. 2.4. The term 'warrior' is used in the sense of a person 'whose occupation is warfare' or a 'fighting man': *OED*, XIX, 915.
187 See chapter 9.1
188 Theophanes, *Chronographia* 161/A.M. 6008; Malalas 16.17; Ioannis Antiochenus, 311.103–108 = ed. and trans. Roberto 2005, 540–41; cf. Georgius Cedrenus 632 (ed. *Patrologia Graeca*, 121, Paris 1894, 689–90) and Evagrius, *Historia ecclesiastica* 3.43 (ed. Bidez and Parmentier 1898, 145) erroneously referring to the Cappadocian Gates. See also Czeglédy 1957, 240–41; Haarer 2006, 70–71; Kazanski and Mastykova 2003, 108; Meier 2009, 215, 312.
189 Theophanes, *Chronographia* 161/A.M. 6008; Marcellinus Comes, ann. 515 (ed. Mommsen 1894, 99); Victor Tonnonnensis, ann. 515 (ed. Mommsen 1894, 195). See also Meier 2009, 215, 312.
190 Greatrex 1998, 130; Howard-Johnston 2013a, 874. See Haarer (2006, 49, cf. 70) for an alternative view. See also Golden 2018, 329–30 on the Sabirs.
191 See chapter 25.3.1.
192 Elishe 78, 141 = trans. Thomson 1982, 129–30, 193; cf. Payne 2015, 283.
193 Czeglédy 1957, 245, 249; Greisiger 2014, 231–33; Nöldeke 1890, 31; Reinink 2005, chapter III: 268 with no. 26, chapter IV: 449–50.
194 Malalas 18.70; 'Zacharias Rhetor', *Historia ecclesiastica* = trans. Hamilton and Brooks 1899, 228–29; cf. Procopius, *Bella* 1.21.27–28; Borsch and Radtki-Jansen 2017, 245–47; Greatrex and Lieu 2002, 95–96; Greatrex 1998, 211–12 with no. 50; Kazanski and Mastykova 2003, 108. On 'Zacharias Rhetor', see Allen 1980, 472–73, Rist 2002, 88–90 and Uthemann 2001. See also Theophanes, *Chronographia* 167/A.M. 6013 and Greatrex 1998, 133–34, 186–87 on unstable alliances between the Sabir Huns on the one hand and the Persians or the Romans on the other in the early 520s. See Howard-Johnston 2012, 111–12 and Rubin 1995, 279–84 on Persia accepting foreign fighters from the north in AD 568/569 through one of its fortified gates in the north.
195 Procopius, *Bella* 8.3.4. See Kazanski and Mastykova 2003, 104 and Bierbrauer 2008, 21–24 with fig. 1 on possible territories occupied by the Alans and Sabir Huns; cf. Zuckermann 2000, 549–50.
196 Kazanski and Mastykova 2003, 115, 131; cf. Kouznetsov and Lebedynsky 1997, 64.
197 Kazanski and Mastykova 2003, 131, 133, cf. 120, 126; Sagona *et al*. 2017, especially 222–23, 243–45. There is no space here to cite the boundless literature on head deformation elsewhere in the migration period. Its spread to Western Europe is likely to be related to the expansion of the Huns and/or associated groups (such as the Alans); see, for example, recently Trautmann *et al*. 2017.
198 Iordanes, *De origine actibusque Getarum* 50; cf. Anderson 1928, 151–52.
199 Doležal 2014, 159.
200 Theophanes, *Chronographia* 245/A.M. 6064.
201 One Guaram I/Gorgen, see Martindale 1992, 558; Paghava and Janjgava 2015; Rapp 2000, 573–74; 2014, 325–27, 336–43; Schleicher 2019, 81–85, 91, 94; Theophanes of Byzantium, frag. 3 = ed. Müller 1851. On the war in Transcaucasia, see Greatrex and Lieu 2002, 149–63 *passim*; Menander Protector, *Historiae* 18.5–19.1 = ed. and trans. Blockley 1985a, 162–79, cf. 273–76; Hitchins 2001, 465; Howard-Johnston 2013b, 42–44.
202 Sebeos 76, 84 = trans. Thomson 1999, 18–19, 28–29; Howard-Johnston 1999a, 171; cf. Carile 1996, 47; Golden 1996, 49; Maksymiuk 2015, 105; Rayfield 2012, 51–52; Thomson 2000, 666 map 19, 673–76; Toumanoff 1963, 383–90, 465; *Tübinger Atlas des Vorderen Orients*: map B VI 6 (1988); Whitby 1988, xxxii map 5, 304.
203 Hewsen (2001, 90 map 69) assumes that Dariali was outside those territories acquired by the Roman Empire in AD 591. The map, extending the Persian Empire to the southern approaches to Dariali, but placing the mountain pass itself outside Persian territory, is inevitably hypothetical in places.
204 Movses Daskhurants'i 2.11–12 = trans. Dowsett 1961, 81–90 and Greatrex and Lieu 2002, 207–12, cf. 200–06, 213; Fredegar, *Chronicae* 4.66, implying Heraclius was in control of Derbent and opened the gates to northern allies, is probably mistaken; see Theophanes, *Chronographia* 316/A.M. 6117, cf. 319/A.M. 6118 on

Iberians fighting with the Persians at the battle at Nineveh (AD 627); *Kartlis Tskhovreba/Life of Kartli* 224–26 = trans. Thomson 1996, 233–35; Golden 1980, 51, 218–19; Greisiger 2014, 223–28, 236; Howard-Johnston 1999b, especially 2, 23–24; 2010a, 114, 136, 344; Kaegi 2003, 142–45, 158, 297; Kazanski and Mastykova 2003, 151–5; La Vaissière 2013; Maksymiuk 2015, 92–98; Shapira 2007, 331–33, 335–46; Toumanoff 1963, 391 with no. 7; Zuckermann 2007. On the Derbent Wall, see Abercromby 1890; Anderson 1928, 152–63; Dubois de Montpéreux 1840, 299–300; Dumas 1884a, 279, 292–306; Gadjiev 2008; Gadzhiev 2008; Gadžiev and Kudrjavcev 2002; Hewsen 2001, 91; Howard-Johnston 2012, 100; Kazanski and Mastykova 2003, 98–99, 200–01, 207; Kettenhofen 1996; Kudrjavcev and Gadžiev 2002; Mammadova and Hajiyeva 2013, 180–81, 187–90; Powell 2008; Reineggs 1796, 69–82, 113–40; Ritter 1818, 834–38; Step'anos Tarōnec'i, *Universal History*, 2.4 = trans. Greenwood 2017, 190 (on alleged construction under Marcian and eighth-century Muslim restoration); Sauer *et al*. 2013, 5–6, 9, 11–14, 20–22, 35, 144, 255, 257–58, 264–67. 269–71, 428, 596, 601, 609, 611, 621, 630, 636, with further references.

205 See Gadzhiev and Magomedov 2008 on Torpakh Kala and Sauer *et al*. 2013, 303–81 and *id. et al*. 2017, 253–58 on Sasanian campaign bases and their garrisons. See chapter 25.3.3 on the likely garrison size of Dariali Fort.

206 See chapter 25.4.

207 *E.g*. Pritsak 1996, 231–36, with sources.

208 Gandila 2018, 210–12; Golden 1996, 47–48; Kazanski and Mastykova 2003, 46, 48.

209 See chapter 11.

210 See chapter 4.5.

211 See discussion and sources in Sauer *et al*. 2013, 195.

212 See chapter 25.3.2.

213 See Priestman *et al*. forthcoming 2020 for a much more detailed discussion, based on garrison estimates for other late antique fortlets.

214 Compiled and discussed by Blockley 1985b and 1992, 50–51, 54–55, 58, 61, 69, 75, 88–89, 91, 93, 126, 149–50, 160–61, 201 no. 41, 204 nos 21–22, 211 nos 27, 30, 215 no. 34, 218 no. 19, 219 no. 26, 221 no. 55. See chapter 1.3 for a definition of the term 'late antique' (late third to the first half of the seventh centuries).

215 Ioannes Lydus, *De Magistratibus* 3.52–53; Priscus 41, 47 = ed. and trans. Blockley 1983, 344–47, 352–55; see chapter 25.3.1.

216 Ioannes Lydus, *De Magistratibus* 3.52. See also Movses Daskhurants'i 2.11 = trans. Dowsett 1961, 83 and Greatrex and Lieu 2002, 210, claiming that construction and garrisoning of the later Derbent Wall had exhausted Persia.

217 Sauer *et al*. 2013; *id. et al*. 2017.

218 See chapter 25.3.3.

219 Nemati *et al*. 2019.

220 See chapter 25.3.3.

221 See Nemati *et al*. 2019; Sauer *et al*. 2013, 347–49, 358, 364–71, 378 no. 238; *id. et al*. forthcoming 2020 for estimates of the garrison size of these compounds.

222 See Howard-Johnston 2012, 108–13 for an estimate, and we see no reason to postulate a lower number.

223 11,000 pounds of gold: Procopius, *Bella* 1.22.3–8; 30,000 gold coins: Menander Protector, *Historiae* 6.1.147–49 = ed. and trans. Blockley 1985a, 60–63; 500 pounds of gold: Theophylact Simocatta 3.9.10 and Ioannes Epiphaniensis 2 (ed. Müller 1851, 274); cf. Börm 2008; 2019, 110–11; Braund 1994, 269–71; Canepa 2018, 63; Gadjiev 2008, 15; Greatrex and Lieu 2002, 151–52, 278 no. 46; Howard-Johnston 2014, 150; Payne 2015, 297–98; Whitby 1988, 208–09, cf. 205–06, 216. The annual upkeep of a soldier is estimated at c. 12 *solidi* (Jones 1974, 208–09). Admittedly, this is only an approximate estimate and refers to Roman soldiers of the fifth or sixth century, not Sasanian soldiers. On Dariali as part of a Sasanian defensive system, see also Ball 2010, 124, cf. pl. XXIX.76; 2015, 152–53; Howard-Johnston 2012, 90. Kennedy's (1987, 269) assertion that Roman subventions for Persian garrisons at Dariali and Derbent started as early as AD 244 must be a misprint.

224 Moorhead (1994, 24) argues that the sums were quite affordable, a source of revenue for Persia and money 'well spent' in Justinian's view. Börm 2008, 334, 340 makes a strong case that they were relatively modest.

225 Procopius, *Bella* 1.22.3–5.

226 Procopius, *Bella* 1.10.1–8; Anderson 1928, 151; Blockley 1992, 50, 196 no. 29. Brunner's (1983, 765) and Kazanski's and Mastykova's (2003, 97, 108–09, in the context of Ambazoukes' conquest) assumption that he refers to Derbent is unconvincing. Elsewhere, Kazanski and Mastykova (2003, 118) acknowledge that Procopius refers to Dariali.

227 Menander Protector, *Historiae* 6.1.314–17 = ed. and trans. Blockley 1985a, 70–71, cf. 255 no. 48.

228 The claim made by Altheim and Stiehl (1957, 21–22, cf. 20) that the payments were used for the entire army, Peroz being dependent on Roman gold, by contrast, goes too far. The amount of subsidies would have been insufficient to pay the field army, whilst there is no evidence that frontier troops received monetary payment (Sauer *et al*. 2013, 195–96).

229 Ioannes Lydus, *De Magistratibus* 3.52.

230 Gamkrelidze and Ivanov 1995, 416.

231 Sauer *et al*. 2013, 596–97 with sources.

232 Blockley 1985b, with references.

233 Cf. Braund 1994, 269–71.

234 Braund 2001, 40; Odisheli 2018; chapter 25.3.4.3.

235 Abdullaev 1968; Aliev *et al*. 2006; Gadjiev 2017; Lawrence and Wilkinson 2017, 109–14, 116, 118–19; Mammadova and Hajiyeva 2013, 190–93; Sauer 2017, 6, 15 no. 8; Sauer *et al*. 2017, 258, 260–62.

236 Ioannes Lydus, *De Magistratibus* 3.52–53.

237 See Rubin 1986, 38–45, 59, with sources.

238 See chapter 25.3.4.2–25.3.6.

239 Priscus 41; 47 = *ed*. and trans. Blockley 1983, 344–47, 352–55; cf. *id.* 1985b, 66.

240 Procopius, *Bella* 1.16.4–5, cf. 1.10.9–12. See also discussion in Haarer 2006, 48–50, 70.

241 Mindorashvili 2005, 57, 199, 203, 214 pl. IX.73. The only ancient coin from the entire district (of Stepantsminda) included in Tsotselia's study of coin finds from Georgia, is a *denarius* of Augustus (Tsotselia 2010, 78 no. 448), perhaps brought by a trader or military man: see chapter 25.2.

242 See chapter 25.3.2.
243 See appendix I.
244 Isaac 1992, 230–32; on wider military networks, see Lawrence and Wilkinson 2017, 114–16 with fig. 5.9 and Sauer *et al*. 2017, 255–58 with fig. 11.8. Hopefully, future fieldwork will shed light on potential Persian garrisons elsewhere, but the virtual absence of distinctive Sasanian artefacts at Dariali Fort demonstrates the difficulties involved in identifying Persian as opposed to Iberian or other occupants via material remains – and garrisons may, of course, have changed repeatedly.
245 Rapp 2014, 181–83 (also with reference to a 'Sasanian fortress' at Mtskheta), 345–46.
246 Reineggs 1796, 226. See also chapter 4.5.
247 As already observed by Dubois de Montpéreux 1840, 290. See Kristen Hopper and Dan Lawrence in Sauer *et al*. 2015, 891 on one hectare of land being able to support only 0.25–2 individuals and favouring a low figure within this range.
248 See chapters 5.1–5.2, 6.2, 11.5.2.1–11.5.2.4 and 11.5.2.6.
249 Hopper and Lawrence in Sauer *et al*. 2015, 891, 892 fig. 7.
250 See chapters 10.5.2.4, 10.5.4, 10.6.2 and 10.7: DPS-6.
251 See chapters 6.3–6.4 and 19.9.
252 See chapters 6.8.1, 6.9, 20 and 25.5.3.
253 See chapter 22.2. Whilst there is no millet from 3e, this may be due to the small sample size. Similarly, that there was only one from the small 3f sample need not necessarily imply lesser availability.
254 See chapter 22.2.3.1.
255 See chapter 13.
256 Adamia 1979, 114–20, 188; personal inspection by Davit Naskidashvili (who alerted the team to this important monument), Lexo Boshishvili, Michael Vickers and Eberhard Sauer of the wall at Katex (Azerbaijan) on 17/6/2019; http://www.dzeglebi.ge/dzeglebi/k/kavkasiis_didi_kedeli.html (accessed on 15/7/2019); display boards at Katex date the wall to the third to fifth centuries.
257 Baladhuri 194–95 = trans. Hitti 1916, 306–07; Ibn Khordadhbeh 123 = trans. De Goeje 1889, 94. See also Alemany 2000, 246, 250–51; Banaji 2015, 30–38 (cf. Weber 1991, 232–34); Bosworth 1998; Dunlop 1954, 20 with no. 84; 1960a, 835; Golden 1996, 49 with no. 12; Martin-Hisard 2000, 487, with further sources; Minorsky 1958, 14 no. 3. See also Minorsky 1958, 143 with no. 4, arguing that also Mas'udi may have believed the Derbent Wall reached as far as the Dariali Gorge. There may well be many minor gates/control points that are not well known. For an early discussion of the Caucasian defensive system, see Dubois de Montpéreux 1840, 291–305.
258 See Aliev *et al*. 2006, Alizadeh 2014, Howard-Johnston 2014, Lawrence and Wilkinson 2017, 109–19, Mammadova and Hajiyeva 2013, 187–94, Sauer *et al*. 2013 and Sauer *et al*. 2017, 257–58 on Sasanian fort-lined barriers and campaign bases. See Mammadova and Hajiyeva 2013, 194–5, 198 figs 215–16 on Bayramkoha (whose plan adds strength to the assumption of Sasanian origins) and Mammadova and Mammadova 2013, 14–18 on Ören Qala.
259 Rcheulishvili 2008, 468. We are grateful to Dr Rcheulishvili for information on the site, subsequently visited by Koba Koberidze, Eberhard Sauer, Fiona Mowat and Gary Vos on 29 May 2018. We were only able to visit sites on the right bank on the river: the cemetery (UTM 38T, 0490593, 4685132, 991 mt), small Kartana Fort with some dry-stone walls and a solid church (UTM 38T, 0490561, 4685193, 1043 mt) and the top of the cliff overlooking the road (UTM 38T, 0489959, 4684660, 1007 mt). Apart from a basic undated dry-stone wall, there were no visible structural remains on top of the cliff – perhaps only occupied (if at all) for brief periods when there was a risk of a breakthrough attempt by an approaching hostile group. Measurements were taken with a hand-held GPS in forested terrain and extremely wet weather.
260 Laghiashvili 2015–2017, 70–72, cf. 54, 81; *Kartlis Tskhovreba/Life of Kartli* 200 = trans. Thomson 1996, 219). Lopota Fort's preserved mortar wall is on a hilltop at UTM 38T, 0552624, 4659347, 728 mt (taken with a hand-held GPS in dense forest), some 23 km north-east of Telavi. We are grateful to Giorgi Laghiashvili for having taken us to the site on 30 May 2017.
261 Braund 2001, 39–40; cf. *id*. 1994, 44–47, 274, 287, 297; 1991a, 209; Odisheli 2018.
262 Kuznet͡sov 1990, 121–26, 182–86 figs 37–41, 192 fig. 47.
263 Kuznet͡sov 1990, 124–26, 187 fig. 42.
264 Albegova and Vereshinskiĭ-Babaĭlov 2010; Albegova 2010.
265 Kouznetsov and Lebedynsky 1997, 71 (= Kuznet͡sov 1990, 185 fig. 40); Kuznet͡sov 1990, 124–26, 187 fig. 42.
266 Albegova and Vereshinskiĭ-Babaĭlov 2010; 133; Albegova 2010, 37.
267 Sauer *et al*. 2013, 144, 248, 268, 320.
268 Nokandeh *et al*. 2016, 572–73; Sauer *et al*. forthcoming 2020.
269 Based on a translation of the relevant passage (Vakhusht'i = ed. and trans. Brosset 1842, 444–45; cf. Kuznet͡sov 1990, 121; Dubois de Montpéreux 1840, 302–03) by Lana Chologauri, confirming that it clearly states that the gate employed mortar, but is ambiguous as to whether the arch spanned the river or was next to the river.
270 Kuznet͡sov 1990, 121–26, 182–86 figs 37–41; Albegova 2010, especially 37; Albegova and Vereshinskiĭ-Babaĭlov 2010, 133, pls between pp. 128/129. We are very grateful to Professor Dmitry S. Korobov for having drawn our attention, at a workshop at Oxford organised by Dr Irina Shingiray, to this wall, its possible Sasanian origins and its mortar construction resembling the Dariali walls, as well as to Nick Evans who alerted us to Albegova's work on an earlier occasion. See also Kouznetsov and Lebedynsky 1997, 71 (= Kuznet͡sov 1990, 185 fig. 40) proposing an eighth-century date for the Kasar Wall.
271 Kuznet͡sov 1990, 126–29, 188–92 figs 43–47.
272 Nagler 1984. We are grateful to Professor Dmitry S. Korobov for sending us a copy of Nagler's article and for having alerted us to these monuments, as well as the following relevant websites: http://ossethnos.ru/history/alan/78-zagraditelnye-steny-tamozhennye-zastavy-forposty.html, https://kozandrevna.livejournal.com/70605.html and http://www.zapoved.net/index.php/News/%D0%A0%D0%B5%D0%B3%D0%B8%D0%BE%D0%BD%D1%8B/%D0%A1%D0%B5%D0%B2%D0%B5%D1%80%D0%BE-%D0%9A%D0%B0%D0%B2%D0%BA%D0%B0%D0%B7%D1%81%D0%BA%D0%B8%D0

%B9_%D1%81%D1%82%D0%B5%D0%BD%D0%B0 (accessed on 26/3/2018 and 8/4/2018).

273 Nagler 1984, 58.

274 See chapter 25.3.2.

275 We are grateful to Professor Korobov for sending us a map compiled by Михаил Голубев (Mikhail Gulobev) in 2014 featuring mountain passes in the area and their degree of difficulty, the most viable option perhaps formed by a pass of 2,951m altitude.

276 In the nineteenth century, the Mamison Pass appears to have been used far less than the Dariali route: Nachtigal 2016, 244–46, 265–67.

277 Aleksidze 2000; Crow 2013, 421; 2017, 135–36; Dubois de Montpéreux 1840, 304; Gabeliya 2018; Pat͡sulia 1964, 34–44, map facing p. 120; Voronov 1973. We are not convinced that Procopius not referring to the monument provides a mid-sixth-century *terminus post quem*, as Aleksidze (2000, 679) postulates. One wonders if a construction in the fifth century and a (temporary) abandonment prior to the time of Justinian is possible. The rectangular towers differ architecturally from other Sasanian towers we know, but if this indicates a modern date or in part an adaptation to local traditions is open to debate. See also *Kartlis Tskhovreba/ Life of Kartli* 235 = trans. Thomson 1996, 241 on this wall and, more generally, Braund 1994, 274 on the importance for Persia of controlling the passes in the Western Caucasus. According to Mitford (2018a, 12, 420–25, with fig. 263), there were also sections of wall along the Inguri River and the wall enclosed a substantial stretch of territory rather than just than just protecting the north-eastern edge of the coastal plain. This is based on Pat͡sulia's (1964, map facing p. 120) tentative map, probably not reliable, as Pat͡sulia (1964, 44) argues that the wall terminated at the river, and Voronov 1973 is not aware of a wall along this river. Mitford argues for construction starting under Justinian, tentatively explaining Procopius' silence with local rulers over subsequent centuries being responsible for developing it into 'an immense and continuous wall', without considering the possibility of Sasanian involvement.

278 Sauer *et al*. 2013, 195–96.

279 *Nihayatu l'Irab* 147b.15–24 = trans. Widengren 1952, 92–93 and Browne 1900, 227; cf. Whitby 1988, 217.

280 Tabari 1.896 = trans. Bosworth 1999, 153; cf. Altheim and Stiehl 1957, 66–68.

281 Gadzhiev and Magomedov 2008; Sauer *et al*. 2013, 358; *id*. *et al*. 2017, 257–58; *id. et al*. forthcoming 2020.

282 Sauer *et al*. 2013, 230–34.

283 Sauer *et al*. 2013, 303–81.

284 See Howard-Johnston's (2017, 284, 291–93) attractive hypothesis that the gold was used to acquire eastern luxury goods. Rubin (2000, 642–43, cf. 641) argues that Kavad's demands were stimulated by a need for money to repay his Hephthalite benefactors and enhance his position within Persia. See Payne 2016, 213 on the symbolic importance of receiving tribute from Rome as well as the significance of Sasanian tributes to northerners.

285 See Sauer *et al*. 2013, 195; Ammianus Marcellinus 23.6.83.

286 Mindorashvili 2005, 57, 199, 203, 214 pl. IX.73; cf. chapter 25.3.2.

287 Tsotselia 2010, 78 no. 448, 164 no. 826. For the latter find, see also Ts'itlanadze *et al*. 1998, probably referring the same discovery, as discussed in chapter 6.1. See chapter 25.2 for the coin of Augustus. See also Kruglov 1937, 245.

288 See chapters 2.3 and 15.2.2.8.

289 See Sauer *et al*., forthcoming 2020.

290 See chapter 11.4.

291 See chapters 11.3.2 (HASOG) and 11.3.4 (REDFIN).

292 Cf. Börm 2007, 214 with references; Blockley 1992, 50, 196 no. 29.

293 Procopius, *Bella* 1.10.1–8.

294 Procopius, *Bella* 1.10.8.

295 Wardrop 1888, 64.

296 Blanchard 1861, 123–26; Cunynghame 1872, 244–45; cf. Dumas 1884b, 72–73; Nachtigal 2016, 93, 102–03, 105, 110–13, 123, 126, 129, 140; Porter 1821, 69; Rayfield 2012, 267, 285, 294; Villari 1906, 313.

297 Lyall 1825, 464, 473; Porter 1821, 71, 74–75; Pushkin 1835, 533 = trans. Ingemanson 1974, 26–27; Wardrop 1888, 34–35.

298 Ioannes Lydus, *De Magistratibus* 3.52.

299 Priscus 47 = ed. and trans. Blockley 1983, 352–55; cf. *id*. 1992, 73–75; Marquart 1901, 98–100; Semenov 2016; Wheeler 1997, 55.

300 See chapter 25.3.4.3.

301 Braund 2015, 144.

302 Wagner 1850, 203.

303 Gagoshidze 2008b, 10; Garsoïan and Martin-Hisard 1996, 292; Gnoli 1996, 849; Pritsak 1996, 223; Spring 2015, 244; Toumanoff 1963, 33; Wheeler 1997, 55–56; 2013, 324 with no. 17; cf. Gamkrelidze 2012c, 183–84; Howard-Johnston 2010b, 43. See also Kouznetsov and Lebedynsky 1999, 10 on the strategic significance of Dariali.

304 Howard-Johnston 2013a, 858

305 Gadzhiev 2008, 31–35; Gadzhiev and Magomedov 2008; Sauer *et al*. 2013; *id*. *et al*. 2017.

306 Theophanes, *Chronographia* 363/A.M. 6178; Tsotselia 2002; 2003, *passim*, especially 30, 43; 2010, 140–45; Tsukhishvili and Depeyrot 2003, especially 6 and 27; Dedeyan 1996, 170; Forsyth 2013, 39–40; Golden 1980, 61–62; 1996, 49–51; Rayfield 2012, 53–56.

307 Tabari 1.2663–71 = trans. Smith 1994, 34–42; cf. Banaji 2015, 38; Bosworth 1978, 342.

308 Tabari 2.16 = trans. Morony 1987, 20; Agapius = trans. Vasiliev 1909, 487 and Hoyland 2015, 360, with no. 25.

309 Czeglédy (1960, 77) postulates Khazar occupation. Occupation of the pass defences would certainly have made any Transcaucasian forays easier and safer, but there is no concrete proof. See Kaegi 2003, 276 on possible Roman/ Byzantine influence at the time.

310 Ananias of Širak(?), *Geography* 18 = trans. Hewsen 1992, 55, 55A and Soukry 1881, 36; cf. Hewsen 1992, 15, 56, 116 nos 69–71, 133–34 no. 20; Zuckermann 2000, 542–44.

311 Theophanes, *Chronographia* 391–92/A.M. 6209; see Mango and Scott 1997, 547 no. 5 on the chronology of the events.

312 See Martin-Hisard 2000, 489–90 on the ethnic identity of people settling at the Alan Gates in the seventh to early eighth century, the Tsanars or Sarir.

313 Mas'udi 17= trans. Barbier de Meynard and Pavet de Courteille 1863, 43–45, Marquart 1903, 166–67 and Minorsky 1958, 156–57. This summary is based on the French, English and German translations of Mas'udi's work.

314 A limited build-up of late antique deposits, levelling rather than dump layers, provides evidence for continuous occupation from the late fourth (or early fifth) century until a localised conflagration to the east of the wall ring, probably in the second half of the seventh or early eighth century. The overall quantity of finds was much more moderate than in the last three centuries of the millennium. This will have been the result of changes in intramural rubbish disposal habits and is unlikely to reflect accurately the relative number of occupants.
315 See chapter 2.3.
316 See chapters 11.3.3, with fig. 11:19, and 11.6, with fig. 11:26.
317 See chapter 22.2.
318 Güldenstädt 1787, 174; Jaimoukha 2005, 106; Klaproth 1812, 552–53
319 See chapter 21.2; cf. Vakhusht'i = ed. and trans. Brosset 1842, 60–61, 80–81, 158–59, 212–15 (stating that there was only salmon in the Aragvi River), 224–25.
320 A term which we use in preference to 'Byzantine' Empire, which was, of course, the surviving Eastern Roman Empire: see chapters 1.3–1.4.
321 The evidence is ambiguous: see chapters 15.2.5 and 25.5.3.
322 That this is the place Mas'udi refers to has been argued convincingly by Marquart 1903, 166 no. 2.
323 This bridge was undoubtedly short-lived and suffered the fate of all bridges of being washed away by raging floods or avalanches of rock and mud in the landslide-prone section of the Tergi River Valley near the fort. Its location is unknown, but the south-eastern foot of the fort may be the most plausible location. Rocks reaching the east bank of the river north of the fort (see chapter 7) mean that the road to and from the north cannot have followed the eastern/right bank of the river. It is possible that there may have been a temporary track to the south that may have followed the eastern bank until near Gveleti Fort – a viable route at times between landslides. If this bridge was at the south-eastern foot of the fort, it could have been controlled by the garrison and it fits Mas'udi's description of it being overlooked by the fort towering high above.
324 Nachtigal 2016, 66. See also chapter 25.2.
325 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44, Marquart 1903, 166–67 and Minorsky 1958, 157.
326 Dunlop 1954, 66–80, especially 67–68;1960b; Tabari 2.1506, 2.1530 = trans. Blankinship 1989, 45, 69; Theophanes, *Chronographia* 407/A.M. 6221; 409/A.M. 6223; Agapius = trans. Vasiliev 1909, 506–07; cf. Martin-Hisard 2000, 488, 490; Zuckermann 2000, 544. Kouznetsov and Lebedynsky 1997, 67 date the Muslim conquest to AD 728/729. See also chapter 6.8.
327 Tabari 2.1506 = trans. Blankinship 1989, 45; Dunlop 1954, 66–84; 1960b, with sources; cf. Bosworth 1978, 344–45; Golden 1980, 63–66, 78–79; 1982, 79–80; 1996, 51–52; 2002–2003, 16–17; Kouznetsov and Lebedynsky 1997, 66–68; Minorsky and Bosworth 1986, 488. See also *Kartlis Tskhovreba/Life of Kartli* 234 = trans. Thomson 1996, 241; cf. Kavtaradze 2001, 203. See Baladhuri 207–08 = trans. Hitti 1916, 325–26 on the Muslim invasion of Khazar territory via Dariali and resettlement of northerners. See also chapter 15.2.5.
328 Korobov 2012, especially 44; 2017a and b; Korobov and Borisov 2013; 2018; Reinhold and Korobov 2007, 197–201; cf. Arzhantseva 2007, especially 61–62; Kazanski and Mastykova 2003, 119; Korobov 2014; Kouznetsov and Lebedynsky 1997, 65–75; Professor Dmitry S. Korobov, pers. comm., 2018.
329 Theophanes, *Chronographia* 418/A.M. 6235.
330 See chapter 2.4.3.
331 Agapius = trans. Vasiliev 1909, 538; cf. Czeglédy 1960, 78.
332 Baladhuri 210 = trans. Hitti 1916, 328–29; cf. Alemany 2000, 247, 251; Dunlop 1954, 179; Martin-Hisard 2000, 490, arguing for a date in AD 756/757. Czeglédy 1960, 78 postulates that the Dariali Pass had come under local, Tsanarian-Kakhetian control in the AD 740s, *i.e.* in the period between the two recorded settlements of Arab military garrison in the Dariali Gorge.
333 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 157; cf. Pellat 1991, 785.
334 See chapters 13–14.
335 The cemetery at Gveleti (see chapter 9.1 and Mindorashvili 2005, 19–101, 163–66, 176–77, 199–201, 211–20 pls VI-XV; cf. *id.* 2000) forms an exception, but is probably for the guardians of the narrow section of the gorge nearby rather than Dariali Fort, and even if for the latter, cannot account for more than a small fraction of its garrison.
336 See chapter 25.3.4.3.
337 See chapters 6.3 and 6.7–6.9.
338 See chapter 19.4–19.5, 19.15; see also 6.3–6.4
339 See chapter 6.8.2.
340 See chapter 6.8.
341 See chapter 13.5.1 and 13.7.7.4.
342 See chapter 11.3.2; cf. P'ach'ik'ashvili 2014, 29.
343 Clinton 1989; Khaleghi-Motlagh 1999, 515–17, 519; Sadan 1978; Wensinck 1978; see also chapter 3.4.2.
344 See chapter 21.1.3.4.
345 See chapters 2:4.3 and 12.
346 Theophanes, *Chronographia* 356/A.M. 6171; see also Plinius Secundus, *Naturalis historia* 6.40, cf. 6.30 describing Dariali as Gates of Iberia (*Portae Hiberiae*) in the first century.
347 See chapter 17.
348 See chapter 2.3.
349 See chapter 4.5.
350 *Kartlis Tskhovreba/Life of Kartli* 249–50 = trans. Thomson 1996, 256. Theophanes, *Chronographia* 433/A.M. 6255, 435/A.M. 6256, Tabari 3.318, = trans. McAuliffe 1995, 292 and 3.328 = trans. Kennedy 1990, 14–15 may refer to an invasion of Armenia via Derbent in AD 762/763 and of Iberia, including Tbilisi, and Armenia in AD 764 (Mango and Scott 1997, 601 no. 2, 603 no. 1); cf. Elias of Nisibis, An. 147 = trans. Delaport 1910, 109. Agapius = trans. Vasiliev 1909, 543–44 [283–84] refers to a Khazar invasion through all Alan Gates [*i.e.* Dariali and other Caucasus passes?], in which the Khazars captured 50,000 Arabs. Czeglédy 1960; Barthold and Golden 1978, 1174; Dunlop 1954, 184–85; Golden 1980, 171–72; Minorsky 1958, 105; Minorsky and Bosworth 1986, 488; Salia 1983, 125–26; Shapira 2007, 350–51; Toumanoff 1963, 411–12 with no. 24.
351 *The Martyrdom of St Abo* = trans. Lang 1956, 118.

352 Martin-Hisard 2000, 490–91; 510–17, cf. 488–89; Rayfield 2012, 59, arguing that Kakhetia had retaken Dariali Pass from the Arabs; Van Elverdinghe 2014, 468; Zuckermann 2000, 533, 535–36, 542, 544; cf. Hewsen 2001, 106 map 81, 109, 111 map 87, 113 map 88, 125 map 105. The alleged garrison of neighbouring mountain people placed in Dariali Fort by Vakhtang Gorgasali (*Kartlis Tskhovreba/ Life of Kartli* Q156 = trans. Thomson 1996, 362–63; cf. Zuckermann 2000, 553–44) is likely to be anachronistic, but may contain a core of truth for the later first millennium.
353 See chapters 11.3.2 and 11.6.
354 Ibn Khordadhbeh 162–70 = trans. De Goeje 1889, 124–31; Qur'an 18.93–98; Alemany 2000, 246–47; Anderson 1932, 93–95; Greisiger 2014, 235; Martin-Hisard 2000, 510, cf. 491; Van Donzel 2007; cf. Stoneman 2017, 291–92.
355 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 157; cf. Pellat 1991, 785.
356 *Kartlis Tskhovreba/Life of Kartli* 256–57 = trans. Thomson 1996, 260–62; cf. Baladhuri 211–12 = trans. Hitti 1916, 331–32; Bosworth 1978, 345; Dunlop 1954, 194; Kavtaradze 2001, 204; Martin-Hisard 2000, 491; Rayfield 2012, 58–60, 63–64; Shapira 2007, 351–52; Sourdel 1960. See also Pipes 1981 on the widespread employment of men of Turkic origins, mostly but not exclusively converts and slave soldiers, in Muslim armies.
357 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 157; cf. Pellat 1991, 785.
358 See chapter 15.2.5; cf. *Kartlis Tskhovreba/Life of Kartli* 256–57 = trans. Thomson 1996, 261–62. See also Martin-Hisard 2000, 490–92 on local revolts facilitating the Khazar raids.
359 For any unarmed personnel (tradespeople, craftsmen, etc.), if present, accommodation in the interior may have been a more logical choice. One ought to concede, of course, that there is no proof for the hypothetical housing of combatants in the casemates.
360 See chapters 11.3.3–11.3.4.
361 Mas'udi 17 = trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 157.
362 See chapter 6.8.
363 Zuckermann 2000, 544.
364 Martin-Hisard 2000, 513 with no. 1066, cf. 476–78, 488–91, 510–12.
365 See chapter 20.
366 See chapter 22.2. There is no millet from phase 4, but the sample is too small to be statistically viable. There is also one millet seed from phase 6b in a smaller sample.
367 See chapters 13–14.
368 See chapters 11.3.4 and 11.6.
369 Ts'itlanadze *et al*. 1998; cf. Tsotselia 2010, 164 no, 826, discussed in chapter 6.1.
370 Nachtigal 2016, 66–67.
371 See chapters 13 and 15.2.7.6.
372 See chapter 11; cf. Barthold and Golden 1978, 1177; Bosworth 1978, 343; Dunlop 1954, 225–29; Howard-Johnston 2018, 342, 345.
373 Yovhannes of Draskhanakert 31.15 = trans. Boisson-Chenorhokian 2004, 220, Garsoïan 1997, 152, Grousset 1947, 401 (arguing the passage refers to AD 895) and Maksoudian 1987, 139, cf. 278; Fähnrich 2010, 156; Martin-Hisard 2000, 476, 478 with no. 816; Thomson 1997, 228. See also Yovhannes of Draskhanakert 41.1 = trans. Boisson-Chenorhokian 2004, 253 and Maksoudian 1987, 158–59, cf. 286, Grousset 1947, 428 and Toumanoff 1963, 492 on a campaign of King Constantine III of Egrisi/ Abkhazia in AD 904 towards the vicinity of the Alan Gates.
374 Zuckermann 2000, 544–45; Yovhannes of Draskhanakert 59.2 = trans. Boisson-Chenorhokian 2004, 330 and Maksoudian 1987, 206, cf. 301.
375 Mas'udi 17= trans. Barbier de Meynard and Pavet de Courteille 1863, 40–45; cf. Marquart 1903, 165–67 and Minorsky 1958, 156–57.
376 *Ḥudūd al-'Ālam 5.18, 48.3* = trans. Minorsky 1970, 68, 161, cf. 446. Ibn Rusta = trans. Wiet 1955, 167, Marquart 1903, 165 and Minorsky 1958, 169 with no. 2 provides a less embellished version of elements of this semi-legendary account. Minorsky (1952 and 1958, 107) argues that the Alan capital, even if not on Dariali Fort, was near Vladikavkaz, *i.e.* not very far away. See Zuckermann 2000, 545–46, 548, 556 and Martin-Hisard 2000, 509 on the Alan Gates being considered part of Alan/Ossetian territory from the tenth century. Cf. Ahmad 1971; Alemany 2000, 260, 361–62.
377 See chapter 11.6.
378 Mas'udi 17= trans. Barbier de Meynard and Pavet de Courteille 1863, 44–45, Marquart 1903, 166–67 and Minorsky 1958, 156–57.
379 See chapter 15.3.1.2.
380 E.g. Khalikova 1976.
381 Mas'udi 17= trans. Barbier de Meynard and Pavet de Courteille 1863, 45, Marquart 1903, 167 and Minorsky 1958, 157.
382 See chapters 6.4, 6.9, 19.14.1–19.14.3 and 20.
383 *Shadāddids* 15–16 = trans. Minorsky 1953b, 20–22; cf. Bosworth 1978, 348–49; Minorsky 1958, 107; Rayfield 2012, 82. The late Professor Edmund Bosworth kindly confirmed that he was not aware of any obvious evidence for the ownership of the gates in the later tenth to early twelfth centuries we had overlooked.
384 According to Razoux's (2009, 47; cf. Mikaberidze 2015, xxiii) political map of Georgia in the early eleventh century, Tbilisi had at the time lost the land corridor to the Dariali Gorge and the gorge itself, both already then under Georgian control (the former more certain than the latter). True or not, the political borders appear to have been shifting frequently in the late tenth and eleventh centuries (Razoux 2009, 46–49). See Jones 2014, 96–97 for a map of Georgia in the first half of the eleventh century, assigning Dariali to the Kingdom of Kakheti and Hereti, also controlling the land corridor to Dariali.
385 See chapter 2.4.3.
386 Kruglov 1937, 247. It is possible this was one of the cellar-like structures (subsequently?) lined by walls.
387 See chapters 2.4.2 and 2.4.7.4.
388 See chapter 22.1.4.2. Phase 4 may be anomalous, as the material largely derives from a localised burnt horizon that

may not represent the availability of species as well as the material from phases 3 and 5.

389 See chapter 11.4.

390 See chapter 22.3.

391 See chapter 8.

392 *Kartlis Tskhovreba/Life of Kartli* 336 (118 in the Armenian version) = trans. Thomson 1996, 326–28, cf. 326; Alemany 2000, 320; Bosworth 1978, 349; Kavtaradze 2001, 196; Rayfield 2012, 90–92; Vakhusht'i = ed. and trans. Brosset 1842, 228–29. Klaproth (1812, 672) claims there were ruins of a fortification on a rock on the east bank of the Tergi south of Dariali Fort, ascribed to King Davit IV the Builder. This fortification is unknown to us, nor are we aware of a suitable spot on the right river bank between Dariali and Stepantsminda. Perhaps Klaproth mistakenly assumed the king had built a new fort, rather than conquered the old one.

393 *The Hundred Years' Chronicle* 11 = trans. Jones 2014, 329; Rayfield 2012, 123–24.

394 See chapters 8 and 25.5.3.

395 Rayfield 2012, 137, cf. 120–23, 133–35, 147–48; Spuler 1943, 43–44, 80; Fähnrich 2010, 253–54; *The Hundred Years' Chronicle* 27 = trans. Jones 2014, 356.

396 See chapter 11.

397 See chapters 8.7–8.8.

398 See chapter 22.3.3.2.

399 *The Hundred Years' Chronicle* 44–45 = trans. Jones 2014, 385–87, cf. 399; *Records of Eristavi* = ed. Meskhia, paragraph 19–21; Gamq'relidze *et al*. 2013, 143–44; cf. Rayfield 2012, 137–39; Limper 1980, 178–81; Luisetto 2007, 139–42, 156–59.

400 See chapters 8.5 and 8.7–8.8.

401 *The Hundred Years' Chronicle* 43–45 = trans. Jones 2014, 384–87; Rayfield 2012, 137; Spuler 1943, 80; 1985, 83, cf. 86. On the fort near Stepantsminda, see also chapters 10.4.3.5 and 10.7, DPS-86.

402 Gamq'relidze *et al*. 2013, 175. See also Reineggs' (1796, 225–26) description. Whilst not explicitly stating that the fort was abandoned, he fails to mention any sign of use and implies that the fort was unoccupied when he visited in the 1780s. Klaproth (1812, 671) confirms that the area had long been abandoned, even if there were still traces of gardens and fruit trees in the early nineteenth century.

403 Porter 1821, 72, 72–73 pl. 3; cf. Seccombe and Lister 2004. See also https://www.bl.uk/collection-items/the-pass-of-derial (accessed on 2/12/2017) for a watercolour by Porter, held by the British Library, showing a different section of Dariali Gorge.

404 Ts'itlanadze 1971, 65–66.

405 See chapter 8.

406 See chapters 10.4.3.1–10.4.3.2 and 10.4.3.5; Kruglov 1937, 246–47.

407 Lyall 1825, 473; see also chapter 10.4.3.1 and Bryce 1878, 81.

408 Allen 1932, 204, 207, 211; Klaproth 1812, 1; Rayfield 2012, 243, 256, 258–59.

409 Lyall 1825, 472–73. Nachtigal 2016, 73, cf. Klaproth 1812, 671, confirming that Dariali Fort was partially blown up when the Georgian Military Road was built in the early nineteenth century. See also Fähnrich 2010, 375–78, on the role of the Dariali Gorge in wars against Russia in the early nineteenth century. Cunynghame (1872, 246, cf. 247) describes Dariali Fort as 'so noted in the wars of the Russians with the mountaineers'.

410 Our project, with its ancient and late antique focus, lacked the expertise and time for archival studies of Dariali's modern history. Such an endeavour has great potential and we hope other scholars will fill the gaps in our knowledge of the site's history in the recent past.

411 See Lermontov = trans. Neustadt 1948, 149–51, cf. 49.

412 Wardrop 1888, 62–63. Bayern (1885, 46) also refers to the site as Tamara's Castle. See also Bey 1930, 291–92 (kind reference by Gary Vos), Bryce 1878, 74 and Villari 1906, 319.

413 See chapters 2.6, 3.6 and 4.3.

414 See chapter 6.3.

415 Cf. Forsyth 2013, 530; Mitford 2018a, 424–25 with no. 25.

SECTION E

Appendices and Conclusion

Appendices. Landslides, the location of the gates and imperial landscapes: notes on historical geography

Appendix I

A hostile environment: landslides and their effect on settlement patterns in the gorge

Living on Dariali Fort was harsh. Occupants had to endure long and cold winters, with heavy snowfall and avalanches blocking supply routes, and frequent heavy rain in summer. Yet, there was a further phenomenon peculiar to the area that caused frequent loss of life, severed links with the outside world and indiscriminately destroyed everything in their path: landslides. Knowing about this natural phenomenon is crucial for appreciating the challenges involved in supplying the fort with food, travelling through the gorge and the resolve required to hold the fort in such a hostile environment. No settlement is likely to have existed at the base of the valley below its confluence with the Amali River (c. 1.4 km upstream of the fort). The Amali is joined upstream by the Devdoraki River, the latter originating in the Devdoraki Glacier on the slopes of Mount Kazbek (Fig. I:1). In the wake of landslides down the Devdoraki and Amali Valleys, so sudden that there was normally no escape for those unfortunate enough to be in the danger zone, the Tergi/Terek River could be blocked by snow, ice and avalanches of stones. Water levels could then rise to a height of up to 80 m in the most extreme cases and cause devastating floods when eventually bursting these natural dams. In the nineteenth century, such landslides, the result of moraines building up on Devdoraki Glacier, are reported to have occurred every three to thirteen, five to seven, six to seven or seven to nine years.[1] Sir Robert Ker Porter provides perhaps the most powerful description of this terrible natural catastrophe, recurring at regular intervals:

> It has been an old observation, that, in the course of every seven or nine years, one of these overwhelming



Fig. I:1: Mount Kazbek (5,047 m), towering over modern Stepantsminda, is one of Europe's highest mountains. Moraines forming on its glaciers are the course of frequent devastating landslides blocking Dariali Gorge.

avalanches takes place. And, they are not always confined to the winter season, but happen at any time, when either the power of the sun, or the weight of the snows, may disengage the preponderating load from its hold on the mountain. In June 1776, the course of the Terek was stopped by one of these ice torrents; when its impeded waters rose to the height of 258 feet, and suddenly tearing a passage through the rocky barrier of that tremendous defile, with a noise louder than thunder resounded by a thousand echoes, rushed onward in a devastating flood.

Similar was the horrid scene, report brought to us in the month of November, 1817. The pale summit of the mountain Kasibeck, on the side which shelves down into the dark valley between Derial and the village which bears the mountain's name, had been seen abruptly to move. In an instant it was launched forward; and nothing was now beheld for the shaken snow, and dreadful over-shadowing of the falling destruction. The noise that accompanied it, was the most stunning, bursting, and rolling onward, of all that must make death certain. As the avalanche rushed on, huge masses of rock, rifted from the mountain's side, were driving before it; and the snows, and ice of centuries, pouring down in immense shattered forms, and rending heaps, fell, like the fall of an earthquake; covering, from human eye, villages, valleys, and people! What an awful moment, when all was still! – when the dreadful cries of man and beast were heard no more; and the tremendous avalanche lay a vast, motionless, white shroud on all around.

The magnitude of the destruction will readily be comprehended, when it is understood that the depth of the snow, which thus rolled downwards in sight of the appalled inhabitants of the valley, was full twenty-eight fathoms, that is, 186 feet; and its extent more than six wersts, or four miles, English. It immediately blocked up the course of the Terek, whose obstructed waters, beating up, in immense billows, foaming and raging against this strange impediment, seemed, at times, ready to over-top it; but, still repelled by the firmness and height of the snow, it fell back on its bed with a roaring that proclaimed the dreadful scene to a vast distance. The overcharged waters then formed themselves into a lake, which spread down the whole valley, on the river-side of its tremendous barrier; thus completely barring all communication with Wlady Caucasus. Nearly twelve days elapsed before the river had sapped its way through so immense a body of consolidated snow; but when it did make an opening, its flood, and fury, and devastating consequences, fell not far short of the dreadful ruin occasioned by the cause of its obstruction. Bridges, forts, every thing contiguous to its path, were washed away in the torrent.[2]



Fig. I:2: All bridges near the fort faced certain destruction through landslides or the dangerous flood waves of the River Tergi/Terek. The above hanging bridge, metres above the deadly torrents, was swiped away on 20 August 2014 only a few months after its construction.



Fig. I:3: On 23 June 2016 (photo taken on 24 June) the River Tergi/Terek washed away hundreds of metres of the main road between Georgia and Russia (see surviving sections of the road on the right and near the monastery in the background) – one of numerous similar events affecting the gorge in the past. Sometimes the river, blocked by rock avalanches and mudslides, flooded the whole valley. At such times, the valley was impassable. The rock-cut track on the right bank was probably created in recent centuries, whilst in Antiquity and the Middle Ages traffic would have followed the slopes on the left bank.

In his study of traffic in Caucasia in the late eighteenth and nineteenth century, Reinhard Nachtigal, describes the Georgian Military Road as a Lifeline ('Lebensader') of the Russian Empire, but also draws attention to the difficulties of using it, notably in winter and spring, when snow, avalanches or floods caused by the Tergi posed major danger and difficulties.[3] Recently, massive landslides occurred, most unusually twice in a single year, on 17 May and 20 August 2014 (Fig. I:2), blocking the Tergi and the road downstream of the Amali-Tergi confluence and upstream of Dariali Fort, sadly leading to loss of life. A further major landslide occurred on 23 June 2016 (Fig. I:3) – three major natural disasters in the course of a project lasting a little over three years (June 2013 – August 2016). It is unlikely that any major archaeological feature at the base of the valley will have survived an estimated 100–200 flash-floods per millennium (a hypothetical number based on the reported five to seven-year cycle rather than our own experience of one such event on average per annum). Even in normal years, the Tergi could flood in June the entire width of the valley and destroy bridges.[4] The risks will have been known to the local population, and we may assume that there was little settlement in zones at risk from flooding or landslides (if Porter's report implies entire villages being washed away), but there will have been temporary paths, bridges and probably barriers.

Notes

1 Dubois de Montpéreux 1840, 286–88; Eichwald 1837, 762–65; Gille 1859, 244; Klaproth 1812, 676; Freshfield 1896, 97–98; Lyall 1825, 503; Reineggs 1796, 17–19, 224; cf. Wagner 1850, 229–30, cf. 215; 1856, 234–35, cf. 212–13, 223; Wardrop 1888, 63–64; Bryce 1878, 81.

2 Porter 1821, 146–47.

3 Nachtigal 2016, 54, 63, 65–66, 72, 78, 86, 89, 92–93, 102, 111, 122, 299–300; cf. Eichwald 1837, 762–66.

4 Wagner 1850, 201, as also attested by Blanchard 1861, 127; cf. Klaproth 1812, 669. Most recently a hanging bridge south of Dariali Fort (Fig. I:2) was destroyed in the wake of the landslide on 20 August 2014.

Appendix II

Where were the gates? A French eyewitness to the narrowness of the gorge

The gorge in Antiquity and the Middle Ages was in places even much narrower than it is today. One of the narrowest sections of the gorge, between Dariali Fort and Georgia's northern border, is a strong contender for the site of the 'Caspian Gates', if not the only one. Rocks made all traffic on the right bank of the Tergi/Terek impossible, whilst fortified Bakht'ari Ridge, with vertical rock faces, towered over the narrow passage on the left bank, overlooked by some of the most imposing vertical cliffs in the gorge.[1] Yet the terminal of this fortified rock spur ends abruptly and shows no weathering. Evidently explosives were employed in the nineteenth or twentieth century to blow up the terminal of this spur which obstructed traffic. Further fracture lines formed when, in the course of pipeline-construction, tunnels were blasted or cut through the rock spur (as well as Lower Gveleti Fort) in Soviet times. The stretch of the gorge to the north of Dariali Fort will have been very narrow, and its natural defences further enhanced by the stone fortifications on Bakht'ari Ridge, surely the reason why a state boundary is immediately north of this artificially enhanced natural barrier. We now know, based on our results from excavating a small sondage on the ridge, that this elongated ridge-top fortification was almost certainly built between the fourth and sixth centuries, probably no later than the AD 430s. The masonry style of this barrier, employing like other walls of the era solid mortar and stones of similar size in neat courses, offers further support for a late antique date.[2]



Fig. II:1: A portrait of Blanchard published in an obituary (Claretie 1873, 405).

Whilst this ridge, some 950 m north of Dariali Fort, formed a prominent obstacle, was this the section of the gorge that could most easily be blocked and the focal point of defensive efforts in Antiquity? In other words: was it indeed this ridge that formed part of the famous Caspian, Caucasian or Alan Gates? A painting by the little-known French painter Henri Pierre Léon Pharamond Blanchard (1805–1873; Fig. II:1) of 1857, who had crossed the Caucasus via the Dariali Gorge in April 1857, on his way from Tbilisi to the north,[3] is worth examining for clues as to the location of the narrowest point of the gorge. This dramatic picture (Fig. II:2)[4] implies that the spurs on the west side of the Tergi then reached down to the river, with no space for a track on this bank and only the narrowest of paths on the opposite side of the river. Another drawing by Blanchard (Fig. II:3)[5] shows a tower (that may also feature on the previous image if less clearly), with possible traces of a wall abutting it along the cliff edge. This monument is on the left bank of the Tergi (on the right side of the picture) overlooking the narrowest section, or one of the narrowest sections, of the gorge, with no more than a very narrow track at the bottom of a steep overhanging cliff on the opposite bank. No traces of similar fortifications in such a location seem to survive at any point of the gorge visited by us. There is nothing to suggest that the tower of Gveleti Fort would ever have looked like this, nor can the road have followed

the opposite bank of the river here. Dariali Fort is a more likely candidate, as there was indeed a rock-cut road on the opposite bank of the river by the mid-nineteenth century, and the cliffs of Dariali Fort reach right down to the river. Yet, the river bends north of the fort, and the cliffs block the view, and it would not have been possible to see the fort and so much of the rock-cut road at the same time.

Furthermore, Sir Robert Ker Porter, who visited Dariali Fort 40 years earlier than Blanchard, depicts the tower/keep on top preserved to a lesser height.[6] Robert Lyall, who had travelled through the gorge in 1822, provides a further picture of the fort with a towered keep on top (Fig. II:4).[7] Did Blanchard perhaps depict a further fortification that has been destroyed, perhaps at the narrowest point of the gorge? We cannot identify any of the rock formations in the background, in part obscured by clouds. In contrast to mountains in the background, the lower slopes of the gorge may in places have been altered through the use of explosives since. We may nonetheless conclude that the painting provides no faithful representations of the gorge drawn *in situ*. An attempt in 2015 to securely identify the location of this and other paintings proved unsuccessful. There is no point between Gveleti Fort and the ridge one kilometre north of Dariali Fort where the rock formations and background correspond to what we see, nor could the landscape have changed so dramatically on both sides of the valley. The painting, which appears to depict one of the narrowest sections of the gorge looking upstream, may well have been drawn from memory.[8] The work of art demonstrates powerfully that even in the mid-nineteenth century traffic in the gorge still appears to have been confined to a narrow track between the mountain walls and a fast-flowing river. A stylised engraving (Fig. II:5) of the landscape by Blanchard,[9] possibly with Mount Kazbek in the background, south of Dariali Fort and north of Gveleti, similarly captures the dramatic narrowness of the gorge.



Fig. II:2: Henri Pierre Léon Pharamond Blanchard (1805-1873) was a French painter crossing Dariali Gorge in 1857 when the use of modern explosives had already started to widen the gorge and alter the landscape – but not as much as today. His paintings are perhaps the most powerful images to convey the narrowness of the gorge. Note the River Tergi/Terek (foreground right), the narrow path with overhanging rocks (left) and a probable tower on a rocky ridge (middle ground). Painting: courtesy of Dadiani Palaces History and Architectural Museum.

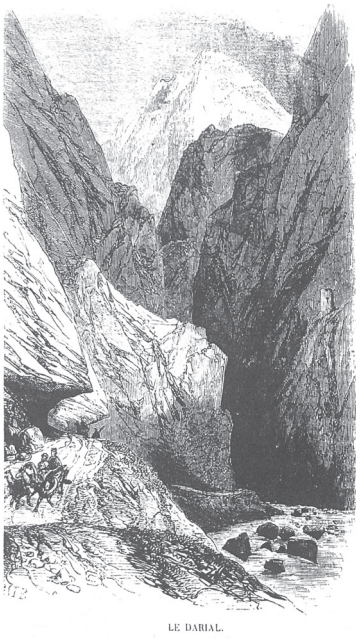


Fig. II:3: Drawing by Blanchard of the way through Dariali. Note the tower (right), whether the same or a different one as on the previous image, on a rocky cliff over the Tergi/Terek – perhaps inspired by Dariali Fort (seen from the north) also towering on a cliff over the river.

These works of art, even if sketched from memory, are likely to give a broadly realistic impression of how narrow the gorge was before modern interference with nature. Blanchard himself witnessed the use of explosives to widen the gorge when crossing it in spring

1857. His travel account provides clues to the whereabouts of one of the narrowest parts of the gorge up to the nineteenth century. And it is his own description of the dramatic physical appearance of the gorge and its partial destruction which adds credence to his works of art and provide us with a vivid idea of what crossing the gorge would have been like for travellers up to the mid-nineteenth century.

> Not far from it [*i.e.* Mount Kazbek] one enters the Darial Gorge (the Gates of the Caucasus, *Caucasi Pilae*). Of all the routes across mountains I have travelled through up to now, this is by far the most imposing; one has to imagine two massive rock walls rising vertically almost to the height of perennial snow; at their foot, a foamy mountain stream, wild and flowing around enormous stone blocks broken off from the adjoining mountain; the route is sometimes scarcely ten foot wide, a width which can often only be achieved by undercutting, with pickaxes, the rock wall in the shape of a semi-arch; that is the scene. The writer's pen cannot convey a true picture of the wild magnitude of this mountain pass; these are the impassable Thermopylae and, controlling them, one is the master of the military route which leads from Europe into Asia.
>
> On a detour from the route, before entering the narrowest spot, we saw a soldier of the military engineers running towards us, who signalled that we should stop. At this very moment from the flank of the mountain on our right resounded a massive explosion, followed by a cloud of dust and smoke, and amidst this appeared enormous stone blocks and, as if they had responded to a signal, about a hundred similar explosions could be heard, repeated a thousand times by echoes from the rocks. It seemed to me like witnessing one of these frightening convulsions of nature, which sometimes alter the shape of continents. Soon, we found the explanation for the racket, caused by works on a road intended to replace the one on which we found ourselves then, which sometimes, in the wake of extraordinary floods, is completely intercepted by water.[10]
>
> At the edge of the mountain pass, on the left bank, one can still notice the remains of a strong ancient Georgian castle and, on the right bank, the new fortification, erected by Russia to guard the gorge.[11]

Visitors to Dariali Gorge will be able to confirm that the vivid description of the wild and dangerous Tergi still rings true today,[12] but the modern visitor will no longer be able to experience the narrowness of the gorge and the steepness of the rock walls, since partially blown away by means of modern explosives, quite as dramatically as in Blanchard's days. Interestingly, it appears to have been on the right bank of the river that the gorge was changed beyond recognition. Here there is a modern road today, in lieu of a narrow path in places under overhanging rocks then. But also the left bank appears to have undergone a major transformation. It is no longer as steep today as depicted in the mid-nineteen century illustrations. Furthermore, Blanchard's account makes it clear that he negotiated the narrowest part of the gorge prior to reaching 'a strong ancient Georgian castle' which, being opposite the new Russian fortification, can only refer to Dariali Fort.[13] Blanchard, beyond noting the existence of Dariali Fort, *i.e.* the Georgian castle at one end of the narrow pass, and attributing it in a footnote to King Mirvan,[14] provides no detailed description of the ancient ruins. That the description of the castle follows that of the explosion and precedes that of the journey further north to Lars, suggests that the road-works of 1857 seen by the painter may have taken place between Gveleti and Dariali Fort.

Furthermore, there is one painting which may suggest that some of the massive and awe-inspiring explosions vividly described by Blanchard occurred on the left bank of the river. It features a major explosion where a side valley branches off the main valley to the right. The high mountains in the background suggest that it is more likely the Amali River Valley, c. 1.4 km south of Dariali Fort looking south, than the Khde/Kistinka River Valley east of Dariali Fort looking north, that inspired the scene (probably drawn later from memory). Of course, Blanchard witnessed explosions when approaching the narrowest part of the gorge from the south, whilst his painting, if correctly interpreted by us, shows the then narrow section from the north. Was this artistic license or evidence for him misremembering the landscape setting? Either is possible, but there could also have been further explosions, in the course of the ongoing engineering operations, once he had been allowed to cross the danger zone. It may well have been the first explosive blasts he witnessed, reducing rocks to dust, that proved most memorable and worthy of description – whilst it was only after having made it safely across that he found an opportunity to artistically record from memory how rocks were blown to pieces. We may be sure that the events witnessed by the French artist were no more than one episode amongst many of such engineering operations affecting both sides of the gorge, facilitating traffic, whilst considerably altering the shape of the valley. Yet the survival of the bases of the outer walls of Gveleti Fort indicates that road-widening affected the bases rather than the upper sections of rock formations. Clear traces of destruction, recent enough so as to show no traces of erosion, are today on view mainly at the terminals of rock spurs – not the upper slopes whose appearance will not have changed markedly since Antiquity.

The painting featuring the explosions in progress, today in Dadiani Palace at Zugdidi (Fig. II:6),[15] implies that a very narrow section of the gorge may indeed have been immediately south of the landslide-prone Amali Valley, c. 1.4 km south of Dariali Fort. May the above-cited Blanchard drawing (Fig. II:3, cf. II:2) show part of a now destroyed fortification here, between the Amali Valley and Gveleti, consisting of a tower with a window abutted by a wall? It certainly captures the narrowness of the gorge



Fig. II:4: View of Dariali Fort from the north, published by Robert Lyall.



Fig. II:5: Drawing by Blanchard of the gorge with Mount Kazbek in the background, the Tergi/Terek (on the right) and the path with the typical overhanging rocks.

and may depict, or may have been inspired by, one of the gorge's narrowest sections. Floriant Gille[16] confirms that it was upstream from Dariali Fort that the gorge was particularly narrow: 'Above Darial [*i.e.* the old Dariali or Dariali Fort and its nineteenth-century successor] the passage is sometimes so narrow that one had to undercut the actual rock face, hewn at some places to the shape of a half-vault, where the track is less than ten feet wide.' Tempting as it is to think that the towered fortification was here, it is far from certain. Whilst the absence of any known traces could be the result of the front part of the cliff having been blown away, one wonders whether the left bank of the Tergi at this point would have been an ideal location. The cliffs, today nearly vertical on the river side but with negotiable slopes on the side of the Amali Valley would probably not have been as impregnable as Dariali and Gveleti Forts. Furthermore, consisting at this point of sediments rather than rock (Fig. II:7), the cliff face and any structure built on top would have been at risk of erosion.

If the narrowest part of the gorge was indeed between Dariali Fort and Gveleti, the former may have been a forward defence, one of multiple barriers. One wonders whether those buried at Gveleti Cemetery[17] garrisoned the narrow part of the gorge at some stage, even if there is no clear evidence for elaborate defences at this point and even if the small cemetery cannot account for more than a small part of the garrison in a short period of time. Whilst the painting so vividly showing the destruction of parts of the gorge was probably indeed inspired by the view from the Amali-Tergi confluence to the south, the tower featuring in Blanchard's drawing more probably features a view of Dariali Fort from the north – again with a fair amount of artistic license. Despite the impossible perspective, incorrect background and the tower being surprisingly tall, architecture and landscape setting fit Dariali better than Gveleti, whilst it seems unlikely that there ever was a tower on the sedimentary cliffs in between, let alone that it survived up to the 1850s.

It is probably the wrong question to ask where precisely the 'real' Caspian/Caucasian/Alan Gates were. There were at least two narrow spots that were provided with defensive barriers: at Bakht'ari and Dariali Forts (Fig. II:8) and there appears to have been a third narrow spot south of the Amali-Tergi confluence. Almost certainly, the former two, and quite possibly also the third, or a combination of two or three narrow spots will have been interpreted as the gates at one stage. Bakht'ari Ridge fits perhaps best Procopius' description of 'a narrow gate, nature has created here'[18] – notably as the ridge will have come closer to the river prior to modern roadworks. It may indeed have looked like a narrow gate, formed by rock cliffs on both sides. Alexander Pushkin, approaching Dariali from the north in 1829, describes vividly the narrowness of the pass with parallel cliff walls on both sides towering over the roaring river and the narrow road covered in fallen rocks. His account implies that this imposing natural spectacle was at the northern approaches to Dariali Fort and very close to the stronghold. Bakht'ari Ridge may well have been the site that deeply impressed the famous Russian writer.[19] At Dariali Fort, the gorge would have been much



Fig. II:6: A further painting by Blanchard, perhaps an impression from memory of the landslide-prone Amali Valley (right, with the Tergi/Terek, left) looking south. His travel accounts vividly describe the massive explosions he witnessed, as Russian engineers blasted their way through the rocks, an event memorialised also in this work of art. If correctly capturing the narrowness of the passage between the vertical rock cliffs (centre, middle ground) prior to destruction, it is easy to see why ancient and medieval authors thought of the gorge as a natural gate. Painting: courtesy of Dadiani Palaces History and Architectural Museum.



Fig. II:7: Erosion-prone high sediment cliffs on the left bank of the Tergi/Terek, south of the Amali Valley.

wider. Blanchard's drawing makes one wonder if a narrow passage south of the cited river confluence may be an alternative contender for Procopius' gates. Yet, however narrow the passage may have been here, its western side would have been formed by a cliff of loose sediments, not rocks. It would have been less suitable for carrying defences and whilst the terminal will not survive, there is no trace of a barrier or any ancient features here that we know of. This is not to deny the possibility that the heights could have been occupied and used as a launch platform for basic missiles at times of crisis, but Bakht'ari Ridge, jointly with Dariali Fort, probably were at the heart of defensive efforts and the main inspiration for most accounts on the gates. Blanchard's paintings drawn from memory cannot pinpoint the location of the gates, but they visualise powerfully their impressive narrowness. Ancient and medieval descriptions of the gates were second-hand, but inspired by powerful eyewitness account or rumours. They convey that those who had seen this natural spectacle were deeply impressed by the narrow passage framed by high cliffs. Blanchard may have been amongst the last to see the gorge before complete destruction of its narrowest passages, but his sense of awe will have mirrored that of numerous earlier visitors. His paintings may well provide the best visual idea of this natural miracle, true not in matters of detail, but overall impression.



Fig. II:8: Fortified Bakht'ari Ridge (foreground, with Dariali Fort on the conical hill in the background) controls one of the narrowest passages in the gorge (even if no longer as narrow as it had been prior to modern roadworks).

Notes

1 See chapter 7.
2 See chapter 7.
3 Blanchard (1861) offers a vivid account of the journey.
4 We are very grateful to Warwick Ball for bringing this important painting to our attention, which he had spotted in the Dadiani Palace at Zugdidi. Ana Gabunia and Lana Chologauri subsequently offered much help in library research on this painting and drew our attention to the reproduction in Kalandia 2002. See Guinard 1967, especially 83–99, 448–62 on Blanchard's life and work.
5 Gille 1859, 236/237 = Langlois 1859, 301, cf. 302.
6 Porter 1821, 72, 72–73 pl. 3; cf. Seccombe and Lister 2004; cf. Fig. 25:27.
7 Lyall 1825, 468, 471–72.
8 A systematic study of the artist's other paintings of preserved monuments would be required to assess how close to reality his paintings are likely to have been. Of course, it may have been difficult to produce detailed sketches in the mountains. Furthermore, fewer observers would have spotted any inaccuracies in a mountain scene than in the case of known buildings.
9 Blanchard 1861, 125.
10 This must refer to floods of the River Tergi, *e.g.* in the wake of landslides north of Gveleti.
11 Blanchard 1861, 127, translated by EWS.
12 In recent years, however, water from the Tergi has been diverted into pipes to generate electricity, reducing the quantity of water in the river. The spectacle may thus have been even more terrifying in the nineteenth century and before than it is today. Furthermore, whilst the Tergi still poses a mortal danger once the snow melts, in winter it can often be easily crossed. Water levels can be low in winter and spring, before the snow melts: see Wardrop 1888, 63: for low water levels in June, although in June 2013 and 2016, the river was very fast-flowing and dangerous.
13 Villari (1906, 319) similarly locates the narrowest part of the gorge south of Dariali Fort.
14 Blanchard 1861, 127 no. 2; cf. Klaproth 1812, 671–72; Gille 1859, 243–44.
15 We are grateful to Warwick Ball for having spotted this important piece of visual evidence and having drawn it to our attention and to Ana Gabunia and Lana Chologauri for their efforts concerning the Blanchard paintings at Zugdidi.
16 Gille 1859, 244 (translated by EWS); cf. *id.*, 236/237 = fig. II:3.
17 See chapter 9.1.
18 Procopius, *Bella* 1.10.4.
19 Pushkin 1835, 534 = trans. Ingemanson 1974, 28–29.

Appendix III

Investigations of ancient canal systems in Central and Eastern Georgia

Kristen Hopper, Dan Lawrence, Konstantin Pitskhelauri and Graham Philip

As part of our wider explorations of landscape investment in borderland regions of the Sasanian Empire, our team also investigated several lowland regions of Central and Eastern Georgia through satellite remote sensing and targeted field visits. Explorations via field survey or remote sensing of other lowland project study regions in the area of Azerbaijan, Dagestan and Iran have revealed that the Sasanian Empire invested heavily in infrastructure related to agricultural production (*e.g.* canals) and defensive features.[1] Our goal was to determine if similar landscape investments were made in the lowland regions of late antique Iberia. A second aspect of the project has involved the investigation of larger regions beyond the scope of individual surveys, making heavy use of remote sensing data. In Azerbaijan and the Gorgan Plain in Iran, this has proved fruitful in allowing us to see connections and patterns at scales which are rarely examined by archaeologists but were clearly relevant for imperial polities.[2] In Georgia, we can compare and contrast our remote sensing results from the lowland zone with those of our investigations in Khevi to gain insights into the relationship between physical geography, long term histories and imperial interventions.

In contrast to the mountainous Khevi region, the lowland and piedmont plains of Shida Kartli, Kvemo Kartli, Kakheti and the southern portions of Mtskheta-Mtianeti are some of the most agriculturally productive in Georgia (Fig. III:1). Although, Georgia receives on average between 600–1,200 mm of rainfall per annum, and water sources are abundant, rainfall varies by region, and in some parts of the arid and semi-arid lowland and piedmont plains irrigation can significantly improve agricultural output.[3]

Small-scale irrigation systems may have been in place to aid in the cultivation of crops such as soft dwarf (nanous) wheat, emmer wheat and naked barley as early as the aeneolithic (Chalcolithic) period in Eastern Georgia.[4] A number of studies have also explored the relationship between prehistoric land use and changes in climate and vegetation.[5] Palaeobotanical studies indicate increased human impact on the environment from the mid-Holocene.[6] A rise in agricultural production involving irrigation, linked to growing population centres, has been suggested from the latter half of the second millennium BC,[7] but a significant number of ancient irrigation systems in Georgia have been attributed to the Hellenistic through high medieval periods (Tables III:1 and III:2).[8] Many of these were investigated between the 1930s and the 1960s by Georgian geographers, engineers and archaeologists.[9]

It is these large-scale systems upon which our investigations are focused. We use the term 'large-scale' to describe irrigation systems that are extensive and complex, often watering considerable areas.[10] Evidence for investment in large-scale irrigation systems as part of a dispersal of rural settlements, and the intensification and extensification of agriculture has been recognised in various regions across the Near East and Central Asia throughout the first millennium BC (though in some cases these developments began earlier).[11] In the Southern Caucasus and North-eastern Iran, irrigation systems have been explicitly linked to new forms of occupation and concepts of territoriality during the Sasanian period in particular.[12] How far the mechanisms behind these developments are the result of top down impositions by elites, or the products of local social, cultural and political responses to diverse natural environments is a matter of some debate. In some cases, large-scale irrigation systems were the result of planning and implementation by centralised states (and often empires), but there is also evidence for local organisation of complex water management systems; the latter are often more adaptable and sustainable.[13]

This section will bring together the available data on large-scale irrigation systems in Central and Eastern Georgia and discuss the evidence for the dating of these systems.

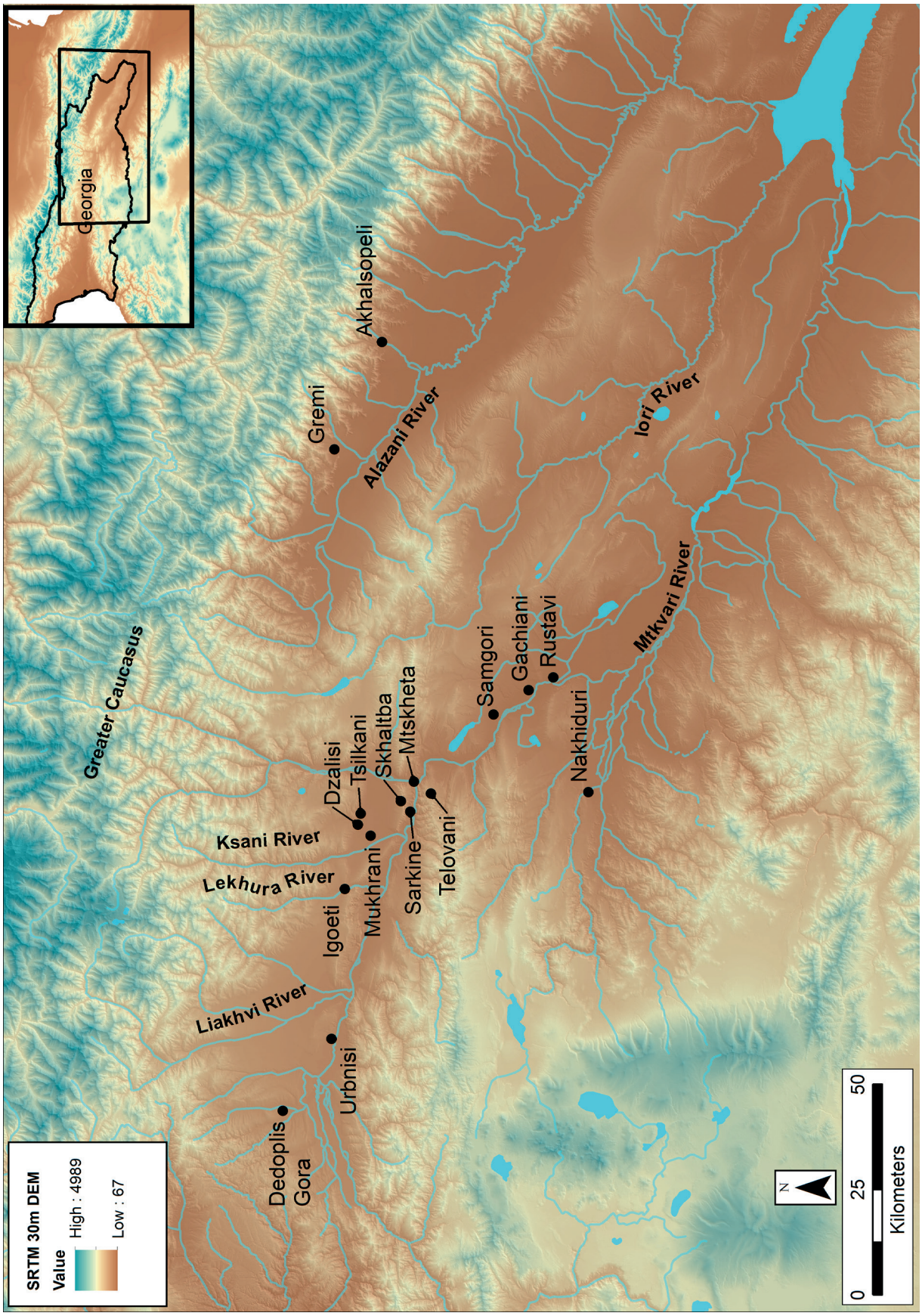


Fig. III:1: Places and geographical features mentioned in the discussion of ancient canal systems. Basemap: SRTM 30m DEM (available from the U.S. Geological Survey).

It will also present new evidence gleaned from the remote sensing of satellite imagery for tracing one of the largest ancient irrigation systems in Georgia, the Alazani Canal. Finally, it will attempt to consider irrigation systems in the context of political developments in the wider region from the mid-first millennium BC.

From local kingdoms to empires: large-scale canal systems in Iberia/Kartli

As is clear from Table III:1, large-scale canal systems in Central and Eastern Georgia have been attributed to a wide range of dates (from the second half of the first millennium BC through to the High Middle Ages). These dates are in some cases based on textual sources and in others on associations made between canals and archaeological sites, however, radiometric dating methods have not been employed. In several instances, varied dating proposals exist for individual systems. There are, however, several time periods to which most of the canal building in Georgia is attributed. These are: the Hellenistic period, the fourth-sixth centuries AD and the high medieval period (mid-eleventh-thirteenth centuries AD) (Table III:2).

The Nastagisi, Mukhrani, Telovani, Urbnisi and Tiriponi Canals have all been attributed to the Hellenistic period by various authors (see Tables III:1 and III:2). A reference to the Nastagisi Canal, located near Sarkine, north of Mtskheta the ancient capital of the Kingdom of Kartli[14] can be found in *The Primary History of K'art'li* in the *M'ok'ts'evay k'art'lisay (The Conversion of Kartli)*[15] written some time before the tenth century AD, and likely between the seventh and ninth centuries AD.[16] In this account, the origin of the canal is attributed to a legendary invasion of the region by Alexander the Great.

> Then [Alexander] besieged the city of Sarkine for eleven months. And he stopped on the western side of Sarkine and planted a vineyard and drew out a canal [ruy] from the K'sani [River], and he appointed people as canal overseers [meruveni] over the source [?] of the canal [dastagi'a ruysayt'a]; therefore this place is called Nastagisi.[17]

Alexander never actually invaded the area of modern Georgia, but as Rapp has pointed out 'his [Alexander's] vanquishing of the Achaemenid Empire[18] was the chief catalyst for the foundation of K'art'velian kingship at this moment' and as such this passage has been interpreted as reflecting an attempt to lend authority to the rulers of the newly arisen Kartlian Kingdom in the third century BC.[19] Even if the association with Alexander is legendary, it is conceivable that the Nastagisi Canal system was in use by the fourth or third century BC. According to Gagoshidze, it is said to have supplied the third century BC settlement at Nastagisi.[20] Furthermore, according to Gagoshidze, the Mukhrani Canal may also have been in use by this time as the Nastagisi Canal may have been a branch of the Mukhrani Canal. At the very least, the mention of a canal at Nastagisi in the Primary History puts its construction prior to the seventh-ninth century AD.

Several of the canals listed in Tables III:1 and III:2, namely the Rustavi and Telovani Canals, are also suggested to have been built in the last century BC and the first few centuries AD, though the evidence appears to be circumstantial.[21] The Telovani Canal, which has been broadly dated to the Hellenistic/Roman period by K'ik'vidze, is associated with the important Roman-period site of Dzalisi, which it may have supplied, suggesting that the canal was built or at least in use in this period.[22]

Palaeobotanical evidence from excavations of the early first century BC – first century palace at Dedoplis Gora in Shida Kartli may also provide evidence for irrigation in this period (though not associated with a specific canal system). Gagoshidze has argued that barley seeds from Room 8 of the palace were found in context with weed types (including *Chenopodium*) associated with moisture and humus rich soil (that is, grown in an irrigated field); furthermore, these grains were considerably larger than populations of the same species from other contexts in the palace.[23]

Perhaps the most extensive ancient canal system in Georgia, the Alazani Canal in Kakheti, has been suggested to have been built between the first and third centuries AD.[24] While the canal itself has not been dated, the account of Iberia as presented by Strabo in the late first century BC or early first century AD may have influenced this dating proposal. While he makes no mention of canals or irrigation, Strabo does describe the agrarian nature of the inhabitants of Iberia and mentioning the fertility of the region supported by its many rivers, including the Alazani.[25] A much later high medieval date for this canal has also been suggested. Losaberidze who investigated the course of the ancient system in the 1930s refers to it as Tamara's Canal, implying an association with Queen Tamara. As Table III:2 indicates, a significant number of canal systems are associated with Tamara, or the high medieval period (*i.e.* Urbnisi, Alazani, Skhaltba-Shiomgvime, Samgori, Akhalsopeli, Gremi and perhaps the Didi Ru). Attributing great building projects to Tamara (as is the case for the Dariali Fort in Khevi, often called Tamara's Fort) is frequent in folk tradition[26] and, therefore, while several of these canals may have been built (or even rebuilt) in this period, the association with Tamara should be treated with caution.

Another peak in canal construction appears to have occurred in the fourth/fifth–sixth centuries AD (or at least prior to the seventh–tenth centuries AD) according to previous studies. The Mukhrani Canal, though potentially originally built in the Hellenistic period, may have been

Table III:1: Selected ancient canal systems in Central and Eastern Georgia.

	Canal	*Proposed Dates*	*Publication*	*Water source*	*Length*	*Comments*
Mtskheta-Mtianeti	Nastagisi (Nastakisi)	1) Hellenistic 2) At least earlier than the tenth century AD (and possibly from the seventh-ninth century AD)	1) Gagoshidze 2008b, 30; K'ik'vidze 1963, 64; K'ik'vidze 1963, 78–79 2) Moktsevai Kartlisai (see Rapp 2003, 258 for translation and dating of this source)	Ksani River	No information	Aqueducts would have been required to transport the water from the Ksani River to Sarkine (K'ik'vidze 1963: 79).
	Mukhrani	1) Early Hellenistic 2) System consists of three canals. The earliest canal could be Hellenistic. The other two were built before the eighth century AD. 3) Fifth-sixth century AD	1) Gagoshidze 2008b: 30 2) K'ik'vidze 1963: 79–80 3) Bibikov 1996, 374–75 (citing *Ocherki istorii Gruzii*, vol. 2, Tbilisi 1988, 74 sq.)	Ksani River	No information	The oldest of the three canals, possibly constructed in the Hellenistic period, is called 'saglakhao' (K'ik'vidze 1963: 79–80).
	Tsilkani	1) Sixth century AD 2) Vakhust'i Bagrationi, writing in the eighteenth century, attests that there was a canal near Tsilkani built in the sixth century AD (K'ik'vidze 1963, 117)	1) Bibikov 1996, 374–75 (citing *Ocherki istorii Gruzii*, vol. 2, Tbilisi 1988, 74 sq.) 2) K'ik'vidze 1963, 111–14	Ksani River or the Tkvivliani River	Only 300–350 m of the canal was preserved when it was investigated by K'ik'vidze (1963: 111–14). Total length unknown.	Written sources provide two possibilities for the source of the canal (Ksani or Tkvivliani) according to K'ik'vidze (1963: 111–14). He suggests that it is possible the source changed through time.
	Skhaltba-Shiomgvime	Thirteenth century AD (mentioned in a letter of Anton Tschkondideli - თამარ მეფის სიგელი - which describes the building of the canal	Losaberidze 1938, 194–96	Underground stream/ Aquifer	No information	Underground canal; starts at Skhaltba (Gegeshidze 1961: 73).
	Telovani	Hellenistic/Roman[1]	K'ik'vidze 1963: 80–82	Ksani River (flows into the Narekvavi River)	10 km	Goes through Dzalisi, an important Roman-period site (K'ik'vidze 1963: 81).
	Didi Ru	Medieval. K'ik'vidze (1963, 84–85) does not specify when in the medieval period the canal was built, but suggest that it was in a period when the economy of Georgia was well developed, perhaps suggesting the high medieval period (*e.g.* ninth-thirteenth century AD)	K'ik'vidze 1963, 84–85	Ksani River	15 km (includes the canal and an aqueduct of at least 6 km height) (K'ik'vidze 1963: 84)	Irrigates villages Qanda, Skhaltba, Tserovani, Gorovani (K'ik'vidze 1963: 84).

(Continued)

Table III:1: (Continued)

	Canal	*Proposed Dates*	*Publication*	*Water source*	*Length*	*Comments*
Mtskheta-Mtianeti	Gachiani[2]	Fifth-sixth century AD	Bibikov 1996, 374–75 (citing *Ocherki istorii Gruzii*, vol. 2, Tbilisi 1988, 74 sq.)	Mtkvari?	No information	
Shida Kartli	Urbnisi (upper and lower canal)	1) Early Hellenistic 2) Earlier than the seventh century AD, and perhaps as early as the second-third century AD (based on associated archaeological finds and the argument that the settlement could not have existed without it).	1) Gagoshidze 2008b, 30 2) K'ik'vidze 1963, 65–66, 70	Liakhvi River	Upper Urbnisi Canal is c. 23–24 km long (K'ik'vidze 1963: 70)	At Urbnisi, there is an upper and lower canal, both of which debouch into the Mtkvari. As with many building works, the canal gets attributed to the period of 'King Tamar', *i.e.* Queen Tamara.[3] However, most evidence suggests it is earlier.
	Tiriponi	1) Early Hellenistic 2) Antiquity?	1) Gagoshidze 2008b, 30 2) K'ik'vidze 1963, 76–77	Unknown, possibly the Mtkvari River?	No information	
	Igoeti	No date	K'ik'vidze 1963, 75	Lekhura River	No information	At least 7 canals in this area, likely ancient (K'ik'vidze 1963: 75).
Kvemo Kartli	Rustavi	1) First century BC – first century AD, rebuilt in the fourth century AD (the town of Rustavi is mentioned repeatedly in the Kartli Tskhorveba and the Moktsevai Kartlisai) 2) End of fourth century AD	1) K'ik'vidze 1963, 89–90 2) Bibikov 1996, 374–75 (citing *Ocherki istorii Gruzii*, vol. 2, Tbilisi 1988, 74 sq.)	Mtkvari	16 km (entire length of system including c. 18 secondary canals = 136 km) (K'ik'vidze 1963: 89–90)	Rustavi means head of the canal (K'ik'vidze 1963: 83).
	Nakhiduri	Fifth-sixth century AD	Bibikov 1996, 374–75 (citing *Ocherki istorii Gruzii*, vol. 2, Tbilisi 1988, 74 sq.)	No information	No information	No information.
	Samgori	Twelfth century	Losaberidze 1938, 221	Iori River	20 km?	Losaberidze (1938: 222) speculates that if the new Samgori Canal (constructed in the nineteenth century) was built on the same course as the old. If so, the length could have been c. 20 km. However, the old canal is not preserved.

(Continued)

Table III:1: Selected ancient canal systems in Central and Eastern Georgia.

	Canal	*Proposed Dates*	*Publication*	*Water source*	*Length*	*Comments*
Kakheti	Alazani	1) First-third centuries AD 2) Reign of 'King Tamar', *i.e.* Queen Tamara (1178/1184–1213)	1) K'ik'vidze 1963, 100; Gagoshidze 2008b, 30 2) Oral folk tradition (Gagoshidze 2008b, 30)	Alazani	119 km (Losaberidze 1938)	May have involved aqueducts to cross ravines (Gagoshidze 2008b: 30).
	Akhalsopeli	High medieval	K'ik'vidze 1963, 130	Head in Aveni Valley	3–4 km (K'ik'vidze 1963: 130)	System may have included tunnels (K'ik'vidze 1963: 130)
	Gremi	1) Eleventh-twelfth century 2) Fifteenth-sixteenth century	1) Gegeshidze 1961, 66–67; A. Mamulashvili cited in K'ik'vidze 1963 2) K'ik'vidze 1963, 130. He argues that the canal likely dates to the period in which Gremi was capital of Kingdom of Kakheti (fifteenth-sixteenth century AD)	Lopota River (Gegeshidze 1961: 66–67)	15 km (Gegeshidze 1961: 66–67)	An aqueduct may have been required to traverse the Tornisi Valley (Gegeshidze 1961: 66–67).

[1] In the table 'Roman' corresponds to the period concurrent with the Roman period elsewhere; Iberia was not a Roman province.
[2] Bibikov transliterates the name as Gaghian, but he is most likely referring to Gachiani.
[3] Tamar or Tamara, though female, is referred to in Georgia as a king, not a queen. K'ik'vidze (1963, 66–68) indicates that the twelfth century date for this canal comes from an eighteenth-century document called "დასტურლამალი" (Dast'urlamali).

expanded in this period; K'ik'vidze argues that of the three canals that make up this system, the most recent two were likely constructed prior to the eighth century AD.[27] Bibikov argues for the construction of the Mukhrani, Tsilkani, Gaghian (Gachiani), Nakhiduri and the Rustavi Canals between the fourth and sixth centuries.[28] Though several of these canals, as already discussed and detailed in Table III:1, may have been constructed earlier, it is possible that they were reconstructed in this period. K'ik'vidze for instance suggests the Rustavi Canal may have been renewed in the fourth century (if it was not actually built in this period). Industrial wine production, as evidenced by the presence of kvevri (large ceramic wine vats) in archaeological contexts dated to the fifth-sixth centuries has been cited as evidence for this increase in irrigation and agricultural production.[29]

The context for these developments is of particular interest to our research. From at least the latter half of the third century AD, Iberia (as Kartli is called in the Classical tradition) was a semi-independent kingdom within the Sasanian Empire (though part of *anērān* or non-Iran). There appears to have been, however, considerable Roman influence on the region in the early to mid-fourth century.[30] The rise of the Chosroid dynasty under Mirian III and the adoption of Christianity by the Iberian kings in the fourth century signalled the beginning of a period of prosperity and resistance to Sasanian power (often through seeking allegiance with the Roman Empire) which culminated in the rule of Vakhtang I Gorgasali (AD 447–522).[31] After his death in the first quarter of the sixth century, Iberia became a province of the Sasanian Empire.[32] Political upheaval appears to have marked the later sixth and early to mid-seventh centuries; attempts were made by the Iberians to re-establish political autonomy in Eastern Georgia, the Sasanian and Late Roman Empires warred across Transcaucasia, and the region was eventually taken by Muslim armies by the mid-seventh century.[33]

Table III:2: Summary of dating of canals.[1]

Canal	*Hellenistic*	*First century BC-first century AD (and 'Roman')*	*First-third century AD*	*Fourth-sixth century AD*	*Pre-seventh-eighth century AD*	*Pre-tenth century AD*	*High medieval*	*Late medieval*
Mukhrani	■				■		■	
Tiriponi		■		■				
Urbnisi				■				
Rustavi				■				
Nakhiduri	■					■		
Tsilkani				■				
Nastagisi			■				■	
Gachiani							■	
Alazani	■	■						
Skhaltba-Shiomgvime							■	
Telovani							■	
Samgori							■	■
Akhalsopeli							■	
Gremi							■	
Didi Ru							■	

[1] For sources, see Table III:1.

Significant investment in canal building has been documented in Azerbaijan and Iran during the Sasanian period,[34] and the same phenomenon has long been recognised in Southern Mesopotamia.[35] In the case of these examples, direct reorganisation of the landscape appears to have occurred, likely by either the state itself or local governors and imperial elites. However, the relationship between the Iberian and Albanian kingdoms (the latter centred on modern Azerbaijan) and the Sasanian Empire differed considerably from that of the regions of Iran and Mesopotamia, forming the core areas of Sasanian control. As a result, very different drivers may have been behind landscape investment, including the role of local kings, community responses to increased economic opportunities afforded by new markets and changes in connectivity and security. Although it is tempting to see the construction of irrigation systems in Central Georgia as a purely local phenomenon, the terminology used to discuss the Nastagisi Canal in the Primary History[36] (written at least by the ninth/tenth, but possibly as early as the seventh century) shows clear linguistic links to Iran. Rapp has recently highlighted these connections in different readings of the passage cited above. While it can be read as referring to the fact that overseers were appointed to look after the head of the canal (*dastagit'a ruysayt'a*), it can also be read to indicate that canal overseers were appointed from the *rudastagi* (the Georgian equivalent of the Middle Persian word *rostag* meaning district, province or river-bed). However, he emphasises that in this case the word appears to have been corrupted suggesting that its original meaning had been forgotten. A third alternative suggests that the passage could also be read to indicate that Alexander 'settled [there] men to keep the *dastagird* of the brook', implying a connection to Middle Persian *dastkirt* meaning a settlement, estate or holding.[37] Some of the administrative terminology in this

account therefore shows clears links to the Persian world, perhaps indicating that similar administrative systems survived past Late Antiquity.

Despite the numerous references in textual sources to water management systems, physical remains on the ground have proved elusive. Drawing on the datasets brought together through the Persia and its Neighbours project, we have used historical satellite imagery to trace the remains of as many of the canal systems mentioned in the textual accounts detailed above as possible. We focused our efforts on the Alazani Canal in Kakheti where clear traces of an older canal system were identified alongside the modern canal on the CORONA imagery dating to the 1960s or early 1970s, allowing us to identify locations suitable for field visits and geoarchaeological investigation.

Remote sensing of ancient canal systems in Georgia: the Alazani Canal

The Alazani Plain is bordered on the north and east by the Greater Caucasus Mountains, with the Tsiv-Gombori Range running along its west side (see Fig. III:1). The Alazani River runs the entire length of the plain and forms the border with Azerbaijan to the east and south of Dedoplistskaro, eventually emptying into the Mingəçevir Reservoir on the Mtkvari/Kura River. The Alazani Plain has long been known as one of the most important wine producing regions in Georgia. The majority of the plain is represented by semi-humid lowlands, with an average rainfall of 860 mm per year. Elm, oak and vine forest thrive.[38] A modern canal, watering a large portion of the plain, takes its water from the Alazani to the east of Telavi, meeting again with the same river c. 100 km further downstream to the east of Dedoplistskaro where it borders the eastern edge of the Shiraki Plain. However, there is evidence for an earlier canal following a similar course.

The old Alazani Canal was investigated by Losaberidze in the 1930s and has been subsequently discussed by K'ik'vidze and Gagoshidze.[39] The length of the canal, according to Losaberidze, was c. 119 km. It took its water from the Alazani near the village of Alvani, eventually debouching back into the Alazani ESE of Dedoplistskaro. The old canal is c. 20–30 km longer than its modern counterpart.

A systematic study of the CORONA imagery obtained for the Alazani Plain revealed a number of possible canal segments located in proximity to the modern canal (Fig. III:2). On CORONA imagery the remains of ancient canals often appear as dark linear features with lighter margins.[40] The dark middle feature represents the channel, which often retains moisture even in the present day, while the lighter margins represent the upcast from canal construction and subsequent maintenance. The locations of the possible canal sections were also compared to the map and textual descriptions of the old Alazani Canal by Losaberidze[41] as well as to modern high resolution imagery available via the Google Earth platform. In other parts of the Near East, CORONA imagery has proven extremely useful for detecting landscape features that were destroyed by subsequent agricultural and building programmes.[42] In this case, however, modern irrigation schemes appear to predate the images. It is clear that considerable portions of the canal that were visible in the 1930s (as described by Losaberidze), had been attenuated or completely destroyed by the late 1960s. Even fewer segments of the canal were visible on the recent high resolution imagery available through Google Earth, demonstrating the continued impact of agricultural programmes on earlier landscape features.

Combining the evidence available, we classified the possible canal segments to aid interpretation. Those that clearly exhibited the characteristics of canal features, as identified on CORONA imagery from other parts of the Near East and correlated with Losaberidze's descriptions, were classed as 'certain', while the rest were classed as 'uncertain'. Table III:3 provides information on those sections with the clearest visible traces and their locations are given in Fig. III:2 and illustrated in Figs III:3–6. These areas were targeted for field survey.

Two short field visits were made to the Alazani Plain in April and July of 2014 with the purpose of assessing whether any of the segments of the canal identified on the CORONA imagery were still extant and to assess the feasibility of obtaining samples for OSL dating.[43] In April 2014, we visited two locations (A and B) (Figs III:3–4). Unfortunately, identifying and accessing canal traces on the ground proved difficult. The Alazani Plain is a 'landscape of destruction' meaning more recent intensive land use has resulted in earlier features being less likely to survive.[44] The whole area was under cultivation and modern irrigation ditches and field boundaries prevented access to certain areas. Where the location of the canal traces could be accessed there was little evidence for them. A further attempt was made in July to locate sections B and C (see Figs III:4–5). No trace of B could be located but, at C we were able to identify a slight linear depression bordered on one side by a slight rise in the ground (Fig. III:7). This may represent the remains of the canal and one of its upcast banks.

That a considerable amount of change occurred over the course of the twentieth century is clearly demonstrable by observing the palimpsest of activity that is visible on the CORONA imagery. Recently, the concept of Historical Landscape Characterisation (HLC), more commonly used in the UK, has been applied to case studies in the Eastern

Table III:3: Location and description of traces of the Alazani Canal identified on CORONA imagery.

Location (see Fig. III:2)	*Start point (UTM 38N)*	*End point (UTM 38N)*	*Description*	*Comments*
A (Fig. III:3)	564557, 4633253	567689, 4628387	Section of old canal approximately 6 km in length. At c. 1.3 km from the start of the section, there are traces of what may be two parallel canals. These are visible for a further c. 2.3 km before the two segments appear to merge. This could represent different phases of the canal.	This section closely matches both the map and textual description of the old Alazani Canal given by Losaberidze 1938. Very difficult to see any traces of this feature on the imagery available on Google Earth from 2011. Some small segments may be represented by heavier vegetation growth.
B (Fig. III:4)	569306, 4622761	574317, 4616394	Four aligned segments of the old Alazani canal totalling c. 8 km. Near 571567, 4618912 the old canal is cut and crossed over by the new canal.	This section closely matches both the map and textual description of the old Alazani Canal given by Losaberidze 1938. The interface of the old and new canals is just as described in his text. The course is visible along much of the length as differential vegetation growth and/or field boundaries.
C (Fig. III:5)	1) 583526, 4605798 2) 587632, 4603068	1) 585861, 4605229 2) 589140 4602473	Two segments running roughly parallel to, and on the west side of, the modern Alazani Canal. The northernmost segment is c. 2.5 km (though a less clear, but convincing extension of this segment continues 1 km further north), while the southernmost is c. 1.7 km in length.	These segments appear to match the trajectory and location of the old Alazani Canal as described and illustrated by Losaberidze 1938. The first segment is just visible as a wide darker (than the surrounding vegetation) line on the imagery available on Google Earth from 2012.
D (Fig. III:6)	590607, 4600959	591670, 4600596	A c. 1.2 km segment of the old Alazani Canal is visible running roughly parallel to, and on the west side of the new canal. There is a less clear, but possible c. 300 m continuation of this segment to the east.	This segment appears to match the trajectory and location of the old Alazani Canal as described and illustrated by Losaberidze 1938.

Mediterranean and, even more relevantly, in the Southern Caucasus to help identify pre-Soviet period landscapes.[45] HLC is a technique which seeks to record not just sites and features, but the entire landscape with reference to the historical developments that have shaped it. HLC seeks to identify coherent patterns in the landscape that represent different temporal phases of activity that can be recognised by their distinct landscape signatures. For example, a period characterised by Soviet-style collective farms would leave a very different signature from one dominated by independent peasant landowners living in small hamlets.[46]

Applying these principles to a limited segment of the Alazani Plain near the village of Velistsikhe can help us to understand how twentieth century, and in particular Soviet period, landscape change has altered the plain, and our reading of the archaeological record. Velistsikhe sits on the left bank of the Chermiskhevi River below where the river emerges from the foothills of the Tsiv-Gombori Range. A system of small fields of variable sizes covers most of the alluvial fan of the river system, extending from Velistsikhe toward the Alazani (Fig. III:8). While many fields are rectilinear, and on a rough grid, there is enough irregularity to suggest the organic growth of the

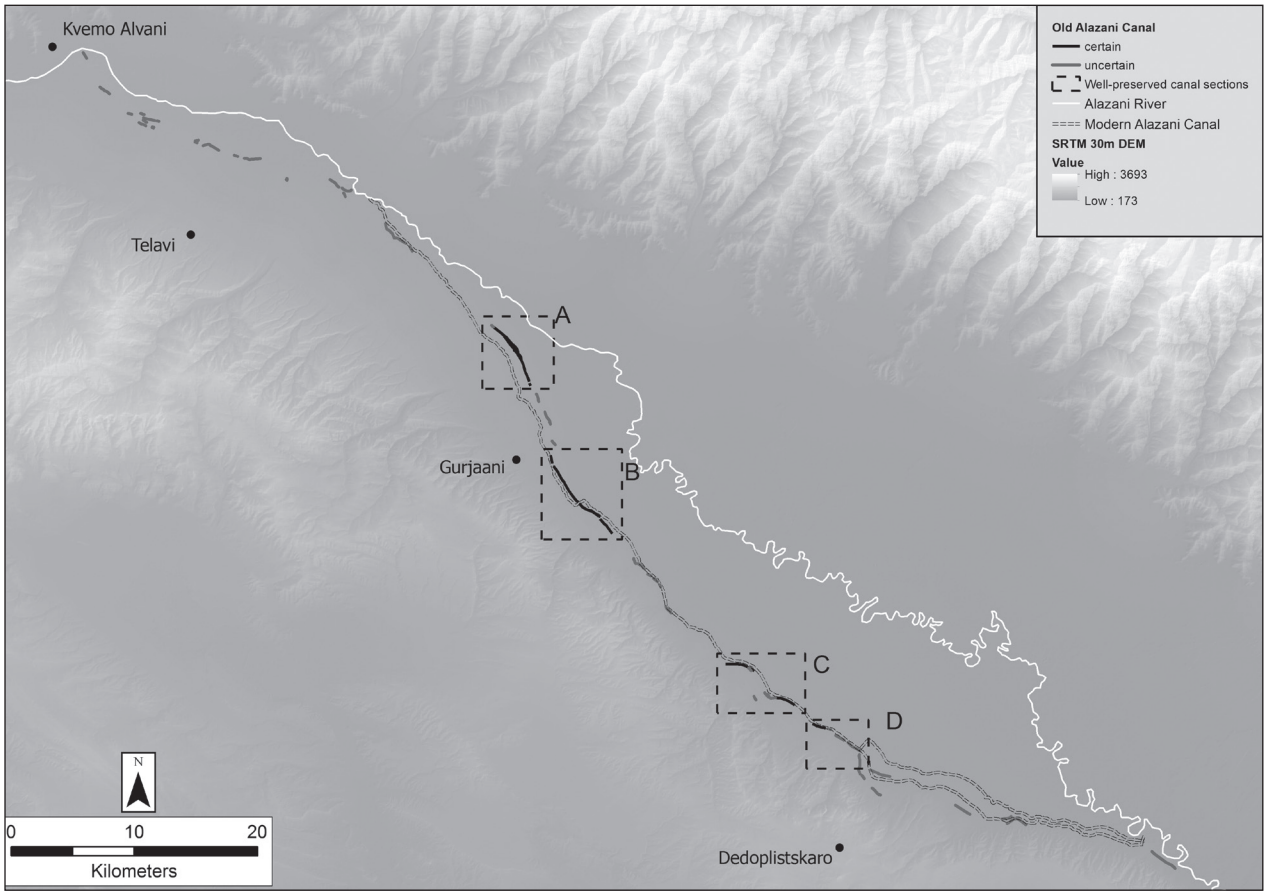


Fig. III:2: Locations of sections of the old Alazani Canal identified on the CORONA imagery. Imagery: SRTM 30m DEM (data available from the U.S. Geological Survey).

system, perhaps over several generations. In contrast, immediately north of the alluvial fan, there is a system of regular, large fields which cut into the early field patterning on the edges of the alluvial fan. That these northerly fields are more recent in date is further attested by their relationship with the remains of the Old Alazani Canal. The canal (located at A on Fig. III:2) is only preserved within the area of the smaller field systems on the alluvial fan, while it has been almost entirely erased within the area of the larger regular fields to the north likely due to the deep ploughing associated with Soviet agricultural projects. Losaberidze's description of the old Alazani Canal's course in this vicinity suggests that alterations to the field systems described above may have occurred between the 1930s and the early 1970s when the CORONA imagery was acquired. He indicates that the canal is well-preserved in the area that is covered by the larger rectilinear field systems on the CORONA imagery. Even more recent alterations to these field systems are clear on the modern imagery for the same area available on Google Earth. The large field systems appear to have been further subdivided, perhaps reflecting a shift away from fields associated with collective farms of the Soviet period to fields again in private ownership.

Summary

In the Alazani Plain, we can clearly identify parts of an ancient canal system on the historical and modern satellite imagery. This study illustrates the potential for using such data sources in conjunction with historical maps and textual accounts especially in landscapes where significant alterations have occurred over the course of the twentieth century. Further investigations of this, and other canal systems, should be attempted using approaches, such as HLC that help us to understand how the landscape was shaped by continual use and reuse.

However, dating these systems remains a problem. Often, the construction of one canal can be attributed to multiple periods. Textual, archaeological and anecdotal evidence (if undoubtedly often unreliable) currently suggest that the main periods in which canals were constructed (or reconstructed?) may have been the Hellenistic (possibly through to the Roman) period, the fourth-sixth

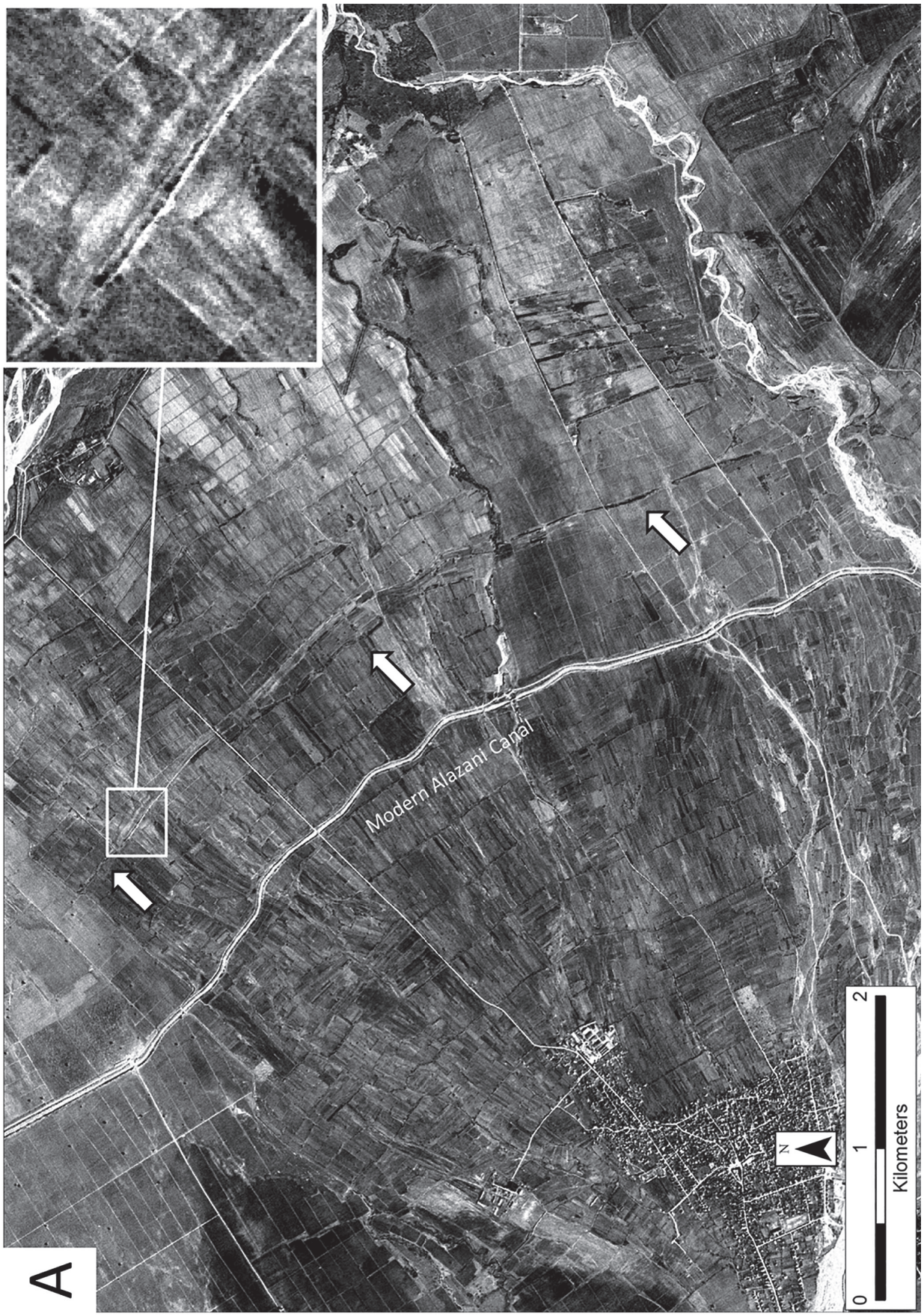


Fig. III:3: Visible segments of the old Alazani Canal. Imagery: CORONA Mission 1046-1056DF020 acquired 18 March 1968 (data available from the U.S. Geological Survey).

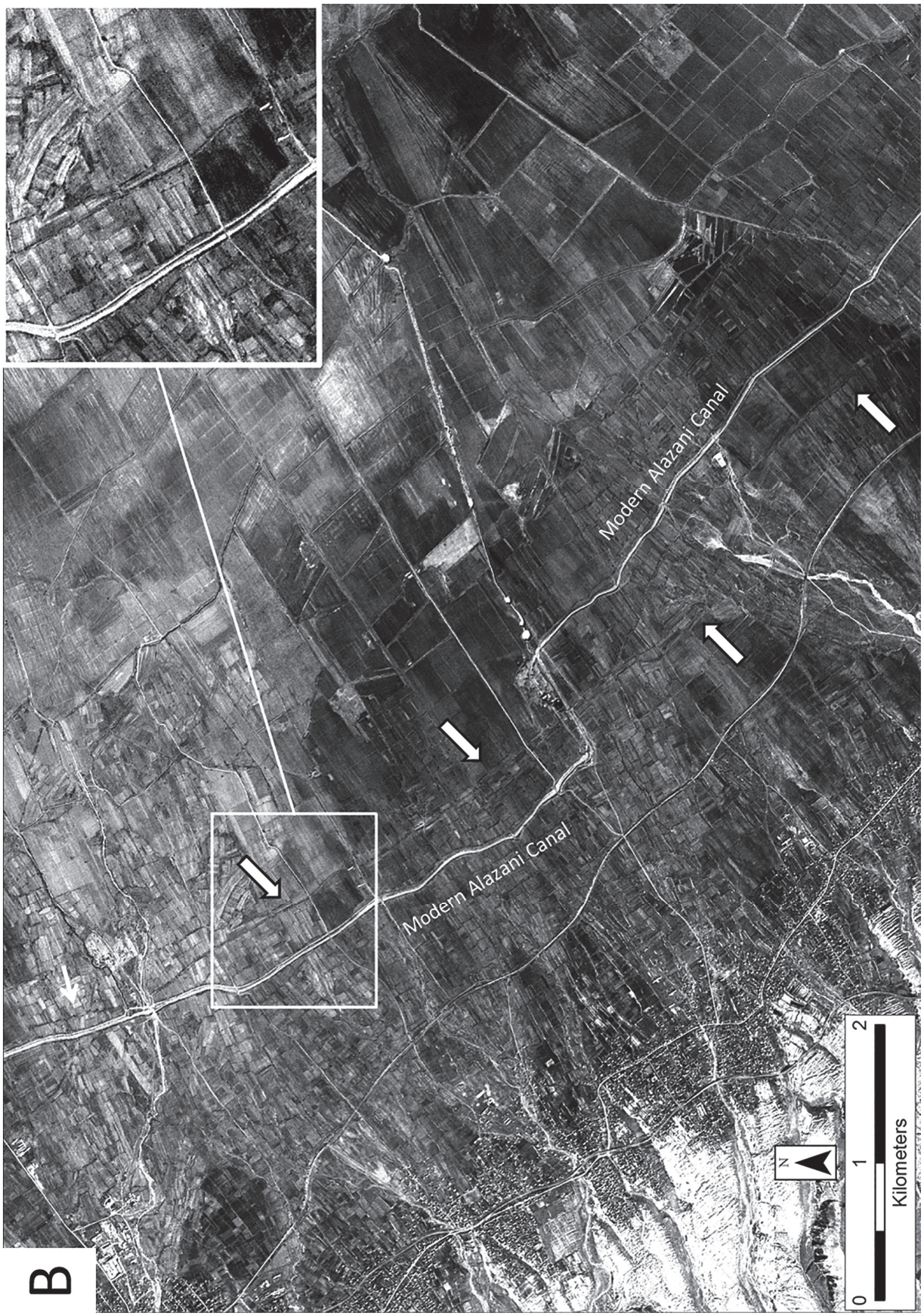


Fig. III:4: Visible segments of the old Alazani Canal. Imagery: CORONA Mission 1046-1056DF021 acquired 18 March 1968 (data available from the U.S. Geological Survey).

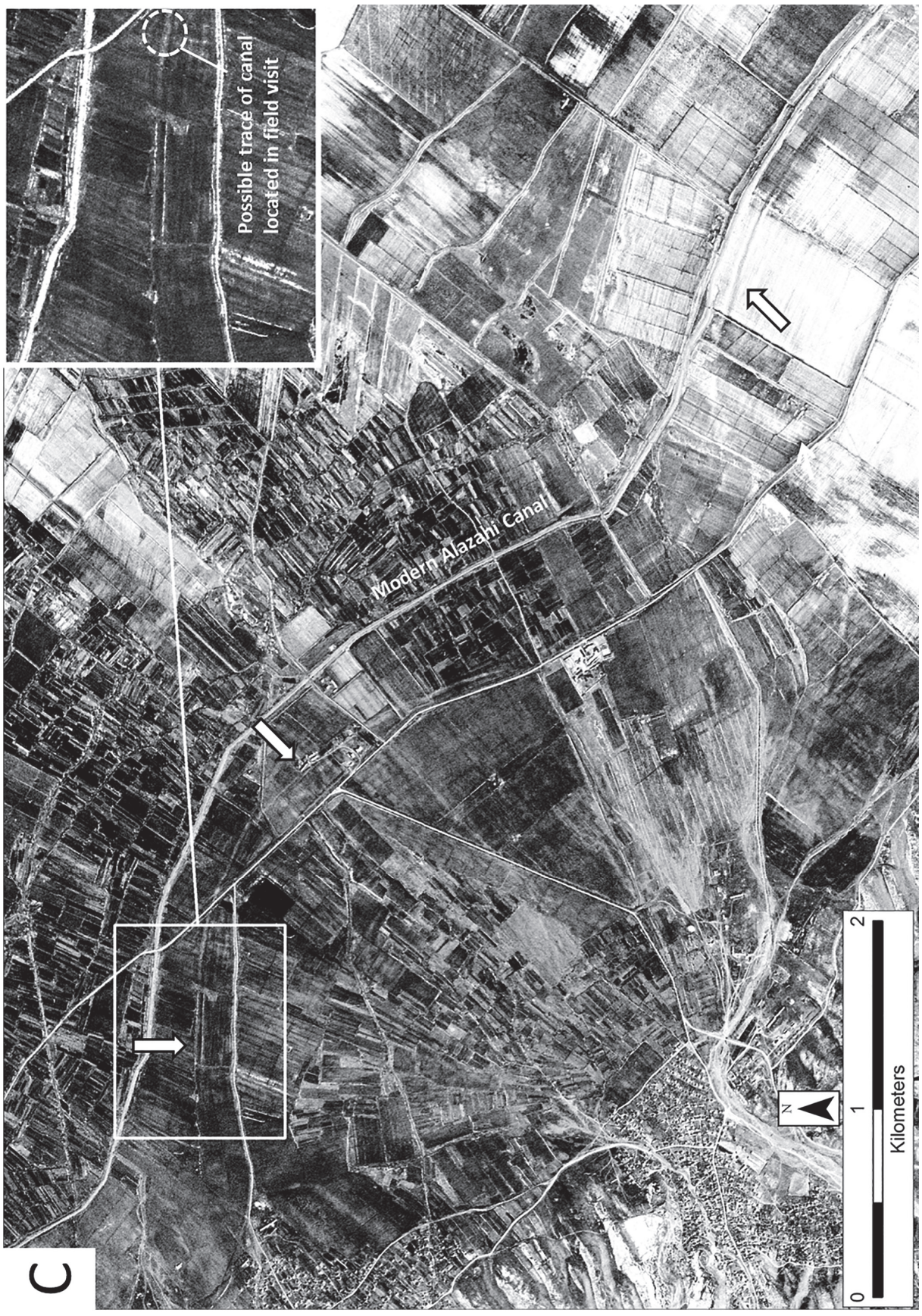


Fig. III:5: Visible segments of the old Alazani Canal. The location of the probably extant segment located during the 2014 field visit is indicated in the inset. Imagery: CORONA Mission 1046-1056DF022 acquired 18 March 1968 (data available from the U.S. Geological Survey).

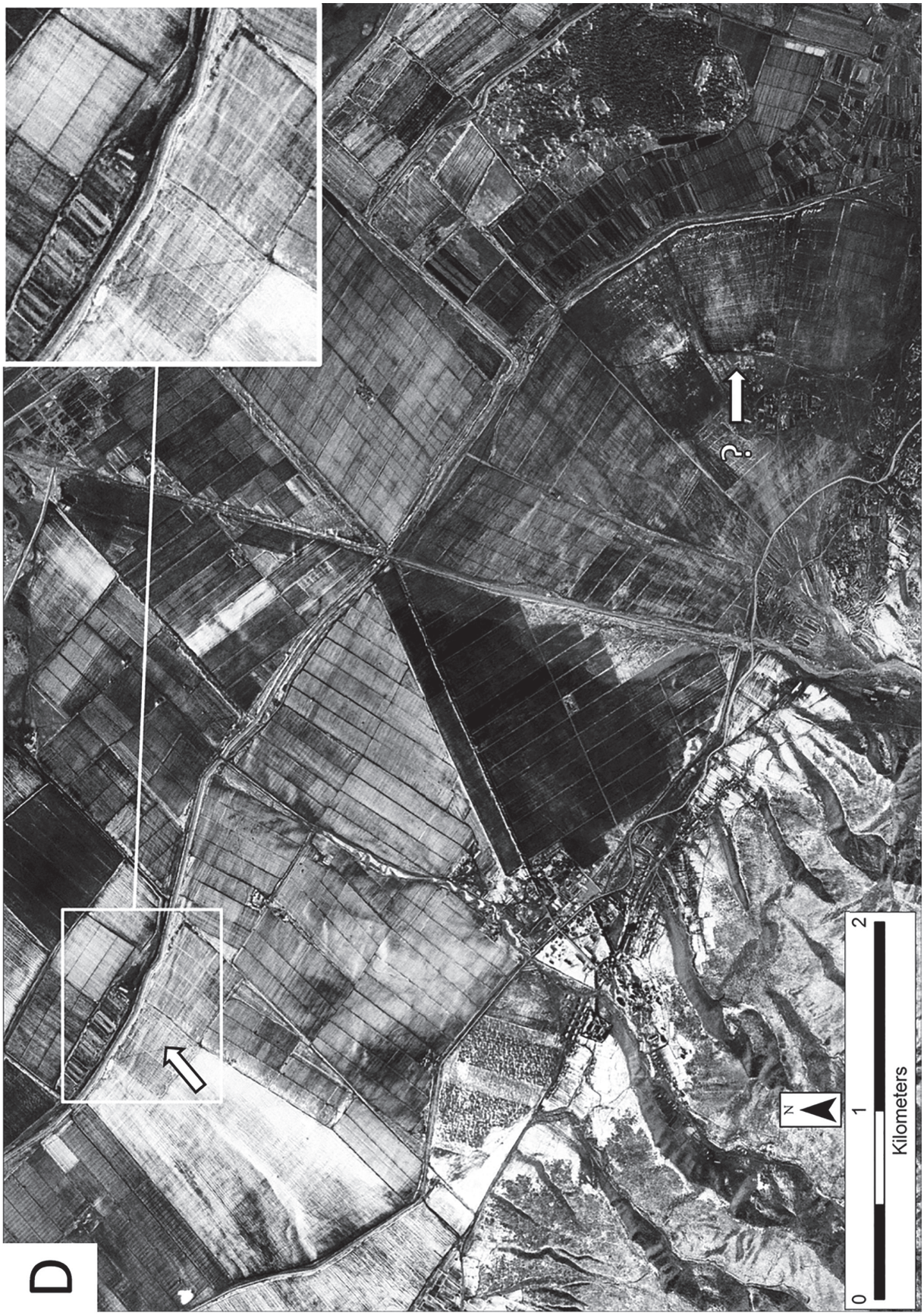


Fig. III:6: Visible segments of the old Alazani Canal. Imagery: CORONA Mission 1046-1056DF022 acquired 18 March 1968 (data available from the U.S. Geological Survey).

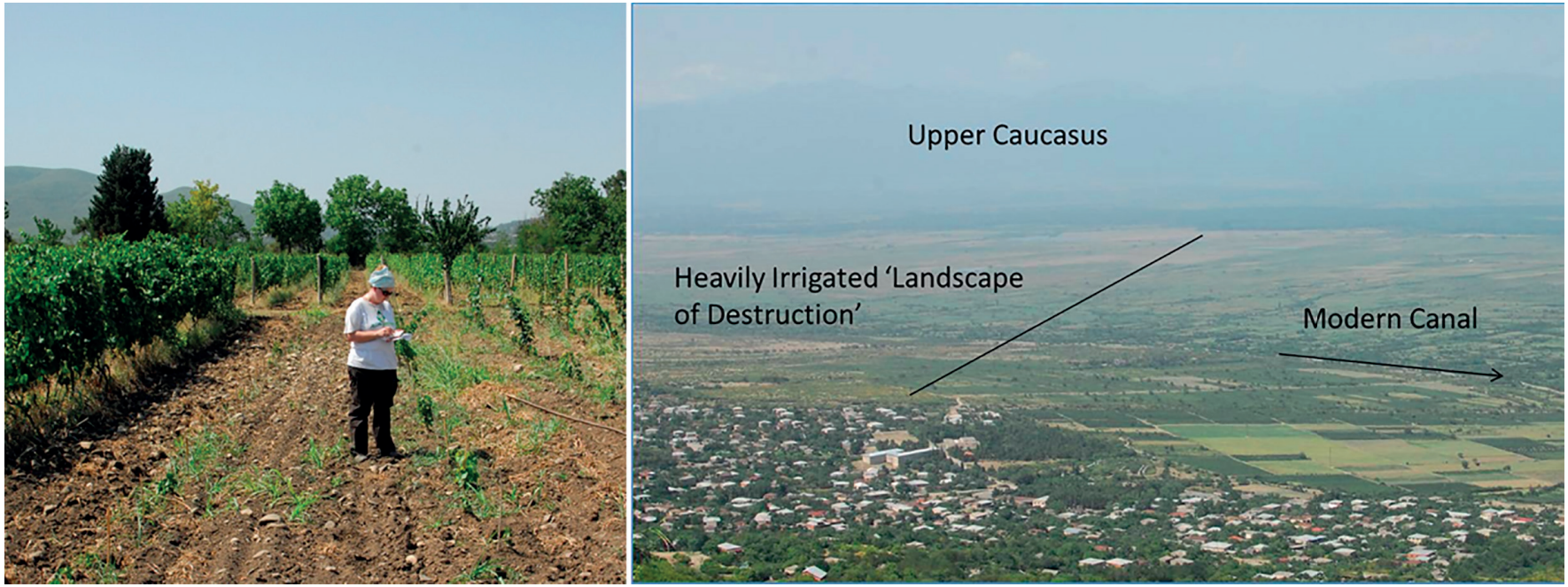


Fig. III:7: Left - Location of the possible canal in the field (see Fig. III:5 for location). Right: the Alazani Plain as a landscape of destruction. Photos by Dan Lawrence.

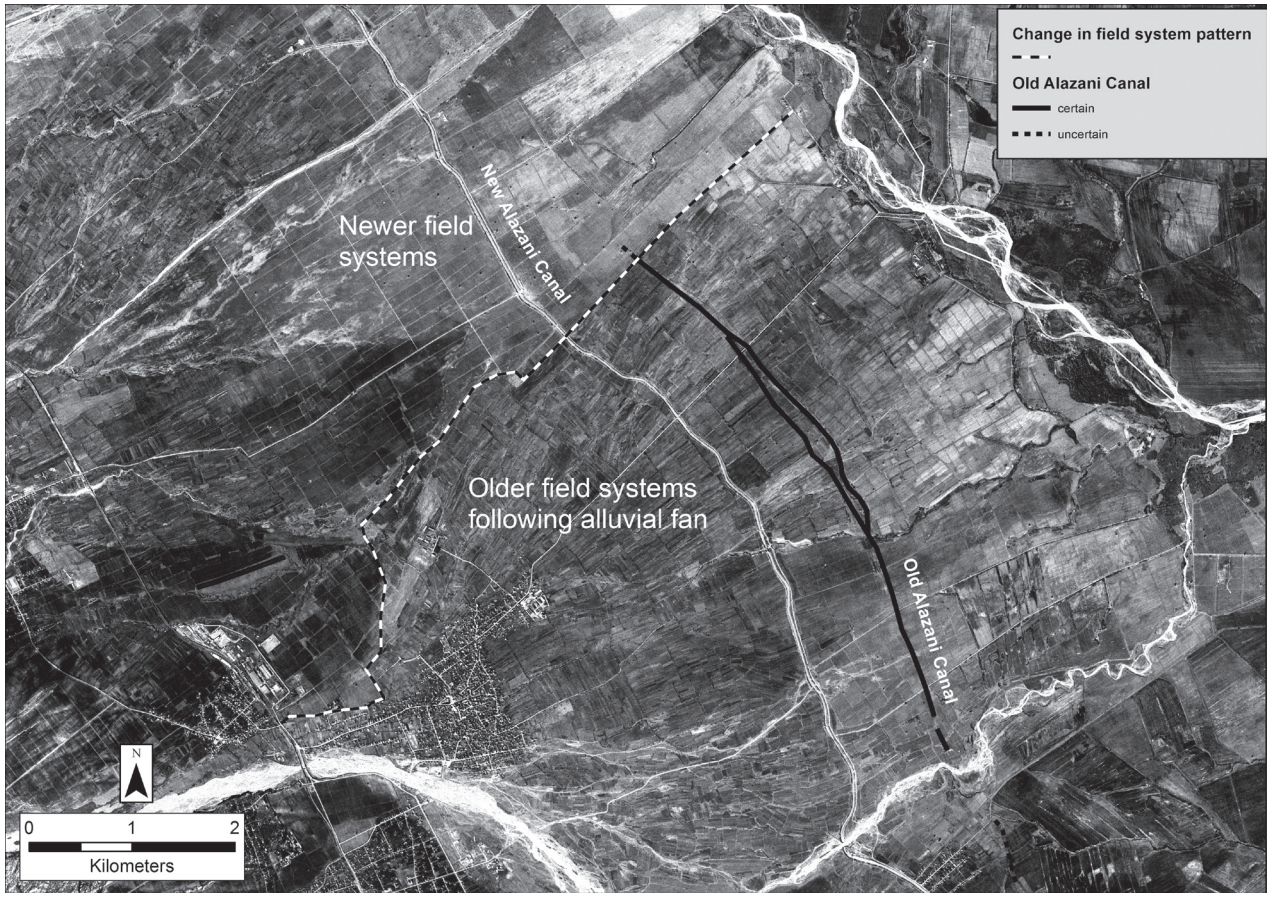


Fig. III:8: Field systems and their relationship with the old Alazani Canal. Imagery: CORONA Mission 1046-1056DF020 acquired 18 March 1968 (data available from the U.S. Geological Survey).

century (or at least prior to the seventh-ninth century) and perhaps the reign of Tamara in the high medieval period.

These phases of canal building seem to coincide with periods in which we have evidence for strong government (either local or imperial). It is interesting to note that as in the case of the Alazani Canal and Dariali Fort, these constructions often also are attributed to (perhaps erroneously) powerful individuals such as Queen Tamara.

In other regions of the Sasanian dominion there is some evidence for local elites engaging in the building of irrigation infrastructure, along with the clear state-directed (*i.e.* imperial) canal building projects such as in the Mughan Steppe or the Gorgan Plain.[47] Understanding why this occurred, where and when it did, is of major importance for elucidating the nature of the Sasanian state, whether it was a loose confederation or a centralised empire, which is currently a matter of academic debate.[48]

To understand if, and how, the examples discussed here in Central and Eastern Georgia fit into the broader picture of late antique landscape investment, we need to follow several strands of inquiry. We need to obtain dates for these canal systems, preferably through radiometric means. Because of the limited scope of the reconnaissance conducted in the Alazani Plain, we were unable to undertake any test excavations to obtain samples; furthermore, the preservation of the canal in the sections we investigated was poor or destroyed. Further survey and investigations involving coring could prove fruitful. A better understanding of the relationship between local elites (for example, the Iberian Kingdom) and the Sasanian imperial core over a geographically wider area will also help; if we aim to widen our spatial investigations to include not just the Alazani Canal, but other irrigation systems throughout the Southern Caucasus, we may gain a better idea of how much, or how little, these projects were driven by imperial power. If imperial-driven investment was taking place on a wide scale, something that the evidence from the Gorgan Plain, Azerbaijan and Mesopotamia seems to suggest, then canal building programmes may suggest that there was close cooperation between local elites and the imperial administration.

Finally, it is worth noting that even in this area, where annual rainfall is considerable (though variable from

region to region), irrigation systems are a major landscape feature. In Mesopotamia, the introduction of irrigation systems to dry farming areas by the Assyrian, Sasanian and Islamic empires has been seen as an attempt to provide stable crop yields for taxation,[49] and this could also be important in the Southern Caucasus. Market forces may also have played a role as the connectivity made possible by integration with larger empires incentivised intensive crop production, perhaps for emerging urban centres.

Lowlands in local and imperial context

This research is a preliminary attempt to understand land use patterns from the late first millennium BC through the Middle Ages in a vastly different environment, and at a much different scale, to our more detailed survey work in Dariali. The results, while representing a work in progress, suggest both similarities and, perhaps more importantly, significant differences in the development of upland and lowland landscapes in relation to imperial infrastructure projects.

The lowlands of Central and Eastern Georgia were agriculturally very productive. Periodic, and in some areas sustained, investment in increasing this productivity through the construction and maintenance of large-scale canal systems occurred between the Hellenistic and medieval periods. The current dating proposals suggest a link between periods of strong local or imperial elites and canal building, a trend not entirely surprising. While further dating is required to confirm these associations, and more detailed studies are needed to understand the wider patterns of settlement that accompanied these investments, they seem to demonstrate that there are closer links between landscape changes and wider political developments in lowland regions.

Notes

1 Lawrence and Wilkinson 2017; Payne 2017; Wilkinson *et al*. 2013.
2 Lawrence and Wilkinson 2017; Hopper 2017b.
3 Bibikov 1995, 374–75; Gegeshidze 1961, 132–46; Gagoshidze 2008b, 30; K'ik'vidze 1963, 11–12; Nakhutsrishvili 2013.
4 Chelidze 2006, 73 (English summary); Kohl 1988, 592.
5 Gogichaishvili 1990; Connor and Sagona 2007.
6 Gogichaisvili 1990, 268; Connor and Kvavadze 2008.
7 Tsetskhaldze 2006–2007, 80–81.
8 Gagoshidze 2008b, 30; Gegeshidze 1961, K'ik'vidze 1963; Losaberidze 1938.
9 Gegeshidze 1961; K'ik'vidze 1963; Losaberidze 1938.
10 For example, the Alazani Canal, which will be discussed in detail later in this chapter, was 119 km long and was said to irrigate the entire Alazani Plain, an area according to Gagoshidze (2008b, 30) of 53,000 ha.
11 See Wilkinson 2003, 128–50 for a discussion of this phenomenon; for a selection of examples see Alizadeh and Ur 2007; Altaweel 2008; Braemer *et al*. 2010; Casana 2014; Rousset and Duvet 2001; Wilkinson *et al*. 2005; Wilkinson *et al*. 2013.
12 Alizadeh 2014; Lawrence and Wilkinson 2017; Payne 2017.
13 Alizadeh 2014; Hunt 1988; Kaptijn 2010; Mabry 1996; McPhillips 2016; Stride 2009; Wilkinson *et al*. 2012.
14 The Kingdom of Kartli covered most of what is now Central and Eastern Georgia. The area was also referred to in western Classical sources as Iberia (*e.g.* Strabo 11.3).
15 The entire corpus is named after its main element, *The Conversion of Kartli*, but contains several other historiographical and ecclesiastical texts, one of which is *The Primary History*. See Rapp 2014, 17.
16 Rapp 2003, 245–46.
17 Rapp 2014, 177: translation of *Primary History of Kartli*, 6.
18 The extent of Achaemenid influence (or political authority) in Central and Eastern Georgia based on the material evidence is still debated (see Knauss 2005; Lordkipanidse 2001; Tsetskhladze 2006–2007). In Eastern Georgia, for instance, the main evidence for Achaemenid presence (or at least strong administrative ties) in the region comes from the excavations of an Achaemenid style palace at Gumbati in Kakheti (Furtwängler 1995; Furtwängler and Knauss 1996; 1997.). However, the dating of this complex by the excavators to the fifth-fourth century BC has been contested, with suggestions of both earlier and later dating (Tsetskhladze 2006–2007, 85; Lordkipanidse 2001, 9). Indeed, the relationship between the Achaemenid Empire and its provinces in other parts of the Southern Caucasus is complex and defining the relationship between the imperial core and satrapies or client kingdoms solely through material culture is fraught with difficulty (Khatchadourian 2014; 2016).
19 Rapp 2014, 176.
20 Gagoshidze 2008b, 30.
21 K'ik'vidze 1963, 89–90.
22 K'ik'vidze 1963, 81.
23 Gagoshidze 2008b, 27, 42–43.
24 K'ik'vidze 1963, 100.
25 Strabo 11.3.1–6.
26 Gagoshidze 2008b, 30. On 'Tamara's Fort', see also chapter 25.7.
27 K'ik'vidze 1963, 79–80.
28 Bibikov 1996, 374–75 (citing Ocherki istorii Gruzii, vol. 2, Tbilisi 1988, 74 sq.).
29 Bibikov 1995, 375.
30 Lang 1983; Lukonin 1983, 729–31; Gignoux 1987/2011.
31 Lang 1966, 95; Lang 1983. See also chapters 25.2–25.3.2.
32 Lang 1983, 521. See also chapter 25.3.2.
33 Lang 1983, 505–36; Minorsky and Bosworth 1986. See also chapters 25.3.2 and 25.4.
34 Alizadeh 2011, 2014; Alizadeh and Ur 2007; Lawrence and Wilkinson 2017; Wilkinson *et al*. 2013.
35 Adams 1981.

36 The *Primary History of Kartli* which is part of a corpus called *Mok'ts'evay K'art'lisay* (*the Conversion of Kartli*). See Rapp 2014, 170–75.
37 Rapp 2014, 177–78.
38 Connor and Kvavadze 2008, fig. 2.
39 Gagoshidze 2008b, 30; Gegeshidze 1961; K'ik'vidze 1963; Losaberidze 1938.
40 Altaweel 2005, 158; Wilkinson 2003, 45–52; Wilkinson *et al*. 2013; Ur 2003.
41 Losaberidze, 1938.
42 See Hopper and Omrani Rekavandi forthcoming 2020; Hopper 2017b; Wilkinson *et al*. 2013 for examples from Iran.
43 The field team consisted of Konstantin Pitskhelauri, Eberhard Sauer, Kristen Hopper and Lisa Snape in April, and Konstantin Pitskhelauri, Dan Lawrence and Kristen Hopper in July.
44 See Wilkinson 2003, 41 for more detailed discussion of these concepts and further references.
45 See Turner 2006 for an outline of the methodology, Crow and Turner 2009, Turner and Crow 2010 and Wordsworth 2018 for applications of the method in Turkey, Greece and Azerbaijan.
46 Turner 2006, 387.
47 Alizadeh 2014; Hartnell 2014; Payne 2014, 87–88; Sauer *et al*. 2013; Wilkinson *et al*. 2013.
48 See Payne 2014 and Sauer *et al.* 2013, 616–19 for further information and sources.
49 Wilkinson and Rayne 2010.

Conclusion

Dariali Gorge arguably attracted the attention of more writers, from the Mediterranean world to the Near East and throughout the first millennium, than any other mountain valley on the globe. The aim of our project was to add a material dimension to complement the rich and varied, if often semi-fictional, textual sources. What measures were taken, and when, to control Transcaucasian traffic, and how does this tally with historical records? Did the gorge form a bridge or barrier between the Eurasian steppes in the north and Transcaucasia and the Near East in the south and how did this change over time? Was it direct imperial investment that secured the Caucasus passes – or reliance on regional allies? How does the landscape setting of the key sites aid our understanding as to how effectively traffic could have been controlled here? How was an outpost garrison provisioned with the necessities of life in this remote and challenging environment? What role did natural defences play in the strategic vision of empires? Finally, how does the natural setting help to explain how it became a place of legend: the abode of the Amazons, the place of punishment of Prometheus and the Gates of Alexander that separated the civilised world from the forces of death and destruction that would eventually bring about the end of the world?

Fieldwork at Dariali Fort has yielded an abundance of primary data that have shed significant new light on these questions, on the chronology and occupation of key monuments in Late Antiquity and the Middle Ages, and on how the supply networks changed over time. In the course of our project, we have also scrutinised a significant number of passages in ancient and medieval sources referring to the Dariali Gorge, as well as early travel accounts and modern secondary literature. Knowing the precise location of key barriers, and how their natural setting impressed and terrified early travellers prior to modern erasure or road-blocking rock formations, helps us to appreciate why the gorge became a place of legend.

No doubt, some readers would have preferred a much shorter report, summarising our most important discoveries and conclusions, to a lengthy two-volume monograph. Yet the pitfalls involved in highly selective publication are obvious. Readers interested in a particular type of monument, object or period of history would be unable to find the level of detail they require. Those sceptical of any hypotheses or dating proposals would have no access to the primary data these models are based upon and would not be able to test and confirm their validity or to correct or refine them. It would be like finding the lost books of Tacitus, but publishing no more than a brief interpretative summary in English and keeping the original text out of the public domain. Whilst all publication of archaeological fieldwork will involve an element of selection, we felt there was no responsible alternative to a detailed report. Yet, we also appreciate that time is a commodity in short supply. This conclusion therefore summarises our key findings, largely chapter by chapter, enabling the reader to see at a glance what each element of our investigations has revealed about the history of the gorge and to delve deeper selectively.

Excavations and survey

On Dariali Fort, we excavated two large trenches (F and Q), both of which provided significant insights into fort defences, housing and the history of occupation. Trench F extended to the fort's outer wall. A ring of rooms on the inside ran through both trenches, as did a line of pillars that probably supported a roofed walkway. Stratigraphy in Trench F was significantly deeper than in other areas of the fort, and it was here that we found undisturbed layers from the time of the late antique fort's construction and earliest occupation. A series of radiocarbon dates enabled us to date the outer walls to probably the late fourth century. Rooms lining the fort walls, the pillared walkway and substantial buildings in the interior of the fort were added subsequently, all employing similar mortar masonry. Construction works were completed perhaps already within the first decades of the fifth century, but certainly no later than the early sixth century.

Prior to fort construction, soil was systematically removed from the hilltop. This operation made it possible to build all the late antique mortar structures, with the sole

exception of the later and less load-bearing pillars, on bare rock, to give them greater stability. It also erased all traces of potential earlier occupation. Whilst unfortunate for the archaeologist, interested in Dariali's earlier history, the thoroughness of the workforce in clearing away the vestiges of the past left a lasting legacy for the future. The late antique buildings proved so durable that no more new stone structures were needed for the next 250–400 years. The resumption of stone building in the last quarter of the first millennium only confirms that Dariali's late fourth and fifth-century housing still formed the hub of life until the late tenth or early eleventh century. Most new stone structures were annexes to the old solid mortar buildings, invariably employing basic drystone architecture that cannot have risen to more than one storey. Why were they required? Intensive intramural rubbish disposal over the last three centuries of the first millennium prove that there was dense occupation. Growing heaps of rubbish outdoors necessitated raising floor horizons indoors repeatedly, making the basements of low-lying buildings, filled up close to ceiling levels, eventually uninhabitable. The new basic annexes may simply have made up for loss of living space. We do not know if Dariali Fort's population in the Early Middle Ages was on average higher or lower than it had been in Late Antiquity, but it is clear that the fort was heavily occupied in both phases, although by communities differing substantially in habits and traditions. From fort construction to the late seventh or early eighth century tidiness prevailed, and little material accumulated in the intramural space. It probably was a new garrison, arriving perhaps in the early eighth century around the time a fire destroyed part of the old covered walkway, that dumped vast amounts of rubbish within the fort over the next 300 years.

There is no evidence for occupation from around the turn of the millennium for some 250–350 years. Evidence for revival during the late thirteenth or fourteenth century comes from a hill-top building in Trench F, then perhaps 850–900 years old, which was re-floored, reoccupied and extended, with new drystone annexes added. This phase of reoccupation does not seem to have lasted beyond the fourteenth or early fifteenth century. In Trench Q, there is no secure evidence for building works or occupation in the second millennium at all until material was extracted for modern military entrenchments, such as a nearby bunker, in the twentieth century. At no point in the second millennium did the fort reach the population levels or investment of earlier centuries and it appears to have been largely abandoned in post-medieval times.[1]

Smaller trenches at the edge of Dariali Rock and observations on the ground add important dimensions to our knowledge of the site's history. A rock outcrop on the southern approaches to the fort is crowned by a small bastion of late antique masonry style, if surviving occupation layers date to the late first millennium. This is also the era when massive quantities of rubbish were dumped not just inside, but also on the western slopes of the fort, gradually covering its once unscalable vertical rocky defences. A formidable tower-enforced barrier, reaching from the fort to a rock cliff opposite, controlled the narrow passage west of the fort, which all travellers had to pass. Perhaps most remarkably, there is a sophisticated aqueduct of likely late antique origins supplying the fort with water – advanced hydraulic engineering at one of the remotest outposts of empire. As it was too risky to rely on a single source for supplying the fort's guardians with the necessities of life, not to mention that the aqueduct will often have been out of service in sub-zero temperatures, a solid staircase was built on treacherous terrain down to the river and nearby springs, securing access to water in all eventualities.[2]

There is a mismatch between the abundance of textual sources prominently referring to the Caspian Gates/ Dariali in the early first millennium and the total absence of material traces of contemporary occupation on top of Dariali Rock – perhaps best explained by late antique clearance of all earlier occupation horizons and structures. Excavations south of the fort have shed some light into this archaeological Dark Age. The campfires lit at the base of the rock between the sixth and third century BC, are perhaps traces of Transcaucasian travellers spending a night here. Horticulture or agriculture on the terrace south of the fort appears to have commenced no later than the AD 60s, but quite possible already before the turn of the millennium. Those growing food here most likely lived on Dariali Rock. Archaeology corroborates written sources, including the geographer Pliny the Elder offering the first detailed description of a fort on a rock controlling the gorge (almost certainly on Dariali Rock), that provide ample evidence for the growing strategic importance of the gorge in the first century. Over two metres of cultivation layers built up subsequently, evidence for intensive food production and manuring over the ages, perhaps intensifying in the late first millennium. No certain evidence for extramural settlement emerged, suggesting that in all phases of occupation the garrison and their families lived within the fort walls.[3]

At times, garden plots or fields extended over 300 m south-east of the fort, but in the late seventh or, more probably, eighth century a cemetery was established in the southern part of this area, encroaching upon land previously used for food production. No earlier burials have come to light, perhaps indicating that the fort's garrison in pre-medieval times was mostly of Zoroastrian faith. Some of the early medieval stone cists explored, including the earliest, contained the remains of multiple individuals and just the odd item of personal adornment, as is typical for early medieval Christian graves in Georgia. In a different part of the cemetery, we found individual inhumations, mostly devoid of grave goods and with the faces turned to the south or south-east. In contrast to the collective graves, small children and adults seem to have

been buried in separate zones. Perhaps these were Muslim graves. Two of the latest individual burials, however (one with weaponry and the other with an abundance of beads and both probably buried within a generation around the year AD 1000), are best assigned to people of northern religious traditions. Like the excavated quarters of the fort, the cemetery ceased to be occupied in the late tenth or early eleventh century; unlike the fort, there is no evidence for a resumption of activity in the Late Middle Ages, but more excavation is needed to establish whether or not there might be later graves in unexcavated areas.[4]

Dariali Rock was clearly the hub of the defensive system in the gorge throughout the first millennium, but it was not on the narrowest stretch of the gorge. Where were the legendary Caspian/Alan Gates? Just under one kilometre NNW of the conical Dariali Rock, the fast-flowing Tergi/Terek River washes along steep rock cliffs on its right/eastern bank, forcing all traffic onto the left/western side. Prior to modern engineers blasting roadways through the rocks, there were high cliffs towering over both banks of the river, leaving it seems only the narrowest of passages on the left and none at all on the right. Sunlight rarely reached the ravine's bottom, and the deadly torrents of the Tergi filled most of the space between the cliff walls. Bakht'ari Ridge, the summit of its cliffs fortified with mortar walls, dominates this narrow passage. The masonry strikingly resembles that of late antique Dariali Fort and charcoal from a sondage dug into foundation layers suggest construction at a similar date. It was from this vantage point that Transcaucasian traffic could most easily have been controlled, and it is likely that this bottleneck more than others was widely considered to be the Caspian/Alan Gates.[5]

Yet it was only one of several narrow passages within the gorge. Gveleti Lower and Upper Forts control a further choke point, some 3.6 km south of Dariali Fort. Excavations in the Lower Fort revealed evidence for the earliest occupation reaching back to the later first millennium. The absence of late antique or earlier finds, samples or any solid mortar masonry is clear evidence that this site played no part in the gorge's pre-medieval history, notably as later clearance operations were confined to the vicinity of the cliff edges. Probably initially no more than a local refuge, we found evidence for continued occupation in the first quarter of the second millennium – a time when there are no archaeological traces of occupation on Dariali Fort. Around the fourteenth century, Gveleti Fort may have reached its period of greatest importance. King Davit VIII of Georgia sought refuge here in c. AD 1302, beleaguered by the Mongols, and the fort's formidable natural defences saved the king's life. It may also have been around this time, or perhaps subsequently when transformed into a more habitable castle, that a stone floor was laid and perhaps a small church built within the fort.[6]

Some 1.2 km north of Gveleti Fort, excavations in 1991 by Davit Mindorashvili revealed a migration-era cemetery, the earliest burial ground in the gorge found to date. Grave goods include a Sasanian coin of AD 529 and a gemstone with a Pahlavi inscription, but also weapons hinting at northern burial customs. The graves were earlier than Gveleti Fort and at a considerable distance from both Gveleti and Dariali Forts, and those buried probably lived in a separate settlement. Attempts to find further ancient graves were unsuccessful. Was there a further burial ground halfway between Dariali and Gveleti Fort and did a cluster of small stone cairns, overlooking the Amali River, mark graves? Excavation of two of the cairns failed to reveal any burials underneath or any dating evidence. We can only speculate as to the significance and date of the Amali Cairns, which overlook a landslide-prone ravine that brought devastation and traffic disruption to the gorge on hundreds of occasions over the past two millennia. It is clear, however, that they do not form part of a cemetery.[7]

Excavations inevitably focused on a small number of key sites, but how were these supplied with food in this inhospitable alpine setting? Land suitable for growing crops is in short supply, but great efforts were made to exploit the few plots of relatively flat land and to create terraced fields on the steeper slopes. Landscape survey, led by Kristen Hopper and Dan Lawrence, and selective application of OSL dating to sondages, excavated by Lisa Snape, demonstrate the intensity of use. Land was precious and suitable agricultural areas were maintained and improved repeatedly, so that the terraces in existence today mostly seem to date back a few centuries at most. Yet, sherds of pottery recovered from the fields suggest that activity took place in this area much earlier and that some sites, such as at Tsdo, could have been under cultivation at the time of Dariali Fort's first-millennium heyday. Systematic survey and mapping allow us to estimate the extent of pockets of land available for growing food. Research into recent pastoral practises reveals that large herds of sheep were often brought up in summer from steppe land north of the Caucasus, making one wonder if similar transhumance patterns date back to Antiquity and, therefore, how permeable or impermeable the Caspian/Alan Gates may have been at different points in the past. Fortifications in their wider landscape setting were surveyed too. In addition to those excavated, the landscape team also explored undated drystone forts further south, including a small stronghold at Tsdo, and medieval and post-medieval towers at Tsdo, Gveleti Upper and Lower Forts, Gveleti Village, Stepantsminda and at a range of villages further south. Only a few of these are inter-visible, and none can be seen from Dariali Fort, suggesting that they functioned primarily as local retreats and lookouts and did not form part of a long-range signalling chain.[8]

Excavation and survey have helped us to shed much light on the history of the gorge and to appreciate the challenges involved in uncovering it. Heavy use of pockets of cultivable lands and the few hilltops safe from avalanches and flooding, defensible against military attack

and in some cases capable of controlling Transcaucasian traffic, resulted in erasure of earlier soil horizons and buildings, so that early periods of history often remain elusive. Unlike in lowland environments in parts of the Near East, where collapsing mud brick walls and occupation debris formed over time larger and larger tells and invaluable multi-phase historical archives, at Dariali Gorge later occupants often wiped out all traces of earlier history. Drystone structures cannot easily be dated and lush vegetation or snow mostly conceal any datable artefacts on the surface, so that survey has little chance to establish a firm chronology. Erosion-prone slopes, bare rock or modern pit-digging mean that even excavation will not always yield datable artefacts from the time of principal, let alone original, occupation. Nor would sentries dispatched to lofty heights, such as Bakht'ari Ridge, necessarily have carried fragile pottery. The meagre evidence for activity in Antiquity from our excavations may be a result of the intensity and nature of later land use, not of only a small number of sites being occupied at the time. The two earliest sites we have been able to date, Dariali Fort and the fortifications on Bakht'ari Ridge, are likely to have succeeded earlier monuments, occupying these prime spots, of which few or no traces remain. And whilst we know no rural settlements and field systems of certain ancient or late antique origins, pollen profiles (discussed below) suggest that human exploitation of the landscape may have increased during this period. Landscape survey has revealed the area fields, settlements and pastureland could have occupied and how local natural resources may have been used.

Finds, building materials, biological and environmental evidence and scientific dating

Of all datable artefacts found pottery, represented by tens of thousands of sherds weighing approximately a metric tonne combined and mostly from Dariali Fort, is by far the most abundant. Seth Priestman has painstakingly classified our ceramic finds and established, based on the stratigraphic sequence and independent scientific dating of associated organic material, the chronological range of the classes represented. Due to the above-mentioned changes in disposal patterns, Late Antiquity (c. late fourth to mid-seventh centuries) and the transitional phase (mid-seventh to early eighth century) is represented by far fewer finds than the Early Middle Ages (c. eighth-tenth/early eleventh centuries). Dariali Fort was very much at the interface of Transcaucasia and the Northern Caucasus. Whilst historical sources imply it was mostly under southern, if intermittently also under northern, control, pottery supplies seem to have reached the fort from both directions in all phases of occupation, if by varying proportions. Interestingly, there appears to be a gradual growth of southern supplies throughout Late Antiquity, followed by a sudden rise of northern imports in the aftermath of the Sasanian Empire's demise, perhaps reflecting a reorientation of the fort's occupants during this period of power vacuum. Southern supplies rise subsequently, whilst northern imports retain a sizeable market share. Towards the end of the millennium the quantity of northern-style ceramics rises again, coinciding with the cited appearance of northern-style burials in the cemetery. Clay analysis suggests that there are suitable clay deposits in the Northern Caucasus that may have been used to manufacture northern-style vessels and typological parallels strongly support this provenance identification. If there were also workable clay deposits in Dariali Fort's hinterland, such as at Gveleti Cemetery, there is no concrete evidence for their exploitation. Storage jars of similar shape and fabric to those used for wine storage elsewhere in Transcaucasia from Antiquity to modern times and vessels thought to have been used for serving wine are found also in early medieval deposits. Whilst we cannot exclude that they were also used to store and serve other commodities, they may well indicate that alcohol was consumed at times when there was reportedly a Muslim garrison in residence – perhaps further circumstantial evidence for a multi-faith community occupying the fort throughout the Early Middle Ages. In the Late Middle Ages, when Dariali Fort is known to have been part of the Kingdom of Georgia, the ratio of southern to northern imports rises markedly.[9] The Christian Georgian name 'Gogi' inscribed on a vessel handle around the eighth century, studied by George Gagoshidze, provides further tangible evidence for links to the south.[10]

If there is more early medieval than late antique pottery, early medieval material dominates the glass assemblage even much more heavily, outnumbering sherds from certain late antique deposits by c. 200:1. Glass supply increased and declined similarly abruptly. We found no pre-modern glass on Gveleti Fort, and the sherds from second-millennium deposits on Dariali Fort may be redeposited earlier losses. Vessel glass was available in significant quantities only in the final three centuries of the first millennium or so, but in this period it demonstrates – maybe more so than any other category of artefact – that Dariali Fort was then an important staging post in international trade. Fiona Mowat's typological and quantitative studies and Yoshinari Abe's and Ryuji Shikaku's analyses of glass composition have traced the origins of these valued imports. Some of them came from Islamic lands, as far as Syro-Palestine, Egypt and Iraq or Persia. The sudden influx of southern imports followed perhaps the reported Muslim conquest in the eighth century. It lasted at least into the tenth century, the time when the Emirate of Tbilisi reportedly still sent food supplies. The glass assemblage seems to corroborate the written sources attesting strong links with the Islamic world, but it also provides a more nuanced picture. Goblets from seventh/early eighth to ninth/tenth-century contexts with parallels from early medieval Georgia suggest perhaps that refined Georgian drinking habits persisted

at the remote outpost beyond the Muslim conquest. Glass vessels appear to have been imported not just from Georgia, but also from Roman/Byzantine Anatolia, the assemblage reflecting Dariali's position at the interface of the Islamic and Christian zones of influence. Vessels with close parallels in the Dariali assemblage from the Northern Caucasus must have come via the Dariali route.[11]

Artefacts made from a wide range of materials provide insights into everyday life. Unsurprisingly, the fort's guardians were armed with long-range weapons, allowing them to target approaching hostile forces at minimal personal risk. Components of bows, one bone and five iron arrowheads (with the exception of one late antique iron arrowhead, all medieval), have been found on the fort and the southern tower-enforced bastion. Bladed tools, notably knives as well as a sickle and an adze, the latter from Gveleti Fort, and whetstones to sharpen them, have come to light. They have been found exclusively in medieval or potentially later deposits, whilst there is a quernstone from around AD 400, as well as three more from poorly stratified contexts. A finely carved bone spoon and part of an iron balance and a range of other metal and bone artefacts and modified pot sherds have been found, most of them dating to the last third of the first millennium. The heavy dominance of later over pre-medieval finds reflects undoubtedly in part the tidiness of the fort's early garrison, resulting in metal in particular being recycled and not normally lost for good on neat surfaces. Bone and clay spindle whorls are not attested at all prior to the Early Middle Ages, perhaps for similar reasons, but it is also possible that a payment in kind system not lasting beyond the demise of Sasanian rule included clothing. Parts of a chlorite container points to links with Islamic lands around the tenth century. Gaming pieces provide a glimpse into medieval entertainment at the remote outpost. Two bone cylinders decorated with animal carvings, probably of the late eighth or ninth century, have close parallels in the north, and Lana Chologauri argues persuasively that they were ritual objects pointing to close connections with Khazar lands at the time. Beads, razors, combs, pins to secure clothing, a cosmetic applicator, finger rings, bangles and pendants, including a shark vertebra, demonstrate that personal appearance was important to members of our early medieval frontier community. Other metal finds include nails, used in now vanished wooden architecture and furnishings. Modern materials, such as bullet casings, attest in part Dariali's renewed strategic significance in the twentieth century.

Only some of the early medieval graves from the cemetery contained grave goods, notably a complete sword, three iron arrowheads and a fire-striker from a burial of around AD 1000 attesting close links with the north towards the end of the fort's main phase of occupation. Metal analysis by Brian Gilmour showed that the sword was made of high-quality watered crucible steel. A contemporary grave yielded 161 beads of a variety of materials, studied by Ana Gabunia, as well as an old broken mirror, two bangles, three functioning bells and parts of a studded leather or textile dress. Other graves contained finger rings, a copper alloy bangle, silver hoops and two more beads. The finds assemblage illuminates Dariali's connections to the outside world, north and south of the Caucasus, and how they changed over time. Much was imported, but the isolated garrison evidently engaged in metalwork, could not rely on outside support and was capable of producing and repairing the essentials themselves.[12]

With stone being available in unlimited quantities, it is unsurprising that ceramic building materials, examined by Seth Priestman, were used sparingly. Roof tiles first occur in the Early Middle Ages, the period that has produced the bulk of brick and tile. Ceramic pipes, however, are first represented in late antique contexts, suggesting that Dariali Fort's garrison benefitted from flowing water already at an early date.[13] Circumstantial evidence for an early aqueduct suggests that highly experienced architects oversaw the late antique construction works, as does the systematic use of strong mortar in contemporary fort walls and the gorge-blocking barriers at Dariali Fort and on Bakht'ari Ridge. Mortar analysis by Riley Snyder and Martina Astolfi has shed much light on why walls erected in part more than 1,600 years ago have largely stood the test of time, using consistently high-quality mortar. Inevitably, in the light of the fort's isolated position and the impossibility to bring bulk materials from afar, the mortar was made of raw materials sourced from the Caucasus. Building the durable bulwark depended as much on knowledge of local resources as on techniques not previously employed in the gorge. We may perhaps envisage close collaboration between agents of empire, Iberians in general and locals in particular.[14]

The remains of humans, animals and plants provide novel insights into living conditions, diet, the environment and connections between the Dariali community and the wider world. The human remains from Dariali Cemetery date exclusively to the last third of the first millennium plus perhaps the first years or decades of the second millennium. The sample is too small for far-reaching statistical analysis, not to mention bone often being poorly preserved, but some interesting conclusions emerge from the studies of Anthi Tiliakou and colleagues. Unsurprisingly, there was high child mortality and few, it seems, lived into their late thirties or forties, let alone beyond. Frequent instances of dental enamel hypoplasia provide evidence for frequent stress and/or malnutrition affecting the early medieval occupants. We cannot tell how common violent causes of death were at the contested frontier post, though one individual clearly died from an injury inflicted with a bladed weapon around AD 1000.[15] Life was not easy at the remote outpost, but outside efforts helped to sustain the garrison with crops that could not be cultivated on alpine terraces. Catriona Pickard's isotope analysis of the

human remains points to some having consumed imported food from the warm and lush lowlands. Most of the early medieval occupants seem to have grown up locally, and access to culinary imports varied over the life cycles of some individuals – perhaps evidence for supplies ebbing and flowing, if sustained over centuries.[16]

Plenty of meat was on the menu too, especially mutton and beef, and the rich archaeozoological assemblage has been studied by Marjan Mashkour and her colleagues. Sheep are of larger size than those from Iron Age sites, perhaps a result of breeding in the Sasanian era and the Middle Ages. Fowl was eaten too. Pork was a rare treat, but interestingly was still eaten, if perhaps less frequently, during the era of reported Muslim control. Equids were evidently used as mounts or beasts of burden from Late Antiquity onwards, whilst cats and dogs were kept in the Early Middle Ages. Hunting seems to have played a minor role only, but wild goats, red deer, hare, brown bears and wild birds are represented in the early medieval assemblage. Intriguing are fragments of large horn cores, whether from large domestic or wild cattle or hybrids, notably as nineteenth-century authors attest that aurochs may have survived in the Caucasus longer than anywhere else. Fish featured also in the diet of the Dariali garrison, as shown by Valentin Radu's study. Sturgeon and Caspian trout were brought to the fort over considerable distances, probably from the Kura River and its tributaries and maybe the Lower Tergi. The bulk of fish remains came from early medieval deposits, but they are already represented in Late Antiquity. The microvertebrate assemblages, in contrast to the fish remains, are local and provides interesting insights into the environment, as demonstrated by Emmanuelle Stoetzel and her colleagues. Unusual in many respects, the Dariali bone assemblage has provided unique insights into animal husbandry, herding and hunting in the late antique and early medieval Caucasus.[17]

Plant remains, examined by Lyudmila Shumilovskikh and Imogen Poole, shed much new light into diet, living conditions and the environment from a different angle. Charcoal came mainly from domestic fires – essential for heating and cooking in the icy climate for much of the year. Pine was more abundant in Late Antiquity than in the Early Middle Ages, when buckthorn shrubs may have colonised slopes that had previously been covered in forest. Perhaps the fuel needs of the garrison, or the desire to deprive anybody approaching from potential cover, led to deforestation of the most accessible plots in the fort's immediate surroundings. Some of the vegetable food consumed, just as the fish, was brought to the fort from afar. This certainly applies to peach remains of the late fourth or early fifth century. There is no evidence otherwise for fruits from the lowlands, perhaps a rare treat, but there is plenty of evidence for cereals. Millet accounts for a high proportion of the staple foods we found and much or all of it must have been imported from less elevated and warmer regions.

Charcoalified plant remains from our excavations inevitably illuminate solely periods of occupation. It was the pollen cores Lyudmila Shumilovskikh succeeded in retrieving from waterlogged sites that also inform us about periods not represented at our archaeological sites. A mire at Stepantsminda has yielded rich environmental evidence, reaching back some four-and-a-half millennia. Agriculture may already have been practised around the late third millennium BC, but it was only in the late second/early first millennium BC that human impact on the environment intensified and tree pollen decreased markedly, whilst crop cultivation was gathering pace. Agriculture and the use of pastureland may have reached a peak in the late first millennium BC to the early millennium AD, followed by a slow rise in tree pollen in the later first millennium and beyond. This may suggest that the period prior to the foundation of late antique Dariali Fort was marked by extensive exploitation of the land at the southern approaches to the narrow gorge. The peak of archaeologically traceable activity at the fort in the last six centuries of the first millennium still saw much human settlement activity in the hinterland, but it may already have been past its apogee. If archaeology at Dariali Fort suggests a sudden surge in activity from the late fourth century onwards, the pollen data from Stepantsminda demonstrate that settlement, certainly in the wider region, had been as extensive and perhaps even more so centuries earlier.[18]

With virtually no closely datable import goods reaching the fort prior to the Early Middle Ages, and even then artefact typology often entailing a margin of error of centuries, our chronology is based largely on scientific dating. Radiocarbon samples form the backbone of our chronology, but this tried and tested method needs no explanation. Pioneering, however, has been the application of two more novel scientific techniques. Cathy Batt and David Greenwood have applied archaeomagnetic dating to a wide range of fire-exposed features, such as hearths and a burnt horizon, often confirming and occasionally refining their chronology. It also proved a useful tool to gauge the intensity of fire-exposure and to identify material that had not remained *in situ* since burning. Perhaps most importantly, it marks an important step in building up an archaeomagnetic secular variation curve for the region that should lead to greater chronological accuracy and precision when using the technique in the Caucasus or Transcaucasia in future.[19] Optically stimulated luminescence dating, applied to a range of samples by Lisa Snape, has similarly proved to be a valuable tool for independently testing our chronology, and it mostly yielded results that are consistent with radiocarbon dating and stratigraphy. This is of importance, as the technique has also been applied to more recent terrace deposits, where no radiocarbon samples are available for comparative purposes, and we may be confident that the results are likely to be accurate. Particularly interesting has

been the micromorphological examination of a soil block sample from Trench F comprising the (seventh or early eighth-century) burnt horizon, resulting from a localised conflagration, and material below and above. Earlier levelling deposits consist of reused degraded construction materials and local waste. A walking surface formed on top of the burnt layer before we see a significant change in the use of space and the formation of a rubbish heap over earlier horizontal walking surfaces.[20]

The wide range of materials studied and techniques applied sometimes illuminate the same questions and periods from different angles, often they provide unique insights. Only the pollen records cover essentially all periods of human occupation of the area. It is only from the middle third of the first millennium onwards that noteworthy assemblages of stratified finds, plant and animal remains are available and only from the last third, that we have an abundance of such material, before they massively diminish again in the second millennium. If chronological coverage is uneven, finds, building materials and biological remains provide detailed insights into living conditions, religious and cultural traditions, trading links and technical capabilities during a time of prime strategic interest in the mountain gorge – and for much of this there is no, or no detailed or reliable, textual evidence.

History

The little we know about Dariali Gorge's prehistory is based largely on just the odd chance discovery. Pollen records now complement these data and suggest that early agriculture may have been practised for the past four millennia or even a little longer. Following, it seems, forest clearance by fire, crop and weed growth intensified markedly around the ninth century BC. Perhaps it is no coincidence that it was in the next century that the sources report the first major incursion of people from north of the Caucasus deep into the Near East. Human colonisation of the valleys leading across this forbidding mountain range paved the way for large-scale migration. Between the sixth and third centuries BC, Transcaucasian travellers may have camped at the base of Dariali Rock, then probably still unoccupied.[21]

Dariali Fort's origins are lost in the mists of time. Legend ascribes it to a Persian mythical prince. The wild natural scenery inspired also the belief that the Amazons at one stage had lived at the 'Caspian Gates', the strategic significance, that it was the visionary Macedonian conqueror king Alexander who had fortified them. More plausibly, the Georgian Chronicles ascribe foundation to Iberian royalty, if the postulated second-century BC origins are open to question. Remoteness resulted in the gorge being unknown territory for a long time, and it was only around the turn of the millennium that it came to the attention of ancient authors, if rapidly gaining fame already in the first century AD. A note in Strabo may refer to a predecessor of Dariali Fort and by AD 35 Iberian control of the gates, used effectively to admit allies and keep out enemies, is firmly attested. The then already famous gorge was the intended aim of a military campaign under Emperor Nero (r. AD 54-68), Pliny the Elder (AD 23/24-79) provides a detailed description of a rock-top fort called 'Cumania' that strikingly fits Dariali Rock, and the Georgian Chronicles claim that the fort was under Iberian control in the AD 70s. Archaeology may now corroborate the existence of a fort on Dariali Rock by the AD 70s, and most probably well before. Whilst late antique fort-building seems to have erased earlier horizons on the plateau, a bone fragment from an early horticultural or agricultural horizon suggests food was cultivated immediately south of the fort by the AD 60s at the latest and quite possibly already up to a century before. It is hard to imagine farmers or gardeners would have tilled the remote terrace, had Dariali Rock nearby still been unoccupied. The sudden surge in interest in the gates and the nearby fort was not fortuitous. Already Pliny or his sources had recognised the strength of this natural fortification where a small garrison could hold back massively stronger forces – a judgement closely echoed by later authors.

Rome's strategic interest in the Caucasus did not wane in the second century, when Roman expeditionary forces seem to have advanced to the gorge, even if gate control may have been in Iberian hands, a burden and an opportunity, enabling them to employ northern allies. Increasing knowledge of the rugged mountain scenery added to the gorge's legendary status, and it was now believed to be the place where fire-thief Prometheus had been chained to lofty cliffs. Variously affected by raids from beyond the Caucasus, the Parthians must have been aware of the main mountain passes too, but it was only the Sasanian dynasty that reportedly established direct control of the Alan Gate/Dariali in c. AD 252/260. Much of our knowledge of the famous gorge in the first third of the first millennium rests on written accounts. Material evidence for occupation in classical times is meagre, and non-existent on the fort site itself – probably again a result of systematic ground-clearance prior to late-fourth-century fort reconstruction. The lack of evidence for settlement for much of Classical Antiquity may be deceptive: the late first millennium BC and the early first millennium AD may have seen the landscape being exploited on an intensified scale for cultivation, and perhaps also pasture, to judge by the pollen record.[22]

A series of radiocarbon dates suggests that it was in the late fourth century that the solid masonry walls of Dariali Fort, that stand in part still today, started to be erected. The outer wall, or parts thereof, will have been built first and then a ring of rooms added on the inside as well as separate buildings in the interior, to enable the garrison to weather the icy climate. Construction works certainly continued into the early fifth century at least. We cannot tell how far they had advanced, nor can we even be absolutely

sure they had started, when the Huns infamously invaded large tracts of the Roman and Sasanian Near East in AD 395, having gained entry to Transcaucasia and the wider Near East via the gorge. Evidently, no effective permanent gorge-blocking barrier was in operation at the time. We hear of no similarly calamitous invasion via the Caucasus into Persian territory later, perhaps suggesting that Dariali Fort and its road-blocking barriers were operational not long after the events of AD 395 and that the Caucasus defences had been strengthened elsewhere too. The fort must be identical with Biraparach, attested by Ioannes Lydus, and Ioureiopaach, the name used by Priscus. They report that this stronghold was built by the Persians without Roman support, and the uniformity of masonry style certainly adds strength to it being built by a single workforce following the same tradition. The Sasanian Empire was the first state to use the formidable mountain chains separating the Near East from the steppes of Eurasia as natural defences and the first to enhance them through gorge-blocking barriers. The Dariali complex appears to be amongst the earliest such installations.

If the claim of Persian construction seems credible, the sources also attest episodes when the Iberians were in charge in the later fifth century, followed by northern control around AD 500 by the Huns or, more probably, Alans under the rule of Ambazoukes and his sons. These postulated changes of ownership are archaeologically untraceable. There are no distinct changes in material culture during the fort's first three centuries of occupation (late fourth to seventh centuries) suggestive of a sudden replacement of one garrison by a community differing distinctly in traditions. Dariali Fort would have been hard to capture militarily, but was dependent on food supplies. Perhaps we should assume that the same garrison and their descendants guarded the fort continuously, but recognised the suzerainty of whoever controlled the supply lines. The absence of burials at late antique Dariali Fort is easier to explain with mainly Zoroastrian troops than Christians or northerners. Gveleti Cemetery, 2.5 km south of the fort with distinctive northern-style burials, grave goods including weapons as well as Sasanian imports of the sixth century and after, suggests that the garrison of Dariali Fort differed in their customs and perhaps religion and ethnicity from hinterland communities. Gveleti Cemetery postdates the Sasanian reconquest of the gates in the early sixth century, and we can thus be sure that the northerners buried were not in Ambazoukes' entourage. Could they be part of a force allied to the Sasanians, and were such allies employed to fight proxy wars with Rome, such as the two major incursions of the Sabir Huns into Roman territory?

Dariali Fort enclosed as little as 0.4 ha, suggesting its population did not exceed a few hundred. There is no evidence to suggest that there was extramural settlement, and the fort's population will have included women and children. Miniscule in area and holding capacity in comparison with other Sasanian fortresses, the largest being more than 300 or even more than 400 times larger, it is astonishing at first sight that the tiny bastion features so prominently in negotiations between Persia and Rome. Persia demanded, in part successfully, major Roman monetary contributions for its defensive efforts, far in excess of what was needed for maintaining the fort's garrison (paid in kind), yet a small fraction of the likely costs of Persia's military apparatus as a whole. The payments were probably for the Caucasian defensive system in its entirety rather than solely for Dariali Fort. They may reflect what averting proxy wars was worth to Rome and how effectively the Sasanian Empire could monetise its control of the strategic mountain passes, more than the actual expenses involved.

Leaving aside the weapon graves at Gveleti, there is no evidence for a militarised hinterland in Dariali Gorge. Iberia's security depended on a small garrison holding the key bottleneck. But Dariali Gorge was not the only Transcaucasian traffic route. The Caspian coastal corridor was controlled via a series of barriers, most notably the Derbent and Ghilghilchay Walls. Other routes were more difficult, but not necessarily impossible for a determined foe willing to take risks. The Saraguri in AD 466/467 reportedly found their way through the Caspian Gates blocked by a fort, which must be Dariali Fort, but took another route across the mountains instead. Perhaps it was in response to such daring raids that even more elevated passes were secured with barriers. Two double-sets of walls, both to the west of Dariali, one at the approaches to the Mamison Pass and another on a further minor route along the Fiagdon River Valley, could, on the basis of their masonry and strategic concept, be Sasanian too and part of an attempt to make it even more difficult to bypass the two major Transcaucasian highways via Dariali and Derbent. Castles employing sophisticated mortar masonry across Iberian-controlled lands may have been part of the system too. The architectural parallels between the forts are close, and it is hard to imagine that an exclusively Persian workforce built Dariali Fort and an exclusively Iberian workforce the other castles, without close cooperation – indicating that Sasanian-era defensive efforts across the Caucasus and Transcaucasia were part of an ambitious joint venture between agents of empire and local allies. And it is possible that the 58 km-long K'lisura Wall running from the Black Sea into the Caucasus could be of Sasanian origins too – a grand defensive system that at one stage may have attempted to plug all major routes across the Caucasus from the Caspian to the Black Sea and whose scale still inspired awe in later Islamic sources. If attempts were made to secure even treacherous Transcaucasian routes, the emphasis in the sources on the Caspian coastal corridor and Dariali, and the concentration of investment on these routes, leave no doubt that they were the most viable routes whose effective control substantially reduced the risk of major invasions. The lesser scale of the fortification in Dariali Gorge and,

almost certainly, the far lower number of defensive forces in comparison with Derbent reflects Dariali's superior natural defences, which could effectively be controlled by a small number of soldiers.[23]

It seems that the Sasanian Empire maintained its northern defences well into the seventh century, then under threat from Rome's powerful Turkish allies. Perhaps more emphasis should have been placed on military investment in the southern frontier zone, breached by Arab armies with fatal results for the Sasanian state. In AD 642/643 Derbent surrendered to the Caliphate, but Dariali's remoteness resulted in it only being conquered in c. AD 727, three quarters of a century after the fall of the Sasanian Empire. Who controlled the fort during this power vacuum? As before, there were neat level walking surfaces and little intramural rubbish disposal. Whilst the earliest collective grave in the cemetery (of c. AD 671–770) could conceivably date to this era, it is more plausibly attributed to the next phase, like all other graves found. Perhaps the same garrison stayed in place beyond the demise of the empire that had stationed them at the remote outpost. New northern-style pottery may point to economical and political realignment with local or northern communities. Already in the late Sasanian era, building works had come to a virtual standstill, and there is no more than a single posthole that dates to this transitional phase, a result of the durability of original fort walls, so that no further major building works were needed for centuries.[24]

After a long era of continuity, we witness major changes in the eighth century. Whilst previously, little rubbish had been dumped in the intramural space, we suddenly see a vastly increased speed of deposition and a marked change in the use of space – habits that lasted for the next three centuries until the end of the main phase of occupation towards the end of the tenth or in the early eleventh century. Where there had been a level walking surface on the inside of the ring of rooms lining the outer wall, a substantial and growing rubbish heap built up. As a result of this, we have a far larger sample of early medieval artefacts and bones than there are from the two previous phases (Late Antiquity and the transitional era) combined, even if the latter lasted for a similar or even slightly longer time-span (late fourth to late seventh or more probably early eighth century) than the early medieval phase (probably early eighth to late tenth/early eleventh century).

The much-increased influx of glass in the last three centuries of the first millennium, however, goes well beyond what can be explained solely by the overall increase in the number of finds. The volume of imports from distant lands in the south that reached the fort, as well as the Northern Caucasus beyond, point to intensified trading links with the Near East as well as Georgia and, to a lesser extent, Roman/Byzantine lands. Perhaps the fort's control of Transcaucasian trade allowed its occupants to claim a share of the goods flowing in both directions. Sherds of glass from the south may attest long-distance barter trade; goods from the north, exchanged for the glass, may have included some of the northern-style ceramic vessels. But this may just be part of the story: furs, other perishable organic products or slaves, which may have been exchanged for glass, would be untraceable.

It is probably also in this phase that we see the establishment of a cemetery that includes Christian-style collective graves and probably Muslim individual graves. The latter start later, but our sample is small and may not be representative. These clear behavioural changes are best explained by the arrival of a new garrison. Chronologically, the reported Muslim conquest of c. AD 727 would fit, and the influx of goods from the heartlands of Islam may add strength to the fort then becoming an outpost of the Caliphate, succeeded by the Emirate of Tbilisi as central power waned. The Gigias Satibi Cemetery, to the north of Dariali and Bakht'ari, yielded two half-dirhams and a ring referring to Allah, and we know of two rings bearing Arab names from Sioni further south – evidence for likely Muslim presence in the gorge. Yet, the cited Christian-style burials, the Georgian graffito from a probable eighth-century context, the presence of pottery and glass vessels typically associated with wine storage and consumption, and of pig bones, if in small quantities, suggest that there never was a uniformly Muslim garrison on Dariali Fort, certainly none that strictly adhered to all religious rules. The archaeological evidence rather points to a multi-faith community, probably including both Christians and Muslims for much or all of the Early Middle Ages. Northerners were probably present too, as the Khazar-style ritual bone objects from the fort are no obvious trading goods. Two burials with rich and distinctive northern grave goods from what may be the final generation of fort occupants, before temporary abandonment or massive reduction in garrison around AD 1000, point to growing northern influence.

Overall, however, there is remarkable continuity in habits and trading links over the final three centuries of the first millennium, most plausibly explained by the same core garrison and their descendants remaining in residence. They probably admitted some locals and people from the north into their circle, in an effort to retain good relations with those who controlled the vital supply networks. Written sources imply that the Tsanars/Kakhetians, Alans and Khazars controlled at one point or another access to Dariali from the south and/or north in the last third of the first millennium. The Armenians even reportedly captured the fort in the late ninth-early tenth century, whilst Mas'udi postulates that the same garrison of Arab descent held the fort continuously from the eighth century to his own time in the mid-tenth century, if acknowledging that the land corridor between Tbilisi and Dariali was then under 'infidel' control. These Transcaucasian and steppe-based powers may well have

claimed suzerainty over the fort at times. Perhaps they even supplemented the garrison on some occasions (a possible explanation for the Khazar-style objects from a chamber in the shadow of the wall), but there is nothing in the material evidence to suggest that any of them took the fort by force, massacred or ousted the garrison and replaced it by an entirely new community.

Dariali Fort's early medieval occupants also resumed stone building, if erecting no more than drystone annexes to the old late antique mortar-masonry buildings. The evidence suggests dense occupation from fort construction to c. AD 1000 – suggesting that despite all changes in political power constellations, the fort was considered an asset in controlling Transcaucasian traffic, important enough to sustain a garrison in an inhospitable environment for over 600 years.[25]

King Davit IV the Builder reportedly conquered Dariali Fort in AD 1118 and Georgian control of the gorge is attested also for AD 1226. Our excavations have failed to produce any evidence for occupation at the time. This does not necessarily prove that the reports are wrong, but any high medieval garrison must have been much reduced and cannot have occupied more than a small post elsewhere in the fort. Two samples from Gveleti Fort, by contrast, fall into the eleventh or twelfth or the eleventh to thirteenth centuries, perhaps best explained by it serving as a refuge for nearby communities, with more cultivable land in its vicinity than Dariali Fort. Both forts experienced a resurgence around the fourteenth century. A late antique hilltop building was then reoccupied in Dariali Fort and further basic drystone annexes added, whilst at Gveleti Fort a new stone floor was laid, suggesting that there was now permanent or semi-permanent occupation. This may have been Gveleti Fort's heyday, whereas traceable occupation on Dariali Fort covered only parts of one of the two large trenches excavated, and we may conclude that its population was substantially smaller than it had been for much of the first millennium. It will have been the Mongol threat that inspired renewed investment at both sites, and we know Gveleti Fort served as a temporary royal refuge.[26]

Dariali Fort's late medieval resurgence was short-lived, ending, as far as we can tell, still in the fourteenth or in the early fifteenth century, whereas Gveleti Fort remained occupied into the sixteenth or seventeenth century. No more than a ruin, post-medieval Dariali Fort retained its strategic significance and strong natural defences. Reoccupied by rebel forces inflicting heavy casualties on expansionist Russia, the Tsarist Empire blew up much of the fort, to deny future rebels a safe shelter on a vantage point that controlled Transcaucasian traffic. Gun cartridge cases, including one produced in 1916, bunkers, military trenches, cellar-like structures, material extraction pits, a sophisticated tunnel system under the fort leading to concrete-reinforced gun-emplacements and pillboxes overlooking the route south of the fort provide ample proof for renewed military occupation of the strategic rock and guard posts nearby in the twentieth century. Part of the effort may relate to independent Georgia's attempt to fend off Soviet aggression in 1921. We do not know if any of the structures were built in anticipation of German troops advancing towards the gorge in 1942, if never reaching it. What is clear is that the motives for modern military investment on the rock were essentially the same as those in the first millennium: there was no better spot to control Transcaucasian traffic and to target trespassers, whether with rocks and arrows or with firearms and artillery.[27]

We should not underestimate the difficulties involved in guarding the remote outpost and traffic route, notably in the light of the extreme challenges posed by the natural environment. Over the past two millennia, hundreds of massive landslides must have descended into the stretch of gorge under investigation, sometimes followed by flash-floods, causing death and destruction on many occasions. No barrier, bridge or settlement in the valley-bottom near Dariali Fort would have survived for long. Maintaining traffic infrastructure, supply lines and control mechanisms was no mean task.[28]

Awe-inspiring today, the sheer cliffs of the narrow gorge provided even more of a natural spectacle prior to modern engineers blasting roadways through the rocks and widening the valley in places. The French painter Pierre Blanchard, crossing the gorge in 1857, has accomplished some of the most vivid paintings and sketches, which, even if evidently drawn from memory, may give us a realistic idea of what the gorge may have looked like in earlier times. His travel account provides important clues to the topography of the narrow valley.[29]

If defences in alpine terrain are at the core of this report and our fieldwork in Georgia, it formed part of our broader ERC Persia and its Neighbours project, not just concerned with single sites, but the bigger picture. The efficacy, on the whole, of the Caucasus defences in Late Antiquity and the Middle Ages minimised the corrosive effect constant raiding would have had on Transcaucasian settlement. The evolution of large canal systems in the hinterland is thus very much part of the overall picture. Barriers in mountain valleys helped to ensure that agriculture could prosper in the lowlands and that there were enough people to till the land and to dig canals, further boosting yields. In turn, surplus production helped to sustain outpost garrisons in the mountains, such as Dariali Fort, that received food supplies from the lowlands. Kristen Hopper, Dan Lawrence and Konstantin Pitskhelauri explored the canal systems of the hinterland in the centre and east of modern Georgia, via literature research, remote sensing and pedestrian survey. If there is still much to be learnt about the chronology of the canals explored, it appears that there were massive efforts in Antiquity and the Middle Ages to use irrigation to increase crop yields.[30]

The Caucasus, Europe's highest mountain range, formed an ethnic or political water shed in most periods of history, separating Transcaucasia and the wider Near

East from the northern foothills of the Caucasus and the steppes beyond. Dariali Gorge was a key element in the defensive system of the south against the north for much of the first millennium and a key control point in Transcaucasian traffic and trade. Its unique position at the most viable route through the Central Caucasus and its wild and forbidding natural scenery made it a place famous across Europe and the Near East. Not only were the road-blocking barriers and the fort that controlled them part of arguably the best-known Sasanian fortification in the world of Late Antiquity, it was also one of the earliest building blocks of what evolved into the late antique world's largest military infrastructure project. At a similar time, the Sasanian Empire began to erect vast rectangular fortresses, such as Qal'eh Iraj near Tehran. More such large fortresses for temporary garrisons were built subsequently, forming it seems chains of defensible compounds permeating the Empire's northern frontier zone, so that armies could move and operate safely in endangered territories. Insecure coastal corridors and land bordering the steppe were secured through massive fort-lined barriers in the fifth and sixth centuries, notably the Gorgan, Tammisheh, Ghilghilchay and Derbent Walls. Networks of smaller forts were also established in the southern frontier zone. Constructed over a period of some 200 years, from the late fourth to the sixth centuries, the Sasanian fortification programme eventually not only dwarfed that of the Late Roman World, but rivals even that of the Early Empire. Dariali Fort was very small, but epitomises perhaps more than any other site, how the Sasanian Empire used natural defences more systematically than any previous or later Near Eastern Empire. And whilst the Gorgan Wall or the largest of the rectangular fortresses, (Qal'eh Iraj, Qal'eh Pol Gonbad and Torpakh Qala) did not survive the demise of the Sasanian state, the strategic Caucasus defences at Dariali and Derbent were still in heavy use centuries later – a telling testimony for the foresight of the architects of Sasanian military infrastructure. We now have a much better understanding how the remote post was maintained for centuries, by a Sasanian-Iberian coalition and their medieval successors, and the role it played in grand strategic schemes that used fortified mountain passes to safeguard the prosperity of empires.

The barrier's purpose, however, was not constant and unchanging. From the first to the sixth centuries, and perhaps again in the thirteenth century, it was used repeatedly to direct northern aggression against the gatekeepers' enemies. This may not have been the case for much of the Early Middle Ages, when a patchwork of smaller principalities controlled the southern approaches, so that no single power had the same level of access control. In the same era, we witness growing northern influence and identity at times, manifesting itself in Khazar-style objects in the late eighth or ninth century and perhaps Alan grave goods in the late tenth or early eleventh century, and Khazar and later Alan armies passing the fort seemingly unimpeded. Yet trade seems to have flourished in this more fractured world. There is no concrete evidence of much import or export of goods along the Dariali route in Antiquity or Late Antiquity, perhaps as there were easier routes available to imperial actors. Smaller landlocked principalities wishing to benefit from trade will have had less choice, and it may in part be for this reason that we see the sudden surge in southern glass exports reaching Dariali Fort and the Northern Caucasus beyond for the last three centuries of the first millennium. The fort's significance seems related to how powerful and organised the states and communities were that dominated the steppe between the Caucasus, the Black Sea and the Caspian Sea. Throughout the first millennium, the threat level was considered substantial and the empires and states in Transcaucasia and the wider Near East were well-enough organised to design effective counter-measures, despite repeated setbacks. More transient threats in the second millennium, be it by the Mongols, Tsarist Russia, the Soviet Union and perhaps the Third Reich, stimulated renewed, if short-lived, investment. Dariali never regained the world-fame it had reached in the first millennium, but it remains a place of legend.

Notes

1 See chapters 2–3.
2 See chapter 4.
3 See chapter 5.
4 See chapter 6.
5 See chapter 7.
6 See chapter 8.
7 See chapter 9.
8 See chapter 10.
9 See chapter 11.
10 See chapter 12.
11 See chapters 13–14.
12 See chapters 15–16.
13 See chapter 17.
14 See chapter 18.
15 See chapter 19.
16 See chapter 20.
17 See chapter 21; cf. Mashkour *et al*. 2017.
18 See chapter 22.
19 See chapter 23.
20 See chapters 24 and 10.5.2.4.
21 See chapter 25.1.
22 See chapter 25.2.
23 See chapter 25.3.
24 See chapter 25.4.
25 See chapter 25.5.
26 See chapter 25.6.
27 See chapter 25.7.
28 See appendix I.
29 See appendix II.
30 See appendix III.

კასპიის კარი კავკასიონზე ანტიკურობიდან, ჰუნების პერიოდსა და შუასაუკუნეებში

ქართულ-ბრიტანული ერთობლივი არქეოლოგიური კვლევა დარიალის ხეობაში (2013–2016 წწ)

ERC პროექტი სპარსეთი და მისი სამეზობლო

ბრიტანული ინსტიტუტის სპარსული კვლევების მონოგრაფიული სერიები

არტეფაქტების გრაფიკული ფიქსაცია - ემზარ ლომთაძის მიერ

საველე გეგმებისა და ჭრილების დიგიტალიზაცია: სილვია პერინი, გრემ ერსკინი, ანნამარია დაიანა, ემანუელე ინტალიატა, ჯულიან ჯენსენ ვან რენსბურგი და ებერჰარდ ზაუერი.

ტაბულები: როზალინდ მაკდონალდი, სეს პრისტმანი, სილვია პერინი, ფიონა მოუატი.

სათაურის გვერდი: დარიალის ციხე და მოძრაობის მაკონტროლებელი ვიწრო დერეფანი ევროპის უმაღლეს მთათა სისტემაში.

უკანა ყდა: მარცხენა თავში, ბოლოში, მარცხნივ და მარჯვნივ: ბახტარის ციხე კლდიანი ქედის თავზე, დარიალის ციხის ჩრდილოეთით, ერთ-ერთი უვიწროესი დერეფნის მაკონტროლებელი: ლეგენდარული კასპიის კარი? მარჯვენა ზედა კუთხეში: ბახტარის ციხის ხედი დარიალის ციხეზე (ფონზე კონუსური გორაკით): თანამედროვე გზა, კავკასიონის კლდეებს შორის მოქცეული, მდინარე თერგის ვიწრო ხეობაში იმავე მარშრუტს მიუყვება, რასაც ანტიკური ბილიკი ამ ძირითად საფორტიფიკაციო ნაგებობებს შორის.

წიგნს ვუძღვნით პროფესორ ვახტანგ ლიჩელს, დოქტორ მანანა ოდიშელსა და პროფესორ მაიკლ ვიკერსს, ვისი მხარდაჭერის გარეშეც ეს პროექტი არ შედგებოდა.

წინასიტყვაობა

ჩვენი საველე კვლევები ერთობლივად განხორციელდა ივანე ჯავახიშვილის სახელობის თბილისის სახელმწიფო უნივერსიტეტის, ედინბურგისა და დარამის უნივერსიტეტების მიერ, ბრედფორდის უნივერსიტეტისა და პარიზის CNRS-თან პარტნიორობით. დარიალის ხეობაში ერთობლივი სამუშაოები დიდსულოვნად დააფინანსა ევროპული კვლევების საბჭომ (ERC), როგორც ჩვენი პროექტის - „სპარსეთი და მისი სამეზობლოს“ ნაწილი. განსაკუთრებულად მადლიერნი ვართ ERC-ის, რომელმაც საშუალება მოგვცა შეგვესწავლა ადგილი, რომელიც განასახიერებს სპარსეთის საკონტაქტო, თუ კონფლიქტურ ზონას მის ყველაზე ძლევამოსილ ჩრდილოეთ მეზობლებთან: ალანების, კასპიის, ან კავკასიის კართან - სავარაუდოდ ყველაზე ცნობილ საფორტიფიკაციო ნაგებობებთან სპარსეთის ჩრდილოეთ საზღვრებზე.

ეს პროექტი არ განხორციელდებოდა ბევრი მეცნიერისა და კოლეგის დახმარების გარეშე. გაწეული მხარდაჭერისათვის, რომელსაც თავიდანვე გადამწყვეტი მნიშვნელობა ჰქონდა ჩვენი პროექტისთვის, ვალში ვართ პროფესორ მაიკლ ვიკერსსა და დოქტორ მანანა ოდიშელთან. ებერჰარდ ზაუერს „კასპიის კარის“ შესწავლის იდეა გაუჩნდა აზერბაიჯანში გამგზავრებამდე, სადაც მისი ვიზიტის მიზანი საველე სამუშაოების დაწყება იყო. საქართველოში ის მხოლოდ მაიკლ ვიკერსს იცნობდა, ვისი რჩევების გარეშეც ამ იდეის ხორცშესხმა წარმოუდგენელი იყო, რომ არაფერი ვთქვათ ამის ერთ წელიწადზე ნაკლებ დროში განხორციელებაზე. 2012 წლის 28 აგვისტოს პროფესორმა მაიკლ ვიკერსმა, დოქტორმა მანანა ოდიშელმა, დავით ნასყიდაშვილმა, ლიკა სეხნიაშვილმა და სოფიო ჟღენტმა ებერჰარდ ზაუერი დარიალის უღელტეხილზე წაიყვანეს - ერთდღიანი მისია დაკვირვებითი ხასიათის იყო და

მოიცავდა საქართველო-რუსეთის საზღვარზე არსებული ციხის ტერიტორიისა და მასთან მისასვლელი გზების დათვალიერებას, რამაც საფუძველი ჩაუყარა სავალე სამუშაოების ოთხ სეზონს. გარდა აკადემიურ და პრაქტიკულ საკითხებში მიღებული რეკომენდაციებისა, პროფესორ ვიკერსსა და დოქტორ ოდიშელს დიდ მადლობას მოვახსენებთ მათი სტუმართმოყვარეობისათვისაც, რომელიც საქართველოში ჩვენი ყოფნისას გამოამჟღავნეს. 2012 წლის აგვისტოშივე მათ ებერჰარდ ზაუერი პროფესორ ვახტანგ ლიჩელს დააკავშირეს, ვინც ურთიერთგაგებისა და ნებართვის მემორანდუმის გაფორმება უზრუნველყო და კიდევ უფრო მეტი დახმარება გაგვიწია პრაქტიკულ და აკადემიურ საკითხებში. პროფესორი ლიჩელი დაუკავშირდა კოლეგებს, და ასევე გაგვაცნო უახლესი არქეოლოგიური პუბლიკაციები.

აღსანიშნავია აწ გარდაცვლილი ივეტა ნასყიდაშვილის გულისხმიერება, რომელმაც საკუთარ სახლში უმასპინძლა ექსპედიციის წევრებს 2013-2017 წლებში. მისმა გულთბილმა მხარდაჭერამ ჩვენი პროექტისა და გუნდისადმი მნიშვნელოვანი როლი ითამაშა პროექტის წარმატებაში, უაღრესად მოგვენატრება და ყოველთვის დიდი სიყვარულით გავიხსენებთ მას.

სპარსეთის პროექტი არასდროს დაიწყებოდა და ნამდვილად ნაკლებად წარმატებული იქნებოდა, რომ არა აწ გარდაცვლილი პროფესორი ტონი ვილკინსონი, მთავარი თანახელმძღვანელი (co-PI) ჩვენს პროექტში, რომელიც მხურვალედ გვგულშემატკივრობდა და რჩევებით გვანებივრებდა ჩვენი კვლევის მიმდინარეობისას, თუმცა, ჩვენდა სამწუხაროდ, მის დასრულებას ვერ მოესწრო.

დოქტორმა დავით მინდორაშვილმა არა მხოლოდ უხელმძღვანელა და გამოაქვეყნა წარსულში ჩატარებული საველე სამუშაოების შედეგები დარიალის ციხესა და გველეთის სამაროვანზე,[1] არამედ გულისხმიერებით გაგვიზიარა თავისი უნიკალური გამოცდილება, როდესაც 2013 წლის 17 აპრილს ამ ადგილებში მეგზურობა გაგვიწია და მთლიანი პროექტის განმავლობაში დიდი მხარდაჭერა გამოგვიცხადა. მნიშვნელოვანი რჩევები მოგვცა პროფესორმა დევიდ ბრაუნდმა ჯერ კიდევ მაშინ, როდესაც ექსპედიცია იგეგმებოდა. დარიალის სამაროვნიდან აღებული ნიმუშები დნმ-ის ანალიზებისთვის გადაეცა დოქტორ დევიდ რეიხს, რომელმაც მნიშვნელოვანი წვლილი შეიტანა ამ მასალის დროულად დამუშავებაში. ზემოთ აღნიშნული ინიციატივა ეკუთვნის დოქტორ ირინა შინგირაის რომლისადმიც გამოვხატავთ დიდ მადლიერებას, ისევე როგორც პროფესორ ელიო ბრანკაფორტესადმი, ვინც უზრუნველყო ნიმუშების უსაფრთხო ტრანსპორტირება ამერიკაში. აქვე უნდა აღვნიშნოთ, რომ დოქტორმა შინგარაიმ შეგვატყობინა რამდენიმე მნიშვნელოვანი რუსული და აზერბაიჯანული პუბლიკაციის შესახებ. პროფესორმა დმიტრი ს. კოროზოვმა (დოქტორი შინგარაის მიერ ოქსფორდში ორგანიზებულ ვორქშოფზე) და ნიკ ევანსმა მოგვაწოდეს ინფორმაცია ერთობ მნიშვნელოვან კაზარის კედელზე. პროფესორმა კოროზოვმა საინტერესო ცნობები მოგვაწოდა ხილაკის კედლის შესახებ, რომელიც შესაძლოა მნიშვნელოვანი რგოლი აღმოჩნდეს კავკასიური დაცვის (თავდაცვის) სისტემისათვის. მანვე მოგვამარაგა მნიშვნელოვანი პუბლიკაციებით, ასევე შესაბამისი ფოტოებით, კარტოგრაფიული მასალითა და ინფორმაციით. დარიალის ხეობის მხატვრული სახე პიერ ბლანჩარდის ფერწერულ ნამუშევრებში გაგვაცნო უორვიქ ბოლმა, რომელიც 2014 წელს ესტუმრა დარიალის ექსპედიციას. აღნიშნული ტილოების რეპროდუქციერება მოვახერხეთ დადიანების სასახლეების ისტორიულ-არქიტექტურული მუზეუმის კეთილი ნების წყალობით, რისთვისაც მადლობას ვუხდით როგორც მუზეუმის ხელმძღვანელობას, აგრეთვე ანა გაბუნიასა და ლანა ჩოლოგაურს მათთან თანამშრომლობისათვის. აწ გარდაცვლილმა ედმუნდ ბოსუორთმა გულისხმიერებით უპასუხა კითხვებს ისლამური წყაროებისა და დარიალის ხეობის შესახებ. დიდი მადლობა დოქტორ ტიმ გრინვუდს, რომელმაც მიგვითითა მნიშვნელოვანი სომხური საისტორიო წყაროებზე. ასევე მადლიერებას გამოვთქვამთ დოქტორ იან კოლვინის მიმართ, მისგან მიღებული აკადემიური რჩევებისათვის. სტივენ კოპსმა შემოგვთავაზა ტექნიკური რჩევები 3D რელიეფის მოდელის შესაქმნელად, რომელიც მოგვიანებით დოქტორ მალხაზ დათუკიშვილისა და გიორგი კვარაცხელიას მიერ განხორციელდა. პროფესორმა რ.რ.რ. სმითმა და დოქტორმა ჯ.ულიან ლენეგანმა შემოგვთავაზეს აფროდიტას მიერ პრომეთეს გათავისუფლების ამსახველი ფოტო-სურათი. აღნიშნული ფოტოს გამოქვეყნების ნებართვა მოგვცა დოქტორ ფრედერიკე ნაუმან-სტეკნერმა. (რომაულ-გერნამნული მუზეუმი, კიოლნი.)

დიდ მადლიერებას გამოვთქვამთ ნინო კამკამიძისადმი ხმლის პროფესიონალური კონსერვაციისათვის, ისევე როგორც მრავალი სხვა აღმოჩენისა და კერამიკული არტეფაქტების რეკონსტრუქციისათვის. დიდ მადლობას ვუხდით ემზარ ლომთაძეს

აღმოჩენების გრაფიკული ფიქსაციისა და ღრმა თხრილების კედლების შემაკავებელი კონსტრუქციების დაგეგმარებისთვის, რომელიც საჭირო იყო უსაფრთხო სამუშაო გარემოს შესაქმნელად. ჩვენი თხრილების მრავალი გეგმისა და ჭრილის დიგიტალიზაცია განახორციელეს: სილვია პერინიმ, გრემ ერსკინმა, ანნამარია დაიანამ, ემანუელე ინტალიატამ და ჯულიან ჯანსენ ვან რენსბურგმა. სილვია პერინი განსაკუთრებულ მადლობას იმსახურებს ყველა გეგმისა და სექციის საბოლოო ფორმაციისთვის. მადლობას ვუხდით როზალინდ მაკდონალდს, სეს პრისტმანს, სილვია პერინის და ფიონა მოუატს ტაბულების შედგენისათვის.

ძალზე მადლიერნი ვართ არაერთი ბიბლიოთეკის, განსაკუთრებით კი ედინბურგის, ოქსფორდისა და ლონდონის, პერსონალისა გაწეული კონსულტაციისთვის. ებერჰარდ ზაუერი ასევე მადლობას უხდის ალდონა ჯუდინას რუსულის გაკვეთილებისათვის, რომელიც უაღრესად სასარგებლო აღმოჩნდა.

ედინბურგის უნივერსიტეტიდან დიდი მხარდაჭერა გამოგვიცხადა არაერთმა კოლეგამ, მათ შორის არიან: ბილ ბრუსი, პროფესორი იუენ კემერონი, ფიონა ქარმაიკლი, ანნა გიბონსი, ლინდსი ჰემპტონი, კარენ ჰოუი, პროფესორი ალვინ ჯექსონი, პროფესორი გავინ კელი, სტეფანი ნოქსი, სიუზენ მაკინტოში, ლესლი მალინი, ჯენიფერ მილსი, ანჯელა ნოუბლი, ბრაიან პეისი, დოქტორი ულრიკ როთი და ლუის ტოდი.

დიდ მადლობას ვუხდით დოქტორ დარეჯან კაჭარავას და რუსუდან კაჭარავას ქართული ტექსტის რედაქტირებისათვის.

სპარსეთისა და მისი სამეზობლოს შესახებ ჩვენ მიერ განხორციელებულ პროექტში მონაწილეობისათვის დიდ მადლობას ვუხდით ჩვენს ირანელ კოლეგების, დოქტორ ჯაბრაილ ნოკანდეს, ჰამიდ ომრანი რეკავანდის, დოქტორ მოჰამედ-რეზა ნემატის, ბარდია შაბანისა და პროფესორ მეისამ ლაბაფ-ხანიკის, ასევე ომანში ჩვენს პარტნიორებს პროფესორ ნასსერ საიდ ალ-ჯაჰვარისა და დოქტორ დერეკ კენნეტს. სასანური იმპერიის საზღვრების დეტალური შესწავლა სამ განცალკევებულ ტერიტორიაზე დაგვეხმარა სისტემის, როგორც მთლიანობის მუშაობის შესწავლაში.

ყაზბეგის ეროვნული პარკის დირექტორ ოთარ წამალაიძის დახმარებით მოვიპოვეთ ნებართვა, რათა გვემუშავა ეროვნული პარკის ტერიტორიაზე, რისთვისაც მადლიერნი ვართ მის მიმართ. დიდ მადლობას მოვახსენებთ შინაგან საქმეთა სამინისტროს საპატრულო და საზღვრის დაცვის პოლიციას, რომლებმაც უზრუნველყვეს ექსპედიციის უსაფრთხო გადაადგილება ნეიტრალურ ტერიტორიაზე. არაერთხელ გვიმასპინძლეს, დაგვეხმარნენ და სასარგებლო რჩევები მოგვცეს ყაზბეგის მთავარანგელოზის სახელობის ბერმონაზვნებმა და მონაზვნებმა ახლად აშენებული მონასტრიდან. ვალში ვართ ჩვენი შესანიშნავი მზარეულების, ირინა ქუშიშვილისა და ბიბინო წიკლაურის, ჩვენი მასპინძლის, სტეფანე ფიცხელაურის, მძღოლის, ვიქტორ ავსაჯანიშვილის, დიასახლისის, ნელი ხაიკაშვილის, მუშების (ჩამონათვალი ქვემოთ) და, რაც მთავარია, ჩვენი ნიჭიერი და უკიდურესად გამრჯე გუნდის წინაშე, რომელთაც შესანიშნავი სამუშაო შეასრულეს საკმაოდ მძიმე მეტოროლოგიურ პირობებში, გაუსაძლის ამინდებსა და კოკისპირული წვიმებში. ჯგუფის წევრების სიას ქვემოთ გთავაზობთ.

დარიალის საველე არქეოლოგიური ექსპედიციისა და კამერალური სამუშაოების წევრები: სარიეჰ ამირიბეირამი (2015-2016), მარკ ენდრიუსი (2016), ჯიულია ბელატო (2016), მარია ბუზჟაკი (2015-2016), თინათინ ბულაშვილი (2016), კარლოს კასარეს პუერტო (2016), ლანა ჩოლოგაური (2013-2016), მალხაზ დათუკიშვილი (2014-2015), კარინე დებუე (2016), დელფინე დეკლუინაირე (2015-2015), ანნამარია დიანა (2013), გრემ ერსკინი (2013-2015), ჰომა ფათჰი (2014-2016) ანა გაბუნია (2013-2016), დავით გაგოშიძე (2013 და 2016), ქეთევან გოცირიძე (2013-2015) დავიდ გრინვუდი (2013-2016), მარკ ჰაიზე (2014), კრისტენ ჰოფფერი (2013-2014), გაბრიელა ინგე (2013 და 2016) ემანუელე ინტალიატა (2013 და 2015,) ერინ ირვინ (2016), რუსუდან ჯაჯანიძე (2016), ჯულიან იანსენ ვან რენსბურგ (2013), სტუარტ ჯონსონ (2015), ნინო კამკამიძე (2014-2016), როია ხაზაელი (2014-2016), კობა კობერიძე (2013 და 2015-2016), ელენა კრანიოტი (2013), გიორგი კვარაცხელია (2014-2015), ემზარ ლომთაძე (2014-2016), დენ ლოურენსი (2013-2014), ზურაბ ლემონჟავა (2014-2015), ივ მაკდონალდი (2013-2016), როსალინდ მაკდონალდი (2015-2016), მარჯან მაშკური (2014 და 2016), ალექსანდრე მესარკიშვილი (2015-2016), ანაჰიტა მითერთრაინერ (2015), ფიონა მოვატ (2013-2016), ამირან ნადირაშვილი (2015), დავით ნასყიდაშვილი (2015-2016), კლაუდია ნუნეს კალდეირა (2015), კონსტანტინე

ფიცხელაური (2013-2016), პრშემეკ პოლაკევიჩი (2016), სეს პრისტმანი (2013-2016), გრააჰამ რიჩი (2016), კიმ რუფი (2014-2015), რუსუდან რუსიშვილი (2015-2016), ებერჰარდ ზაუერ (2013-2016), ლიუდმილა შუმილოვსკიხი (2014-2016), კატერინე შუპე (2014 და 2016), ლიზა სნეიპი (2014-2015), სკოტ სტეტკიევიჩი (2014-2015), ლეიჰ სტროკი (2014), ანსი ტილიაკოუ (2013-2014) და სტივ აშერ-ვილსონი (2013-2014 და 2016).

მუშები და ასისტენტები: ნიკო ალიბეგაშვილი (2016), ვასიკო ალიბეგაშვილი (2016), ვასილ ალიბეგაშვილი (2014-2015), ვაჟა ალიბეგაშვილი I (2014-2016), ვაჟა ალიბეგაშვილი II (2015-2016), შავლეგო არაბული (2015), თორნიკე არაბული (2015), ვიქტორ ავსაჯანიშვილი (2016), ანდრო ბურდული (2015), ლამარა ჭაბუკაშვილი (2016), ირაკლი ჩოფიკაშვილი (2014), პავლე ჩოფიკაშვილი (2014), ფიდო ეფხოშვილი (2013) ვახო გოჩიაშვილი (2015), ნიკა ქავთარაშვილი (2015), შავლეგო ქავთარაშვილი (2016), ოლიკო ხაიკაშვილი (2016), ბაჩუკი ქუშაშვილი (2014), არჩილ ქუშაშვილი (2014), ბაჩუკი ქუშაშვილი (2013), დავით ქუშაშვილი (2015), ედიშერ ქუშაშვილი (2014-2015), გეგა ქუშაშვილი (2014), გიორგი ქუშაშვილი (2013), გოგი ქუშაშვილი (2013-2015), ლუხუმი ქუშაშვილი (2013-2014), რეზო ქუშაშვილი (2013), ღვთისო მარსაგიშვილი (2014-2016), გელა ფიცხელაური (2014), გიორგი ფიცხელაური (2014-2015), ვაჟა ფიცხელაური (2015-2016), გოჩა თექთუმანიძე (2013-2016) და იურა ვალიშვილი (2013).

Note

1 *მინდორაშვილი 2005; ამ მნიშვნელოვანი კვლევის შესახებ ინფორმაცია მოწოდებულია პროფესორ ვახტანგ ლიჩელისა და ჩვენი ქართული გუნდის წევრების მიერ, ვინც ამავდროულად შეაჯამა ცნობის მთავარი მონაკვეთები.*

დარიალის ხეობის ისტორია ანტიკურ ხანაში

ახალი ტერიტორიების ათვისება პრეისტორიულ ხანაში, სკვითების შემოსევა და დარიალის უღელტეხილის უძველესი სტუმრები

აღნიშნული თავი ეგერჰარდ ზაუერის მიერ შესრულებული კვლევის - „THE HISTORY OF THE DARIALI GORGE FROM ANTIQUITY TO MODERNITY“-ის ადაპტირებული თარგმანია. სამეცნიერო კომენტარებისთვის და ლიტერატურის ციტირებისთვის, ამავე წიგნში იხილეთ კვლევის ვრცელი, ინგლისურენოვანი ვერსია.

ძველი მსოფლიოს ისტორიაში, თავისი სტრატეგიული მნიშვნელობით, სულ რამდენიმე არქეოლოგიურ ძეგლს თუ გაუწევია მეტოქეობა დარიალის ხეობისთვის. კავკასიონი მთავარ ბუნებრივ ბარიერს წარმოადგენდა, რომელიც ევრაზიის სტეპებს ამიერკავკასიისგან და კიდევ უფრო ვრცელი ახლო აღმოსავლეთისგან გამოყოფდა. ევროპის ყველაზე მაღალი მთაგრეხილის ბილიკების, რამდენიმე ვიწრობისა და, განსაკუთრებით კასპიის ზღვის დასავლეთ სანაპიროს გასწვრივ არსებული მარშრუტის ეფექტურ კონტროლს სასიცოცხლო მნიშვნელობა ჰქონდა იბერიის, ალბანეთისა და სომხეთის ახლადაღმოცენებული სამეფოებისათვის, ისევე როგორც „ნაყოფიერი ნახევარმთვარის რეგიონისთვის“ (დასავლეთ აზია, ნილოსის ველი და დელტა, ჩრდ.-აღმ. აფრიკა), და მათი ნაყოფიერი მიწების დასაცავად, ჩრდილოეთიდან შემოჭრილი მომთაბარე ხალხებისგან. სტრატეგიული მნიშვნელობის უნიკალურობამ და მისი ბუნების სიდიადემ, შეიძლება ითქვას, რომ დარიალის ხეობა ყველაზე ცნობილ ხეობად აქცია ანტიკურ ხანასა და შუა საუკუნეებში. თუმცა, დიდი ხნის განმავლობაში, სანამ ის ანტიკური ავტორების ყურადღებას მიიპყრობდა და სახელს მოიხვეჭდა, მისი მიუდგომლობისა და ერთგვარი იზოლირებულობის გამო, დარიალის ხეობა უცნობ რეგიონად რჩებოდა.

კავკასიონზე ძლიერ აქტიური ბუნებრივი გარემოა. მასიურ მეწყერებს, ქვათაცვენასა და წყალდიდობებს შეუძლია არქეოლოგიური ძეგლები მიწით დაფაროს და მათი კვალი სამუდამოდ წაშალოს. ბუნებრივი კატაკლიზმებისგან დაცული ადგილები, მარცვლეულის მოსაყვანად ვარგისი მიწით, მიმზიდველი იყო დასახლებისათვის. ეს განსაკუთრებით ეხებოდა გორაკებს, რომელთა დაცვა უფრო ადვილი იყო, ხოლო დანალექი ქანებისაგან მათი გაწმენდა და ადრინდელი ნამოსახლარების ნარჩენების მოცილება ქვის კედლებს გამძლეობას მატებდა. დასამუშავებლად ვარგისი მიწის მონაკვეთების ინტენსიური გამოყენების გამო, ნიადაგი მუდმივად ითხრებოდა. ახლო აღმოსავლეთის ლანდშაფტისაგან განსხვავებით, სადაც დაფიქსირებულია ჩამოქცეული გამოუწვავი ალიზის აგურით ნაგები კედლები, ხოლო კულტურულ ფენებში წარმოდგენილია დროთა განმავლობაში მზარდი გორანამოსახლარები (თეფშები), მათში ასახული განვითარების მრავალი ფაზით, რაც უძვირფასესი ისტორიული არქივებია, დარიალის ხეობაში სულ სხვა სურათია. აქ გვიანდელი ბინადრები ხშირად უბრალოდ აქრობდნენ ადრეული ისტორიის კვალს. რეგიონის პრეისტორიისა და ადრეული ისტორიის გარკვეულ მონაკვეთებს სინათლე მოეფინა მხოლოდ რამდენიმე გამონაკლისის წყალობით, როგორიცაა ძვ.წ. III ათასწლეულით დათარიღებული კერამიკა, რომელიც სტეფანწმინდის სამხრეთ-დასავლეთით, დაახლოებით 8 კმ-ის დაშორებით მდებარე სოფელ ტყარშეტში აღმოჩნდა, და აგრეთვე აქემენიდური ხანის „ყაზბეგის განძი“. მხოლოდ ცალკეულ, მიუდგომელ, წყლით დაფარულ ადგილს აქვს შემონახული ინფორმაცია პრეისტორიული ადამიანების არსებობისა და ლანდშაფტზე მათ მიერ განხორციელებული ზეგავლენის შესახებ. ასეთი სახის მონაცემები, შესაძლოა, ძალიან მცირე რაოდენობით იყოს შემორჩენილი. ლუდმილა შუმილოვსკიხმა სტეფანწმინდის ჩრდილოეთით მოიპოვა

ყვავილის მტვრის შემცველი კერნი, რომლის წლოვანება ორი ათასწლეულით წინ უსწრებს ყველაზე ადრეულ წერილობით წყაროებსა და ჩვენი პროექტის ფარგლებში აღმოჩენილ არქეოლოგიურ არტეფაქტებს. სწორედ ეს დაჭაობებული ფენები გვაძლევს უნიკალურ საშუალებას, თვალი შევავლოთ დარიალის ბინდით მოცულ პრეისტორიას. სავარაუდოდ, ადამიანი ძვ.წ. III ათასწლეულის შუა პერიოდიდან მოყოლებული მის მიწურულამდე უკვე გაწაფული იყო ცეცხლის დანთებაში. არსებობს იმის მტკიცებულება, რომ ძვ.წ. III ათასწლეულის მიწურულიდან დაწყებული, მის მომდევნო ძვ.წ. II ათასწლეულამდე, ხეობის სამხრეთ მიდამოებში ხდებოდა მიწის დამუშავება და საძოვრების გამოყენება. ძვ.წ. II ათასწლეულის დასასრულიდან მოყოლებული ტყის მცენარეების ყვავილის მტვრის რაოდენობა მცირდება. ეს შესაძლოა ნაწილობრივ დაკავშირებული იყოს ჰავასთან, მაგრამ ლ. შუმილოვსკიხი ადასტურებს მარცვლეულისა და წყალმცენარეების ზრდას ძვ.წ. IX საუკუნეში, რაც ადამიანების მიერ ტერიტორიის ათვისების დაჩქარების ცალსახა ნიშანია.

კავკასიონი უახლოეს წარსულშიც კი რთული გადასასვლელი იყო, მაგრამ უფრო ძნელად გადასალახავი იქნებოდა მაშინ, როცა მისი ველები გაუვალი ტყეებით იყო მოფენილი, ხოლო ველურ ბუნებაში საკვები შედარებით რთული მოსაპოვებელი იყო მოგზაურებისთვის. დაახლოებით ძვ.წ. 850 წელს ადამიანთა დასახლების გაძლიერებას, შესაძლოა, შეექმნა წინაპირობა, რომ მიგრანტების უფრო დიდ ჯგუფებს, ანუ დამპყრობლებს, ესაზრდოვათ თანამედროვე სტეფანწმინდის - სამიწათმოქმედო კუნძულის - სამხრეთით მდებარე მიწებით, რაც მნიშვნელოვნად აადვილებდა სტეპებიდან ამიერკავკასიაში მომთაბარე ტომებისთვის საკვების მოძიებას. სტეფანწმინდის მიდამოებში ადამიანთა დასახლების გაძლიერება სავარაუდოდ სხვა, ნაკლებად მისადგომი ველების შესწავლას უწყობდა ხელს, რის შედეგადაც იქმნებოდა ან უმჯობესდებოდა სატრანსპორტო მარშრუტები. ალბათ, შემთხვევითი არ არის ის ფაქტი, რომ ყვავილის მტვრის კერნებიდან მოპოვებული მონაცემებით დადგენილი ადამიანების აქტიურობის ზრდის თარიღთან ახლოს სარწმუნოდ ფიქსირდება მოსახლეობის პირველი დიდი გადაადგილება ხეობის გავლით. ძვ.წ. VIII საუკუნის დასასრულს, ევრაზიის სტეპებიდან წამოსულმა დამპყრობლებმა, კიმერიელებმა და სკვითებმა, ახლო აღმოსავლეთამდე მიაღწიეს და, როგორც ვარაუდობენ, მათმა ნაწილმა დარიალის ხეობით გაიარა ეს გზა. ეს ჰიპოთეზა ნაწილობრივ ეყრდნობა ჰეროდოტეს ბევრად გვიანდელ მონათხრობს, რომელიც მოკლებულია გეოგრაფიულ სიზუსტეს. ჩვენ, რა თქმა უნდა, ვერ ვიქნებით დარწმუნებული ვერც იმაში, რომ ეს იყო პირველი დიდი მიგრაცია დარიალის ხეობის გავლით (ან, უბრალოდ, პირველი, რომელმაც ანტიკური ხანის მწერლების ყურადღება მიიქცია) და ვერც მათი გადაადგილების მარშრუტის სიზუსტეში. მაგრამ, სულ მცირე, შეიძლება იმის დაშვება, რომ ძვ.წ. I ათასწლეულის დასაწყისში ადამიანების დასახლების ფართოდ გაშლამ დარიალის ხეობა გადააქცია ამიერკავკასიაში სამოგზაურო და მასში შეღწევის გზად, და ამით მთაგრეხილის ორივე მხარეს მცხოვრებ ხალხებს გააცნობიერებინა გაღმა არსებული მიწებისა და მთაგრეხილზე გადასასვლელი გზის მნიშვნელობა.

ბურუსიდან მსოფლიოს მასშტაბის ნიშანსვეტობამდე-იბერიელები,სპარსელები და რომაელები დარიალის ხეობაში (ძვ.წ. II – ახ.წ. IV სს.)

X საუკუნის ავტორი მასუდი ირწმუნება, რომ დარიალის ციხე სპარსელმა მითიურმა უფლისწულმა ესფანდირმა ააშენა, რაც, შესაძლოა, სწორედ ასახავს იმ ფაქტს, რომ სპარსელებს ნამდვილად ჰქონდათ აშენებული ციხესიმაგრე (მხოლოდ ახ.წ. IV საუკუნის დასასრულს -V საუკუნის დასაწყისში), რომელიც მასუდის მოღვაწეობის დროს ჯერ კიდევ არსებობდა. ოლივერ უორდროპი მოგვითხრობს ადგილობრივ ტრადიციებზე, რომლებიც დარიალს აქემენიდ მეფე დარიუს I-თან (522-486) აკავშირებს. მითის ეს ვარიაცია უეჭველად გამომდინარეობს სახელის ეტიმოლოგიის არასწორი ინტერპრეტაციიდან. თუკი VI საუკუნის ისტორიკოს იორდანეს დავეყრდნობით, ამაზონები ამ მითურ კლდოვან ადგილას, კავკასიის Pylae Caspiae-ში ცხოვრობდნენ - მეომარ ქალთა რასისთვის შესაფერისი სავანე სწორედ ევრაზიის ველურ სტეპებში ყოფილა. მართლაც, ალექსანდრე მაკედონელმა კასპიის კარიბჭე ააშენა კლდესთან, რომელსაც სახელი ამაზონთა დედოფლის მარპეზიას მიხედვით ჰქონდა მინიჭებული. სახელგანთქმული მაკედონელი მეფის, ალექსანდრეს (ძვ.წ. 336-323 წწ.) კავშირსა და წვლილს დარიალის ხეობის კარის აშენებაში იერომე და პროკოპიუსიც ეხმიანებიან, მიუხედავად იმისა, რომ თავად მაკედონელი ამ ადგილებში არასდროს ყოფილა. მართალია, ზემოთ აღნიშნული ავტორები იხსენიებენ

ცენტრალურ კავკასიაში მდებარე დარიალს, მაგრამ ალექსანდრეს ლეგენდარული კარიბჭე ჩრდილოეთით მდებარე სხვა ისეთ მნიშვნელოვან ბარიერებთანაც იგივდება, როგორიც არის კასპიის კარიბჭე ალბორზში და გორგანისა და დერბენტის კედლები. გვიანანტიკური სირიული ტრადიციის თანახმად, ალექსანდრემ ეს ცნობილი კარიბჭე (7 000 ეგვიპტელი მჭედლის დახმარებით) ააგო და მასზე დაატანინა წარწერა, რომელშიც ბრძნულად იწინასწარმეტყველა რომაულ და სპარსულ მიწებზე ჰუნების შემოჭრა. სასიცოცხლო მნიშვნელობის მქონე ბარიერის ბედი, რომელიც ალექსანდრეს, ანუ ღვთის რწმუნებულის ხელით აშენდა, წინასწარ იყო განსაზღვრული – ის ღმერთის ხელით დაინგრეოდა, რის შედეგადაც ყველა ხალხსა და ერს ჰუნების ტალღა დატბორავდა, რაც სამყაროს აღსასრულის დასაწყისად მოიაზრებოდა.

უცხო ქვეყნებში შეთხზულ მითებს რომ თავი დავანებოთ, შუა საუკუნეების ქართლის ცხოვრება გვაცნობს პირველ დათარიღებულ მოვლენას, რომელიც ამ ადგილს უკავშირდება. როგორც ქართლის ცხოვრებაშია აღნიშნული, მეფე მირვან I-მა (ძვ.წ. 159-109 წწ.) კარიბჭე დუღაბიანი ქვის კედლით ჩახერგა. შუა საუკუნეების ლიტერატურაში მოხსენიებული ძვ.წ. II საუკუნის ამ ცნობის ჭეშმარიტების შემთხვევაში, ეს კედელი დარიალის ხეობაში აქამდე აღმოჩენილ, არქეოლოგიურად დათარიღებულ, დუღაბიან კედლებს ნახევარი ათასწლეულით წინ უსწრებს. შესაძლოა, არსებობდეს მოსაზრება, რომ ქართლის ცხოვრების ამ ჩანაწერის წყარო გვიანანტიკურობიდან შემორჩენილი კედელია (დარიალის ციხის დასავლეთით გზის ჩამხერგავი კედელი ან ბახტარის თხემის ზედა კედელი). არსებული ძეგლი იბერიელ მეფეს მიეწერებოდა, იმის მიუხედავად, მან თავიდან ააშენა ეს კედელი, თუ გამოცვალა ადრეული და ბაზისური ბარიერი, რაც უფრო მეტად არის შესაძლებელი. ორივე შემთხვევაში, შუა საუკუნეების ქართულ ქრონიკებში ჭეშმარიტების მარცვალი მაინც არის ასახული. დიდი ალბათობით, კარიბჭე თავდაპირველად იბერიელების მხრიდან კონტროლდებოდა, თუმცა უცნობია, ზუსტად როდის ააშენეს იბერიელებმა ბარიერი, როგორ გამოიყურებოდა ის, ან როდის მოიპოვეს მასზე კონტროლი. წერილობითი წყაროების თანახმად, იბერიელები კარიბჭეს აკონტროლებდნენ არა უგვიანეს ახ.წ. 35 წლიდან, ხოლო ხელოვნური ბარიერი და ციხე ახ.წ. 70-იან წლებისთვის არსებობდა. თუმცა შესაძლოა, რომ ეს თარიღები ასახავდეს უფრო იმ დროს, როდესაც ხეობამ რომაელი ავტორების ყურადღება მიიპყრო, ვიდრე უადრეს თავდაცვით ძალისხმევას. შესაძლებელია, რომ იბერიელებმა კარის კონტროლი ნამდვილად ძვ.წ. II საუკუნიდან დაიწყეს, რაც წინ უსწრებს იმ თარიღებს, როცა ტაციტუსისა და პლინიუსის წყაროებმა შეიტყვეს მათ შესახებ.

მეფე მირვან I-ის მმართველობის დროს განხორციელებული ხეობის ჩამხერგავი კედლის მშენებლობა შესაძლოა ერთ-ერთი ყველაზე ადრეული მოვლენა ან/და მითია, რომელიც დარიალზე მოხდა, მაგრამ ჩვენამდე მოღწეულია მხოლოდ შუა საუკუნეების ჩანაწერები, რომლებიც განსხვავდება უფრო ადრინდელი წერილობითი წყაროებისგან. პირველი ათასწლეულის დასაწყისისთვის ანტიკური ხანის ავტორებმა პირველად შეიტყვეს ცენტრალური კავკასიის მიუდგომელი უღელტეხილის შესახებ. სტრაბონი (დაახლ. ძვ.წ. 62 წელი - ახ.წ. 24 წელი) პირველი ავტორია, რომელმაც დეტალურად აღწერა დარიალის უღელტეხილის მარშრუტი. ცხადია, სტრაბონი გვიანდელ ავტორებთან შედარებით ნაკლებად იყო ინფორმირებული, თუმცა მისი ჩანაწერები, რომლის მიხედვითაც, ნომადური მიწებიდან იბერიისკენ მიმავალი გზის სივიწროვის გამო, 7 დღიანი მოგზაურობიდან ოთხი დღე ერთ რიგად მოუწიათ სიარული, კავკასიონის გადამკვეთ ამ მთავარ მარშრუტს ეხება. რთულია არ იფიქრო, რომ აუღებელი ციხესიმაგრე (τεῖχος δύσμαχον) დარიალის ციხესიმაგრე იყო. სტრაბონის გეოგრაფიული აღწერები აშკარად მიანიშნებს ბევრად უფრო სამხრეთით მდებარე ადგილზე, რომელიც მომთაბარე მიწებიდან შვიდი დღის ფეხით სავალზე და შემდგომ სამხრეთის მიმართულებით, მდინარე არაგვის ჩაყოლებაზე კიდევ ოთხი დღის მანძილზე იყო. რა თქმა უნდა, ამ ნახევრად მითურ ჩანაწერებში აშკარად არის უზუსტობები, შესაბამისად შეუძლებელია დარწმუნებით ითქვას, რას უნდა მიენიჭოს უფრო დიდი მნიშვნელობა – ადგილმდებარეობის შესახებ ინფორმაციას თუ კედლებით გარშემორტყმული ადგილის უმნიშვნელოვანეს პოზიციასა და მის აუღებლობას.

იმის მიუხედავად, თუ როგორ ინტერპრეტირებას მოვუძებნით ჩანაწერებს, არსებობს დიდი ალბათობა იმისა, რომ დარიალი სტრაბონის დროს ოკუპირებული იყო. გადმოცემის თანახმად, გეოგრაფის სავარაუდო გარდაცვალების თარიღიდან ათწლეულზე ოდნავ მეტი დროის გასვლის

შემდეგ კარიბჭე იბერიელების კონტროლს ექვემდებარებოდა და მათი, ანუ იბერიელების გავლენა კარს მიღმაც ვრცელდებოდა. ახ.წ. 35 წელს იბერიელებმა პოზიციის გასაძლიერებლად კავკასიონის მიღმა სარმატებს/ალანებს მოუხმეს, რომლებმაც დარიალის გადმოსასვლელით ისარგებლეს, ხოლო იმავდროულად მოწინააღმდეგეთა ძალებს ხელს უშლიდნენ კავკასიონის გადმოკვეთაში. მათ ბუნებაც დაეხმარა, ვინაიდან იმ დროს ერთადერთი ქმედითი, ალტერნატიული გზა დერბენტთან კასპიის ზღვით იყო დატბორილი. ჩრდილოელი მოკავშირეების დახმარებით, იბერიელებმა და ალბანელებმა გადამწყვეტი დარტყმა მიაყენეს პართიის ჯარს სომხეთში. უდავოა, რომ უკვე ახ.წ. I საუკუნეში კავკასიის გზის ჩაკეტვა შესაძლებელი იყო, ხოლო იბერიელები მის ცენტრალურ ქედს აკონტროლებდნენ. ეს გვაიძულებს ვიფიქროთ, რომ არსებობდა ბარიერი და დარიალის კლდე ყველაზე მიზანშეწონილი და უსაფრთხო თავშესაფარი იქნებოდა ხეობის გამორჩეულად ვიწრო მონაკვეთის დამცავი გარნიზონისთვის. პლინიუს უფროსი მრავლისმეტყველად აცხადებს, რომ Portae Caucasiae, ანუ კავკასიის კარი იგივე Portae Hiberiae - იბერიის კარია- ე.ი. იბერიელების კონტროლქვეშ არსებული ტერიტორიის კარიბჭე ჩრდილოეთ საზღვართან. სწორედ პლინიუსი გვაწვდის დარიალის ციხის პირველ დეტალურ აღწერილობას, რასაც მოგვიანებით დავუბრუნდებით.

თუკი დარიალის ხეობის სამხრეთი მისადგომები იბერიელების ზედამხედველობის ქვეშ იყო, ევროპის უმაღლესი მთათა სისტემაც ხშირად ეთნიკური თუ პოლიტიკური წყალგამყოფის როლს ასრულებდა და ჩრდილოეთ გორაკებსა და გაღმა სტეპებზე სხვადასხვა ჯგუფები დომინირებდნენ. იოსებ ფლავიუსის „იუდეველთა სიძველენის“ მიხედვით, ჩრდილოელები, რომლებმაც ახ.წ. 25 წელს იბერიელების ნებართვით გადმოკვეთეს კასპიის კარიბჭე, ალანები იყვნენ. იმ შემთხვევაშიც კი, თუ „იუდეველთა სიძველენი“-ს წერა ახ.წ. 90-იან წლებში დასრულდა, ეს ცნობა მაინც სანდოდ ჟღერს. ანტიკურ ლიტერატურაში მიღებული იყო ეთნონიმებისა და მრავალი ელემენტის შემცველი ტერმინების გამოყენება, როგორიცაა სკვითები ანდა სარმატები, იქამდე სანამ ისეთი ქვეჯგუფები, როგორიცაა ალანები, ფართოდ ცნობილი გახდებოდა და მათი წერილობითი მოხსენიება დაიწყებოდა. თუმცა, ათწლეულებისა და საუკუნეების განმავლობაში ტრადიციული ეთნონიმები პარალელურად მაინც გამოიყენებოდა. დიდი ალბათობით, ალანები ჩრდილოეთ კავკასიაში უკვე ახ.წ. 30-იან წლებში და ალბათ იქამდეც სახლობდნენ, იმის მიუხედავად, რომ ტაციტუსი ტერმინ „სარმატებს“ იყენებს, რომელიც მისი მკითხველებისთვის უფრო ნაცნობი უნდა ყოფილიყო. ლუკანუსი, რომელიც ახ.წ. 65 წელს გარდაიცვალა (იოსებ ფლავიუსის „იუდეველთა სიძველენის“ შექმნამდე ერთი თაობით ადრე) და თავისი ნაშრომი ნერონს (ახ.წ. 54-68) მიუძღვნა, ამტკიცებს, რომ მეომარი ალანები Caspia Claustra-ს (კასპიის ბარიერის) მიმდებარე ტერიტორიებზე ცხოვრობდნენ და სავსებით შესაძლებელია, რომ არა ალბანები, არამედ ალანები ყოფილიყვნენ ნერონის მიერ დაგეგმილი სამხედრო კამპანიის სამიზნეები, რასაც მალე შევეხებით. ცხადია, სიფრთხილე გვმართებს, როცა ანტიკური ავტორის მიერ ევრაზიისსტეპებისმკვიდრთადიდიეთნიკური ჯგუფებისადმი მიკუთვნებაზე ვსაუბრობთ, მაგრამ ნამდვილად ღირს იმის აღნიშვნა, რომ კარიბჭე სარმატების სახელს ატარებს, რომლებიც კარიბჭის ჩრდილოეთით ახ.წ. 35 წელს გვხვდებიან, თუმცა პტოლემეუსი მათ მხოლოდ II საუკუნეში შეხვდა. ბევრად უფრო ხშირად, III საუკუნისა და შუა საუკუნეების სასანურ წარწერებზე კარიბჭე ალანების სახელს ატარებდა (რომლებიც მიჩნეულნი იყვნენ, აღმოსავლური/ირანული წარმოშობის მქონედ, და რომლებიც სარმატების სხვა ქვეჯგუფებს მართავდნენ). სწორედ ალანებმა მიანიჭეს კარიბჭეს სპარსული სახელი (Dar-i-al რაც სიტყვასიტყვით „ალანთა კარს“ ნიშნავს). დარიალის ჩრდილოეთით ალანები ახ.წ. I საუკუნემდე ათასი წლით ადრე დასახლდნენ (და სახლობენ დღემდე, თუკი მათ თანამედროვე ოსებად მივიჩნევთ). სახელი არ აღნიშნავს ალანთა ან სარმატთა მიერ კარიბჭის მფლობელობას, რაც დავით მინდორაშვილმა სწორად აღნიშნა. გარკვეული წყაროების მიხედვით, I ათასწლეულის შუა ხანებში, და დიდი ალბათობით მის მიწურულს, ალანები გარკვეული პერიოდით აკონტროლებდნენ კარიბჭეს, მაგრამ კონკრეტული ცნობების მიხედვით, I ათასწლეულში ის ჩვეულებრივ იბერიელთა ეგიდის ქვეშ იყო - ან ნებისმიერი იმ ძალისა, რომელიც თავად იბერიას ან მის ნაწილებს აკონტროლებდა. დარიალი იყო გასასვლელი ალანებისკენ და ალანებისთვის (უფრო ფართო გაგებით, სარმატებისთვის), მაგრამ კარიბჭის მცველები, ზოგადად, სამხრეთელები იყვნენ.

ახ.წ. I საუკუნის დასაწყისში, ჯერ კიდევ რომის იმპერიის ორბიტის ქვეშ მოქცეულმა კავკასიონის კარიბჭემ სწრაფად გაითქვა სახელი ხმელთაშუაზღვისპირეთსა და ახლო აღმოსავლეთში. ის გახდა იმპერატორ ნერონის მიერ დაგეგმილი კამპანიის სამიზნე, რომელმაც ბუდიკას, აჯანყების ჩახშობისთვის სახელგანთქმულ XIV ლეგიონს, გატავიის რვა კოჰორტა შეუერთა და ექსპედიციისთვის ახალი ლეგიონი ჩამოაყალიბა სახელად „ალექსანდრე დიდის ფალანგა“. სავარაუდოა, რომ ლეგიონის დაწინაურებულმა ნაწილმა კასპიის კარიბჭემდეც (claustra Caspiarum) მიაღწია. ლეონარდო გრეგორატი ავითარებს ჰიპოთეზას, რომ ექსპედიცია მიზნად ისახავდა რომის იმპერიის მიერ კონტროლის მოპოვებას რეგიონზე და გულისხმობდა ჯარების განთავსებას დარიალისა და დერბენტის გასასვლელებზე. მიუხედავად იმისა, ჰქონდა თუ არა იმპერატორს ჩაფიქრებული პირდაპირი ან ირიბი კონტროლის მოპოვება, ეს ამბიციური გეგმა ვერ განხორციელდა, მისი ნაადრევი გარდაცვალების (ახ.წ. 68 წ.) გამო, თუმცა რომის სტრატეგიული ინტერესი კავკასიაში ამით არ გამქრალა.

ის მარშრუტი, რომელიც ალანებმა ყველაზე მნიშვნელოვანი შემოსევის დროს (ახ.წ. 72-73 წწ.) გაიარეს და რომელიც იმდენად სახიფათო აღმოჩნდა, რომ პართიის მეფე ვოლოგეზ I-მა (ახ.წ. 51-79 წწ.) სამხედრო დახმარება უშედეგოდ ითხოვა რომაელებისგან, ფრიად საკამათოა. იოსებ ფლავიუსის ცნობის მიხედვით, გზა გადიოდა უღელტეხილზე, რომელსაც ალექსანდრე, ჰირკანიის მეფის თანხმობით, რკინის კარიბჭით იცავდა (იგულისხმება გზა ალბორზის მთების გავლით), თუმცა შესაძლებელია, იბერიელების ნებართვით, მარშრუტი კავკასიონზე - ზუსტად დარიალის გადასასვლელზე გადიოდა ან, რაც ყველაზე ნაკლებ სავარაუდოა (როგორც ჰირკანელთა, ასევე იბერთა, კონტროლის გარეშე), - დერბენტზე. პირველ მოსაზრებას იოსებ ფლავიუსის მიერ მოწოდებული ინფორმაცია ამყარებს, რომლის თანახმად, მათ ჯერ მიდიას მიაღწიეს და შემდგომ სომხეთს. თუმცა, შეუძლებელია საბოლოო არჩევანის გაკეთება ალბორზის მთებსა და დარიალს შორის. თუ იოსებ ფლავიუსმა სწორად განსაზღვრა ალანი დამპყრობლების წარმომავლობა მდინარე ტანაისისა (დონის) და მეოტიდის ტბის (აზოვის ზღვის) ნაპირებიდან, მაშინ დარიალის გავლით შემოსევა ბევრად უფრო ლოგიკურია, რაც იბერიის მიმართ სტრატეგიულ ინტერესსაც ახსნის. როგორც უკვე აღინიშნა, ალანები დარიალის ჩრდილოეთით დასახლდნენ არაუგვიანეს ახ. წ. 60-იანი წლების შუახანებისა და ადგილს სახელი სწორედ მათ მისცეს, რაც საკმაოდ ძლიერი არგუმენტია იმ მოსაზრების განსამტკიცებლად, რომ შემოსევა დარიალის გავლით მოხდა, ვინაიდან რთული წარმოსადგენია, რომ მათ შავი ზღვიდან ან ჩრდილოეთ კავკასიიდან კასპიის ზღვის შემოვლითი გზით ესარგებლათ. რა თქმა უნდა, დანამდვილებით ვერ ვიტყვით რამდენად მართალი იყო იოსებ ფლავიუსი, დამპყრობლების ეთნიკურობასა და წარმომავლობასთან დაკავშირებით ან რამდენად შეცდა, როცა მარშრუტად ჰირკანიის ტერიტორია დაასახელა. ქართლის ცხოვრების მიხედვით, იბერიელებმა ტყვედ ჩაიგდეს სომხეთის უფლისწული ზარენი და სომხეთთან ომის დროს, რომელშიც ალანებს იბერიელების მხარე ეკავათ, დარიალის ციხესიმაგრეში გამოკეტეს. მართალია, ისტორიული ჩანაწერები საუკუნეების შემდეგ გაკეთდა და ისინი შესაძლოა უზუსტობებს შეიცავს, მაგრამ კონტექსტიდან გამომდინარე, შესაძლებელია წყაროში აღწერილი მოვლენა ალანების შემოსევის ახ.წ. 72-73 წწ. კვალდაკვალ მოხდა და თუ ეს ასეა, მაშინ მყარდება მოსაზრება, რომ ალანებმა იბერიელი მეფის ნებართვით დარიალის გზით ისარგებლეს, და რომ ნამდვილად არსებობდა ციხესიმაგრე რომელიც, იმ დროს იბერიელების მფლობელობის ქვეშ იყო.

დარიალი, როგორც იმპერატორ ნერონის გრანდიოზული სამხედრო კამპანიის სამიზნე, რომელიც, დიდი ალბათობით, რამდენიმე წლის შემდეგ ალანებს გზას გაუკვალავდა პართიის ტერიტორიის სიღრმეში. დარიალის მისადგომებთან რომაელი ინჟინრების საქმიანობის შედეგები, ეჭვგარეშე იმის დასტურია, რომ დარიალის ხეობამ ახ.წ. 60-70-იან წლებში განსაკუთრებული პოლიტიკური მნიშვნელობა შეიძინა. ამ პერიოდის განმავლობაში, როცა კავკასიის რეგიონით რომაელთა დაინტერესებამ პიკს პირველად მიაღწია, პლინიუს უფროსი (ახ.წ. 23/24-79 წწ.) იმ დროისთვის უკვე ცნობილ კარიბჭეს დეტალურად აღწერს, სავარაუდოდ, იმ ცნობებზე დაყრდნობით, რომელიც რომაელების დაზვერვამ იბერიაში სამხედრო ოპერაციების დროს შეაგროვა.

„შემდგომ ამისა მოდის კავკასიის კარიბჭე, რომელსაც ბევრი შეცდომით უწოდებს კასპიის (კარიბჭეს), უზარმაზარი, ბუნებრივი მონუმენტი, სადაც მთაგრეხილში მოულოდნელი წყვეტაა და სადაც რკინით შეჭედილი ძელებით ნაგები კარიბჭე დგას. მის ქვემოთ, მყრალი მდინარე სწრაფად

მიედინება, ხოლო საგუშაგოს მხარეს პატარა ციხესიმაგრე დგას სახელად „კუმანია“, რომელსაც შეუძლია აურაცხელი რაოდენობის მტრის შემოსევის მოგერიება. ამ ადგილას, სწორედ იბერიის ქალაქ ჰერმასტუსის* გასწვრივ, კარიბჭე სამყაროს ორად ჰყოფს. *ჰერმასტუსი (ჰარმოზიკე/არმაზი) - მცხეთის გარეუბანია, რომელიც მდინარე კიროსის/კურას/მტკვრის სამხრეთით მდებარეობს, მცხეთის ცენტრალური ნაწილის საპირისპირო მხარეს. როგორც ჩანს, ზემონახსენები შენობის წარწერა (ახ.წ. 75 წ) ჰერმასტუსის მახლობლად იყო, რის გამოც პლინიუსმა განსაკუთრებული მნიშვნელობა მიანიჭა ამ ადგილს.

თუ არ ჩავთვლით არასწორ მტკიცებას მდინარის წყლის სიმყრალის შესახებ, რაც სავარაუდოდ განპირობებული იყო რეგიონში გოგირდოვანი წყაროების არსებობით, პლინიუსის აღწერილობა ზუსტია, იმ შემთხვევაში თუ ის დარიალის ციხესიმაგრეს ეხება. ყველაფერი მისაღებია - მისი ადგილმდებარეობა ჰერმასტუსის მოპირდაპირე მხარეს, მოულოდნელად გაწყვეტილი მთაგრეხილი, ჩქარ მდინარესთან მდებარე კლდე, რომელსაც იცავდნენ. მდინარე თერგი, აქ ისეთი სიგანისაა, რომ მისი ხის კარიბჭით ჩარაზვა ნამდვილად შესაძლებელი იყო. კარიბჭე, ალბათ, წყლის დონის მატებისას იღებოდა, ხოლო დაკლებისას - იკეტებოდა, რათა მტრისთვის თავდასხმა კიდევ უფრო რთული ყოფილიყო.

თვითონ პლინიუსის მიერ გამოყენებული ლათინური ტერმინი castellum, რომლითაც ის კუმანიას აღნიშნავდა, უფრო შეეფერება მომცრო ზომის ციხეს, როგორიც დარიალის ციხეა, ვიდრე დიდ ციხესიმაგრეს ან ძალიან პატარა ციხეს. იულიუს ფონ კლაპროთის მოსაზრებით, უკვე XIX საუკუნის დასაწყისში დარიალის ციხიდან თითქმის არაფერი იყო დარჩენილი, ვინაიდან თანამედროვე სამხედრო გზის გაყვანის დროს კლდის ის ნაწილი, სადაც ციხე იდგა ააფეთქეს. რა თქმა უნდა, 200 წლის წინ სამხედრო გზის მშენებლობამ დაანგრია კლდის ნაწილი, თუმცა დარიალის ციხის გარე კედლის გადარჩენა ამტკიცებს, რომ ციხე ხელშეუხებელი დარჩა და ზედა პლატო დღესაც იმხელაა, რამხელაც ანტიკურ დროში იყო. კლაპროთი ალბათ მართალი იყო იმაში, რომ თვითონ ციხე ნაწილობრივ დაინგრა აფეთქებების გამო, რათა თავიდან აეცილებინათ აჯანყებულთა მიერ მისი გამოყენება, მაგრამ არა კლდე, რომელზეც ის იდგა. პლინიუსი, ჩანს, საქმის კურსში იყო, იცოდარა, რომ კუმანია ასობით რომაულ ციხეზე პატარა იყო, რადგან ჩვეულებრივი ქვეითი ჯარის კოჰორტები (cohors) ან კავალერია (ala) დახმარების გარეშე გაუშვა ლეგიონერთა სიმაგრეში. მისი რწმენა, რომ პატარა, კლდეზე ნაგები ციხესიმაგრე ხელს შეუშლიდა „ურიცხვ ტომებს“ კავკასიონის გადმოლახვაში, მაშინ როცა სხვა საზღვრებთან იმავე შედეგის მისაღწევად ასჯერ მეტი რაოდენობის სამხედრო უნდა ყოფილიყო ციხესიმაგრეში (castellum), მიუთითებს დარიალის ციხის ბუნებრივი ადგილმდებარეობის უნიკალურ უპირატესობებსა და იმ ფაქტზე, რომ ამიერკავკასიის სატრანსპორტო გზა სრულად კონტროლდებოდა.

საინტერესოა, რომ იაკობ რაინეგსი პლინიუსის დროიდან დაახლოებით 1700 წლის გასვლის შემდეგ ანალოგიურ დასკვნებამდე მიდის. დარიალის ფორტთან დაკავშირებით ის აღნიშნავს: „ვისაც არ უნდა აეშენებინა ეს საფორტიფიკაციო სისტემა თუ ციხესიმაგრე სომხეთისა თუ საქართველოს საზღვრების ჩრდილოეთ კავკასიიდან შემოჭრილი მტრული მეომარი ტომების მოსაგერიებლად, უკეთეს ადგილს ვერ იპოვიდა, რადგან ახლაც, ათასი კაცი საკმარისია, რათა გზა ჩაუხერგოს რამდენიმე ათასს და შეაჩეროს მათი შემოსვლა.“

რობერ ლიალი, რომელიც ფორტს 1822 წელს ესტუმრა, მსგავს შეფასებას გვთავაზობს:

„ციხესიმაგრე (დარიალის ციხე) სათანადო მდგომარეობაში რომ ყოფილიყო, თერმოპილე მხოლოდ ასი კაცითა და რამდენიმე ქვემეხით შეძლებდა რუსეთის გაერთიანებული ძალების წინააღმდეგ თავდაცვას. ჩვენ გვაცნობეს, რომ რამდენიმე ოსი ახლაც იცავს ვიწრობს რუსთა ჯარისაგან და ხოცავს ყველას, ვინც ცდილობს გადმოსვლას. იმისთვის, რომ მომავალში თავიდან აეცილებინათ მსგავსი ქმედებები, რუსებმა დაანგრიეს ციხესიმაგრე. თუმცა, ალბათ, ადგილობრივებს ანუგეშებს ის გარემოება, რომ მთას, რომელიც, დიდი ალბათობით, კვლავ გახდება საომარი მოქმედებების ავანსცენა, ვერ დაანგრევენ.“

შესაძლებელია, რაინეგსის მიერ დასახელებული დაცვისა და თავდასხმის ძალების ციფრები გაზვიადებული იყოს, ლიალის მიერ მოწოდებული თავდაცვისათვის საჭირო ძალების რაოდენობა კი უფრო სანდო, ორივე ავტორის მიერ შემოთავაზებული დიდი რიცხობრივი სხვაობის არსებობა სარწმუნოდ ჟღერს. რთული წარმოსადგენია, დარიალის ხეობას რამდენიმე ასეულზე მეტი დაეტია, ხოლო მტრის ჯარები ყველაზე მეტი ათობით ათასს არ გადააჭარბებდა. ასეთი

რიტორიკული შელამაზებების მხედველობაში მიღების გარეშეც, ცხადია, რომ ორივე - როგორც დასავლელი ავტორი, რომელმაც ყველაზე ადრე მოგვაწოდა კლასიკური პერიოდის ამ ციხესიმაგრის დეტალური აღწერა, ასევე თანამედროვეობის ერთ-ერთი პირველი დასავლელი ვიზიტორი - თვლიდა, რომ ციხესიმაგრეში განთავსებულ პატარა გარნიზონს შეეძლო სტეპებიდან მოსული ბევრად უფრო დიდი რაოდენობის დამპყრობლების შეჩერება. რაინეგსი თავად ესტუმრა ციხესიმაგრეს, ხოლო პლინიუსი, მართალია, იქ ნამყოფი არ იყო, მაგრამ მან იმ დროს გააკეთა ჩანაწერები, როცა, სავარაუდოდ, რომაელ თვითმხილველთა ანგარიშები მისთვის ხელმისაწვდომი გახდა. პლინიუსის ჩანაწერებში არაფერია, რაც მიგვანიშნებდა იმაზე, რომ კუმანიას იმ დროს რომაელი გარნიზონი იცავდა, თუმცა სავსებით ლოგიკურია გვჯეროდეს, რომ იბერიელებსა და რომაელებს შორის საერთო სამხედრო ინტერესების არსებობის გამო ახლო თანამშრომლობა ჩამოყალიბდა, რაც დასტურდება ახ.წ. 75 წლით დათარიღებული, ციტირებული წარწერით. სწორედ ამ თანამშრომლობის ან/და სამხედრო ექსპედიციების წყალობით მოიპოვა რომმა დეტალური ცოდნა ხეობის გეოგრაფიის შესახებ.

საოცარია, რომ კავკასიის (ან კასპიის) კარიბჭის აშკარა მნიშვნელობასთან დაკავშირებით თანამედროვე სამეცნიერო ლიტერატურა ძირითადად ანტიკურ წერილობით წყაროებს ეყრდნობა, ხოლო არქეოლოგიური არტეფაქტები იშვიათადაა მოყვანილი, თუ არ ჩავთვლით ქართველ მეცნიერებსა და მათ, ვინც ქვეყანას იცნობს. ჯერ კიდევ იაკობ რაინეგსს, იულიუს ფონ კლაპროთსა და ალექსანდრე პუშკინს ეჭვი არ ეპარებოდათ, რომ პლინიუსი და გვიანანტიკური წერილობითი წყაროები მოიხსენიებდნენ დარიალის ხეობას და მთის მწვერვალზე განთავსებულ საფორტიფიკაციო ნაგებობას, „დარიელა“-ს, სადაც ციხესიმაგრის კედლის ნაშთები და მისი შიდა ტიხრები დგას მდინარე თერგის/ტერეკის დასავლეთ ნაპირზე, აგრეთვე შემორჩენილია წყლის მოსაპოვებლად მდინარემდე ჩასასვლელი საფეხურები თუ კიბეები და კლდეში ნაკვეთი არხი. რაინეგსისა და კლაპროთის მიერ მოხსენიებული „დარიელას“ საფორტიფიკაციო ნაგებობა, როგორც ამას მათივე აღწერილობა ცხადჰყოფს, იდენტურია ციხესიმაგრის, რომელიც ყველგან დარიალის ციხედ არის მოხსენიებული. ედუარდ აიხვალდიც, ყოყმანით, მაგრამ მაინც, აიგივებს პლინიუსის კუმანიას ციხესიმაგრე „დარიალთან“. უახლოეს წარსულში, დევიდ ბრაუნდმა, იულონ გაგოშიძემ და გელა გამყრელიძემ დარწმუნებით გამოთქვეს მოსაზრება, რომ კუმანია დარიალის ციხეა (რომელსაც თამარის ციხის სახელითაც იცნობენ). ამის საპირისპიროდ, ვილჰელმ ტომაშეკი ემხრობა ვერსიას, რომლის თანახმადაც კუმანია ქუმლის ციხეა, რომელიც უფრო სამხრეთით, ჯვრის უღელტეხილთან ახლოს მდებარეობს. საინტერესოა, რომ ის ციტირებს კლაპროთს, რომელიც (მაშინ როცა ახსენებს ქუმლის ციხეს) თავად იმავე დასკვნამდე მივიდა, როგორც მოგვიანებით ბრაუნდი და რაინეგსი, რომლებმაც კარიბჭის ადგილმდებარეობა ზუსტად იგივე ადგილზე განსაზღვრეს (დარიალის კლდეზე), სადაც კლაპროთმა. გიორგი ლეონ ქავთარაძე და რობერტ ჰიუსენი კუმანიის ციხეს ანალოგიურად აიგივებენ ქუმლის ციხესთან, თუმცა ჩვენ არ გვაქვს რაიმე დამამტკიცებელი საბუთი (გარდა ტოპონიმების მსგავსებისა) იმ ჰიპოთეზის გასამყარებლად, რომ კუმანია ქუმლის ციხეა. არც ერთი მკაფიო ტოპოგრაფიული მახასიათებელი, რომელსაც პლინიუსი კუმანიას მიაწერს (ანუ მისი მდებარეობა მდინარეზე, გამოშვერილ კლდეზე, რომელიც დომინირებს სატრანსპორტო მოძრაობასა და ვიწრო ხეობაზე) არ შეესაბამება ქუმლის ციხეს, მაშინ როცა ისინი გასაოცრად ესადაგებიან დარიალის ციხეს. ჩვენ შეგვიძლია დავასკვნათ, რომ პლინიუსი თითქმის დანამდვილებით დარიალის ციხესიმაგრის წინამორბედს მოიხსენიებდა და მისი სტრატეგიული მნიშვნელობის ზუსტ შეფასებას გვთავაზობდა. ასეა თუ ისე, დღემდე ვერავინ მოახერხა რაიმე სხვა ადგილის იდენტიფიცირება, რომელიც ამ აღწერილობას შეესაბამებოდა და ისევე გააკონტროლებდა სატრანსპორტო მოძრაობას, როგორც დარიალის ციხესიმაგრე.

სამწუხაროდ, არქეოლოგიამ მხოლოდ მცირე წვლილი შეიტანა პლინიუსის დროის დარიალის ციხესიმაგრის ისტორიის შესწავლაში, თუ არ ჩავთლით ერთ პატარა, თუმცა მნიშვნელოვან აღმოჩენას. ძვლის ფრაგმენტი, რომელიც ნაპოვნია ციხესიმაგრის სამხრეთით მდებარე ტერასის კულტურული ფენების თანამიმდევრობაში ქვედა დონეზე, რომელიც ძვ.წ. 37 წ.-ახ.წ. 76 წლით თარიღდება (83.7%-იანი ალბათობით, ძვ.წ. 4 - ახ.წ. 67 წწ). თითქმის დადასტურებით შეიძლება ითქვას, რომ მებაღეობისა და სამიწათმოქმედო აქტივობები დარიალის ციხის მიმდებარე ტერიტორიებზე სულ მცირე ახ.წ. 60-იანი

წლებიდან, პლინიუსის პერიოდიდან ან უფრო ადრეული ხანიდან იწყება. რა თქმა უნდა, დათარიღებული არტეფაქტი არ ადასტურებს ზემოთ აღნიშნულ მოსაზრებას კუმანიისა და დარიალის ციხის იდენტურობასთან დაკავშირებით. მებაღეობა და მიწათმოქმედება განვითარებული იქნებოდა დასახლებების უმეტესობასთან. მხოლოდ იმ შემთხვევაში, თუ ვირწმუნებთ, რომ პლინიუსის აღწერილობა დარიალს მიესადაგება, აქ მიწათმოქმედების დაწყების განსაზღვრა მნიშვნელოვანი ხდება იმდენად, რამდენადაც ის მიანიშნებს იმაზე, რომ დიდი ალბათობით უღელტეხილზე დასახლება იქამდე დაიწყო, სანამ ჩანაწერები შეიქმნებოდა. ალბათ ვერასდროს გავიგებთ როგორ გამოიყურებოდა ძვ.წ. I საუკუნის კუმანიის ციხესიმაგრე. გვიან ანტიკურ ხანაში ციხის მშენებლებმა პლატოს ზედა ნაწილი დედაქანამდე გააშიშვლეს. მთელი ან თითქმის მთელი ახ.წ. IV საუკუნემდელი არქიტექტურა, სავარაუდოდ, სამუდამოდ დაკარგულია. ბევრად უფრო მაღალია იმის შანსი, რომ იმ დროს გამოყენებული მატერიალური მასალების ნაშთები შემორჩა კლდის დასავლეთ ძირში, მაგრამ მათ მოსაპოვებლად საჭირო იქნება მყარად გამაგრებული ღრმა შახტის გაჭრა სამშენებლო ნანგრევებში.

ძლიერმა წყალდიდობებმა, რომლებიც ძალიან ხშირია მდინარე თერგის ხეობაში, ეჭვგარეშეა, რომ წალეკა დარიალის ციხის აღმოსავლეთით, ან ხეობის სხვა მხარეს, არსებული ქვის ხელოვნური ბარიერები. სხვა მასალებისგან, როგორიცაა ხე, დამზადებული წინაღობები, კიდევ უფრო ნაკლებად გამძლე აღმოჩნდებოდა. შემდგომი აღმოჩენები არ ეწინააღმდეგება პლინიუსის აღწერილობას რკინით შეჭედილი ძელებით აშენებულ კარზე, რომელიც მის დროს არსებობდა. თუკი ის განთავსებული იყო მდინარის ნაპირზე, მაშინ მისი აღდგენა ყოველი წყალდიდობის შემდეგ, საშუალოდ დეკადაში ერთხელ ან ორჯერ დასჭირდებოდათ. ასევე ლოგიკური იქნებოდა ციხის დასავლეთით ბარიერის აშენება, რომელიც დარიალის ციხესიმაგრისა და მის დასავლეთით მდებარე კლდის ფერდობს შორის არსებულ ვიწრო გასასვლელს ჩახერგავდა, რაც დაიცავდა მას წყალდიდობისა და მეწყერისგან. ჩვენთვის უცნობია, დაინგრა თუ არა რაიმე ტიპის ჩამხერგავი ჭიშკარი, როცა ციხის დასავლეთით გვიანანტიკურ ხანაში დუღაბიანი კედელი აშენდა. შესაძლებელია, ის უკანასკნელი ორი ათასწლეულის განმავლობაში დარიალის ციხესიმაგრის ქანობიდან ტონობით ჩამოცვენილი ნანგრევებითა და ქვებით, ანდაც ნაკლებად სავარაუდო, მოპირდაპირე კლდიდან მოწყვეტილი ლოდებით დაზიანდა. შესაძლებელია, ნაშთები ჩამარხული იყოს საკმაოდ ღრმად. მოკლედ, ნაკლებად სავარაუდოა, რომ მხოლოდ ბუნებრივი პირობების ეფექტური გამოყენების საფუძველზე ახ.წ. I საუკუნეში (შესაძლოა იქამდეც) იბერიელებმა წარმატებით შეძლეს დარიალის ხეობაში მიმოსვლის კონტროლი. პლინიუსის მიერ მოწოდებული ინფორმაცია ადასტურებს არაუგვიანეს ახ.წ. 70-იანი წლებისთვის ხელოვნურად გამაგრებული ბუნებრივი თავდაცვითი პუნქტის არსებობას, რომელიც შემდგომმა მშენებლებმა დაანგრიეს. მის ნგრევაში, ნაწილობრივ, ბუნებამაც მიიღო მონაწილეობა, რომელმაც კიდევ უფრო ადრე დამარხა ან წყალს გააყოლა ციხესიმაგრის ნაწილები.

ჩრდილოეთის ზეწოლამ კავკასიის რეგიონში ჯერ კიდევ I საუკუნეში გამოიწვია ვნებათაღელვა. გადმოცემის თანახმად, იბერიელებმა სიტუაცია დაარეგულირეს ან თავიანთ სასარგებლოდ შემოატრიალეს. თავად მოახერხეს ასეთი მასშტაბით მოქმედება თუ რომმა გამოიჩინა უფრო აქტიური ინტერესი? ახ.წ. 83-96 წლებში XII ლეგიონის დანაყოფი თანამედროვე ბაქოს სიახლოვეს იდგა, რაც გვაფიქრებინებს, რომ რომს კარგად ესმოდა კავკასიის მთაგრეხილის და მის სამხრეთით მდებარე ტერიტორიების სტრატეგიული მნიშვნელობა. რეალურია თუ რიტორიკული, პოეტი სტაციუსი ახ.წ. 95 წელს კასპიის კარიბჭის (Portae Caspiacae) მდებარეობას რომაელ მესაზღვრეთა მოქმედების არეალში მიუთითებს. რომის მიერ სომხეთის ხანმოკლე დაპყრობა (ახ.წ. 114-117 წწ.) სამხრეთ კავკასიაში რომის დამპყრობლური პოლიტიკის მაქსიმუმად, მაგრამ არა მის დასასრულად, მოიაზრება. ფილოსოფოსი თემისტიუსი, რომელიც IV საუკუნეში მოღვაწეობდა, ამტკიცებს, რომ არიანემ კასპიის ჭიშკარი გაიარა. შესაძლებელია, რომ ეს კონკრეტული განცხადება ფაქტზე იყოს დაფუძნებული, თუმცა ის აღბეჭდილია ახ.წ. 384 წელს სიტყვით გამოსვლის დროს - არიანეს მიერ ალანების წინააღმდეგ წარმოებულ ომსა (ახ.წ. 135/136 წწ.) და მის უფრო ადრინდელ, ტრაიანეს პართიულ ომებში (ახ.წ. 114-117 წწ.) სავარაუდო მონაწილეობის თარიღზე თითქმის მეოთხედი ათასწლეულით უფრო გვიან. ჯონ ლაიდუსი (მართალია, აღნიშნული მოვლენებიდან 400-ზე მეტი წლის შემდეგ წერდა, მაგრამ ის არიანეს დაკარგული ნაშრომების ციტირებას ახდენს) თვლიდა, რომ არიანე კასპიის კარიბჭეს კარგად იცნობდა.

ფილიპ ა. შტადტერი (Philip A. Stadter) და ჯულიან ბენე (Julian Bennett) ამტკიცებენ, რომ არიანემ, როგორც ტრაიანეს მიერ სომხეთის დაპყრობაში მონაწილე ახალგაზრდა ოფიცერმა, დარიალის უღელტეხილი ჯერ კიდევ ახ.წ. 114 წელს გადაკვეთა, რასაც თან ახლდა რომის ირიბი კონტროლის გაძლიერება ამერიკავკასიის სამეფოებზე, ალბანეთისა და იბერიის ჩათვლით. ეს ვარაუდი ნამდვილად მიმზიდველია, რადგან ლაიდუსი ამტკიცებს, რომ ის ტრაიანეს მიერ დაპყრობილ რეგიონს მართავდა. პართიის ომში საკუთარი მონაწილეობა კი იმის ახსნაა, თუ რატომ მიუძღვა Parthika-ს ათი წიგნი ტრაიანეს მიერ წარმოებულ პართიულ ომს. მართალია, შესაძლებელია ლაიდუსს ტრაიანე და ადრიანე ერთმანეთში აერია და ეს სამხედრო ექსპედიცია მხოლოდ ახ.წ. 130-იან წლებში ჩატარდა, როცა ის კაპადოკიის მმართველი იყო, მაგრამ ტრაიანესეული დათარიღება უფრო მისაღები ჩანს.

რომაელთა ჯარს კავკასიაში შესაძლოა მოგვიანებითაც გაევლო და სავარაუდოდ მდ. თერგამდეც მიეღწია, რაზეც მიუთითებს Legio I Minervia-ს კიოლნელი ჯარისკაცის მიძღვნა Matronae Aufaniae-სადმი (გერმანიკულ დედა ქალღმერთთა ტრიადისადმი) სახიფათო მისიიდან უვნებლად დაბრუნების შესრულებისათვის. ეს მიძღვნა ადასტურებს, რომ ის კავკასიის მთებში, მდ. ალუტუსთან (მდ. თერგი) იმყოფებოდა. გავრცელებული მოსაზრების თანახმად, ეს ამბავი ლუციუს ვერუსის აღმოსავლურ კამპანიას (ახ.წ. 162-166 წწ.) უკავშირდება, თუმცა ვარაუდობენ, რომ ის შესაძლოა დაკავშირებული იყოს ალანებთან დაპირისპირებასთან 130-იან ან 140-იან წლებში. ქვემო გერმანიაში დედა ქალღმერთებისთვის განკუთვნილ შეწირულობათა უმეტესობა ახ.წ. 160-იან წლების შემდეგ ხდება, ხოლო ლეგიონის მონაწილეობა ლუციუს ვერუსის პართულ ომში სხვაგვარად საბუთდება, რაც თუ არ ადასტურებს, ნამდვილად ამყარებს მოგვიანო დათარიღების შესაძლებლობას. რეგიონში რომის აშკარა ჩართულობისა და იბერიასთან ახლო ურთიერთობის მიუხედავად, სამეფო დამოუკიდებელი რჩებოდა. რამდენად ჩართულები იყვნენ რომი და იბერია კარიბჭის დაცვაში?

კ.რ. ვაითეიქერი (C.R. Whittaker) აღნიშნავს, რომ დარიალის ხეობაში ფლავიუსების ჯარის განაყოფი იყო. გელა გამყრელიძემ და ლივიო ზერბინიმ მსგავსი ჰიპოთეზა უფრო დეტალურად განავითარეს. ისინი ვარაუდობენ, რომ რომაელ ჯარისკაცთა კონტინგენტი დარიალის ხეობაში განთავსებული იყო ჯერ კიდევ ფლავიუსების ხანამდე და მათი აზრით, რომაელი ჯარისკაცები არა მხოლოდ გვიან ახ.წ. I საუკუნეში მსახურობდნენ ცენტრალურ კავკასიაში. Historia Augusta-ში მითითებულია, რომ ადრიანემ (ახ.წ. 117-138 წწ.) იბერიის მეფე ფარასმანეს/ფარსმან II-ს გაუგზავნა cohors quinquagenaria, ანუ 50-კაციანი დანაყოფი (სავარაუდოდ, შეცდომაა და სინამდვილეში უნდა იგულისხმებოდეს cohors quingenaria, ანუ ჩვეულებრივ, დაახლოებით 500-კაციანი დანაყოფი), რაც უნდა ნიშნავდეს დარიალის ხეობაში სპეციალურ შენაერთს, რომელიც მუდმივად იყო დაბანაკებული. ეს კი იმაზე მიუთითებს, რომ დარიალის ციხესიმაგრე მათი სამხედრო ბაზა იყო.

გვიან ანტიკურ ხანაში კლდის ზედაპირის სრულმა გაჩეხვამ IV საუკუნემდე არსებული დასახლების ყველა კვალი წაშალა. ამიტომ, გასაკვირი არაა, რომ რომაული იმპორტისთვის ან სამხედრო ნაგებობისთვის არ მიგვიკვლევია, მაგრამ არც ციხესიმაგრეში აღმოჩენილა რაიმე ტიპის არტეფაქტი ან შენობა, რომელიც I ათასწლეულის პირველი მესამედით ან კიდევ უფრო ადრეული წლებით თარიღდება. ყველაფერი, რაც ადრეულ ხანას ეკუთვნოდა, გვიანანტიკური ხანის მშენებლებმა გაანადგურეს. მიუხედავად იმისა, გამყრელიძისა და ზერბინის თეორიები დადასტურებული იქნება თუ უარყოფილი. თუ თეორია სწორია, მისი დამადასტურებელი მასალა აუცილებლად იქნება შემორჩენილი. რომის ადრეული და განვითარებული იმპერიის ხანაში მუდმივ გაზებზე დისლოცირებული ჯარისკაცები თითქმის ყოველთვის მნიშვნელოვანი რაოდენობით კარგავდნენ მათი ჯავშნის პატარა ნაწილებსა და აღჭურვილობას. ადრეული იმპერიის კულტურული ფენები, რომლებიც, როგორც უკვე აღინიშნა, ძნელად მისაწვდომია, დიდი ალბათობით ციხესიმაგრის დასავლეთ ძირშია შემორჩენილი. იქამდე, სანამ საკმარისი რაოდენობით აღმოჩნდება ასეთი ადრეული ხანის მასალა, მხოლოდ იმის კონსტატაცია შეიძლება, რომ დღემდე აღმოჩენილი არქეოლოგიური მასალა ციხესიმაგრის ტერიტორიაზე რომაული სამხედრო ძალების ყოფნას არც უარყოფს და არც ადასტურებს. M და P თხრილების ადრეულ კულტურულ ფენებში ტიპური სამხედრო აღჭურვილობის არარსებობა არაა მნიშვნელოვანი, რადგან, იმ შემთხვევაშიც, თუკი ჩვენ დარწმუნებული ვართ, რომ რომაელი ჯარისკაცები ახლოს იყვნენ დისლოცირებულნი, ასეთი ფენები ჩვეულებრივ არ გამოირჩევა არც

შეიარაღებისა და არც სხვა დიაგნოსტიკური იმპორტული არტეფაქტების მაღალი კონცენტრაციით.

იულონ გაგოშიძე უფრო ფრთხილია და აღნიშნავს, რომ მტკიცებულებები არ გვაძლევს უფლებას დავადასტუროთ ან უარვყოთ რომაული გარნიზონის იბერიაში არსებობა. იმ დროს რომაული გარნიზონების იბერიაში განლაგების შემთხვევაში, თუკი რომი მხოლოდ რბილი პოლიტიკური კურსის გატარებით არ იფარგლებოდა, მაშინ, გაგოშიძის აზრით, კუმანია ერთ-ერთი შესაძლო ბაზა იქნებოდა. მანანა ოდიშელი დარწმუნებულია, რომ იმპერატორ ადრიანეს დროს იბერიის მეფე ფარსმან II აკონტროლებდა დარიალის უღელტეხილს, რადგან კასიუს დიო ერთმნიშვნელოვნად აცხადებს, რომ ფარსმან II კავკასიაში ალანების შემოსევის მთავარი მამოძრავებელი ძალა იყო, რამაც გავლენა მოახდინა არა მხოლოდ ალბანეთზე, მიდიასა და სომხეთზე, არამედ, რომაულ კაპადოკიაზეც, თუმცა შედარებით ნაკლებად. არსებობს კიდევ ერთი მტკიცებულება, რომ იბერიის სახელმწიფო დარიალის უღელტეხილს II საუკუნეშიც აკონტროლებდა. მათ შორისაა იბერიის მეფე მითრიდატეს ძმის, ამაზასპის ეპიტაფია, რომელიც პართიის ომში (ახ.წ. 114-117 წწ.) ტრაიანეს მხარეს იბრძოდა და ნისიბისთან დაიღუპა. ბერძნული წარწერის მიხედვით, მისი მშობლიური მიწა იბერიაში, კასპიის კარიბჭესთან იყო.

წერილობითი წყაროს მიხედვით, II საუკუნეში, ფლავიუსების დინასტიის დროს, რომაული ექსპედიციური ძალები დროდადრო პოულობდნენ გზას უღელტეხილისკენ, თუმცა დარწმუნებით ვერ ვიტყვით, რომმა განათავსა თუ არა მუდმივი გარნიზონი ხეობაში და თუკი ეს მართლაც მოხდა, არ ვიცით დროის რომელ მონაკვეთში. ანტიკური ხანის მრავალრიცხოვან წერილობით წყაროებს შორის, რომლებშიც კარიბჭეა ნახსენები, პოეტ სტაციუსის გარდა, არცერთი არ მიუთითებს, რომ რომაული ჯარი იცავდა დარიალის ხეობას. რა როლიც არ უნდა ეთამაშა რომაულ ჯარს, როგორც ჩანს, იბერია ეფექტურად აკონტროლებდა კარიბჭეს, ეს ეხებოდა მის დაცვას თუ სამეფოს სასარგებლოდ ჩრდილოელი მოკავშირეების დაქირავებას. კარიბჭის კონტროლი შთამბეჭდავ წვლილს შეიტანდა სამეფოს დოვლათში.

იმის მიუხედავად სწორია თუ არა ჰიპოთეზა, რომლის თანახმადაც, I საუკუნის დასასრულსა და II საუკუნეში დარიალის მცველებს შორის რომაელი ჯარისკაცები იყვნენ, ერთი რამ ეჭვგარეშეა, რომ რომს მნიშვნელოვანი სტრატეგიული ინტერესი ჰქონდა კავკასიაში ახ.წ. I-II საუკუნეებში, ყოველ შემთხვევაში ფლავიუსების ეპოქიდან მოყოლებული რომი უკვე საკმაო ინფორმაციას ფლობდა დარიალის შესახებ. შეიძლება ითქვას, რომ ძველი სამყაროს არც ერთი სხვა უღელტეხილი არ ყოფილა ისე ხშირად მოხსენიებული იმდროინდელ წერილობით წყაროებში, როგორც დარიალი, ხოლო II საუკუნისთვის ის ლეგენდის მოქმედების ადგილად იქცა. სწორედ კასპიის კარიბჭესთან ახლოს, კავკასიის დრამატული ლანდშაფტის ფონზე წარმოიდგენს ლუკიანე სამოსატელი კლდეზე მიჯაჭვულ პრომეთეს, რომელსაც ღვიძლს არწივი უკორტნის. სწორედ აქ, ხეობის ციცაბო კლდეზე, ადამიანებითვის მიუდგომელ ადგილას, მიჯაჭვული იყო ზევსის წინააღმდეგ ამბოხებული მითური გმირი, რომელსაც სამუდამო სასჯელი ჰქონდა მისჯილი და რომელსაც იმედი გადაწურული ჰქონდა, რომ რომელიმე მოკვდავი მის გადარჩენას ეცდებოდა. იმის რწმენა, რომ სწორედ კავკასიონზე აწამებდნენ პრომეთეს, მას შემდეგ რაც მან ღმერთებს ცეცხლი ადამიანთა მოდგმის სასიკეთოდ მოპარა, ვიდრე საბოლოოდ მას ჰერაკლე გაათავისუფლებდა, ფართოდ იყო გავრცელებული.

ლეგენდის მოქმედების ადგილის - დარიალის ხეობის - დიდებამ არა უგვიანეს ახ.წ. III საუკუნეში სპარსეთის ცენტრსაც მიაღწია. სწორედ მაშინ მისი სახელი, რომელსაც ის დღესაც ატარებს, პირველად ამოიკვეთა ქვაზე. უფრო სავარაუდოა, რომ მას გევრად უფრო ადრე იცნობდნენ, იქამდე ვიდრე მას სასანური სამეფო წარწერები გამოარჩევდა, როგორც განსაკუთრებულ ღირსშესანიშნაობასა და ძვირფას საკუთრებას - ის იყო ერთადერთი ადგილი მთელ ამიერკავკასიაში, რომელიც ხსენების ღირსად ჩათვალეს და რომელიც ჩამონათვალში სხვა სახელმწიფოების გვერდით, მათ ტოლფასად იყო აღნიშნული, მეფე შაპურ I-ის სადიდებლად. როგორც ვნახეთ, ამიერკავკასიური შემოსევები, რომლებმაც გავლენა მოახდინა პართიის ინტერესებსა და მის ტერიტორიაზე, დარიალის ხეობის გავლით ახ.წ. 30-იან, 130-იან და, შესაძლოა, აგრეთვე 70-იან წლებში მოხდა. ძნელი დასაჯერებელია, რომ მხოლოდ რომმა იცოდა პართიის ტერიტორიაზე შესაღწევი შემოვლითი გზა, რომლითაც ერთმანეთის მიყოლებით სხვადასხვა დამპყრობლებმა ისარგებლეს, და ის უცნობი იყო იმ იმპერიისთვის, რომელმაც ყველაზე მეტად იზარალა ამის გამო. იმ დროისთვის, როცა სასანიანთა დინასტიამ ძალაუფლება მოიპოვა, ეს ლეგენდარული ხეობა ერთნაირად ცნობილი თუ უცნობი

იქნებოდა აღმოსავლეთსა და დასავლეთში - და შესაძლებელია, ის დამპყრობლებს იმაზე მეტჯერაც ჰქონდათ გადაკვეთილი, ვიდრე ეს ჩვენთვის ცნობილია. სასანიანთა დინასტიამ, დააყენა რა რომი სერიოზული გამოწვევის წინაშე, მალე აღიარა ჩრდილო-დასავლეთ სასაზღვრო ზონაში ძლიერი თავდაცვითი ნაგებობების მნიშვნელობა. პართიელი წინამორბედებისგან განსხვავებით, მას ჰქონდა იმის რესურსი, რომ ეს შორეული სიმაგრე საკუთარ ჩრდილოეთის თავდაცვით სისტემაში ჩაერთო. ჯერ კიდევ შაპურ I (ახ.წ. 240-272 წწ.) აკონტროლებდა საკვანძო მნიშვნელობის ამ უღელტეხილს, რომელიც სწორედ რომ ალანების კარიბჭის სახელითაა მოხსენიებული ნაყშ-ი რუსტამში აღმოჩენილ ახ.წ. 260-იანი წლების კა'ბა-იე ზარდუშტის ცნობილ წარწერასა და აგრეთვე კერდირის წარწერაში. სწორედ მისი უმნიშვნელოვანესი სტრატეგიული მნიშვნელობის გამო, კარიბჭე როგორც აღმოსავლეთის, ისე დასავლეთის ყურადღებას იქცევდა და ამიტომაც სასანიანთა სპარსეთის დინასტიური ძალაუფლების ცენტრში ქვაზე ამოიკვეთა ამ უღელტეხილის კონტროლის უკვდავსაყოფად. მიუხედავად სუზერენობაზე სასანიანთა პრეტენზიებისა, ძალაუფლებას იბერიის მეფეები ინარჩუნებდნენ. მხედველობაში მისაღებია მარტინ შოთკის (Martin Schottky) მოსაზრება, რომლის თანახმადაც ახ.წ. 260 წელს იმპერატორ ვალერიანის დამარცხებისა და მისი ტყვედ აყვანის შემდეგ, შაპურმა არაპირდაპირი კონტროლი მოიპოვა იბერიასა და კარიბჭეზე. პაიკულის წარწერა მიუთითებს, რომ ახ.წ. 290-იანი წლების შუა ხანებში იბერიის მეფე სასანიანთა სპარსეთზე დამოკიდებული იყო.

მიუხედავად ამისა, სასანიანების მიერ იბერიელთა, ალბანელთა და კავკასიის კონტროლი არ იყო სტაბილური. როგორც ჩანს, მომდევნო საუკუნეებში მათ არაერთხელ დაკარგეს და ხელახლა აღიდგინეს ეს კონტროლი. მიუხედავად იმისა, რომ III საუკუნიდან მოყოლებული კარიბჭე მთავარი რგოლი იყო სასანიანთა იმპერიის ჩრდილოეთი საზღვრების დაცვაში, ის ყოველთვის არ იყო სპარსელთა მფლობელობაში. თუმცა, იმ შემთხვევაშიც, როცა კარიბჭეს სპარსელები აკონტროლებდნენ, რთული სათქმელია, ეს კონტროლი უშუალოდ ხორციელდებოდა, თუ ირიბად. რომაელთა გავლენა იბერიაზე გაიზარდა ახ.წ. 298 წლიდან, სასანიანთა იმპერიაზე გამარჯვების შემდეგ. ახ.წ. 360-იან და 370-იან წლებში რომაული ჯარები დასავლეთ იბერიაში იყო დისლოცირებული, ხანგრძლივად თუ არა, დროებით მაინც. ახ.წ. 370 წელს იბერია ორად იყო გაყოფილი მდინარე კირუსის (კურა/მტკვარი) გაყოლებაზე. სავარაუდოდ, როგორც დევიდ ბრაუნდი დამაჯერებლად ამტკიცებს, მდინარის ზედა წელი - დარიალის ხეობა - კვლავ სპარსეთის გავლენის სფეროში იყო მოქცეული. უცნობია, იდგა თუ არა დარიალში მუდმივი გარნიზონი იმ დროს, თუმცა შეიძლება დანამდვილებით ითქვას, რომ გასასვლელის დაცვის სისტემა არ იყო საკმარისად ძლიერი. ახ.წ. 395 წელს კავკასიაში ჰუნების შემოსევა (იხ. დეტალურად შემდეგ ნაწილში) ერთ-ერთია იმ რამდენიმედან, რომლებმაც გავლენა მოახდინა აღმოსავლეთ რომის იმპერიის მთავარ ტერიტორიებზე და ცხადყო, რომ მთავარი საგარეო საფრთხე, როგორც აღმოსავლეთ რომს, ასევე სასანიანთა იმპერიას, კავკასიონის მიღმა ტერიტორიებიდან ემუქრებოდა.

ჰუნების მიერ კავკასიონის გადმოლახვის შეჩერება? დარიალის უღელტეხილზე ხეობის ჩამხერგავი ორი ბარიერისა და, იმ დროის უახლეს მიღწევებზე დაყრდნობით, ბასტიონის აშენება.

რომაელებისა და სპარსელების სტრატეგიულმა დაინტერესებამ ახ.წ. I-III სს-ში დარიალის ხეობა terra incognita-დან ანტიკური სამყაროს ყველაზე ცნობილ ხეობად აქცია. წერილობით წყაროებში დარიალის პოპულარობის მიუხედავად, იგივე პერიოდი, არქეოლოგიური თვალსაზრისით, ბნელ ეპოქას მიეკუთვნება. უცნობია, თუ რა შენობები იდგა უღელტეხილის წვერზე პლინიუს უფროსის ან შაპურ I-ის მეფობის ხანაში, რადგან ციხესიმაგრის სრულ რეკონსტრუქციამდე სისტემატურად ხდებოდა ნიადაგის მოცილება. ეს იმდენად ზედმიწევნით - დანალექი ფენებისა და ადრეული ხანის მასალის გატანით - წარმოებდა რომ შეიძლება ეჭვიც გაჩნდეს, გვიანანტიკურ ხანამდე იქ ციხესიმაგრე საერთოდ იდგა თუ არა. ჰუმუსი არ ფარავს დედაქანს, რაც გვაფიქრებინებს, რომ ადრეული მასალების არარსებობა გამოწვეულია მისი სისტემატური გადაწმენდით და არა იმის გამო, რომ ციხესიმაგრე გაწმენდილი ტყის ან საძოვრის ადგილზე იყო აგებული (ან, თუკი ასე იყო, რაღაც ფაშარი ნიადაგი - ბუნებრივი თუ კულტურული - მოაცილეს). ზემოთ უკვე დავასახელეთ ის მიზეზები, თუ რატომ მივიჩნევთ, რომ გვიანანტიკური ხანის დარიალის ციხესიმაგრე ხელუხლებელ ადგილზე კი არ აშენდა, არამედ ის უფრო ადრეული ეპოქის მნიშვნელოვან ძეგლს ჩაენაცვლა. სავარაუდოდ, ადრეული ბინადრობის მტკიცებულება შემორჩენილი უნდა იყოს კლდის ძირის დასავლეთ ნაწილში,

რომლის შესწავლით მომავალში არქეოლოგია შეძლებს სიბნელისთვის სინათლის მოფენას.

როგორიც არ უნდა ყოფილიყო დარიალის ადრეული დასახლების ისტორია, დღემდე შემორჩენილია გვიანანტიკური ხანის ციხის მყარად ნაშენი კედლების ქვედა ნაწილები და აგრეთვე მიწის ზედაპირის ნიველირებისათვის საჭირო, მათთან დაკავშირებული ფენები. მიუხედავად იმისა, რომ დედაქანამდე სხვადასხვა დონეზე დავიდნენ და რომ ბევრი ღრმად სტრატიფიცირებული ძვალი და ხის ნახშირი გამოვლინდა ძეგლის დასათარიღებლად, გალავნით შემოსაზღვრულ პლატოზე ახ.წ. IV საუკუნეზე ადრინდელი პერიოდის ვერცერთ არტეფაქტს ვერ მიაგნეს.

კაზემატების უადრეს ფენებში გამოვლენილია ძვლის ნიმუშები, რომელთა მოდელირებული *termini ante quos* განისაზღვრა როგორც ახ.წ. 394 წ. ან 398 და 400 წ. ან 408 წ. (არამოდელირებული ახ.წ. 396 და 410). რამდენად შესაძლებელია, რომ ისინი წინ უსწრებენ ციხესიმაგრის აშენებას და ასაბუთებენ ციხესიმაგრემდე არსებულ და მასთან დაუკავშირებელ ბინადრობას დროის ერთ გარკვეულ მონაკვეთში ახ.წ. 320-იან და ადრეულ 400-იან წლებს შორის? თუკი ეს ასეა, მაშინ გვიანანტიკური ციხესიმაგრის *terminus post quem* მხოლოდ IV საუკუნეა. მაგრამ, თუ ეს იყო დედაქანის ზედაპირზე შემორჩენილი მასალის ერთადერთი ადგილი, მაშინ საინტერესოა, თუ რატომ დაიწყო ადგილის ათვისება სწორედ IV საუკუნეში, ან რატომ შემორჩა ასე ცოტა მასალა. ამ შემთხვევაში, ვერ მოიძებნება საფუძვლიანი ახსნა იმისა, თუ რატომ უნდა დაწყებულიყო დასახლება იმ დროს დაუცველ გორაკზე, ან ეს ტერიტორია ერთ საუკუნეზე ნაკლები ხნის განმავლობაში დედაქანამდე ორჯერ რატომ უნდა გაწმენდილიყო. მოსაზრება, რომლის მიხედვითაც ამ კულტურულ ფენებსა და მათში აღმოჩენილ ძვლებს მშნებლობის დაწყება უფრო მოგვიანებით გადააქვთ, ბევრად უფრო დამაჯერებლად ჟღერს.

ნიმუშების შემდგომი თანამიმდევრობა სამშენებლო სამუშაოების ქრონოლოგიის დასაზუსტებლად ძალიან მნიშვნელოვანია. კედელი F. 013 ციხესიმაგრის გარე კედლის (F.058) პარალელურია და ამ უკანასკნელს პერპენდიკულარული კედლებით (F.050 და F.059-ით) უკავშირდება. კაზემატი ამ ოთხი კედლითაა შემოსაზღვრული. კაზემატის გარეთ, კედელ F. 013-ის ჩრდილო-აღმოსავლეთით, ადრეული ნიველირების ფენა ზუსტად დედაქანზე აღმოჩნდა. კედელ F. 013-ის მომიჯნავე კულტურული ფენა ნამდვილად ახალ ციხესიმაგრეზე გვიანი პერიოდისაა. საინტერესოა, რომ ის შეიცავს რამდენიმე ნიმუშს, რომლებიც შესაძლოა კაზემატის ყველაზე ადრეული დონეების ნიმუშებზე ოდნავ გვიანდელი იყოს. თუმცა ამ ხუთი ნიმუშიდან, არც ერთი არ არის ახ.წ. 530-იან წლებზე უფრო გვიანი პერიოდის. დიდი ალბათობით, მათგან ორისთვის *termini ante quos* ახ.წ. 430-იანი წლების ფარგლებში ექცევა, ხოლო მესამე იმავე თარიღისაა, არა უგვიანეს 470-იანი წლებისა. ოთხი ნიმუში შეიძლება გვიან IV საუკუნით ან კიდევ უფრო ადრინდელი ხანით დათარიღდეს, მაშინ როცა გათხრების შედეგად მოპოვებული ყველაზე გვიანდელი ნიმუშის *terminus post quem* ახ.წ. 411 წლით თარიღდება. აღნიშვნის ღირსია ის ფაქტი, რომ ადრეულ ნიმუშებს შორის არც ერთი არ არის სხვებისგან განსხვავებული, ხოლო კულტურული ფენების ზემოთ არსებული მასალა თანდათან ახალგაზრდავდება - რაც იმის ნათელი ნიშანია, რომ ისინი ერთმანეთის მომდევნო ფენებია, რომლებშიც სხვადასხვა ეპოქის შერეული მასალა არ იყო.

F თხრილში კაზემატის შიდა სივრცის ნაწილობრივი გათხრის შედეგად, იმ პირობებში, როცა ციხესიმაგრის გარე კედლის (F.058) მხოლოდ ზედა ნაწილი ჩანს, ძნელია დარწმუნებით იმის თქმა, თუ როგორია გარე კედელთან დაკავშირებული კაზემატის ყველაზე ადრეული ფენების თანამიმდევრობა, რომლის ორი ადრეული თარიღი ზემოთ უკვე იყო მითითებული. თუმცა აშკარაა, რომ ისინი საძირკვლის თხრილით იყო გაჭრილი F.50 კედლისათვის (რომელიც ციხესიმაგრის გარე კედელს F.013-ს შიდა პარალელურ კედელთან აკავშირებდა). სავარაუდოდ, შეგვიძლია მოვლენათა შემდეგი თანამიმდევრობა წარმოვიდგინოთ:

1. პირველ რიგში, დედაქანი გასუფთავდა.
2. შემდეგ აშენდა ციხესიმაგრის გარე კედელი (F.058) - რაც გონივრული იყო მისი თავდაცვისთვის.
3. კულტურული შრე, რომელიც ძვლის ორ ნიმუშს შეიცავს (დაახ. ახ.წ. 336-408 წწ. და ახ.წ. 327-398 წწ.) გარე კედლის შიგნით ჩამოყალიბდა. თუკი კედელი შიშველ დედაქანზე აშენდა, სადაც არანაირი სხვა, უფრო ადრეული მასალის კვალი არაა, მაშინ ამ ადრეულ კულტურულ შრეში ჩაფლული ძვლები სამშენებლო სამუშაოების დროს მიღებული საკვების ნარჩენებია. ციხესიმაგრის გარე კედლის აშენების სავარაუდო *terminus ante quem* ახ.წ. 398-ია. მთელი თხრილის მოდელი კიდევ უფრო

ადრეულ *termini ante quos* -ს - ახ.წ. 394 წ. და ახ.წ. 400 წ. -იძლევა.

4. F. 050 კედლის (ციხესიმაგრის გარე კედლის, F. 059-ის, პერპენდიკულარულად აგებული, და შიგნიდან მისი მომიჯნავე) საძირკვლის თხრილი ამ ფენებში გაიჭრა. შეიძლება ვივარაუდოთ, რომ თანადროული ფენებიც საძირკვლის თხრილით გაიჭრა შიდა კედლისათვის (F.013, რომელიც გარე კედლის, F.058-ის, პარალელურია) და მეორე პერპენდიკულარული კედლისთვის (F.059), რომელიც ციხესიმაგრის გარე და შიდა კედლებს აკავშირებს. ადრე შუა საუკუნეების არეულობამ ზემოთ აღნიშნული კედლის, F.013-ის, საძირკვლის ყველა კვალი წაშალა, ხოლო F. 059 კედლის ქვედა ნაწილი ჯერ კიდევ არ არის გამოვლენილი. ეჭვგარეშეა, რომ F. 050 კედლის საძირკველი კაზემატის ყველაზე ადრეულ ფენებს ჭრის, იგივე, დიდი ალბათობით, დასაშვებია F. 013 და F. 059 კედლებისთვისაც, მაგრამ დასაბუთება სჭირდება.
5. აშენდა კედლები - F.013, F.050 და F.059 (და, სავარაუდოდ, ციხესიმაგრის გარშემო ოთახების წყება).
6. F.013 კედლის ჩრდილო-აღმოსავლეთით დალექილმა მასალამ წარმოქმნა სასიარულოდ ვარგისი დონე, რომელიც სავარაუდოდ, გარე კედლის აგებიდან რამდენიმე წლის, ან მაქსიმუმ რამდენიმე ათწლეულის შემდეგ, ალბათ ახ.წ. 410-430-იანებში ჩამოყალიბდა (თუმცა, უფრო ფართო ქრონოლოგიური დიაპაზონიც შესაძლებელია).

შეიძლება დავასკვნათ, რომ გვიანანტიკური ხანის დარიალის ციხესიმაგრის სამშენებლო სამუშაოები IV საუკუნის ბოლოს (და, სავარაუდოდ, არაუგვიანეს V საუკუნის ადრეულ წლებში) დაიწყო. ციხესიმაგრის დასავლეთით არსებული გზის ჩამკეტი კედელი, რომელიც ვიწრო გასასვლელის ცენტრში განთავსებული კოშკით იყო გამაგრებული, ციხესიმაგრის კედლების წყობის ტექნიკას გასაოცარი მსგავსებით იმეორებს და, სავარაუდოდ, იმავე თარიღისაა. ციხესიმაგრის ჩრდილოეთი ნაწილიდან ერთი კმ-ით ქვემოთ მდებარე ქიმის ზედა კედლის წყობა დარიალის ციხესიმაგრის აღმოსავლეთით შემორჩენილი და ყველაზე მაღალი კედლის წყობას ჰგავს. საძირკვლის ფენებში მოპოვებული ხის ნახშირის *terminus ante quem*, სავარაუდოდ, ახ.წ. 530-იანი წლებია, უფრო დიდი ალბათობით - 430-იანი წლები. შეგვიძლია დავასკვნათ, რომ გზის ჩამკეტი კედლები და დარიალის ციხესიმაგრე ერთდროულად აშენდა, ახ.წ. 400 წლამდე ცოტა ხნით ადრე და/ან ამ თარიღზე ოდნავ მოგვიანებით.

არსებობს იმის შესაძლებლობა, რომ ციხესიმაგრის მშენებლობა რამდენიმე ათწლეულით ადრე იყო დაწყებული, ვთქვათ, ახ.წ. 320-იანი წლების ბოლოს ან 330-იან წლებში, რომლებიც ძვლების ყველაზე ადრეულ დათარიღებას შეესაბამება? ორი არგუმენტი დაუშვებლად მიიჩნევს სამშენებლო სამუშაოების დაწყებას ასე ადრე, თუნდაც ეს საუკუნის შუა ხანებში ან უფრო მოგვიანებით მომხდარიყო:

1. ციხესიმაგრის ზედა ნაწილის თხრილების გარდა სხვაგან არსად დიფიქსირებულა მსგავსი ადრეული (ან კიდევ უფრო ძველი ხანის) თანამიმდევრობა, რაც ნაკლებად ეთანხმება მოსაზრებას, რომ აქ IV საუკუნეში ბინადრობდნენ რამდენიმე ათწლეულის ან თაობების მანძილზე.
2. ციხესიმაგრის შედარებით თხელი გარე კედლები, სავარაუდოდ, არ იყო იმისთვის გამიზნული, რომ დამოუკიდებლად მდგარიყო, ციხესიმაგრის შიდა კედლებისა და წრიულად განლაგებული ოთახების დამატებამდე კი გარნიზონს მყარი თავშესაფარიც არ ჰქონდა. რთულია წარმოვიდგინოთ, რომ სტრატეგიული ციხესიმაგრე თაობების განმავლობაში ნახევრად აშენებულ მდგომარეობაში იდგებოდა, მაშინ როცა სუსხიან ამინდში გარნიზონი თავშესაფარს იყო მოკლებული.

მონაცემების გადაჭარბებულად შეფასების შიშის მიუხედავად, დიდია იმის ცდუნება, რომ კაზემატში არსებული ყველაზე ადრეული ფენები სავარაუდო დიაპაზონის დასასრულით დავათარიღოთ (ე.ი. ახ.წ. 380-იანი ან 390-იანი წლები?), ხოლო ციხესიმაგრის შიდა კედლით შემოფარგლული ფენები, რა თქმა უნდა, კედლებზე უფრო გვიან პერიოდს, სავარაუდოდ, 410-იან ან 420-იან წლებს მივაკუთვნოთ. ციხესიმაგრის მშენებლობა შესაძლებელია საუკუნის დასასრულს დაიწყო და, ალბათ, რამდენიმე წელს ან ათწლეულს გაგრძელდა (შიდა კონსტრუქციებს ქვემოთ ცალკე განვიხილავთ). გარნიზონს გაუჭირდებოდა ღია ცის ქვეშ ზამთრის სუსხის ატანა, თუმცა არც ცივი და წვიმიანი ზაფხული იქნებოდა ადვილი. რთულია დავიჯეროთ, რომ ათ წელზე მეტი გავიდოდა ციხესიმაგრის გარე კედლების აშენებიდან თავშესაფრისთვის ვარგისი ოთახების მოწყობამდე. მაგრამ, F თხრილის ქრონოლოგიაში არ არის ასახული წრიულად

განლაგებული ოთახები. სავარაუდოდ, რამდენიმე წელი დასჭირდებოდა ოთახების წყების აშენებას, რომელთაგან დიდი ალბათობით, პირველ რიგში, სტრატეგიულად მნიშვნელოვანი ჩრდილოეთისა და აღმოსავლეთის თავშესაფრები მოეწყო. არსებობს დიდი ალბათობა იმისა, რომ ციხესიმაგრის მშენებლობა IV საუკუნის დასასრულს დაიწყო და V საუკუნის პირველ ათწლეულზე მეტ ხანს გრძელდებოდა. მიუხედავად იმისა, რომ ზემოთ აღნიშნული ზოგიერთი ვარაუდი შესაძლოა მცდარი იყოს, მნიშვნელოვანია აღვნიშნოთ ყველაზე ღრმა ფენებში აღმოჩენილი IV საუკუნისა და V საუკუნის დასაწყისის არტეფაქტების სანდოობა. იმ შემთხვევაშიც თუ ზედმეტ სიფრთხილეს გამოვიჩენთ, რთულია იმის დაჯერება, რომ მშენებლობა V საუკუნის პირველ მესამედზე უფრო გვიან დაიწყო.

როგორი უნდა ყოფილიყო ისტორიული კონტექსტი? წერილობით წყაროებში აღნიშნული მოვლენებისა და არქეოლოგიური აღმოჩენების ერთმანეთთან დაკავშირება არქეოლოგიაში არაპოპულარული გახდა, რაც გადაჭარბებული რეაქციაა კლასიკური განათლების მქონე წინა თაობათა წარმომადგენლების მცდელობაზე, აეხსნათ თავიანთი აღმოჩენები ცნობილი ისტორიული ცნობებით, რაც ყოველთვის დამაჯერებელი არ იყო. თანამედროვე მეცნიერებაში, როცა ველზე მომუშავე არქეოლოგებს აკლიათ კლასიკური ცოდნა, ვითარება მეორე უკიდურესობით შეიცვალა. ახლა არქეოლოგია მოგვითხრობს მიკერძოებული და არასარწმუნო წერილობითი წყაროებისგან განსხვავებულ ამბავს. თანამედროვე არქეოლოგ-თეორეტიკოსთა იდეოლოგიისაგან განსხვავებით, ანტიკური და შუა საუკუნეების წერილობითი წყაროები, მიუხედავად ავტორების ინტერპრეტაციების ტენდენციურობისა და ფაქტების შელამაზებისა, ხშირად ძალიან ზუსტია, განსაკუთრებით მაშინ, როცა ისტორიული მოვლენა, ავტორის თანამედროვე მკითხველისთვის კარგად იყო ცნობილი. ამიტომ დარიალის ციხესიმაგრის მშენებლობის დაწყების დროის განსაზღვრისას - დაახ. ახ.წ. 400 წელს თუ რამდენიმე წლით ადრე თუ გვიან - მიზანშეწონილია ამ თარიღის წერილობით წყაროებთან შეჯერება.

ჰუნების დიდმა შემოსევამ ახ.წ. 395 წელს ანტიკურ სამყაროს თავზარი დასცა. ამ შემოსევამ არა მხოლოდ აღმოსავლეთ რომისა და სასანიანთა იმპერიის ვრცელი ტერიტორიები, არამედ მათი მეზობელი მიწებიც - იბერია, სომხეთი, აღძნიქი, სოფენე, ოსრჰოენა, სირია, კილიკია, კაპადოკია, გალატია და, სავარაუდოდ, ფრიგიაც - მოიცვა. ცნობილია, რომ ჰუნებმა მიაღწიეს ისეთ ქალაქებამდე, როგორიცაა მარტიროპოლისი, ამიდა, მალათია, ედესა და ანტიოქია. გაბედული რეიდი ხმელთაშუა ზღვის სანაპიროს გაყოლებაზე, ტირამდე გაგრძელდა. შიშისმომგვრელმა ჩრდილოელებმა სასანიანთა იმპერიის შუაგულსაც მიაღწიეს და ტიგროსისა და ევფრატის ხეობები სამეფო ქალაქ ქტესიფონამდე მიწასთან გაასწორეს. ჩრდილოეთის სტეპებში ამ ახლადმოსულებმა როგორ განავრცეს საკუთარი გავლენა მათთვის უცნობ, მდიდარ და ნაყოფიერ მიწებზე? კლავდიუსის მიხედვით, ჰუნებმა "Caspia Claustra"-სა და სომხეთის დათოვლილი მთების გავლით გაიკვალეს გზა სამხრეთისკენ. იერონიმე ამას კავკასიის მთაგრეხილზე ალექსანდრეს ბარიერის (Alexandri claustra) მითითებით ადასტურებს და ბარიერს სახელგანთქმულ მაკედონელ მეფეს მიაწერს, ვინაიდან ხშირი იყო კავკასიის უღელტეხილების აღრევა ალბორზის (Alborz) გადასასვლელებთან, რომელიც ალექსანდრემ ნამდვილად გადაკვეთა. ორივე ავტორი მხოლოდ დარიალის უღელტეხილს მოიხსენიებს. დარიალის ხეობის გადმოკვეთის შემდეგ, ათასობით კილომეტრით დაშორებულ ცენტრალურ ანატოლიაში, სამხრეთ ლევანტსა და მესოპოტამიის შუაგულში ჰუნების რეიდებს ვეღარაფერი შეაჩერებდა. სავარაუდოდ, ჰუნების მიერ მიყენებულმა უზარმაზარმა ზარალმა და დანაკარგებმა ამიერკავკასიის მოქმედი სატრანსპორტო მარშრუტის ბლოკირების საჭიროება წარმოქმნა. მსგავსი შემოსევის გამეორება, რომელიც რომაელთა და სასანიანთა მდიდარ რეგიონებს საფრთხეს ერთნაირად უქმნიდა, ბევრად უფრო ძნელად განსახორციელებელი გახდებოდა სასანიანთა და აღმოსავლეთ რომის იმპერიის ინტერესების გაერთიანების შემთხვევაში. აღნიშვნის ღირსია ისიც, რომ ჰუნები ჩრდილოეთ კავკასიისა და შავი ზღვის რეგიონში ახ.წ. 395 წლის ცნობილ შემოსევამდე ოცი წლით ადრე გამოჩდნენ. რადიონახშირბადული დათარიღებით, ციხესიმაგრეზე აქტივობების დაწყება, დიდი ალბათობით, უფრო ახ.წ. 390-იანი წლების შუა ხანამდე დაიწყო, ვიდრე მას შემდეგ. არ არის აუცილებელი, რომ დარიალის ციხესიმაგრის აშენება ამ ცნობილ შემოსევაზე საპასუხო რეაქციად მივიჩნიოთ. შესაძლებელია, რომ მისი მშენებლობა საფრთხის მოახლოვების მოლოდინით იყო

განპირობებული. თუმცა, შესაძლოა, ის არც ისე სწრაფად განხორციელდა, რომ შემოსევა შეეჩერებინა.

ჩრდილოეთ კავკასიაში ჰუნების მატერიალური კულტურის ნაშთები არქეოლოგიურად შედარებით მცირე რაოდენობით არის დადასტურებული, მაშინ როცა, სავარაუდოდ, ისინი ჰეგემონურ ძალას წარმოადგენდნენ ამ რეგიონში - და, რა თქმა უნდა, კარგად იყვნენ ინფორმირებული ადგილობრივი გეოგრაფიის შესახებ - ხოლო მოსახლეობის უმეტესი ნაწილი, მაგალითად, ალანები რეგიონში რჩებოდნენ. ამიანე მარცელინუსის მიხედვით, მას შემდეგ რაც ჰუნები ალანების ტერიტორიაზე შეიჭრნენ, მრავალი ალანი ამოხოცეს და მათი საკუთრება მიითვისეს, დანარჩენ ალანებთან შეთანხმება დადეს ძალების გაერთიანებაზე. თიმო შტიქლერის აზრით, კასპიის კარიბჭე სპარსეთისა და რომის ახ.წ. 363 წლის სამშვიდობო მოლაპარაკებების დროს ფიგურირებს, ვინაიდან ჰუნების საფრთხე კავკასიის რეგიონში, ალბათ, უკვე აშკარა იყო. მიუხედავად იმისა, რომ აღმოსავლეთში მათი შემოსვლა მხოლოდ რამდენიმე წლის შემდეგ დასტურდება წყაროებში. ჰუნებს ალანების ტერიტორიაზე კონტროლი არა უგვიანეს ახ.წ. 370-იანი წლების შუა პერიოდში უნდა ჰქონოდათ მოპოვებული. ახ.წ. 375/376 წელს, შავი ზღვის რეგიონში, ოსტგუთებზე ჰუნების ძლიერი თავდასხმის დროს ალანებიც მონაწილეობდნენ. ამიანე ამტკიცებს, რომ სომხეთი და მიდია ალანების შემოსევის არეალში მოექცა, რაც გვავარაუდებინებს, რომ ჰუნების ძალაუფლება დარიალის ჩრდილოეთ დასახლებებზეც იყო გავრცელებული. მიუხედავად იმისა, რომ ჰუნები ბევრად უფრო ჩრდილოეთით ცხოვრობდნენ, ჩრდილოეთ კავკასია ჰუნების ბატონობის ქვეშ იყო. პიტერ ჰითერის ვარაუდი, რომ ახ.წ. 390-იანი წლების შუა ხანებში ამიერკავკასიის რეიდის დროს ბევრი ჰუნი, დუნაიდან უკან გაბრუნების ნაცვლად, ისევ ბინადრობდა ჩრდილოეთ კავკასიის ველებში, ძალიან მიმზიდველია. იქიდან გამომდინარე, რომ ალანების ტერიტორია წარმოადგენდა **ახ.წ. 395 წლის** შემოსევის პლატფორმას, შეგვიძლია დარწმუნებით ვთქვათ, რომ დასავლეთის ომებში ჰუნებს ალანების მხარდაჭერის იმედი ჰქონდათ. არა უგვიანეს ახ.წ. 370-იანი წლების შუა ხანიდან მოყოლებული, რომაელებისა და სპარსელებისათვის უკვე ცნობილი იქნებოდა ჩრდილოეთიდან მომდინარე ახალი საფრთხის შესახებ. როგორც არქეოლოგიურ, ასევე ისტორიულ მასალაზე დაყრდნობით, მართებული იქნება ვივარაუდოთ, რომ სამშენებლო სამუშაოები ახ.წ. 395 წლის შემოსევამდე რამდენიმე წლით ადრე ან გვიან დაიწყო. როგორც ჩანს, შეგვიძლია დარწმუნებით ვთქვათ, რომ მშენებლობა ვერ დაიწყებოდა მთავარი შემოსევიდან დიდი ხნის გასვლის შემდეგ და თუკი იქამდე დაიწყო, შემოსევის დროს, როგორც ჩანს, არ ფუნქციონირებდა. ასევე დიდი ალბათობით, მიუხედავად იმისა, რომ ბარიერი, გარე კედლები და გარკვეული საცხოვრებელი ერთეულები შესაძლოა საუკუნის მიჯნაზე აშენებულიყო, სამშენებლო სამუშაოების მთლიანად დასრულება ნაკლებ სავარაუდოა სულ მცირე ახ.წ. 410-იან წლებამდე და, ალბათ, არც 420-იან/ 430-იან წლებამდე დამთავრდა.

როგორ მიესადაგება დარიალის ციხესიმაგრის სავარაუდო მშენებლობის თარიღი დათარიღების ადრინდელ ვერსიებს - იმ თარიღების იგნორირებით, რომლებიც მხოლოდ დანგრეულ წინამორბედ ციხესიმაგრეებს შეეხება? დევიდ ბრაუნდი აღნიშნავს, რომ „როგორც ჩანს, არანაირი ეფექტური ბარიერი არ არსებულა ამ ადგილზე ახ.წ. V საუკუნემდე“. ეს ამტკიცებს საფრთხის თარიღის გასაოცრად ზუსტ წინასწარმეტყველებას იმ დროიდან, როცა გასასვლელის დაცვა მნიშვნელოვნად გაძლიერდა. არაპირდაპირი ტექსტური მტკიცებულების საფუძველზე, ნოელ ლენსკი ამტკიცებს, რომ იმპერატორმა ვალენსმა (ახ.წ. 364-378 წწ.) კავკასიის უღელტეხილების თავდაცვა გააძლიერა და რომ თავიდან სწორედ რომაელები განაგებდნენ დარიალის ხეობას, რომელიც მხოლოდ მოგვიანებით დაექვემდებარა სპარსელებს. დღეს ეს ჰიპოთეზა ნაკლებ სავარაუდოა. დათარიღების ჩვენი მონაცემების თანახმად, ციხესიმაგრე, სავარაუდოდ, ვალენტის გარდაცვალების შემდეგ აიგო, ამ მშენებლობაში რომაელთა ჩართულობის რაიმე ნიშნების გარეშე. რა თქმა უნდა, 390-იან წლებში ან 400-იანი წლების დასაწყისში ციხესიმაგრის მშენებლობა კლდის წვერზე იქამდე არსებული საქმიანობების კვალს წაშლიდა. ჩვენ ვერც ვამტკიცებთ და ვერც უარვყოფთ ჰიპოთეზას გვიანანტიკურ ხანაში ძველ ციხესიმაგრეში რომაელთა ყოფნის შესახებ. თუმცა, ფორტიფიკაცია ვალენსის მმართველობის დროს რომ ყოფილიყო აშენებული, მაშინ სპარსელები მას კვლავ დაეუფლებოდნენ და შესაძლოა კიდეც განეახლებინათ, იმის მაგივრად, რომ სრულიად ჩაენაცვლებინათ ახალი ციხესიმაგრით დაახლოებით ერთი თაობის სიცოცხლის მანძილზე.

ჯონ ლაიდუსი და პრისკე მკაფიოდ მიუთითებენ, რომ ციხესიმაგრე სპარსელებმა რომაელთა ჩართულობის გარეშე ააგეს. ბირაპარაჩი (Biraparach) - სახელი, რომელსაც ლაიდუსი იყენებს, თითქმის იდენტურია კუმანიასი და ალბათ ასევე იურეიოპააჩის (Ioureipaach), რომელიც ციხესიმაგრის სახელის პრისკესეული ვერსიაა. ჩვენი წყაროები ნაკლები სიზუსტით გვაწვდიან ინფორმაციას მშენებლობის თარიღთან დაკავშირებით. მოლაპარაკებები იულიანეს ავბედითი სპარსული კამპანიის (ახ.წ. 363 წ.) შემდეგ დაიწყო, რომელიც V საუკუნეშიც გაგრძელდა, ხოლო თავდაცვითი ნაგებობები იქამდე უნდა ყოფილიყო აშენებული და მოქმედი, ვიდრე სარაგურები აღმოაჩენდნენ, რომ სპარსული ციხესიმაგრე მათ მიერ შემოსევისთვის არჩეულ მარშრუტს ხელს უშლიდა (ახ.წ. 466/467). უფრო ადრე, პეროზის მმართველობის პირველი ხუთი წლის განმავლობაში (ე.ი. დაახლ. 457-462 წწ.) სპარსელებს გახსნილი ჰქონდათ ალანების უღელტეხილი (ე.ი. დარიალი), რათა ჰუნების ძლიერი ნაკადი მეამბოხე ალბანელებისთვის შეესიათ, რაც იმას ნიშნავს, რომ იმ დროისთვის სპარსელები კარიბჭეს სრულად აკონტროლებდნენ. სპარსეთში დაბადებული და ბაღდათში მოღვაწე IX საუკუნის ავტორი იბნ-ხორდადბე ალანთა კარიბჭეს ხოსრო I-ს (ახ.წ. 531-579 წწ.) მიაწერს და აღნიშნავს, რომ ის 360 კარიდან ერთ-ერთი იყო, რომელიც კავკასიაში ხოსრო I-ის დროს აშენდა. აშკარაა, რომ ეს მცდარი დათარიღება ხოსრო I-ის დიდების დასტურია, რომელსაც მოგვიანო პერიოდის ავტორები ხშირად მიაკუთვნებდნენ იმ ძეგლების აშენებას, რომლებიც მისი მმართველობის პერიოდს არ ემთხვევა. შესაძლოა, რომ აქ აირეკლა ცოდნა იმის შესახებ, რომ დარიალის ციხესიმაგრე სპარსულ ნაგებობად მოიაზრებოდა. უნდა აღინიშნოს ასევე ის, რომ ჰუნებმა ვეღარ შეძლეს ახლო აღმოსავლეთში კიდევ ერთი, ახ.წ. 395 წლის მასშტაბის, შემოსევის განხორციელება კავკასიის გავლით. ეს კი იმის არაპირდაპირი დადასტურებაა, რომ კავკასიის უმთავრესი უღელტეხილის თავდაცვითი სისტემა გაცილებით გაუმჯობესდა შემოსევის შემდეგ, ანუ პეროზის მეფობამდე დიდი ხნით ადრე, რომ არაფერი ვთქვათ კავადის ან ხოსრო I-ის მეფობაზე.

დარიალის ციხესიმაგრე, რომელიც გვიან IV საუკუნეში და/ან ადრე V საუკუნეში აშენდა, შედგებოდა პლატოს კიდეებზე განლაგებული გარე კედლისგან და მის შიგნით, დაახლოებით ხუთი მეტრი სიგანის ოთახების წყებისაგან, რომელიც მთელ გარნიზონს ან მის ნაწილს თავშესაფრით უზრუნველყოფდა. მოგვიანებით, დროის მონაკვეთში V საუკუნის დასაწყისსა და VI საუკუნის დასაწყისს შორის (დიდი ალბათობით, ეს თარიღი V საუკუნის პირველ მესამედს შეესაბამება) F თხრილში ამ წყების შიგნით ორი სვეტი, ხოლო Q თხრილში ანალოგიური ადგილმდებარეობის ასევე ორი მსგავსი სვეტი იყო აღმართული, რამაც ციხესიმაგრის კედლების ორმაგი წყების შიგნით გადახურული ბილიკის ნაწილი წარმოქმნა.

V საუკუნესა და VI საუკუნის შუა პერიოდს შორის, გორაკის მწვერვალზე აიგო შენობა (F.004), რომელიც ზედმიწევნით იმეორებდა ციხესიმაგრის კედლების წყობას. მისი კედლებიც დედაქანზე აშენდა, გამოიყენეს დუღაბი და თაბაშირით დაფარული საშუალო ზომის ქვები; დუღაბით მსგავსი შვერილიც კი ააგეს. მოგვიანებით შენობაში კარგად მოგებული დუღაბის იატაკი გაკეთდა. მყარი და ერთ დროს მაღალი კედლების წყალობით შენობას (ისევე როგორც ციხესიმაგრის კედლებს) ათასწლეულისთვის ან მეტი ხნისთვის უნდა გაეძლო. Q თხრილში წავაწყდით დიდი შიდა შენობის სამხრეთ-დასავლეთ ნაწილს, რომლის სწორხაზოვანი კედლები ასევე დუღაბით დედაქანზეა ნაგები. მართალია, მასთან დაკავშირებული ფენები შემორჩენილი არ არის, მაგრამ დუღაბით ნაგები კედლების წყობა აშკარად მიუთითებს გვიანანტიკური ხანის სტილზე.

დასკვნის სახით შეგვიძლია ვთქვათ, რომ ციხესიმაგრის კედლები და მყარი დუღაბის ყველა შენობა-ნაგებობა გვიანანტიკური ხანისაა. ასევე შესაძლებელია მათი დათარიღება გვიან IV და ადრე V საუკუნეებს შორის. შესაძლებელია ისიც, რომ სამშენებლო სამუშაოები მოგვიანებით V საუკუნეში ან VI საუკუნის შუა ხანებშიც გაგრძელდა, მაგრამ ძნელია გასაოცრად მსგავს ქვის წყობასთან და იმ პერიოდთან თანხმობაში მოყვანა, რომელიც დიდი ალბათობით IV საუკუნის მიწურულსა და 430-იან წლებს შეესაბამება. დუღაბის ანალიზმა მისი შთამბეჭდავი ხარისხი გამოავლინა, რომელიც იმდენად მაღალია, რომ გარკვეულ ადგილებში ისე მყარად არის შემორჩენილი, რომ მისი სინჯის აღება გეოლოგიური ჩაქუჩითაც კი გაძნელდა. დარიალის ციხესიმაგრის გვიანანტიკური ხანის დახელოვნებულმა არქიტექტორებმა საძირკველი ჩაუყარეს ისეთ ციხესიმაგრეს, რომელიც ამიერკავკასიის სატრანსპორტო გზას აკონტროლებდა და საცხოვრებლადაც

ვარგისი იყო. უდუღაბოდ დაწყობილი კედლები მხოლოდ მოგვიანებით დაემატა, რომლებიც რუსებმა XIX საუკუნეში ააფეთქეს.

დარიალი შესაძლოა სასანიანთა იმპერიის მიერ გამოყენებული ბუნებრივი ბარიერის პირველი მაგალითი იყოს, რომლითაც ის უზრუნველყოფდა ქვეყნის შიგნით არსებული ეკონომიკური რესურსის უსაფრთხოებას. თუკი გვერდზე გადავდებთ ჰიპოთეზას, რომელიც არც არავის დაუმტკიცებია და არც არავის უარყვია და რომლის მიხედვითაც რომაელებს უფრო ადრე ჰყავდათ დარიალის ციხესიმაგრეში ჯარისკაცები განლაგებული, მაშინ რომი პირველი მნიშვნელოვანი იმპერია გამოდის, რომელმაც კავკასიის მთავარ უღელტეხილზე პირდაპირი კონტროლი დააწესა. წერილობით წყაროებზე დაყრდნობით, ხეობაში, ალბათ, იქამდეც არსებობდა იბერიელების უფრო მნიშვნელოვანი თავდაცვითი ნაგებობები და სასანიანები, ალბათ, უფრო იბერიელების კვალს გაყვნენ, ვიდრე პირველებმა დაიწყეს კავკასიის უღელტეხილების ჩახერგვა. მოგვიანებით, ანალოგიური სტრატეგია ბევრ ადგილას გამოიყენეს, რომელთაგან აღსანიშნავია დერბენტის, ტამიშეჰისა და გილგილქეის კედლები, რომლებსაც კასპიის ზღვის სანაპირო დერეფანი უნდა ჩაეკეტა. განსაკუთრებით საინტერესო პარალელს წარმოადგენს გვიანსასანური ციხესიმაგრე ბაზიანთან, რომელიც თანამედროვე კირკუკის აღმოსავლეთ-ჩრდილო-აღმოსავლეთით მდებარეობს და მისგან დაახლოებით 60 კმ-ით არის დაშორებული. ეს კვადრატული (დაახლ. 45x45 მეტრი) ნაგებობა უშუალოდ ბაზიანის უღელტეხილის ჩამკეტი კედლის გვერდზე ააგეს. ეს კედელი აქჯერ კიდევ ძვ.წ. IX საუკუნეში არსებობდა. მართალია, თავად ციხესიმაგრე, გამოზიდული კოშკების მიუხედავად, არ იყო ისეთი მიუდგომელი, როგორც დარიალის ციხესიმაგრე, მაგრამ ისიც მსგავს ფუნქციას ასრულებდა, რომელიც, ამ შემთხვევაში, იმპერიის შიგნით გადაადგილების კონტროლთან იყო დაკავშირებული. ნაგებობის ინტერიერში მოქცეული ეკლესიისა და VI-VII საუკუნეების ქრისტიანული ჯვრის გამო, მას მონასტრად თვლიდნენ. თუმცა, ადგილმდებარეობით თუ ვიმსჯელებთ, იქ მდგარი ქრისტიანული გარნიზონი მხოლოდ რელიგიურ ვალდებულებებს როდი ასრულებდა. ამ მაგალითის იგნორირების შემთხვევაშიც, ეჭვგარეშეა, რომ სასანიანთა იმპერია ბევრად უფრო ეფექტურად იყენებდა ბუნებრივ თავდაცვით სტრატეგიას, ვიდრე წინამორბედი (და, სავარაუდოდ, მომდევნო) იმპერიები და დარიალის ციხესიმაგრე მნიშვნელოვანი ნაბიჯი იყო იმპერიის მასშტაბით საფორტიფიკაციო პროგრამის ასამოქმედებლად.

500 გირვანქა ოქრო წლიურად? სპარსელთა მიერ რომაელებისათვის წაყენებული მოთხოვნები კარიბჭის დასაცავად საჭირო ფინანსური წვლილის შეტანის შესახებ.

კავკასიის კარიბჭე, რომელსაც მოგვიანებით „კასპიის“ კარიბჭე ეწოდა, გვიანანტიკურ წყაროებშიც ისევე გამორჩეულად არის მოხსენიებული, როგორც ადრე იმპერიულ ხანაში. მაშინ როცა შემოსევები, რომლებმაც პართიის ტერიტორიები დააზარალა, ხეობის გავლით ჯერ კიდევ ახ.წ. I და II საუკუნეებში ხორციელდებოდა, ეს კარიბჭე მხოლოდ V, VI და VII საუკუნეებში სულ უფრო მეტად იქცა სტეპების მტრული ძალების წინააღმდეგ თავდაცვითი კორდონის ქვაკუთხედად. კარიბჭე გამორჩეულად ფიგურირებს სპარსეთსა და რომს შორის მოლაპარაკებებში, როცა განიხილავდნენ საკითხს იმასთან დაკავშირებით თუ როგორ უნდა გადანაწილებულიყო პასუხისმგებლობა და ფინანსური ვალდებულება ისე, რომ კორდონი ძლიერ, აუღებელ ციხესიმაგრედ დარჩენილიყო. როგორც უკვე აღვნიშნეთ, სპარსელები უფრო მოწყვლადი იყვნენ ბარბაროსთა შემოსევებისთვის, რომელსაც ისინი კავკასიის უღელტეხილის გავლით ახორციელებდნენ. საბოლოოდ სპარსელებმა დარიალის ციხესიმაგრე რომაელების დახმარების გარეშე ააგეს. თავდაცვით სისტემაში სპარსელთა წვლილი, რომელსაც სარგებელი მოჰქონდა ორივე იმპერიისთვის, მოლაპარაკებების მიზეზი ან საბაბი გახდა. სპარსელები მოითხოვდნენ, რომ რომაელებს მატერიალური წვლილი შეეტანათ თავდაცვითი ციხესიმაგრის მოვლა-შენახვაში, რაც IV საუკუნიდან ან V-დან VI საუკუნეში გრძელდებოდა. ამ თავში ჩვენ მოკლედ მიმოვიხილავთ, თუ როგორ ავხსნათ ასტრონომიული სიდიდის ფულადი მოთხოვნები, რომელიც პაწაწინა ციხესიმაგრეს უნდა მოხმარებოდა.

ჯონ ლაიდუსი ამტკიცებს, რომ სპარსელები არ იყვნენ საკმარისად ძლიერები, რომ შეძლებოდათ საკუთარი და დაპყრობილი ტერიტორიების დაცვა, განსაკუთრებით ამიერკავკასიაში, ახ.წ. 363 წელს იმპერატორ იულიანის დამარცხების შემდეგ. ნუთუ სპარსეთისთვის მართლა არსებობდა რომაელთა ჩართულობის ან

ფინანსური დახმარების საჭიროება კავკასიაში არსებული თავდაცვითი სტრუქტურების შენარჩუნებისთვის? არქეოლოგიური აღმოჩენების მიხედვით, მომდევნო საუკუნეებში სულ სხვანაირი სურათი იკვეთება. სასანიანთა იმპერიას, რომელმაც შეძლო V საუკუნეში გორგანის დიდი კედელი აეშენებინა, რომლის ერთად აღებულ ციხესიმაგრეებს 80 ჰა ეკავა, რომც არ ვახსენოთ ქვეყნის სიღრმეში აგებული, თავდაცვისთვის განკუთვნილი, უფრო დიდი ზომის ნაგებობები და სხვა კედლები, რომლებიც ასობით ჰა-ს ფარავდა - არ უნდა გასჭირვებოდა დარიალის ერთი პატარა ციხესიმაგრის შენახვა. დარიალის ციხესიმაგრე (დაახ. 0.4 ჰა) სპარსეთის ყველაზე დიდ ციხესიმაგრესთან (ვარამინთან მდებარე ქალ-ე გაბრისთან) შედარებით ოთხასჯერ, ხოლო სასანიანთა ყველა ციხესიმაგრის ერთიან მოცულობაზე რამდენიმე ათასჯერ პატარა იყო (სავარაუდოდ, მათი რიცხვი ბევრად უფრო მეტია, ვიდრე ეს ჩვენთვის არის ცნობილი).

და მაინც, სპარსელები გამუდმებით მოითხოვდნენ რომაელებისგან საკმაოდ დიდ სუბსიდიებს. ახ.წ. 532 წელს 11,000 რომაული ოქროს გირვანქა (დაახ. 3,6 მეტრული ტონა ოქრო ანუ 792,000 რომაული ოქროს solidi, რომელიც საკმარისი იყო 66,000 ჯარისკაცის ხელფასისათვის და მათ შესანახად წელიწადში, ან 500 ჯარისკაცის შესანახად ერთ საუკუნეზე მეტი ხნის განმავლობაში) მოითხოვეს. ახ.წ. 561/562 წწ. ყოველწლიური გადასახადის სახით 30,000 რომაული ოქროს solidi-ზე, ანუ 500 რომაულ გირვანქაზე (რომაული ნორმებით, 36,000 solidi საკმარისი იყო 2,500-3000 ჯარისკაცის ხელფასების დასაფარავად და მათ შესანახად ერთი წლის განმავლობაში) შეთანხმდნენ. სასანიანთა და რომაელთა იმპერიების მსგავსი სიდიდისა და სიმდიდრის მქონე იმპერიებისთვის, ეს არ იყო მეტისმეტად მაღალი ფასი, თუმცა საკმარისად დიდი რაოდენობა იყო იმისთვის, რომ უმიზეზოდ არ გაცემულიყო. 11,000 ოქროს გირვანქა მოითხოვა ხოსრო I-მა სამუდამო მშვიდობის საფასურად, ანუ რომაელები მიწასთან არ გაასწორებდნენ ქალაქ დარასს, ხოლო სპარსელები კასპიის კარს რომაელთა ჩარევის გარეშე დაიცავდნენ. ჩვენი ინფორმაციის წყარო, პროკოპიუსი, აქაც და ყველგან, სადაც ტერმინ „კასპიის კარს" მოიხსენიებს, დარიალის ხეობას გულისხმობს, რაც იმას ნიშნავს, რომ მხოლოდ ამ ერთი უღელტეხილის დასაცავად, როგორც ისინი თვლიდნენ, ღირდა უზარმაზარი ოდენობის თანხის ხარჯვა. სხვა წყაროების მიხედვით, უფრო ფართო ფრონტით გაშლილი თავდაცვითი ძალისხმევა წარმოადგენდა სპარსელთა მოთხოვნების საფუძველს. ამ მოვლენებთან დაკავშირებით, 30 წლის შემდეგ მენანდრე პროტექტორი იხსენიებს ერთზე მეტ გასასვლელ გზას და ხაზგასმით აღნიშნავს, რომ შეთანხმების თანახმად, სპარსელების პირველი ვალდებულება იყო ტზონთან (დერბენტთან) არსებულ ვიწრო გასასვლელი, ანუ კასპიის კარიბჭე ჩაერაზათ და რომის იმპერიისკენ არ შემოეშვათ ჰუნები, ალანები და სხვა ბარბაროსები. როგორც ჩანს, სასანიანთა იმპერიამ გადასახადი მოითხოვა მთლიანი კავკასიის დაცვისთვის. იოანე ლაიდუსი მასშტაბებს კიდევ უფრო ზრდის - ბირაპარახი (დარიალის ციხესიმაგრე) კავკასიაში იყო, მაგრამ აშენდა იმ ბარბაროსებისგან თავის დასაცავად, რომლებიც ჰირკანიის გარშემო ცხოვრობდნენ - ეს გაურკვეველი ჩანაწერი, შეიძლება ნიშნავდეს, რომ სპარსელი შუამავლები გულისხმობდნენ ჩრდილოეთის მთლიანი საზღვრის დაცვის სისტემას დარიალიდან გორგანის კედლამდე.

იბადება კითხვა - რა იყო სასანიანების მოტივი, როცა ისინი რომაელებს დაჟინებით სთხოვდნენ თანამონაწილეობას ხარჯების დასაფარად.

- იყო თუ არა ეს ხელსაყრელი საბაბი ან მიზეზი იმისთვის, რომ მოეწყოთ რეიდი რომაელთა ტერიტორიაზე იმ შემთხვევაში, თუ გადასახადის გადახდაზე უარს იტყოდნენ - თანაც ისინი, ვინც დარიალის ხეობის გავლით დაესხმებოდნენ, თუ არაფერს ვიტყვით უფრო აღმოსავლეთით მდებარე ბარიერებზე, სპარსეთის ტერიტორიას უფრო მეტ ზიანს მიაყენებდნენ, ვიდრე რომაულს.
- ნამდვილად გულისხმობდნენ კი ისინი რეგიონში არსებულ ყველა თავდაცვით ნაგებობას, მათ შორის ნებისმიერს, რომელიც გარკვეულ პერიოდში უფრო დასავლეთით იყო განლაგებული, აგრეთვე ღილღილქაის და/ან დერბენტის კედელს კასპიის ზღვის დასავლეთ სანაპიროზე. შესაძლოა, ისინი გულისხმობდნენ კასპიის ზღვის აღმოსავლეთით მდებარე მთავარ ბარიერებსაც, განსაკუთრებით კი გორგანის კედელს, მიუხედავად იმისა, რომ ეს უკანასკნელი რომაელთა ინტერესებისთვის არანაირი სარგებლის მომტანი არ იყო?
- იყო თუ არა დარიალის ხეობაში ბევრად უფრო მნიშვნელოვანი სამხედრო ძალები წარმოდგენილი, ვიდრე დარიალის ციხესიმაგრეს შეეძლო დაეტია?

საყურადღებოა ის ფაქტი, რომ ჯერ კიდევ IV საუკუნის მიწურულში, სანამ სასანიანთა მთავარი გრძელი კედლები აშენდებოდა, სპარსეთსა და რომს შორის გამართულ მოლაპარაკებებში კასპიის კარიბჭეზე ციხესიმაგრის აშენების გეგმას განიხილავდნენ. ეს გვაიძულებს ვიფიქროთ, რომ დარიალის ხეობა უმნიშვნელოვანესი თავდაცვითი კორდონი იყო, რომლითაც ორივე იმპერია სარგებლობდა, მით უმეტეს, რომ ამ გზით განხორციელებული შემოსევები, სავარაუდოდ, უფრო მეტი ზიანის მომტანი რომაელთა ინტერესებისათვის იყო, ვიდრე უფრო აღმოსავლეთით მდებარე იმპერიისათვის. საკამათო საკითხია, თუ როდის დაიწყო რომმა დაკისრებული ფინანსური პასუხისმგებლობის შესრულება. VI საუკუნეში ფიქსირდება თანხის კონკრეტული რაოდენობა, თუმცა შესაძლებელია, რომ რომმა გადასახადების გადახდა ჯერ კიდევ V საუკუნეში დაიწყო.

სპარსელთა მოთხოვნა, რომლის მიხედვითაც რომს უნდა გაეგზავნა თანხა ან სამხედრო ძალა, რათა ახ.წ. 460-იან წლებში კარიბჭესთან არსებული ციხესიმაგრე (სახელად იურაიობააჩი) დაკომპლექტებულიყო და მეფე კავადის განცხადება, რომ მან მრავალრიცხოვანი ჯარი ჩააყენა კასპიის კარში მას შემდეგ, რაც ეს კარიბჭე ბარბაროსებს (ე.ი. აბაზუკისა და მისი შვილების წინამძღოლობით „ჰუნებს“) ხელიდან გამოგლიჯა, ბადებს კითხვას, ხომ არ იყო იქ იმაზე მეტი ნაგებობა, ვიდრე ერთი პატარა ციხესიმაგრე, რომელსაც მხოლოდ რამდენიმე ასეული ადამიანის დატევა შეეძლო. არის კი შესაძლებელი, რომ ბევრად უფრო დიდი რაოდენობით სამხედრო, რომელიც ციხესიმაგრეს დარაჯობდა, ბარიერის უკან, დაუცველ დასახლებებში სახლობდა? თუ კი ეს ასეა, მაშინ დარიალის ციხესიმაგრის დასაცავად საჭირო ეს სავარაუდოდ მაღალი საფასური გათვალისწინებული იყო არა შედარებით პატარა გარნიზონისათვის, არამედ უფრო მრავალრიცხოვანი მეომრებისა და ჯარისკაცებისათვის, რომლებიც ახლომახლო, ჯერ კიდევ მიუკვლეველ დასახლებებში ცხოვრობდნენ.

ჯერჯერობით არ არსებობს არანაირი მტკიცებულება იმისა, რომ ციხის გარნიზონი ან ახლომახლო მდებარე დასახლებები გულუხვ გასამრჯელოს ნაღდი ფულის სახით იღებდნენ. გველეთის სასაფლაოზე აღმოჩენილი კავადის სასანური მონეტის გარდა, ამ არეში არც ერთი ანტიკური მონეტა არ უპოვიათ. გველეთში დაკრძალულები, რომლებსაც სამარხის ინვენტარში შუბებიც აქვთ ჩატანებული, შესაძლოა სათადარიგო ჯარისკაცები არიან, როგორც ზემოთ უკვე აღვნიშნეთ. ვინაიდან მხოლოდ 16 სამარხი გაითხარა და არაფერი გვავარაუდებინებს, რომ სასაფლაო ბევრად უფრო დიდი იყო, ნაკლებ შესაძლებელია ვიფიქროთ, რომ ისინი დიდ კონტინგენტს ეკუთვნოდნენ ან რომ ადამიანთა დიდი რაოდენობა ოდესმე სახლობდა გველეთის ირგვლივ არსებულ საცხოვრებლად ვარგის რამდენიმე მომცრო ზომის მიწის მონაკვეთზე.

მართლაც, ზვავის ჩამოწოლის რისკისაგან დაცული მიწის სიმცირის გამო, დარიალის ციხესიმაგრესთან ახლოს ფართო დასახლებების არსებობა ნაკლებ სავარაუდოა. რამდენიმე წელიწადში ერთხელ გამეორებული მეწყერის გამო თერგის/ტერეკის ხეობაში და მდ. დევდორაკის შესართავთან დასახლება თვითმკვლელობის ტოლფასი იქნებოდა. დასახლებისთვის უფრო მეტად შესაფერისი მიწა თანამედროვე სტეფანწმინდისა და მისგან სამხრეთით არსებული ტერიტორია იქნებოდა. სავარაუდოდ, გარნიზონისთვის სწორედ აქ მოჰყავდათ საკვები პროდუქტი. მიუხედავად იმისა, რომ დარწმუნებით შეგვიძლია ვთქვათ, რომ ეს ადგილი დასახლებული იყო, არ არსებობს მტკიცებულება, რომელიც აქ უძველესი თავდაცვითი ნაგებობების, იარაღის ან სამხედროების ყოფნის სხვა ნიშნებზე მიგვითითებდა.

არა მხოლოდ ამ მოსაზრების მხარდამჭერი ცნობების სიმცირე, არამედ უფრო ზოგადი დაკვირვება გვაიძულებს დავეჭვდეთ იყო თუ არა დარიალის ციხესიმაგრის მახლობლად სათადარიგო ჯარების დიდი რაოდენობა განთავსებული. კარგი პოზიციის გამო, დარიალის ციხესიმაგრის მცირერიცხოვან ჯარს შეეძლო ბევრად უფრო მეტი მოწინააღმდეგის შეჩერება. შემოჭრილ ჩრდილოეთელთა იმ გარკვეულ რაოდენობას, რომელსაც ძალა ეყოფოდა დარიალის ციხესიმაგრის წინააღმდეგობის დასაძლევად, ციხესიმაგრის მცველთა მნიშვნელოვნად უფრო დიდი რაოდენობაც ვერ შეაჩერებდა (არაა საუბარი მეომართა იმ რაოდენობაზე, რომელიც უნდა გამოეკვებათ ალპურ ველებზე ხანგრძლივი დისლოცირების პირობებში) ციხესიმაგრის მახლობლად „სწორ მინდორზე“ შებრძოლების შემთხვევაშიც. დარიალის სამხრეთით მდებარე დასახლებებს სასიცოცხლო მნიშვნელობა ჰქონდათ საკვების წარმოებისა და სამხრეთიდან მარაგის მიწოდების ხაზის უსაფრთხოებისათვის.

შესაძლო სათადარიგო ძალები ალბათ მცირე რაოდენობით იყო წარმოდგენილი და მათი დახმარება მხოლოდ მაშინ სჭირდებოდათ, თუკი მტერი ხეობის ვიწროობს გამოაღწევდა. არაფერი გვავარაუდებინებს დარიალის ციხესიმაგრის სამხრეთით (ან მოგვიანებით გველეთის სამხრეთით) თავდაცვის კიდევ ერთი ხაზის არსებობას.

თუკი დავუშვებთ, რომ ბუნებრივი პირობების წყალობით კარიბჭე იმდენად კარგად იყო დაცული, რომ სულ რამდენიმე ასეული კაცით იყო შესაძლებელი ბევრად უფრო მრავალრიცხოვანი ჯარებისთვის გასასვლელის ჩახერგვა. ეს მხოლოდ იმ შემთხვევაში იქნებოდა შესაძლებელი თუკი კარიბჭის მცველები ადგილობრივი მოსახლეობის მხარდაჭერით სარგებლობდნენ და უზრუნველყოფილნი იყვნენ პირველი საჭიროების საგნებით. ბენჯამინ ისააკმა მართებულად აღნიშნა ის სირთულეები, რომლებიც დაკავშირებული იყო დარიალში საკვები მარაგის მიწოდებასთან. არქეოლოგიური კვლევით რთული და თითქმის შეუძლებელია იბერიელების, სპარსებისა თუ სხვა ეთნიკური ჯგუფების მიერ დაკავებული ადგილების ერთმანეთისგან გარჩევა. არ დასტურდება ბასტიონების მწკვრივის არსებობა, რომელიც მარაგით უზრუნველყოფის ჯაჭვს იცავდა. მართლაც, თბილისში მდებარე კარგად დაცულ ნარიყალასა და დარიალის ციხესიმაგრეს შორის გვიანანტიკურ ხანაში აშენებული სხვა რომელიმე თავდაცვითი ნაგებობა ჩვენთვის უცნობია. რადგან არაფერია ცნობილი საკვების მარაგის თანმხლები ბადრაგისთვის აშენებული ღამის თავშესაფრების შესახებ, უნდა ვიფიქროთ, რომ საკვებითა და სხვა საჭირო ნივთებით დარიალის ციხესიმაგრეს მტრებით გარემოცულ მთაგრეხილის ველებში მოძრავი, მძიმედ შეიარაღებული საჯარისო ნაწილები კი არა, არამედ იბერიელები და ადგილობრივი თემები ამარაგებდნენ. მსგავსი სიმბიოზი ლოგიკურია. სავარაუდოდ, დამშეული გარნიზონი ქრთამს დახარბდებოდა. დარიალის გავლით დიდი რეიდის ან შემოსევის შემთხვევაში, პირველ რიგში თბილისისკენ მიმავალ გზაზე მცხოვრები მოსახლეობა დაზარალდებოდა. შესაბამისად, ამ მარშრუტზე მცხოვრობთათვის დარიალის ციხესიმაგრის რამდენიმე ასეული მცველის საკვებით მომარაგება - ან სხვების იძულება ასე მოქცეულიყვნენ - საკუთარი სიცოცხლის უსაფრთხოების გარანტიისთვის გადახდილი ბევრად უფრო მცირე საზღაური იყო. რა თქმა უნდა, საქმე შესაძლოა უფრო რთულადაც ყოფილიყო - მოგზაურებისთვის გადაადგილება უსაფრთხო არ იქნებოდა (სავარაუდოდ, უფრო ახლო წარსულში მომხდარი გაჭურდვა-ძარცვის მსგავსი შემთხვევები ხშირი იქნებოდა), ამიტომ ციხესიმაგრის სამხრეთ მისადგომებთან გაბატონებული სიმშვიდისა და ჰარმონიის სურათების დახატვას არ ვეცდებით. თუმცა, სამხედრო გამაგრებების ნაკლებობა გვაფიქრებინებს, რომ, ადგილობრივ მოსახლეებთან თანამშრომლობით, ციხესიმაგრისთვის საკვები მარაგის მიწოდების გზა გამოინახა.

შორი მანძილიდან მოწოდებული საკვები მარაგის გარეშე რამდენად იყო შესაძლებელელი ციხესიმაგრის საკვებით უზრუნველყოფა? ორი საუკუნის წინ, რაინეგსი ამტკიცებდა, რომ ციხესიმაგრის მიმდებარე ტერიტორიაზე მიწათმოქმედებისთვის და საქონლის საძოვარზე გასაშვებად შესაფერისი მიწა საკმარისი იყო ათასკაციანი გარნიზონის საჭიროების დასაკმაყოფილებლად, მაგრამ რთულია იმის წარმოდგენა, რომ იზოლაციაში მოქცეულ გარნიზონს დიდი ხნით ეარსება, ისევე როგორც, გვიჭირს იმის დაჯერება, რომ იზოლირებული გარნიზონის თავდადება ციხესიმაგრის დაცვისთვის სანდო იქნებოდა. ლანდშაფტის შემსწავლელი ჩვენი გუნდი ამტკიცებს, რომ ხეობას შეეძლო ადამიანის გამოკვება. ჩონჩხის ნაშთების შესწავლით დასტურდება, რომ ადრე შუა საუკუნეებში ციხესიმაგრის მცველები დიდი სტრესისა და შიმშილობას განიცდიდნენ, რაც ასაბუთებს ალპურ სადარაჯოზე მძიმე საცხოვრებელი პირობების არსებობას. იმ შემთხვევაშიც კი, თუ ვირწმუნებთ, რომ ადგილობრივი მოსახლეობისთვის ხელსაყრელი იყო ციხესიმაგრეში ჩამდგარი გარნიზონის შენახვა და საკვებით უზრუნველყოფა, ზვავებსა და მეწყერებს შეეძლო დროებით შეეზღუდა ციხესიმაგრის მომარაგება. მართალია, ხორცისა და ძირითადი საკვები პროდუქტის წყარო შესაძლოა ჯვრის უღელტეხილის ჩრდილოეთით იყო, მაგრამ უთუოდ ამიერკავკასიის დაბლობიდანაც მოემართებოდა საკვებით დატვირთული ბადრაგი. ეს ვარაუდი არა მარტო დადასტურდა მომდევნო, ადრეული შუა საუკუნეებისათვის, არამედ არქეობოტანიკურმა კვლევამ ყურძენი გამოავლინა, რომელიც ცენტრალურ კავკასიაში არსად ხაროობდა.

დარიალის ხეობაში განლაგებული სამხედრო ძალები, სავარაუდოდ, მცირერიცხოვანი იყო და ალბათ სამნიშნა ციფრს არ აღემატებოდა. მათი ზუსტი

რაოდენობის ცოდნის მიუხედავად, დარიალის ხეობა, მდებარეობდა რა მომთაბარეთა და ბინადართა სამყაროების გზაჯვარედინზე, კასპიის ზღვის სანაპირო კორიდორის დასავლეთით კავკასიის თავდაცვითი კორდონის ყველაზე მნიშვნელოვანი ადგილი და, რომაელებსა და იბერიელებს შორის ურთიერთობის თვალსაზრისით, ყველაზე მნიშვნელოვანი პუნქტი იყო. მისი მოვლა-პატრონობა სპარსელთა მიერ მოთხოვნილი თანხის ნაწილზე ოდნავ მეტი დაჯდებოდა. მაგრამ ჯაჭვის სიმტკიცეს მისი ყველაზე სუსტი რგოლი განსაზღვრავს, ამიტომ მხოლოდ დარიალის ან მხოლოდ დერბენტის გზის ჩაკეტვას ამ ჯაჭვში სახიფათო წყვეტის გაჩენა შეეძლო.

ეჭვს არ ბადებს ის, რომ უკვე გვიანანტიკურ ხანასა და ადრე შუა საუკუნეებში გაცნობიერებული ჰქონდათ, რომ კავკასიის გამაგრების პროგრამა ერთი სისტემის ნაწილი იყო. ამ მხრივ ნიშანდობრივია IX საუკუნის ბაღდადში მოღვაწე ისტორიკოსის ბალადჰურის მტკიცება, რომ სპარსეთის მეფე კავად I-მა (ახ.წ. 488-496 და 499-531) აგურის ბარიერი აღმართა ალანთა კარიბჭესა და შარვანს შორის, რაც იმაზე მიგვანიშნებს, რომ კასპიის ზღვასთან მდებარე დერბენტიდან დარიალის უღელტეხილამდე უწყვეტი კედელი არსებობდა. მართალია, ეს ამონარიდი სიმართლეს არ შეესაბამება, მაგრამ, შესაძლოა, მასში მოიაზრებოდა თავდაცვითი ჯაჭვის სხვადასხვა შემადგენელი რგოლის ურთიერთდამოკიდებულება, რომელთაგან ზოგიერთი რგოლი თავად კავკასიის კლდეები იყო და არა ხელოვნური ბარიერები. ასევე საინტერესოა კედლის გასწვრივ არანაკლებ 360 ქალაქის დაარსება. ბალადჰურის მიხედვით, კავადმა ააგო კედელი და 360 ქალაქი, ხოლო დერბენტი და თავად ალანების კარიბჭე მხოლოდ ხოსრო I-ის (ახ.წ. 531-579 წწ.) დროს აშენდა. IX საუკუნის კიდევ ერთი წყარო, კერძოდ, იბნ ხორდადბეჰი, ასევე აღნიშნავს 360 კარის ან ციხის არსებობას, რომლებიც მთაგრეხილის ხეობებს აკონტროლებდა. მათ აშენებას ის ხოსრო I-ს (ახ.წ. 531-579) მიაწერს. იბნ ხორდადჰბეჰის ჩამონათვალში ამ 360 ქალაქიდან მცირე რიცხვი მოხვდა, მაგრამ მათ შორისაა ალანთა კარი (დარიალი) და დერბენტი. ორივე ავტორის მიერ დამოწმებული ციფრი 360, რომც არ იყოს დერბენტის კედლის ყველა ფორტის საერთო რაოდენობის ტოლი, სავარაუდოდ, იმ რწმენის ანარეკლი იყოს, რომ მხოლოდ დერბენტსა და დარიალზე ფოკუსირებული სისტემის გარდა, იმ დროს კიდევ სხვა, უფრო კომპლექსური საფორტიფიკაციო სისტემა არსებობდა. ის, რომ, ბალადჰურის მიხედვით, დერბენტის აღმართვის შემდეგ, 360-ვე ქალაქი მიწასთან გასწორდა, იმაზე მიგვანიშნებს, რომ, როგორც იმ დროს ითვლებოდა, ეს მრავალრიცხოვანი ციხესიმაგრეები უფრო კარიბჭის მახლობლად იყო, ვიდრე ცენტრალურ კავკასიაში. ვფიქრობთ, რომ ამ წყაროებით ნაგულისხმები სხვა დამატებითი მინიშნებების ძიება არასწორია, თუმცა ერთი რამ კი ცხადია, ისინი ადასტურებენ დიდი სახსრების ჩადებას სასაზღვრო ზოლში, რომელიც მოიაზრებოდა, როგორც სპარსეთის საზღვრების ერთიანი თავდაცვითი სისტემის კავკასიური ნაწილი.

სპარსეთის მიზანი მთლიანი თავდაცვითი სისტემის მოვლა-შენახვა იყო. მას რომის ფინანსური მხარდაჭერა სჭირდებოდა. ამის მისაღწევად ის ისეთ ფრაზეოლოგიას იყენებდა და რომის ფინანსურ დახმარებას ისეთი კუთხით წარმოაჩენდა, რომელიც მისაღები იქნებოდა მისი დასავლელი მეზობლისათვის. როგორც ჩანს, სწორედ ამიტომ შუამავლებმა უმთავრესი ყურადღება დარიალს დაუთმეს, ნაკლები დერბენტს, და არაფრად ჩააგდეს კასპიის ზღვის აღმოსავლეთით მდებარე კოლოსალური თავდაცვითი ნაგებობები. გადასახადი, რომელზეც ახ.წ. 560-იან წლებში შეთანხმდნენ, მოკრძალებული წვლილი იყო, თუმცა მასზე უარის თქმა სადარაჯოს არსებობას საფრთხეს არ შეუქმნიდა. როგორც ჩანს, სპარსეთის მესაზღვრეები ფულად ანაზღაურებას არ იღებდნენ. თუმცა მათთვის ანაზღაურება რომაული ტარიფით რომ მიეცათ, ჯამური თანხა საკმარისი იქნებოდა იმაზე ბევრად უფრო დიდი გარნიზონისთვის, ვიდრე დარიალი დაიტევდა, მაგრამ არ ეყოფოდა მთელ კავკასიას, დერბენტის ჩათვლით. ნიჰავატ ი'ირაბის მიხედვით, დერბენტის კედლის დასაცავად ხოსრო I-მა 12, 000 ცხენოსანი გაგზავნა. მართალია, შეგვიძლია ეჭვი შევიტანოთ ამ მოგვიანო პერიოდის წყაროს სიზუსტეში, მაგრამ უნდა აღვნიშნოთ, რომ დერბენტის კედლის სამხრეთით მდებარეობდა დიდი სწორკუთხოვანი ციხესიმაგრე თორფახ კალა, რომელიც იმდენად დიდი იყო, რომ შეძლებდა 30 000-მდე კაცის დატევას, თუმცა, სავარაუდოდ, მხოლოდ კრიზისულ ვითარებაში. შესაბამისად, დიდია იმის შანსი, რომ კავკასიაში სასანიანთა გარნიზონი ექვსნიშნა ციფრს აღწევდა. გადასახადი დაწესებული მთელი სისტემისთვის, გორგანის კედლის ჩათვლით, რომლის გარნიზონი სავარაუდოდ 20 000-30 000 კაცისგან შედგებოდა, თუ არ ჩავთვლით ქვეყნის სიღრმეში არსებულ ციხესიმაგრეებს, რომლებიც თითოეული 5000,

10000 ან 30000 (ან ყველა ერთდროულად) კაცს იტევდა, ზღვაში წვეთი იყო. სპარსეთს და მის მოკავშირეებს ჰქონდათ იმდენი რესურსი, რომ სისტემა სხვისი დახმარების გარეშე დაეცვათ.

არ არსებობს იმის მტკიცებულება, რომ თავდაცვის სიძლიერე რომის კონტრიბუციაზე იყო დამოკიდებული - სუსტდებოდა მაშინ, როცა რომი გადასახადს არ იხდიდა და პირიქით, ძლიერდებოდა რომის მიერ გაღებული შემოწირულობის ხარჯზე. სასანიანთა იმპერიას სამხედრო აპარატის შენახვისთვის არ სჭირდებოდა რომის სუბსიდიები, თუმცა ძვირფას ლითონს დიდი სიამოვნებით მიიღებდა. ის თავის სამხედრო სიძლიერეს ეკონომიკური უპირატესობის მისაღებად იყენებდა, ხოლო ოქროს ჯარისკაცების ხელფასების დასაფარავად კი არა, არამედ სხვა მიზნების მისაღწევად იყენებდა. ამას გარდა, შესაძლოა, არსებობდა გულწრფელი და რაციონალური რწმენა, რომ კავკასიის გავლით შემოჭრილი ჩრდილოელების შეჩერება რომის იმპერიას იცავდა, ამიტომ რომაელთა მიერ ფინანსური ვალდებულების აღება სავსებით ლოგიკური იყო.

სასაზღვრო გარნიზონის გარტერული ანაზღაურება?

გორგანის კედლის მსგავსად, არც დარიალის ციხესიმაგრეში აღმოუჩენიათ ანტიკური ხანის მონეტა. შეუძლებელია ეს მხოლოდ მოწესრიგებულობით ან ლითონის ღირებულებით აიხსნას. რომის იმპერიის ადრეულ ციხესიმაგრეებში, სადაც დანამდვილებით ვიცით, რომ ჯარისკაცებს მონეტარული ანაზღაურება ჰქონდათ, არქეოლოგიური გათხრების შედეგად, გათხრების მასშტაბის, ციხესიმაგრის ზომის, სამონეტო მიმოქცევის ადგილობრივი ხასიათის მიხედვით, მუდმივად პოულობდნენ ასობით ან ათასობით მონეტას. დარიალის ციხესიმაგრისა და გორგანის კედლის ჯარისკაცებს ანაზღაურება რომ მონეტების სახით მიეღოთ, და ფულად ანაზღაურებას მუდმივი სახე რომ ჰქონოდა, წარმოუდგენელია, რომ ერთი მონეტა მაინც არ დაკარგულიყო, ან არ დაემალათ. ამიანე მარცელინუსი ალბათ სიმართლეს ამბობდა, როცა აღნიშნავდა, რომ სპარსი ქვეითები ანაზღაურებას მონეტების სახით არ იღებდნენ. როგორც ჩანს, V, VI და VII საუკუნეებში რომში დაბალი ღირებულების მონეტები ნაკლები რაოდენობით იჭრებოდა და იკარგებოდა ციხესიმაგრეებში, ხოლო ჯარისკაცები გასამრჯელოს ნაწილს ბარტერის სახით იღებდნენ.

ხორასანში მოჭრილი მონეტა, გველეთის სამაროვნის ერთ-ერთ სამარხში აღმოჩენილი ვერცხლის მონეტა, კავადის დროს, ახ.წ. 529 წელს, ზემოთ უკვე აღინიშნა. როგორიც არ უნდა ყოფილიყო გარდაცვლილის იდენტობა, სამარხეულ ინვენტარში ერთი მონეტა მაინც უნდა შეენახათ, ან ჩაეტანებინათ იმქვეყნიურ სამყაროში სამოგზაუროდ თუ იქ მოსახმარად. მონეტის არარსებობა ადასტურებს იმას, რომ მონეტური გადახდის ფორმა ფართოდ არ იყო გავრცელებული ხეობაში. როგორც ჩანს, რომისგან გამოთხოვილი უზარმაზარი ოდენობის თანხა კარიბჭის მცველებამდე არ აღწევდა. ბარტერული გადახდის სისტემა გვავარაუდებინებს, რომ სასაზღვრო ნაწილების ჯარისკაცები დაბალი სტატუსით სარგებლობდნენ, ან შესაძლოა მონეტების ფლობა შეზღუდული ხასიათის იყო, რადგან მთებში მცხოვრები ხალხისგან რთული იქნებოდა მონეტის სანაცვლოდ რაიმეს ყიდვა, რადგან მათ, ალბათ, არც არასდროს ენახათ ან გამოეყენებინათ ის.

ბარტერული გადახდის კვალი არქეოლოგიურად ძნელად დასადგენია, თუმცა არსებობს პოტენციური ნეგატიური მტკიცებულება. როგორც ზემოთ აღვნიშნეთ, პოსტ-სასანიდური პერიოდის (VII საუკუნის შუა ხანიდან VIII საუკუნის დასაწყისამდე) F.096 კულტურული ფენა დარიალის ციხესიმაგრეში აღმოჩენილი 13 კვირისტავიდან ყველაზე ადრეულ ნიმუშებს შეიცავდა. ადრეული ხანის თხრილში (F.208), რომელიც შეიცავდა როგორც კვლავ დალექილ გვიანანტიკურ და ადრე შუა საუკუნეების მასალას, აგრეთვე აღმოჩნდა კვირისტავიც, რომელიც შეიძლება IV-IX საუკუნეებს შორის დროის ნებისმიერი მონაკვეთით დათარიღდეს. მოკლედ, აქამდე არ არსებობს იმის სანდო მტკიცებულება, რომ დარიალის ციხესიმაგრეში შუა საუკუნეებამდე არსებობდა ქსოვილის წარმოება, თუმცა არსებობს იმის მტკიცებულება, რომ მატყლს რთავდნენ. ალბათ, აღნიშვნის ღირსია ისიც, რომ გორგანის კედლის ციხესიმაგრე 2-ში აღმოჩენილი თითისტარების უმეტესობა ბინადრობის უფრო მოგვიანო ფაზებს ეკუთვნის, კერძოდ, VI საუკუნეს ან VII საუკუნის დასაწყისს ან მის შუა ხანებს. ციხესიმაგრე 2-ის თავდაპირველი გარნიზონი, რომელიც V-VI საუკუნეებს ეკუთვნის, მოგვიანო პერიოდის გარნიზონისგან განსხვავებით, როგორც ჩანს, ნაკლებად ან სულაც არ იყო ჩართული ქსოვილის წარმოებაში. ციხესიმაგრე 2-ში ცვლილება სასანიანთა დროს მოხდა, ხოლო დარიალის ციხესიმაგრეში, დღემდე ჩვენს ხელთ არსებული, დათარიღებას დაქვემდებარებული აღმოჩენების მიხედვით, - სასანიანების ხანის შემდეგ. აღსანიშნავია, რომ ნიმუშები, როგორც

დარიალის ციხესიმაგრეში, ასევე გორგანის კედელში, პატარა ზომისაა, მომავალში ჩატარებული სავალე სამუშაოები ადვილად შეცვლის არსებულ სურათს. თუკი მომავალში სავალე სამუშაოები დაადასტურებს იმას, რომ ქსოვილის წარმოება სასანიანთა ოკუპაციის მხოლოდ ბოლო ფაზებში ან იმპერიის დაცემის შემდეგ დაიწყო, მაშინ უნდა ვივარაუდოთ, რომ თავიდან მესაზღვრეები უფასო ტანისამოსით იყვნენ უზრუნველყოფილი.

დარიალის სტრატეგიული მნიშვნელობა

დარიალის უღელტეხილის მიმართ ანტიკური ავტორების განსაკუთრებული ყურადღება, ბუნებრივია, მისი სტრატეგიული მნიშვნელობის ანარეკლს წარმოადგენს. ალბათ, ყველაზე მკაფიოდ ამაზე პროკოპი კესარიელი მოგვითხრობს. VI საუკუნის ეს ისტორიკოსი ისეთივე შეფასებას აძლევს დარიალის მარშრუტს, როგორსაც პლინიუსი თითქმის ნახევარი ათასწლეულით ადრე, თუმცა ტოპოგრაფიულ ელემენტებს ნაკლები დეტალიზებით (მაგრამ სწორედ დარიალის ხეობას განიხილავს და არა დერბენტს) გვაწვდის:

„ტავრის მთების ჯაჭვი კილიკიიდან კაპადოკიელთა მიწების გავლით სომეხთა და ეგრეთწოდებულ სპარს სომეხთა, შემდგომ კი ალბანელთა და იბერიელთა და იქ მცხოვრებ ყველა სხვა თავისუფალ თუ სპარსეთის მმართველობის ქვეშ მყოფ ეთნოსთა მიწებზე ვრცელდება. ის უზარმაზარ ტერიტორიაზეა გადაჭიმული და მთელ ამ მანძილზე განსაკუთრებულ სიგანესა და სიმაღლეს აღწევს. იბერიის საზღვრის გადაკვეთისთანავე, უკიდურესად ვიწრო ბილიკი ხეობისკენ 50 სტადიის [9კმ-ის] მანძილზე მიიკლაკნება. ეს ბილიკი ციცაბო და სრულიად გაუვალ ადგილას წყდება, აქ სხვა გასასვლელი არსადაა, გარდა ერთი ვიწრო კარიბჭისა, რომელიც ბუნებას ისე შეუქმნია, რომ კაცის მიერ ნაგებ კონსტრუქციას ჰგავს. ანტიკური ხანიდან მოყოლებული მისი სახელია „კასპიის კარიბჭე“. მის იქით გადაჭიმულია ცხენის საჯირითო ტრამალები, რომლებიც წყლით და საძოვრებით არის მდიდარი და ვაკეა. აქ, მეოტისის ტბამდე [აზოვის ზღვამდე], ჰუნთა თითქმის ყველა ტომი ცხოვრობს. თუკი ეს ჰუნები ზემონახსენები ვიწრო კარიბჭით სპარსულსა და რომაულ ტერიტორიებზე წასვლას მოისურვებენ, ისინი ცხენების ზედმეტი გადაღლის გარეშე იმოგზაურებენ და შემოვლითი გზებისა და ციცაბო მთების გარეშე, მხოლოდ 50 სტადიის გავლით, ისინი იბერიის საზღვარს მიაღწევენ. თუკი სხვა რომელიმე გზის გავლით წავლენ, მეტად რთულად მიაღწევენ დანიშნულების ადგილს და ცხენებიც უვარგისი გაუხდებათ, რადგან გრძელი, შემოვლითი გზების გავლა მოუწევთ ციცაბო რელიეფითა და მთიანი რაიონებით.“

მიუხედავად იმისა, რომ პროკოპი კესარიელი ადასტურებს, რომ კავკასიონის გადაკვეთა სხვა უღელტეხილებითაც შეიძლებოდა, რელიეფი იმდენად რთული იყო, რომ ის შეუძლებლად მიიჩნევდა მეორე მხარეს ცხენების უსაფრთხოდ გადაყვანის იდეას - ასე რომ, ვერანაირი მხედრიონი ვერ შეძლებდა კარიბჭეებისთვის გვერდის ავლას. ცოტა თუ იქნებოდა ცხენოსანთა ისეთი რაზმი, რომელიც სიცოცხლის რისკის ფასად გაბედავდა ევროპის უმაღლეს მთაგრეხილზე ცხენების გარეშე დარჩენილიყო მტრის ტერიტორიაზე, საიდანაც გაქცევა არცთუ ადვილი იქნებოდა. უფრო მეტიც, ამ სახიფათო მარშრუტით, კავკასიონის წარმატებით გადაკვეთა სულაც არ ნიშნავდა უსაფრთხო დაბრუნებას; ამინდის გაუარესებას ადვილად შეეძლო ხელი შეეშალა უკან იმავე, მაღალმთიანი გზით დაბრუნებისათვის. XIX საუკუნის მიწურულშიც ეს „ვიწრო, ხეობაში გამავალი გზა“ ითვლებოდა „იმ ერთადერთ გზად, რომლითაც შესაძლებელი იყო კავკასიონის მთაგრეხილის გადაკვეთა“. „ერთი-ორი სხვა გზის“ არსებობა კი სიტუაციას არ ცვლიდა, რადგან მათი „გავლა ბორბლებიანი ტრანსპორტისათვის პრაქტიკულად შეუძლებელი იყო“. ამ ვიწრობის უპირატესობა მის სიადვილეს არ გულისხმობდა. XIX საუკუნის მოგზაურები ხატოვნად აღწერენ უზარმაზარ ქარაფებს ვიწრო გზის გასწვრივ და კლდის ნაშალ ქვებში ჩამარხვის საშიშროებას, რომელიც ხშირად გზასაც ხერგავდა. საწყისი გზის გაუმჯობესების შემდეგაც 1810-იანი და 1820-იანი წლების მოგზაურები დღეში მხოლოდ ათ მილს გადიოდნენ, რომ აღარაფერი ვთქვათ საფრთხეებზე, რომლებიც მთასვლელებს აიძულებდა დიდ შეიარაღებულ ბადრაგებს შეერთებოდნენ. დღესაც კი, ზამთარსა და ადრე გაზაფხულზე უღელტეხილის გადაკვეთა გართულებების გარეშე არ ჩაივლის ხოლმე, რაც 2013 წლის 17 აპრილს საკუთარ თავზეც გამოვცადეთ თბილისიდან ხეობისკენ მიმავალებმა. ჩვენ შევესწარით თოვლში ღრმად ჩაფლულ სატვირთო მანქანებს, რომლებიც თოვლიდან ამოყვანამდე მთლიანად ბლოკავდა მოძრაობას. 2017 წლის იანვრის გადაკვეთა ნაკლებად თავგადასავლიანი იყო, თუმცა გვასწავლა, რომ გზის მდგომარეობა ზამთარში ლიპყინულისა და თოვლის დადების შედეგად სწრაფად შეიძლება გაუარესდეს.

დარიალის დიდი მნიშვნელობის შესახებ ანტიკური ხანისა და თანამედროვე ავტორების ერთსულოვნების პარალელურად, უნდა აღინიშნოს, რომ ის არ იყო ერთადერთი გზა ცენტრალური კავკასიონის მასშტაბით, თუმცა ამ პროექტის ფარგლებში შეუძლებელი იყო ალტერნატიული მარშრუტების სირთულის შეფასება. დევიდ ბრაუნდი დამაჯერებლად ასაბუთებდა, რომ მთავარი კავკასიონის გადამკვეთი ბევრი მარშრუტი არსებობს და, რომ მამისონის უღელტეხილი „მეტ ყურადღებას იმსახურებს". ტერიტორიაზე, სავარაუდოდ, ბევრი გარიერი და სტრატეგიული განლაგების ციხე არსებობდა, რომელთაგან ჩვენთვის მხოლოდ ნაწილია ცნობილი. კლასიკური ხანის ავტორების მიერ დარიალის ხეობის უნიკალური სტრატეგიული მნიშვნელობის თითქმის საყოველთაო აღიარება ძნელად ასახსნელია, რადგან მას რეგულარულად უვლიდნენ გვერდს შორეული დასავლეთის ალტერნატიული მარშრუტებით. იოანე ლიდუსი გარკვევით აცხადებს, რომ მას შემდეგ, რაც სპარსელებმა ბირაპარაჩის ციხე (*φρούριον*, დარიალის ციხე) ააგეს, მტერი აქ აღარ შემოჭრილა. აღსანიშნავი გამონაკლისია სარაგურების შემოსევა, რომლებსაც ახ.წ. 460 წელს კასპიის კარის გავლაში სპარსულმა სასაზღვრო ციხემ (*φρούρά, i.e.* დარიალის ციხემ) შეუშალა ხელი და სხვა, უცნობ გზას დაადგნენ იბერიისაკენ. მიუხედავად იმისა, რომ არსებობს სხვა მარშრუტები, დარიალის უპირატესი როლი ეჭვგარეშეა. ბრაუნდი კუმანების „ციხესიმაგრეებს", „[რომაული]იმპერიისდაცვის მთავარ ხაზს" უწოდებს. შესაძლოა დავასკვნათ, რომ დარიალის ხეობისა და კასპიის სანაპირო მარშრუტის ქმედითი კონტროლი, რაც, რა თქმა უნდა, თავიდან ვერ აიცილებდა კავკასიონზე სხვა არასანქცირებულ გადაადგილებას, მაინც საგრძნობლად შეამცირებდა მასიური შემოჭრების წარმატებით განხორციელების რისკს.

დარიალის ხეობის ყველაზე ვიწრო ნაწილში არ იყო რაიმე ალტერნატიული მარშრუტი ხეობის ძირში, კანონდამრღვევებისთვისაც კი: 1840 წელს დაყაჩაღების რისკი დარიალის ხეობაში ბევრად დაბალი იყო, ვიდრე ხეობის ჩრდილოეთ მისადგომებზე, მთისწინეთსა და სტეპებზე. ყაჩაღებისთვის ძალიან ძნელი იყო თავიანთი ნადავლით ისეთ ადგილებში გავლა, სადაც თითქმის ვერტიკალური კლდის კედლები მთავარი ხეობიდან ნებისმიერ გასაქცევს ბლოკავდა. ხეობის ყველაზე ვიწრო ნაწილის ქმედითი კონტროლი მეტ-ნაკლებად ჰერმეტულად ლუქავდა მთელ მარშრუტს.

სასანიანთა გარიერების სისტემის ეფექტურობა კავკასიაში სამართლიანადაა ხაზგასმული თანამედროვე ავტორების მიერ. მიუხედავად იმისა, რომ ყველა სამხედრო გარიერი პერიოდულად ირღვევა, მათი არსებობა ფხიზელი დაცვის პირობებში მაინც დიდად გაზრდიდა რისკებს ყველა მტრული ძალისთვის, ვინც შემოჭრასა და შემდგომში კავკასიონიდან უკან დახევას შეეცდებოდა. მტრის ძალების შეკავება და განადგურება შეამცირებდა რეიდებსა და თანმდევ ნეგატიურ ეკონომიკურ შედეგებს. ჯეიმს ჰოვარდ-ჯონსტონმა უღელტეხილის სტრატეგიული მნიშვნელობა შემდეგნაირად შეაჯამა: „კავკასიამ და მისმა მრავალფეროვანმა მთის ხალხებმა აღმართეს თითქმის გაურღვეველი გარიერი (გარდა დარიალის მთავარი უღელტეხილისა და კასპიის კარიბჭისა მის აღმოსავლეთ ბოლოში [ე.ი. დერბენტში]), რომელიც ჩრდილოეთის ნომადური სამყაროსაგან იცავდა ამიერკავკასიის როგორც სპარსულ, ასევე რომაულ სექტორებს."

დარიალის ციხე, შესაძლოა, ერთი დიდი სისტემის მხოლოდ პაწაწინა შემადგენელ ნაწილს წარმოადგენდა, მაგრამ მას დიდი სარგებლობის მოტანა შეეძლო ნებისმიერისათვის, ვინც მას ფლობდა. ციხის გარნიზონი წარმატებით ასრულებდა თავის დანიშნულებას იმის წყალობითაც, რომ გადაჰყურებდა არემარეს, რომელიც ერთ-ერთ უმნიშვნელოვანეს ამიერკავკასიურ არტერიასა და მტრის შემოჭრისათვის მთავარ დერეფანს წარმოადგენდა. სასანიანების ციხე და გარიერული კონსტრუქცია აქ, ისევე როგორც დერბენტში (რომ არაფერი ვთქვათ გილგილჩაის კედლისა და კავკასიონის აღმოსავლეთ ფლანგის უფრო დაშორებულ გარიერებზე), იმპერიის სტრატეგიული ხედვის სიმპტომატური ნაწილი იყო. ეს იყო პირველი ახლო აღმოსავლური იმპერია, რომელმაც გაიაზრა კავკასიონის, როგორც მძლავრი ბუნებრივი გარიერის გამოყენებისა და გაძლიერების მნიშვნელობა. თავდაცვითი ხაზი არათანაბარი იყო: დერბენტის კედელზე ფორტების ჯამური მოცულობა თავად დერბენტის ციხესიმაგრითურთ, რასაც ემატება ტორპახ კალას საბრძოლო ბაზის 125 ჰა დარიალის ციხის ჰინტერლანდში. თუმცა დერბენტის 42 ციხის ზომები (თითოეული დაახლ. 20x30 მ), მიმდებარე, ბევრად უფრო დიდი, ბაზების ჩათვლით, ახლოსაც ვერ მოდიოდა გორგანის ველზე გადაჭიმული სასანური თავდაცვითი სისტემის ერთიან ზომასთან. ეს სულაც არ ნიშნავს, რომ დარიალი უმნიშვნელო იყო, - პირიქითაც კი.

პატარა ციხის თვითკმარობა იმის შედეგი იყო, რომ ხეობის ბუნებრივი რელიეფი, მას გევრად უფრო შეუღწევადს ხდიდა კასპიის სანაპირო კორიდორთან შედარებით. ამ უკანასკნელის გარღვევა გევრად უფრო ადვილი იყო და მისი დაცვა გევრად უფრო დიდ ჯარს საჭიროებდა. დარიალის ციხე კი გევრად უფრო ვიწრო გასასვლელს აკონტროლებდა. ამიტომ ჭარბი სამხედრო ძალების არც საჭიროება იყო და მათი შენახვაც იოლი არ იქნებოდა ალპურ პირობებში.

კარიბჭეები და მათი გარნიზონები შუა საუკუნეებში

სავარაუდოა, რომ VII საუკუნემ, ყველაზე გადამწყვეტი ცვლილებები მოიტანა ხმელთაშუაზღვისპირეთისა და ახლო აღმოსავლური სამყაროს ძალაუფლების თანავარსკვლავედში, ვიდრე ეს სხვა ნებისმიერ საუკუნეში მომხდარა ახ.წ. I ათასწლეულის მანძილზე. მალევე მას შემდეგ, რაც 27-წლიანი ომის შედეგად განადგურების პირას მისულმა რომმა და ასევე უდავოდ დასუსტებულმა სპარსეთმა ახ.წ. 630 წელს საომარი მოქმედებები შეწყვიტეს, ასპარეზზე ახალი ძალა გამოჩნდა და ორივე იმპერიის წინააღმდეგ თავდასხმები დაიწყო. სწრაფად მზარდმა ხალიფატმა შეასუსტა რომაული იმპერია, რომელიც დაახლოებით რვა საუკუნის განმავლობაში ფლობდა სამხედრო და ეკონომიკურ უპირატესობას ევროპასა და ხმელთაშუაზღვისპირეთში, და ერთგვარ რეგიონალურ მოთამაშემდე დაიყვანა. სასანურმა იმპერიამ არსებობა შეწყვიტა და მისი ვრცელი ტერიტორიებიც ხალიფატმა დაიქვემდებარა. მიუხედავად პოლიტიკური ლანდშაფტის ასეთი სეისმური ცვალებადობისა, დარიალის ხეობა დიდ სტრატეგიულ მნიშვნელობას ძველებურად ინარჩუნებდა. მაშინ როცა დასავლეთისა და ახლო აღმოსავლეთის სამყაროებს შორის პოლიტიკური უთანხმოების გამომწვევი საკითხები იმდენად იცვლებოდა, რომ მათი დადგენა ხშირად შეუძლებელი იყო, ბუნება კავკასიონს სტაბილურობას უნარჩუნებდა. ევროპის უმაღლესმა მთათა სისტემამ არა მხოლოდ სასანური, არამედ ხალიფატის იმპერიების ექსპანსიას ბუნებრივი საზღვარი მიუჩინა. ხაზართა ხაკანატის უძლეველი არმია ევროპის უმაღლესი მთათა სისტემის მოპირდაპირე მხარეს დიდძალ ტერიტორიას აკონტროლებდა. კავკასიონი შუაზე ჰყოფდა ამ ორ მუდმივად დაპირისპირებულ ძალას. კარიბჭეების ფლობა ორივე მხარისთვის მომგებიანი იყო: ხალიფატისთვის, რათა დაებლოკა შემოჭრებისთვის ყველაზე ხშირად გამოყენებული მარშრუტი და ეწარმოებინა ექსპედიციები ჩრდილოეთით, რაც ახ.წ. 737 წელს განახორციელა კიდეც. მიუხედავად იმისა, იყო თუ არა კარიბჭე ოდესმე ხაზარების დაქვემდებარებაში,ამ უმნიშვნელოვანესი პოზიციის დაკავება მათ ინტერესებშიც უნდა ყოფილიყო. კარიბჭის ფლობა მათ საშუალებას მისცემდა სურვილისამებრ ეწარმოებინათ დაპყრობები ამიერკავკასიაში და დაებლოკათ ნებისმიერი კონტრშეტევა სამხრეთიდან. დარიალის ციხის განსაკუთრებული დაცულობა მხოლოდ ციხესიმაგრის გავლით არასასურველი ამიერკავკასიური საგზაო მოძრაობის აღკვეთის მიზნით როდი იყო გამოწვეული, არამედ თავად ციხის, როგორც სტრატეგიული ობიექტის, დაკარგვის საშიშროების თავიდან ასაცილებლად, რადგან ის სტრატეგიული ობიექტი იყო, რომელიც დამპყრობლებს უკან დასაბრუნებელ გზაზეც მნიშვნელოვან დაბრკოლებას უქმნიდა.

შუა საუკუნეების სხვადასხვა ავტორი ადასტურებს კარიბჭის მნიშვნელობას ხანგრძლივი დროის მანძილზე. მათ შორის ყველაზე მნიშვნელოვანი, ალბათ, X საუკუნის ავტორი მას'უდია, რომელიც აღწერს „ალანების ციხეს". ეს უკანასკნელი სწორედ დარიალის ციხე უნდა იყოს. საინტერესოა, რომ ის ამ ციხესიმაგრეს ლეგენდარულ სპარს მეფე ესფანდიარს მიაწერს - სავარაუდოდ, წერილობითი წყაროს ზეგავლენით, რომელმაც აშკარად იცოდა ციხის როლი სპარსეთის ისტორიაში, თუნდაც მხოლოდ სასანიანთა ეპოქაში, რომ აღარაფერი ვთქვათ უფრო შორეულ, ბუნდოვანსა და მითურ წარსულზე. აღიარებდა რა ციხესიმაგრეს, როგორც მსოფლიოს ერთ-ერთ ყველაზე ცნობილ თავდაცვით ნაგებობას, ამ ავტორისათვის, რომელიც გამოცდილი მოგზაურიც იყო, ეჭვს არ იწვევდა მისი უდიდესი სტრატეგიული მნიშვნელობა. ციხე მასიურ კლდეზე იდგა და დიდ მდინარეს გადაჰყურებდა, რომელიც, უდავოდ, თერგი იყო. მას'უდის მიხედვით, ერთადერთი ვარგისი გზა სამხრეთით, პირდაპირ ციხესიმაგრის წინ მდინარეზე გადებულ ხიდზე გადიოდა. ამ აუღებელ ციხესიმაგრეს, იმის წყალობით, რომ მაღალ კლდეზე იყო აგებული, ხიდის, მდინარის, გზისა და მასზე მოძრაობის სრული კონტროლის საშუალება ჰქონდა ნებისმიერი მიმართულებით. ეს კი იმას ნიშნავდა, რომ გარნიზონის თანხმობის გარეშე ვერავინ გადაკვეთდა კარიბჭეს. ციხესიმაგრეში მყოფ ერთ კაცსაც კი შეეძლო გასასვლელი დაეხშო ნებისმიერი მოღალატე მეფისათვის. მიუხედავად აშკარა გადაჭარბებისა,

მას'უდის შეფასება ამ ნაგებობის ფლობის უპირატესობებსა და აქ შემოჭრის თანმხლებ სირთულეებზე, უეჭველად შეიცავს სიმართლის მნიშვნელოვან წილს. XIX საუკუნის დასაწყისში, როცა რუსეთი დარიალის ციხის ხელახლა დაკავების გეგმას განიხილავდა, ორმოცი ქვეითი ჯარისკაცისგან შემდგარი გარნიზონი საკმაო რაოდენობად მიაჩნდა. ამ დროს ეს ციხესიმაგრე რუსული თავდაცვითი პოსტების ჯაჭვის ერთ-ერთი რგოლი იყო, ხოლო იმდროინდელ ცეცხლსასროლ იარაღს შუა საუკუნეების მშვილდ-ისართან შედარებით აშკარა უპირატესობა ჰქონდა. ეს საფუძველს გვაძლევს ვივარაუდოთ, რომ საგზაო მოძრაობის კონტროლისთვის ჯარისკაცთა დიდი რაოდენობა არ იყო საჭირო.

ახ.წ. 710-იან წლებში, როცა იბერია არაბებს ექვემდებარებოდა, ხოლო რომაული/ბიზანტიური იმპერია ალანებთან ალიანსში შესვლას ცდილობდა, კვლავ დარიალი იდგა პოლიტიკური უთანხმოების გასაყარზე. უცნობია, თუ ვინ აკონტროლებდა ციხეს იმ მომენტში. შესაძლოა, ალანები, ან რომელიმე პატარა დამოუკიდებელი ერთეული, რომელიც ძალაუფლების ამ მთავარ ბლოკებს შორის იყო მოქცეული. არაბეთმა მხოლოდ შემდგომ ათწლეულში განავრცო საკუთარი კონტროლი უფრო შორს ჩრდილოეთისკენ. მას'უდი ამტკიცებს, რომ ამ ადგილს მთავარსარდალ უმაიადისა და რეგიონის მმართველის მასლამას მიერ აქ განლაგებული არაბული გარნიზონი აკონტროლებდა. პირველად მუსლიმთა ძალები ციხეს ახ.წ. 724 წელს მოადგნენ. ახ.წ. 727 წელს კი მასლამამ ციხე აიღო, გადმოცემის მიხედვით, რასაც ხაზარების მიწების დაპყრობა მოჰყვა. ახ.წ. 728 წელს ის ხაზარებს დარიალის ციხის ახლოს შეებრძოლა. ბრძოლა თითქმის ერთი თვის განმავლობაში მიმდინარეობდა, მუსლიმთა არმიას რეგიონისთვის დამახასიათებელი თავსხმა წვიმები აბრკოლებდა, თუმცა ახ.წ. 730 წელს ხაზარებმა დარიალში შეღწევა შეძლეს. ცნობილი მთავარსარდალი განაგრძობდა საბრძოლო მოქმედებებს კავკასიონის ტერიტორიაზე ახ.წ. 732 წლამდე, როცა მან რეგიონი დატოვა. ამ ხუთი წლის განმავლობაში როდის დატოვა მასლამამ თავისი გარნიზონი დარიალის ციხეში? დუგლას მორტონ დანლოპი სავარაუდო თარიღად ახ.წ. 727 წელს ასახელებს. ეს ვარაუდი სიმართლეს ჰგავს და ამ ფაქტს, როგორ ჩანს, მნიშვნელოვანი როლი უთამაშია მასლამას იმ და შემდგომი წლის საომარი მოქმედებების წარმოებაში. ხაზარების შემოჭრა ახ.წ. 730 წელს არ ნიშნავს, რომ მაშინ მათ ციხე აიღეს. უბრალოდ, ციხის გარნიზონმა (თუკი ის კვლავ ადგილზე იყო) მასშტაბური შეტევა ვერ მოიგერია.

საზღვრისპირა გარნიზონი სამხრეთის გამუდმებული მორჩილებისა თუ ჩრდილოეთის პერიოდული კონტროლის პირობებში, მნიშვნელოვან როლს თამაშობდა და წერილობითი წყაროებიც მოწმობენ განმეორებად სამხედრო მოქმედებებს დარიალის ხეობასა თუ მის მისადგომებში ახ.წ. VIII და IX საუკუნეებში, განსაკუთრებით ახ.წ. 724-დან 737 წლამდე პერიოდში. საინტერესოა, რომ, როგორც ბოლოდროინდელმა კვლევამ აჩვენა, ადრეულ შუა საუკუნეებში (დაახლ. ახ.წ. 400-900 წლები) ჩრდილო კავკასიონის ერთ-ერთი რეგიონი განსაკუთრებულად მჭიდროდ იყო დასახლებული. დიდი სამუშაოა ჩასატარებელი ქრონოლოგიის დახვეწისა და მოსახლეობის სიმჭიდროვის უფრო დეტალურად შესწავლისათვის. კერძოდ, ფიქსირდება თუ არა მოსახლეობის სიმჭიდროვის დროებითი ზრდა ჩრდილოეთ კავკასიის სხვა ნაწილებსა და სტეპებში. ძნელი დასადგენია, რომელ მოვლენას უფრო მეტად უკავშირდება ადრეულ შუა საუკუნეებში კარიბჭეზე განხორციელებული ზეწოლა - ჩრდილოეთ კავკასიაში ადგილობრივ განვითარებას თუ ევრაზიის სტეპებზე მოსახლეობის „გლობალურ" გადაადგილებას.

გადმოცემის მიხედვით, ახ.წ. 742/743 წლებში კასპიის კარიბჭის რაიონში მიწისძვრა მოხდა, მაგრამ მისი შედეგების შესახებ არანაირი ინფორმაცია არ მოგვეპოვება. VII საუკუნის ბოლოდან VIII საუკუნის შუა პერიოდამდე დროის მონაკვეთში F თხრილში კედელი ჩამოინგრა და ქვების გროვა (F.092) ანტიკური სვეტის (F.082) გვერდით მიწაზე ჩამოწვა. ეს შესაძლოა მიწისძვრასთან იყო დაკავშირებული. თუმცა ასევე შესაძლებელია, რომ ეს მიმდებარე ტერიტორიაზე გაჩენილმა ხანძარმა გამოიწვია, რომლის შედეგადაც წარმოიქმნა გადამწვარი ფენა (F.096), არასტაბილური სტრუქტურები. თუმცა არ არსებობს იმის საბუთი, რომ ხანძარი იმდენად გავრცელდა, რომ აღნიშნული კედელი დააზიანა.

IX საუკუნის ისტორიკოსი ბალადჰური მოგვითხრობს, რომ ახ.წ. 758 წელს ალანურ კარიბჭეში ცხენოსანი მცველები იყვნენ განლაგებულნი, რომლებიც რეგულარულად იღებდნენ გასამრჯელოს. თუკი ორივე ისტორიკოსს, ბალადჰურსა და მას'უდს, დავუჯერებთ, ადრინდელი გარნიზონის გაუქმების ან სრული ჩანაცვლების მაგივრად, მისთვის ეს ცხენოსანი დანაყოფი დაუმატებიათ.

მას'უდს მტკიცედ სწამდა, რომ გარნიზონი X საუკუნის შუა წლებშიც მასლამას მიერ ახ.წ. 727 წელს გარნიზონში ჩაყენებული მცველების შთამომავლებს ჰქონდათ დაკავებული.

მიუხედავად მას'უდის მტკიცებისა, რომ ალანების კარიბჭეს მუდმივი გარნიზონი საიმედოდ აკონტროლებდა, ხაზართა ჯარები აქ პერიოდულად იჭრებოდნენ და უკან დარიალის მარშრუტით იხევდნენ. ერთ-ერთი ასეთი ინციდენტი ახ.წ. 762/764 ან 799/ 800 წლებში მოხდა, როცა ხაზარების მიერ დატყვევებულმა საარაკო სილამაზის ქართველმა პრინცესამ თავი მოიკლა ხაზარების მიწებისკენ მიმავალ ამ მარშრუტზე, რადგან ხაზართა ხაკანის ცოლობა არ სურდა. იბერიის ერისთავი ნერსე და მისი სამასი მხლებელი, მათ შორის მომავალში წმინდა მოწამე აბო, ხალიფატს ხაზარეთში დარიალის უღელტეხილის მეშვეობით გაექცნენ ახ.წ. 779/780 წლებში - რაც, თუკი მართლია, ნიშნავს, რომ იმ დროს გარნიზონი ხალიფატის ერთგული არ იყო, ან ის არასაკმარისად საიმედო, ფხიზელი და ძლიერი იყო, რათა მკაცრი კონტროლი დაემყარებინა უღელტეხილზე. მართლაც, ახ.წ. 770 წლიდან ან IX საუკუნის დასაწყისიდან მოყოლებული კახელები/წანარები აკონტროლებდნენ დარიალის ციხის სამხრეთ შემოსასვლელებს.

დარიალის უღელტეხილი IX საუკუნის წყაროებშიც ფიგურირებს. ხალიფა ვათიქმა ახ.წ. 842-847 წლებში ექსპედიცია გაგზავნა ცნობილი დჰულ-ქარნეინის (ალექსანდრეს) კედლის მოსაძებნად, რომელსაც ყურანში ვხვდებით (ალექსანდრეს კარიბჭის შესახებ ისლამამდელი ლეგენდის შეცვლილი ვერსია). ექსპედიციამ, შესაძლოა, დარიალიც გაიარა და დერბენტიც. თუკი ასე იყო, შეგვიძლია დავასკვნათ, რომ ჩრდილოეთის მარშრუტი ამ დროს მუსლიმებისთვის ღია იყო. მისია წარუმატებელი გამოდგა. ბარიერები, რომლებიც ყურანში აღწერილისაგან განსხვავებით, რკინისა და სპილენძისგან არ იყო დამზადებული, შეესაბამებოდა მისიის მიერ წარმოდგენილ სურათს. ალანების ფართომასშტაბიანი ხელმეორე დასახლება, ასი ოჯახის შემადგენლობით, დარიალის უღელტეხილის სიახლოვეს დამოწმებულია ახ.წ. 850 წელს (ისევე როგორც ხაზარების 300 ოჯახის დასახლება დერბენტის უღელტეხილზე). ეს ჩრდილო თურქული წარმომავლობის აბასიდი მთავარსარდლის, უფროსი ბუღას ეგიდით მოხდა, რაც მიანიშნებდა, რომ დარიალის უღელტეხილი იმ დროს მუსლიმებს ექვემდებარებოდა და რომ უღელტეხილზე გავლით მოსახლეობის სტეპებიდან სამხრეთით გადაადგილება ყოველთვის არ ნიშნავდა შემოჭრას ან ჩრდილოელების მიერ ციხის დაპყრობას. იქამდე, სანამ ჩრდილოელების კავკასიონის უღელტეხილებზე მიგრაციას ზედამხედველობას გაუწევდა, ბუღამ თბილისი აიღო და მიწასთან გაასწორა, რომლის ამირაც ხალიფატს განუდგა, რაც, სავარაუდოდ, იმაზე მიანიშნებს, რომ დარიალზე კონტროლი ხალიფატს დროებით დაკარგული ჰქონდა (მიუხედავად იმისა, რჩებოდა თუ არა ის მუსლიმთა საკუთრებაში და თბილისის საამიროს ექსკლავს წარმოადგენდა), სანამ ბუღამ სრულად აღადგინა კონტროლი. მას'უდი ამტკიცებს, რომ მასლამას მიერ დარიალზე (ახ.წ. 727 წელს) განთავსებული არაბთა გარნიზონის შთამომავლები ციხეს X საუკუნის შუა ხანებშიც განაგებდნენ.

საინტერესოა, რომ ძვლის ორი ნივთი, რომელზეც ლანა ჩოლოგაურმა, სავარაუდოდ, ახ.წ. 779-900 წლებით დათარიღებული ხაზარული ტიპის ტვიფარი ამოიცნო, შესაძლოა, ჩრდილოელი ხალხების კავკასიონის სამხრეთით გადაადგილების არქეოლოგიური ანარეკლი იყოს. სახელმწიფოს მიერ ინიცირებული მიგრაცია IX საუკუნის შუა ხანებში ერთ შესაძლო ვითარებას გვთავაზობს. იმ შემთხვევაშიც, თუკი ასი ოჯახი ალანების იყო, და არა ხაზარების ტერიტორიის ცენტრალურ ნაწილში მცხოვრებლებს წარმოადგენდა, და მათი ახალი საცხოვრებელი ადგილი, გადმოცემის თანახმად, დმანისი იყო, შესაძლოა ყოფილიყო მსგავსი მიგრაციები სხვა პოპულაციური ჯგუფების მონაწილეობით, რომლებიც სხვადასხვა ტერიტორიებზე გადანაწილდნენ. ხაზარების ახ.წ. 799/800 წლების შემოჭრამ, შესაძლოა, სხვა ვარაუდის გამოთქმის შესაძლებლობა მოგვცეს. სავარაუდოდ, ამ პერიოდში მოსახლეობის ბევრი ისეთი გადაადგილება ხდებოდა, რომელმაც წერილობით წყაროებში კვალი არ დატოვა. იქნებ ხაზარებს დროის რაღაც მონაკვეთში დაუპყრიათ კიდეც დარიალის ციხე და იქნებ ძვლის ეს დამახასიათებელი არტეფაქტები გარნიზონის კუთვნილება იყო, როგორც ლანა ჩოლოგაური ვარაუდობს? ეს მართლაც მაცდური ჰიპოთეზაა და ის ფაქტი, რომ ისინი ციხის ერთ-ერთ კაზემატშია ნაპოვნი, მას დამაჯერებლობას მატებს. ციხე, დიდი ალბათობით, ციხის შეიარაღებულ მცველებს ჰქონდათ დაკავებული. მეორე მხრივ, ხაზართა მიერ ციხის ჰიპოთეტური დაპყრობა, თუნდაც მხოლოდ მოკლე ხნით, შეუთავსებელია მას'უდის მტკიცებასთან, რომ ციხეს ორი საუკუნის განმავლობაში არაბული წარმოშობის ერთი და იმავე გარნიზონის

შთამომავლები მართავდნენ, ახ.წ. 727 წლიდან სულ მცირე ახ.წ. 940-იან წლებამდე.

კონსტანტინ ცუკერმანი მას'უდის ცნობას ეჭვქვეშ აყენებს და ამტკიცებს, რომ თბილისის მაშინდელ პატარა საამიროს არც საჭიროება და არც საშუალება გააჩნდა იმისათვის, რომ დარიალის ავანპოსტი შეენარჩუნებინა და ეს ციხესიმაგრე წანარების მიწების გავლით მოემარაგებინა. მართალია, ბერნადეტე მარტინ-ჰისარდი ხაზს უსვამს, რომ დარიალის სამხრეთ მისადგომებს ადრეულ შუა საუკუნეებში ხანგრძლივი პერიოდის განმავლობაში არამუსლიმი ხელმძღვანელობა ჰყავდა და სკეპტიკურადაა განწყობილი მას'უდის მოსაზრების მიმართ, რომ მასლამა X საუკუნიდან ხანგრძლივი პერიოდის განმავლობაში მართავდა ციხეს, თუმცა, ამავდროულად, ამბობს, რომ ეს ყველაფერი გამოგონილი ამბავიც არ უნდა იყოს. კერძოდ, მისთვის უფრო დამაჯერებლად ჟღერს ის აზრი, რომ თბილისის საამირო საკვებით ამარაგებდა ციხესიმაგრეს, რომელიც კარგ ურთიერთობას ინარჩუნებდა ქრისტიან მეზობლებთან, რასაც ჩვენი კვლევის ფარგლებში ჩატარებული არქეობოტანიკური და იზოტოპური ანალიზებიც ადასტურებს. ეს აძლიერებს იმ ჰიპოთეზას, რომ გარნიზონი საკვებით სამხრეთიდან მარაგდებოდა. არ ვიცით, სწორი იყო თუ არა ცუკერმანი, როცა ეჭვი ეპარებოდა, რომ X საუკუნეში მუსლიმები ხანგრძლივად იყვნენ დარიალის ციხეში, მას'უდი კი სწორი იყო, როცა აცხადებდა, რომ იმ დროს დარიალი სამხრეთიდან მარაგდებოდა საკვებით. არქეოლოგიური კვლევით, რა თქმა უნდა, შეუძლებელია იმის დადგენა თუ ვინ ზედამხედველობდა ციხეს,მართლაც მუსლიმები აკონტროლებდნენ საკვებით მომარაგების მარშრუტს „ურჯულოთა" დახმარებით, თუ თავად წანარები („ურჯულოები"), თუ მოქმედ ძალთა მთელი სპექტრი. ძალაუფლების ზუსტი გადანაწილების აღდგენა ძნელია. დასაშვებია, რომ დარიალის ციხე მართლაც საამიროს ექსკლავი იყო, რომელსაც სხვა სამთავროებთან თანამშრომლობის დახმარებით უზრუნველყოფდა, რადგან კავკასიონის უღელტეხილების დაცულობა ორმხრივი ინტერესის საგანი იყო. ეს, ალბათ, უფრო ერთობლივი საქმიანობა იყო და ციხის გარნიზონის ნაწილს არამუსლიმებიც შეადგენდნენ.

ხაზარები, წანარები/კახელები და ალანები არ წარმოადგენდნენ იმ ძალების სრულ ჩამონათვალს, რომლებიც, სავარაუდოდ, შუა საუკუნეებში უღელტეხილის პოლიტიკურ კონტროლს ახორციელებდნენ. X საუკუნის სომეხი კათალიკოსისა და ისტორიკოსის, იოანე (ჯონი) დრასხანაკერტის ცნობით, სომეხთა მეფე სუმბატ I-მა (ახ.წ. 890/ 891-914 წლები) თავისი სამეფოს საზღვრები ალანების კარიბჭემდე განავრცო და ხელთ იგდო ციხესიმაგრე (ე.ი. დარიალის ციხე), რომელიც უღელტეხილს აკონტროლებდა. ასეთი პირდაპირი ცნობაც კი თანამედროვე გავლენიანი და, სავარაუდოდ, კარგად ინფორმირებული ავტორისგან, ჩვენთვის უპირობო სიმართლის გარანტია არ უნდა იყოს. ნინა გარსოიანი ავტორის მაშინდელი მმართველი დინასტიის მიმართ პირად სიმპათიებზე მიანიშნებს და ასკვნის, რომ „დარიალამდე მისასვლელი ვრცელი ტერიტორიები კავკასიონის მთავარ ჯაჭვში სწორედ სუმბატის გავლენის სფეროს ანარეკლია და არა უშუალოდ მის დაქვემდებარებაში არსებული ტერიტორია. ცუკერმანი პირიქით, დარიალის ციხისსომხების მიერ ოკუპირებას სანდო ისტორიად მიიჩნევს და მას'უდის მსჯელობის არასწორობისა და მიკერძოებულობის დამადასტურებელ მტკიცებულებად ასახელებს. ახ.წ. 920 წლისთვის წანარებმა კვლავ დაიკავეს ტერიტორია დარიალის სამხრეთით- და ფაქტი, რომ წანარები (არაბულად „სერირ", სავარაუდოდ, თბილისიდან დარიალამდე ყველა ურჯულოს სახელწოდება) ამ მიწას აკონტროლებდნენ, რა თქმა უნდა, მას'უდის მიერაც დასტურდება. არქეოლოგიურმა კვლევამ დარიალის ციხის სომეხთა მიერ დაპყრობის ვერანაირ მტკიცებულებას ვერ მიაგნო, თუმცა შესაძლო მოკლევადიან დაპყრობას შეიძლება არც დაეტოვებინა სომხური მატერიალური კულტურის მკაფიო კვალი. ციხის ძალის გამოყენებით აღების შემთხვევაში, ნაკლებ სავარაუდოა, რომ დამარცხებული გარნიზონი ადგილზე დაეტოვებინათ, თუმცა საქმე სხვანაირად იქნებოდა თუკი ციხე ბრძოლის გარეშე ნომინალურად, მიიღებდა სომხურ მფარველობას (თუმცა დანამდვილებით ესეც არ ვიცით).

სომხების მიერ დარიალის ციხის სავარაუდო ოკუპაცია გვერდზე რომც გადავდოთ, სიტუაცია მაინც რთული იქნებოდა. იბნ რუსტა თავის X საუკუნის ნაწერებში დარიალს ალანებს - ასებს ანუ ოსებს მიაკუთვნებს, რომლებმაც ცუკერმანის მიხედვით, პატარა ანტიხაზარული სამთავრო დააარსეს ადრეულ X საუკუნეში (ალანების მთავარი ჯგუფის წინააღმდეგ, რომლებიც ხაზარებთან ალიანსში იყვნენ). არსებობს კიდევ ერთი საინტერესო, რომ არ ვთქვათ, სრულიად სარწმუნო, ჩვენება ალანების მიერ X საუკუნეში ციხესიმაგრის გარკვეული ფორმით

მფლობელობის შესახებ. „ჰუდუდ ალ-ალამი“, X საუკუნის მიწურულის სპარსული გეოგრაფიული ნაშრომი ირწმუნება, რომ ალანების კარიბჭე წარმოადგენდა მთის წვერზე განლაგებულ ქალაქს, სავარაუდოდ, 1000-კაციანი დაცვით, რომლის წევრებიც, როგორც ჩანს, ერთმანეთს ენაცვლებოდნენ. ის არა მარტო ალანების კუთვნილებად განიხილებოდა, არამედ, მიუხედავად მისი განაპირა ადგილზე მდებარეობისა, ალანების ყველაზე აყვავებულ ქალაქად ითვლებოდა.

IX საუკუნის დასაწყისში თეოფანე აღმსარებლის მიერ შედგენილ ქრონიკებში VII საუკუნის მიწურულის კონტექსტში ნახსენებია იბერიელების კარიბჭე კავკასიონში. იმ შემთხვევაშიც თუ მდინარე ტანაისის (თანამედროვე დონის) სათავეები შეცდომით არის მითითებული, აქ ნათქვამია, რომ კარიბჭეები შუა საუკუნეებშიც იბერიელებთან ასოცირდებოდა და, ალბათ, კვლავ იბერიის ნაწილად განიხილებოდა. ღორის ხორცისა და ღვინის დოქების მოხმარების დამადასტურებელი მასალა და ქრისტიანული სახელის მქონე ქართველის გრაფიტო VIII საუკუნის ფენებიდან აღვივებს ეჭვს, რომ გარნიზონის ყველა წევრი საერთო რელიგიის მიმდევარი არ იყო და არც რომელიღაც ერთ ეთნიკურ ჯგუფს ეკუთვნოდა. იმ შემთხვევაშიც, თუკი ციხესიმაგრეში ერთი და იგივე გარნიზონი მუდმივად რჩებოდა, მას აუცილებლად ემატებოდა მრავალეთნიკური ახალწვეულები, რომლებიც, სავარაუდოდ, არ იყვნენ ერთი რწმენის მიმდევრები. ის ფაქტი, რომ ხაზარები ამიერკავკასიაში დარიალის მეშვეობით შეიჭრნენ და იმავე მარშრუტით უკან დაბრუნდნენ, სულაც არ ადასტურებს მათ მიერ ტერიტორიის დაპყრობას. გარნიზონი შესაძლოა ღია იყო სხვადასხვა შეთავაზებებისათვის ყველა მხრიდან და შესაძლოა პერიოდულად იცვლიდა კიდეც მოკავშირეებს, ისე რომ ციხიდან არ გამოეძევებინათ. არაისლამური გამოსახულებებით შემკულ ძვლის არტეფაქტებს თავისთავადი ღირებულება არ ექნებოდა. ნაკლებ სავარაუდოა, რომ მუსლიმებმა ვინმესთან ომის შემდეგ მათი ნივთების შენახვა გადაწყვიტეს, თანაც სხვა ისეთ ნივთებსაც ვხვდებით, რომლებიც მხოლოდ ვაჭრებს შეიძლება ჰქონდეთ. ეს ყველაფერი ალბათ მოწმობს, რომ ხაზარული წარმოშობის ხალხი დარიალის ციხეში VIII საუკუნის დასასრულიდან ან IX საუკუნიდან არის წარმოდგენილი, მაგრამ დარწმუნებით ვერ ვიტყვით, მართავდნენ თუ არა ისინი ციხეს VIII საუკუნის მიწურულში ან IX საუკუნის რომელიმე მონაკვეთში. წანარების (სავარაუდოდ, ეს ის „ურჯულოებია“, რომელთა შესახებაც მას’უდი გვატყობინებს, რომ ისინი თბილისიდან დარიალამდე ტერიტორიაზე სახლობდნენ) მიერ, ყველაზე ცოტა, სამხრეთის მომმარაგებელი ხაზების დროებითი კონტროლის პირობებში, გარნიზონი ალიანსში შედიოდა საამიროსთან, ხაზარებთან, ან წანარებთან, ანდა მონაცვლეობრივად თითოეულ მათგანთან და საკუთარი ინტერესების გათვალისწინებით მოქმედებდა.

ძნელი დასადგენია, რამდენი სამოქალაქო და სავაჭრო გზა იყო დარიალზე ადრე შუა საუკუნეებში. როგორც ჩანს, XVIII საუკუნის დასასრულსა და XIX საუკუნის დასაწყისში მონებით მოვაჭრეებმა და მუსლიმმა პილიგრიმებმა დაიწყეს დარიალის ხეობაში შემოდინება, რომელთაც ზოგჯერ თან ინფექციური დაავადებებიც შემოჰქონდა, თუმცა ამ დროს დარიალში მონეტა არ იყო ხმარებაში. ადასტურებს ეს ფაქტი, რომ აქ მცირე მიმოსვლა იყო? სავარაუდოა, რომ მარშრუტებით სარგებლობაზე გარკვეული ტიპის გადასახადი იყო დაწესებული, რაც მონეტარული ეკონომიკის არქონით უფრო იყო გამოწვეული, ვიდრე იმ ფაქტით, რომ კარიბჭეები შეუღწევად ბარიერს ქმნიდა. ადრეული შუა საუკუნეების მინა, რომელიც თითქმის დანამდვილებით ვიცით, რომ სამხრეთიდან შემოდიოდა, ნაპოვნია როგორც დარიალზე, ასევე მის ჩრდილოეთით მდებარე ტერიტორიებზე. დიდად სავარაუდოა, რომ ამ პროდუქტებმა ჩრდილოეთს სწორედ ხეობაზე გამავალი სავაჭრო გზის მეშვეობით მიაღწია. მინის ჭურჭელი, შესაძლოა, ყველაზე აშკარად გამოხატული დიპლომატიური საჩუქარი არ იყო, თუმცა ასე რომც ყოფილიყო, იმას მაინც მიანიშნებდა, რომ კარიბჭეები იმ დროისთვის გამტარუნარიანი იყო.

დარიალის ხეობამ ახ.წ. II ათასწლეულშიც განაგრძო მთავარი სტრატეგიული ობიექტის სტატუსით არსებობა. ალანებმა ახ.წ. 1062 და 1065 წლების დაპყრობები დარიალის უღელტეხილის მეშვეობით აწარმოეს, თუმცა წერილობითი წყაროები არ მიუთითებს თუ ვის ექვემდებარებოდა თავად უღელტეხილი ამ დროს. ასევე არ ფიქსირდება დამპყრობლების მიმართ რაიმე წინააღმდეგობა. ეს, რა თქმა უნდა, არ ამტკიცებს, რომ წინააღმდეგობა ნამდვილად არ იყო, თუმცა შედეგიანი აშკარად არ ყოფილა. ალბათ, ავჯობებს არ ვივარაუდოთ გარნიზონის, თუკი ის საერთოდ იყო ამ დროს, სისუსტე, და მის მიერ გზის გახსნის ან დამპყრობლებთან პოლიტიკური კავშირის

შესაძლო მოტივაციაზე. შეუძლებელია ზუსტად ვიცოდეთ გარნიზონში კვლავ იყვნენ თუ არა მეტ-ნაკლებად მას'უდის მიერ დამოწმებული ჯარისკაცების შთამომავლები. არც იმის თქმა შეიძლება, ეს ექსკლავი ამ დროს ისევ თბილისის საამიროს ემორჩილებოდა თუ გაწყვიტა ყველანაირი კავშირი დასუსტებულ დედაქალაქთან, რომელიც ვეღარ აკონტროლებდა დარიალის კორიდორს. სხვა დაშვებით, დარიალის ხეობა, შესაძლოა, რომელიმე მტრულ ძალას აეღო, მაგალითად პატარა რეგიონულ მმართველობას ან ალანებს. აღსანიშნავია, რომ X საუკუნეში დარიალის ციხის ოკუპირების უამრავი მტკიცებულების შემდეგ, არქეოლოგიურად დასაყრდენი აქტივობები ერთბაშად წყდება. დარიალის ციხის ათვისების ადრე შუა საუკუნეების ფაზიდან და მასთან დაკავშირებული სამაროვნიდან აღებული ბოლოდროინდელი რადიაქტიური ნახშირბადის ნიმუშები, სავარაუდოდ, 980-იანი წლების მიწურულსა და 1030-იან წლებს შორის პერიოდით თარიღდება. არსებობს აგრეთვე მონაცემები XIII და XIV საუკუნეებში ხელახალი ოკუპაციის შესახებ, მაგრამ არ მოიპოვება არც ერთი ნიმუში, რომელსაც დანამდვილებით დავათარიღებდით XI ან XII საუკუნეებით. ეს მაშინ, როცა გველეთის ციხეში რვიდან ორი ნიმუში, სავარაუდოდ, სწორედ იმ პერიოდით თარიღდება, როცა დარიალის ციხეში ჩვენ მიერ გათხრილ თხრილებში ცხოვრების კვალი დროებით შეწყვეტილია (ე.ი. XI და/ან XII საუკუნეებში). გველეთის ციხეს, შესაძლოა, იმ პერიოდში მიმდებარე ტერიტორიაზე მოსახლე გლეხებისათვის უფრო ადგილობრივ თავშესაფარს წარმოადგენდა, ვიდრე სტრატეგიულ ობიექტს. იყო თუ არა დარიალი სრულიად მიტოვებული XI საუკუნის დასაწყისიდან XIII საუკუნემდე?

როგორც ჩანს, ამ არქეოლოგიურად უცნობი საუკუნეების განმავლობაში, ან მხოლოდ მის გარკვეულ მონაკვეთში, შემცირებულ გარნიზონს მხოლოდ პლატოს ნაწილები ჰქონდა დაკავებული. შესაძლოა, ის განთავსებული იყო ციხესიმაგრის ცენტრალურ ნაწილში, რომელიც კლდის აღმოსავლეთ ნაწილსა და მდინარეს გადაჰყურებდა. ქართველთა მეფე დავით IV აღმაშენებლის მიერ ციხის აღება, ახ.წ. 1118 წელს დარიალის ციხის სრულ მიტოვებასთან თანხმობაში ვერ მოდის. თავად ისტორიული ფაქტი კი სიმართლის ნაკლებობას არ უნდა უჩიოდეს. დარიალის ციხე კვლავ რეგიონული მმართველობის ქვეშ იყო, როგორც ერთი ათასწლეულით ადრე. დაპყრობა გულისხმობს საოკუპაციო ძალის გამოყენებასა და დაპყრობამდელ გარნიზონს, რომელსაც ციხე წაართვეს, იმ შემთხვევაშიც, თუკი ეს არქეოლოგიურად ჯერ კიდევ არ დამტკიცებულა. მიიჩნიეს, რომ ჩრდილოეთიდან ზეწოლის დროებით შემცირების პირობებში შემცირებული გარნიზონი ციხის ადეკვატურ დაცვას შეძლებდა? ალბათ კი, მაგრამ თუკი იქ მუდმივი მშვიდობა იყო დამყარებული, მაშინ ხალხი გველეთის ციხეს რატომ აფარებდა თავს? ალბათ, არ უნდა დავასკვნათ, რომ დარიალი II ათასწლეულის პირველ მეოთხედში არაოკუპირებული ციხის ნანგრევებს წარმოადგენდა და არც ის, რომ მისი უთუოდ ძალზე დასუსტებული გარნიზონი მტრული ძალებისგან ხეობის სრულ ჰერმეტულ შეუღწევადობას უზრუნველყოფდა. სიტუაცია არასტაბილური იყო, მთლიანობაში ალბათ ნაკლები საფრთხეებით, მაგრამ ასევე თავდაცვის ნაკლები საშუალებით, ვიდრე I ათასწლეულში, რაც მტრულად განწყობილი ძალების მხრიდან დასუსტებული გარნიზონისთვის დიდ რისკს წარმოადგენდა.

მიუხედავად იმისა, რომ ასპარეზზე გამოჩნდა საქართველო, როგორც რეგიონში ერთ-ერთი ძლევამოსილი სამეფო, რომელსაც ჩრდილოეთ საზღვარზე გასტიონი - დარიალის ციხე - ჰქონდა. ის პერიოდი, როცა დარიალის ციხე მთავარი უცხოური ძალების დომინიონების საზღვარზე იმყოფებოდა, არ დასრულებულა. მონღოლების ხანის უმეტეს ნაწილში კავკასია ილხანთა იმპერიისა და ოქროს ურდოს გავლენის სფეროებს ორად ჰყოფდა და დარიალის ხეობის ციხე-სიმაგრეები ძირითად სტრატეგიულ ობიექტებად რჩებოდა. რასაკვირველია, ამავე ხანაში XIII საუკუნის დასასრულსა და XV საუკუნის დასაწყისს შორის, ანუ ამ პარამეტრებს შორის უფრო მოკლე პერიოდში, ვხედავთ გვიანი ანტიკური F.004 შენობის ოკუპაციას. გველეთის დაუთარიღებელი სათვალთვალო კოშკი, ცდო და უფრო სამხრეთით განლაგებული კოშკები, რომლებიც, როგორც ეს ლადშაფტის კვლევამ აჩვენა, სავარაუდოდ, ვერ ქმნიდა გრძელ სასიგნალო ჯაჭვს და მხოლოდ კიდევ ერთი ან ორი კოშკის, თუმცა ესეც სათუოა, ურთიერთხილვადობით ხასიათდებოდა, სავარაუდოდ, ადრეული სახის ადგილობრივი სიგნალიზაციის სისტემას ქმნიდა. ეს სისტემები უკანასკნელი საუკუნეებით თარიღდება, მაგრამ 1822 წლამდეა შექმნილი, რადგან ამ წელს რობერტ ლაიოლმა აღწერა ისინი. ვარაუდობენ, რომ ადგილობრივებს კვლავ მუდმივი თავდასხმების საფრთხის ქვეშ უწევდათ ცხოვრება, დარიალის სტრატეგიული

მნიშვნელობის დაკნინებისა და დროებით მისი ღვთის ანაბარად მიტოვების პირობებშიც.

XVIII საუკუნიდან XIX საუკუნის დასაწყისამდე დროის მონაკვეთში რუსეთმა ტერიტორიები დარიალის ხეობამდე და მის მიღმა განავრცო და საქართველოს ანექსია მოახდინა. მიუხედავად იმისა, რომ ორიოდე საუკუნით (საქართველოს მიერ დამოუკიდებლობის მოპოვებამდე 1991 წელს და ამას დამატებული საქართველოს რესპუბლიკის არსებობის მოკლე პერიოდში 1918-1921 წლებში) დარიალის კარიბჭე სახელმწიფოს საზღვარს აღარ წამოადგენდა, იგი კვლავ სტრატეგიული მნიშვნელობის ობიექტად რჩებოდა. II მსოფლიო ომის დროს დარიალის უღელტეხილი რუსეთიდან ამიერკავკასიაში მიმავალ ყველაზე მნიშვნელოვან მარშრუტს წარმოადგენდა. ნაცისტური გერმანიის მიერ საბჭოთა კავშირზე შეტევის დასაწყისში, გერმანული არმია, რომელმაც კარგად იცოდა კავკასიის სამხრეთში ნავთობის მნიშვნელოვანი მარაგის შესახებ, როგორიც ბაქოს ნავთობით მდიდარი ტერიტორიები იყო, დარიალის ხეობისათვის ბოლო დროის ყველაზე აქტიური ჩრდილოელი მტერი იყო. XX საუკუნეში, ისევე როგორც ორი ათასწლეულით ადრე, დარიალის ხეობა ყველაზე სანდო მარშრუტს წარმოადგენდა მთელ კავკასიაში და ნამდვილად შემთხვევითი არ უნდა იყოს, რომ გერმანული არმია სწორედ ამ მარშრუტით იყო ყველაზე მეტად დაინტერესებული. რა თქმა უნდა, სანამ ისინი აქამდე მოაღწევდნენ სიტუაცია შეიცვალა. 1942 წლის ნოემბერში დარიალიდან ჩრდილოეთით, ყველაზე ბევრი 20 მილის დაშორებით, საბჭოთა ჯარებმა დაამარცხეს და უკან გააბრუნეს გერმანული არმია. სტალინგრადში გამანადგურებელი მარცხიდან მალე კი გერმანულმა არმიამ სწრაფად დაკარგა ტერიტორიები და მას შემდეგ ხეობის გადალახვა აღარც უცდია. თანამედროვე სამხედრო სანგრები დარიალზე და მის სამხრეთ ბოლოში მდინარე თერგის თავზე მდებარე კლდის ნაპირზე, იდეალური იყო მტრის ჯარების დაზვერვისა და დაბომბვისათვის, რაც კიდევ ერთ მატერიალურ მტკიცებულებას გვთავაზობს, რომ XX საუკუნის ძალებისათვის ეს ვიწრო სტრატეგიული ხეობა კიდევ ერთხელ გადაიქცეოდა მთავარ სამხედრო თეატრად. საკითხავია, საბჭოთა არმია აქ გერმანული თავდასხმისთვის ემზადებოდა 1942 წელს? Q თხრილში ღრმა ორმოში აღმოჩენილი 1916 წელს გამოყენებული იარაღის ვაზნა და სხვა, სავარაუდოდ, მატერიალური მტკიცებულებები ახლომდებარე ბუნკერიდან გვაძლევს იმის დაშვების შესაძლებლობას, რომ ყველა თუ არა, ზოგიერთი თანამედროვე სამხედრო ინსტალაცია, შესაძლოა უფრო ადრე ყოფილიყო აშენებული, სავარაუდოდ, საქართველოს დამოუკიდებელი რესპუბლიკის მიერ I მსოფლიო ომის შემდგომ, საბჭოთა ჯარების შესაძლო თავდასხმისგან თავდასაცავად. იბერიელი, სპარსი, არაბი და ქართველი წინაპრების მსგავსად, მათაც ყველა შესაძლო ზომა მიუღიათ, რათა ხეობაში შეჭრის ნებისმიერი მცდელობა რთული და დიდი რისკის შემცველი ყოფილიყო.

საბჭოთა კავშირის დანგრევასა და საქართველოს დამოუკიდებლობის აღდგენასთან (1991) ერთად, ქვეყნის ჩრდილოეთი საზღვარი ისევ დარიალის ციხეზე გადის, იქ, სადაც წინა ორი ათასწლეულის მანძილზე იყო. ეს მოიცავს როგორც იბერიელი და ქართველი ხალხის თვითგამორკვევის, ასევე ახლო აღმოსავლეთის სახელმწიფოების ჰეგემონიის პერიოდებს ამიერკავკასიაზე. მხოლოდ ჩრდილოეთიდან განხორციელებული კონტროლის პერიოდები წარმოადგენს გამონაკლისს. გვიანანტიკურ ხანასა და შუა საუკუნეებში ჩრდილოელები მხოლოდ მცირე ეპიზოდებში აკონტროლებდნენ ხეობას, ხოლო თანამედროვე პერიოდში ცარისტულ რუსეთსა და საბჭოთა კავშირს თითქმის ორი საუკუნის მანძილზე ხელთ ეპყრა ხეობის მართვის სადავეები. ეს ანომალიები რომ გვერდზე გადავდოთ, დარიალის ხეობა ციხითა და ბახ'ტარის ქედითურთ სამხრეთის სასაზღვრო პოსტებს წარმოადგენდა, რომელიც ამიერკავკასიას ევრაზიის სტეპებისგან გამოყოფდა.

დასკვნები

საინტერესოა, თუ რატომ შემოიჭრნენ თურქები დერბენტის გავლით ახ.წ. 626/627 წლებში ალანების ტერიტორიის დარბევამდე და თბილისისთვის ალყის შემორტყმამდე. ამ შემოჭრას შესაძლოა რამდენიმე მიზეზი ჰქონდეს, მათ შორის ერთ-ერთი ისაა, რომ მათი სამიზნე ნაწილობრივ, მართლაც რომ დერბენტთან ახლოს მდებარეობდა. სავარაუდოა, რომ დარიალი თავის გარნიზონს ინარჩუნებდა და მრავალრიცხოვანი არმიით დაცული, უძლეველი დერბენტის არცთუ სუსტ ალტერნატივას წარმოადგენდა. დერბენტის კედლის სამხრეთით 20 კმ-ის მანძილზე მდებარე სასანური, 125 ჰა ფართობის ციხესიმაგრის, ტორფახ კალას თავისუფლად შეეძლო 30000 ცხენოსნის განთავსება, შესაძლოა, დარიალზე ასჯერ მეტის. ტორფახ კალა, შესაძლოა, დროებითი სალაშქრო ბაზა იყო, თუმცა იმ დროისთვის ნაწილობრივ

დასახლებული ან თუნდაც დაუსახლებელი დერბენტი და დერბენტის კედელი თავისი კოშკებით დარიალზე ბევრად მეტ ჯარისკაცს შეიფარებდა.

გარდა ამისა, შესაძლოა ჯარისკაცები ყოფილიყვნენ დარიალის ჰინტერლანდშიც. თუმცა გვიანანტიკური ხანით დათარიღებული სხვა ციხესიმაგრე აქ აღმოჩენილი არაა. ეს შეიძლება არც ისე გასაკვირი იყოს, რადგან პატარა გარნიზონი დარიალის ციხისთვის თავისი სწორუპოვარი ბუნებრივი თავდაცვითა და ადგილმდებარეობით ხეობაში მიმოსვლის გასაკონტროლებლად საკმარისი იყო, რადგან დიდი გარნიზონის შენარჩუნება, რომელიც შეძლებდა სამხრეთისაკენ გზის გაგრძელებაში ნებისმიერი რაოდენობის მტრისათვის წინააღმდეგობა გაეწია, ძნელი იქნებოდა.

მრავალჯერადი გამოყენების პალიმფსესტი: ანტიკური დასახლება და გაწმენდითი სამუშაოები F და Q თხრილებში

როგორც ჩანს, მშენებლობისთვის მზადებისას ფაქტობრივად მთლიანი გორაკი იწმინდებოდა ნაგებობათა ნარჩენებისა და ბუნებრივი გრუნტისაგან. ამან ციხის მშენებლებს ახ.წ. გვიან IV ან ადრე V საუკუნეებში საშუალება მისცა მშენებლობა დედაქანზე დაეწყოთ, რაც ბევრად მეტი სტაბილურობის გარანტიას იძლეოდა, ვიდრე რბილ ნიადაგზე აშენებული ნებისმიერი ქვის კონსტრუქცია.

ჩვენ მიერ ციხის შიგნით, დედაქანზე, სავარაუდოდ, გვიანანტიკურ პერიოდში აშენებული წრიული ფორმის ნაგებობების აღმოჩენა (F და Q თხრილებში) გვიჩვენებს, რომ სისტემატური გაწმენდითი ოპერაციები პლატოს პერიმეტრითა და გზის ჩამკეტი კედლით არ შემოიფარგლებოდა. ქვის ნაგებობებათა უმეტესობა, რომლებიც სტაბილურობის მიზნით რბილი ნიადაგის ნაცვლად დედაქანზე უნდა აშენებულიყო, სწორედ პლატოზეა განლაგებული. უამრავი კედლისთვის ცალკე თხრილის კეთების ნაცვლად გვიანიანტიკური ხანის მშენებლები, როგორც ჩანს, სისტემატურად წმენდნენ პლატოს დაგროვილი დანალექისა და მანამდე არსებული ნაგებობების ნარჩენებისაგან, რასაც, სავარაუდოდ, კლდის ნაპირიდან ყრიდნენ. ეს არ ნიშნავს, რომ ისინი მუდმივ რეჟიმში მუშაობდნენ და კლდის ყოველ ნაპრალს ასუფთავებდნენ. შესაბამისად, დედაქანში ბუნებრივი ნიადაგის მცირე მონაკვეთებია გადარჩენილი. ადვილი შესაძლებელია, რომ ციხის მშენებლობის (მთლიანი რეკონსტრუქციის?) შედეგად უძველესი დასახლების ნარჩენები გაქრობას გადაურჩა. თუმცა ნაკლებ სავარაუდოა, რომ გორაკზე არსებული უფრო ადრინდელი მასალა, რომ აღარაფერი ვთქვათ შენობებზე, გაწმენდით ოპერაციებს გადაურჩა, შესაბამისად, *in situ* მდგომარეობაში ადრინდელი დასახლებიდან მხოლოდ მცირე მასალაა გადარჩენილი.

სავარაუდოდ შუა საუკუნეებამდელი ფენების მთლიანი რაოდენობა Q თხრილში, იმ ადგილებშიც,სადაცისარიყოგანადგურებული ადრე შუა საუკუნეების ორმოებით, მცირეა, რაც შეიძლება იმაზე მიუთითებს, რომ დასახლება თავიდანვე მჭიდრო არ იყო. ადრეული დასახლებიდან მოპოვებული ფაქტების შეზღუდული რაოდენობა აუცილებლად იმას არ ნიშნავს, რომ პლატო შუა საუკუნეებამდე თითქმის ცარიელი იყო. გვიანანტიკური ხანისა და შუა საუკუნეების მოსახლეებს, როგორც ჩანს, განსხვავებული ტრადიციები ჰქონდათ. იმდენად, რამდენადაც შესაძლებელია ფაქტების არარსებობაზე ავაგოთ მსჯელობა, გვიანანტიკური პერიოდის გარნიზონის წევრები თავიანთ მიცვალებულებს არ მარხავდნენ, ყოველ შემთხვევაში, ციხის სიახლოვეს ამ პერიოდის საფლავის არარსებობა ზოროასტრულ წეს-ჩვეულებებზე მიუთითებს. ისინი აშკარად თავს არიდებდნენ დიდ ციხისშიგნითა ნაგავსაყრელებსაც. ამის საპირისპიროდ, F თხრილში ჩანს, რომ ადრე შუა საუკუნეებში სწორი ტერასები საყოფაცხოვრებო ნარჩენების მზარდ გროვებქვეშაა ჩამარხული. მათი დაქანებული ზედაპირი და თანდათანობითი ზრდა მიუთითებს, რომ ციხის შიდა ტერიტორიის ნაწილები იმ დროისთვის დაუსახლებელი იყო. აშკარაა, რომ ადრე შუა საუკუნეებში დარიალის ციხის შიგნით ტერიტორიაზე გავერანებული ადგილები არსებობდა. ასეთ წერტილებში ნაგვის დიდი რაოდენობით დაგროვება არ ნიშნავს, რომ მოსახლეობა იმდენადვე გაიზარდა, რამდენადაც ციხის შიგნით ნაგავი. გარდა ამისა, ადრე შუა საუკუნეების ორმოების სერიები ორივე F და Q თხრილში, როცა დედაქანს აღწევს, ან მას უახლოვდება, უფრო ადრინდელი ნასახლარების კვალს შლის. ეს პატარა, მაგრამ ძალიან მნიშვნელოვანი ციხესიმაგრე სივრცის ნაკლებობას განიცდიდა. არ უნდა გაგვიკვირდეს, რომ არცერთი გვიანანტიკური ნაგებობა ამ ადგილზე არ გადარჩენილა. ისინი განადგურებულ იქნა შემდგომი საუკუნეების აქტივობებით.

რომ შევაჯამოთ, ადრე შუა საუკუნეებთან (VII-X საუკუნეები/XI საუკუნის დასაწყისი) შედარებით, გვიანანტიკური (IV-VII სს.)

ფენებისა და ფაქტების სიმცირეს, რამდენიმე სავარაუდო ახსნა ეძებნება:

- ცვლილებები ნაგვის გადაყრის პრაქტიკაში, რაც გვიანდელ პერიოდებში ციხის შიდა ტერიტორიების უფრო ინტენსიურ გამოყენებაში გამოიხატება.
- ტერასებად დაყოფილი ტერიტორიების მიტოვება და მათ ადგილას ნაგვის ფერდობების ჩამოყალიბება.
- ღრმა ორმოების გათხრის შედეგად ადრეული ფენების განადგურება.

ტერასებად დაყოფილი მიწა F.013 და F.004 კედლებს შორის, ალბათ, უფრო მიმოსვლისთვის გამოიყენებოდა, ვიდრე საცხოვრებლად. VIII საუკუნიდან მოყოლებული, მისი ნაგავსაყრელად გადაქცევა არ უნდა მიუთითებდეს მოსახლეობის შემცირებაზე. კაზემატი F თხრილში (ისევე როგორც, ალბათ, მსგავსი სივრცე მთელი ფორტის გარშემო) და ციხისშიგნითა ნაგებობები სწორ პლატოზე (F და Q თხრილების ჩრდილო-აღმოსავლეთით), როგორც ჩანს, ინტენსიურად უნდა ყოფილიყო დასახლებული გვიანანტიკური ხანიდან ათასწლეულის დასასრულამდე. ციხის ტერიტორიის გარეთ ნარჩენების ინტენსიურ ზრდაზე, ალბათ, სწორედ მათი ადრე შუა საუკუნეების ბინადარნი არიან პასუხისმგებელნი. Q თხრილში დადგენილ შენობაზე მიშენებული VIII ან IX საუკუნეში მისი აქტიური გამოყენების დამატებით საბუთს წარმოადგენს.

შეგვიძლია დავასკვნათ, რომ ციხის კედლები და ყველაზე მთავარი შიდა ნაგებობა გვიანანტიკური პერიოდით თარიღდება. ნარჩენების მნიშვნელოვანმა მატებამ ადრე შუა საუკუნეებში შესაძლოა შეცდომაში შეგვიყვანოს. უდავოა, რომ დარიალის ციხე I ათასწლეულის მანძილზე მჭიდროდ იყო დასახლებული, თუმცა შეუძლებელია იმის თქმა იზრდებოდა, მცირდებოდა თუ დიდად არ იცვლებოდა მოსახლეობის რაოდენობა ექვსი საუკუნის მანძილზე დარიალის ციხის აშენებიდან X საუკუნის დასასრულამდე/ XI საუკუნის დასაწყისამდე, როდესაც არქეოლოგიურად დროებით არ დასტურდება აქტივობები.

კასპიის ჭიშკრის/დარიალის ხეობის შიშისმომგვრელი პეიზაჟი, სადაც გადმოცემით პრომეთე სამუდამო სასჯელს იხდიდა, ორი ათასწლეულის წინ ლეგენდის მოქმედების ადგილს წარმოადგენდა და უახლოეს წარსულშიც ასეთად დარჩა. დარიალის ციხე ხალხში „თამარის ციხის“ ან „თამარის სასახლის“ სახელითაა ცნობილი ლეგენდარული ანტიკური ხანის, ამ ადგილის დედოფლის პატივსაცემად. ის რუსი პოეტის, ლერმონტოვის (1814-1841წ.წ.) პოემის მთავარი გმირია. ეს ნაწარმოები მან თავისი ცხოვრების უკანასკნელ წელს დაწერა. ლერმონტოვის თამარი ბოროტ დედოფლად წარმოგვიდგება, მოგზაურებს აცდუნებს და ანტიკურ ციხე-კოშკში კლავს, რომელიც თერგს/ ტერეკს გადმოჰყურებს - ველური მდინარე კი მისი მსხვერპლების გვამებს უსასრულობისკენ მიაქანებს. მითური თამარის (რომელშიც საქართველოს ცნობილი მეფე არ მოიაზრება) შემზარავი ქმედებები ლერმონტოვის ფანტაზიის ნაყოფს არ წამოადგენს. ის პოეტის მიერ ძველი ხალხური თქმულებების უკვდავყოფის მცდელობაა.

დასკვნები

2016 წელს დარიალის ციხის დასახლების შესახებ ახალი ფაქტები გამოვლინდა. ეს განსაკუთრებით გვიანანტიკური ნაგებობების განფენილობას ეხება. გვიანანტიკური ხანის სამშენებლო პროგრამა იმდენად ინტენსიური იყო, რომ მას ძველი ნაგებობებისა და კულტურული ფენების მნიშვნელოვანი ნაწილის წაშლა უნდა გამოეწვია. ჩვენმა საველე სამუშაოებმა ასევე აჩვენა, რომ წრიულად განლაგებული ოთახები და, სავარაუდოდ, გადახურული გასასვლელი კედლებს შიგნით, ალბათ, მთელ პლატოსა და მის მნიშვნელოვან ნაწილებს გარს უვლიდა. აღნიშვნის ღირსია დიდ ჭურჭელში *in situ* მარაგის შენახვის მონაცემები. კლდეები, რომლებზეც ციხე იდგა, ზოგიერთ ადგილზე მნიშვნელოვნად უფრო მაღალი იყო და ანტიკურ ხანასა და ადრე შუა საუკუნეებში ბევრად უფრო საიმედოდ იყო დაცული, ვიდრე ამჟამად.

მტრული გარემო: მეწყერები და მათი ზეგავლენა ხეობაში დასახლების მოდელზე

როგორც ჩანს, არანაირი დასახლება არ არსებობდა ხეობის ძირში, მდინარე დევდორაკთან შესართავის ქვემოთ, რადგან აქ მდინარე შეიძლებოდა თოვლს, ყინულს ან ზვავს გადაეკეტა. ამ მოვლენებს ექსტრემალურ სიტუაციაში წყლის დონის 40 მ-მდე მატება შეიძლებოდა გამოეწვია, რასაც გამანადგურებელი წყალდიდობა მოსდევდა ასეთი ბუნებრივი კაშხლის გასკდომის შედეგად. გადმოცემის მიხედვით, XIX საუკუნეში, დევდორაკის მყინვარზე მორენების დაგროვების შედეგად ყოველ ხუთ-შვიდ ან შვიდ-ცხრა წელიწადში ერთხელ ხეობა იმეწყრებოდა. რეგულარულად განმეორებადი ამ ბუნებრივი კატასტროფის ყველაზე შთამბეჭდავი აღწერა, ალბათ, სერ რობერტ კერ პორტერს ეკუთვნის:

„ძველი დაკვირვებები აჩვენებს, რომ ყოველ შვიდ ან ცხრა წელიწადში ერთხელ ხეობა მასშტაბურად იმეწყრება. და, ეს არამხოლოდ ზამთარში, არამედ ნებისმიერ სეზონზე შეიძლება მოხდეს, თუკი მზის სიძლიერე ან თოვლის წონა მთიდან ზედმეტი სიმძიმის მოცილებას გამოიწვევს. 1776 წლის ივნისში, თერგის დინება ერთ-ერთი ასეთი ღვარცოფის ჩამოვარდნის შედეგად შეჩერდა. როცა შეფერხებულმა წყლის ნაკადმა 258 ფუტის სიმაღლეს მიაღწია და კლდოვან ბარიერსა და უზარმაზარ კოლონას შორის დერეფანი გაარღვია, გამანადგურებელი ღვარცოფი ჭექა-ქუხილის ათასობით ექოზე ძლიერი ხმით გამოიჭრა წინ.

ასეთივე შემაძრწუნებელი იყო 1817 წლის ნოემბრის თვეში მიღებული ცნობა. ყაზბეგის მთის უკიდურესმა მწვერვალმა, იმ მხარეს, რომელიც დარიალსა და მთის მოსახელე სოფელს შორის მდებარე ბნელი ხეობისკენ ეშვება, უეცრად მოძრაობა დაიწყო. იგი წამიერად მოწყდა ადგილს და ახლა აზვავებული თოვლისა და საშინელი ნგრევის გამო ხილვადობა ნულის ტოლი გახდა. ამ მოვლენის თანმდევი ხმაური ყველაზე შემაძრწუნებელი და დამანგრეველი იყო და დაუნდობლად მოიწევდა წინ. ზვავთან ერთად სვლას კლდეს მოწყვეტილი უზარმაზარი მასები აგრძელებდნენ და საუკუნეების მანძილზე დალექილი თოვლი და ყინული უზარმაზარი ნამსხვრევებისა და შეკრული გროვების სახით მოედინებოდა; ისეთი ძალით ეცემოდა ზედაპირს, თითქოს მიწა იძვროდა; ადამიანის თვალთაგან ფარავდა სოფლებს, ვაკეებსა და ხალხს! და რა საშინელი იყო მომენტი, როცა ყველაფერი გაჩერდა! როცა ადამიანთა და ცხოველთა საშინელი ყვირილი აღარ ისმოდა და უზარმაზარი ზვავი ხეობის მთელ სიგანეზე ესვენა როგორც თეთრი სუდარა.

ნგრევის მაგნიტუდა იოლად მისახვედრი იყო. თოვლის საფარის სიმაღლე, რომელიც ქვემოთ, ხეობაში მცხოვრები შეძრწუნებული მოსახლეობის თვალწინ მოიწევდა, სრული ოცდაექვსი საჟენი იყო, რაც 186 ფუტს უდრის; განფენილობა კი ექვს ვერსტს, ანუ ოთხ მილს შეადგენდა. მან მაშინვე შეაფერხა თერგის დინება, და შეკავებული წყალი, აზვირთებული ტალღებით ეხეთქებოდა ამ უცხო დაბრკოლებას, აქაფებული, ბობოქარი მდინარე ლამის მზად იყო გადაელახა ეს წინაღობა; და მაინც, თოვლის სიმტკიცითა და სიმაღლით მოგერიებული ტალღები, უკან ღრიალით ეცემოდა და ვრცელ ტერიტორიას ამცნობდა ამ საშინელ ამბავს. მაღალი ტალღები თანდათან ტბის ფორმას იძენდა და მთელი ხეობის სიგანეზე გავრცელდა; ამგვარად სრულიად გადაკეტა ყოველგვარი გზა ვლადიკავკაზისკენ. დაახლოებით თორმეტი დღე გავიდა, სანამ წყალმა გზა გამონახა ამ უზარმაზარი, გამკვრივებული თოვლიდან თავის დასაღწევად, და როცა ეს მოახერხა, მისი მძვინვარება და გამანადგურებელი შედეგები პირველ რიგში სწორედ მისი დაბრკოლების მიზეზმა განიცადა, რომლისგანაც მხოლოდ საშინელი ნანგრევებიღა დარჩა. ხიდები, ციხეები, ყველაფერი, რაც დინებას გზად შეხვდა, დაუნდობლად წაილეკა.“

თავის კვლევაში XVIII და XIX საუკუნეების კავკასიის საგზაო მოძრაობის შესახებ რეინჰარდ ნახტიგალი ქართულ სამხედრო გზებს რუსეთის სასიცოცხლო ხაზს, „Lebensader”-ს, უწოდებს, თუმცა ყურადღებას ამახვილებს მათი გამოყენების სირთულეზე, განსაკუთრებით ზამთარში, როცა თერგის/ტერეკის მიერ გამოწვეული წყალდიდობები დიდ საფრთხესა და სირთულეებს წარმოქმნის. ამ უკანასკნელ ხანებში ხეობა მასიურად დაიმეწყრა, თანაც ძალზე უჩვეულოდ - ერთი წლის განმავლობაში ორჯერ, 2014 წლის 17 მაისსა და 20 აგვისტოს. ამან მდინარე თერგის/ტერეკის ადიდება და მდინარის შესართავის გასწვრივ და დარიალის ციხის აღმა მიმავალი გზისა და სასაფლაოს დაფარვა და, სამწუხაროდ, მსხვერპლი გამოიწვია. ნაკლებ სავარაუდოა, რომ რაიმე მნიშვნელოვანი არქეოლოგიური მასალა გადარჩენოდა ათასწლეულის განმავლობაში 100-200 წყალმოვარდნას. ნორმალურ წლებშიც კი, ივნისის თვეში თერგი დიდდებოდა და ხეობის მთელ ფართობს ფარავდა, ანადგურებდა ხიდებს. ადგილობრივი მოსახლეობისთვის რისკები კარგად იქნებოდა ცნობილი და შეგვიძლია ვივარაუდოთ, რომ წყალდიდობისა და მეწყერსაშიში ზონები დასახლებული არ იყო, თუმცა იქნებოდა დროებითი ბილიკები, ხიდები და, ალბათ, ბარიერებიც.

კარიბჭეები, კარგი დაცვის პირობებში, აღმოსავლეთ რომის იმპერიას დიდ სამსახურს გაუწევდა, დაიცავდა რა მის უმდიდრეს პროვინციებს მცირე აზიაში, ახლო აღმოსავლეთში, ეგვიპტესა და ჩრდილოეთ აფრიკაში. ეს ქვეყნები მისი მტრების უმეტესობისგან დაცული იყო, გარშემორტყმული იყვნენ რა ბუნებრივი ბარიერებით, ე.ი. შავი ზღვით, ბოსფორის სრუტით, მარმარილოს ზღვით, დარდანელის სრუტითა და ხმელთაშუა ზღვებით, ასევე უდაბნოებითა და დიდი მთაგრეხილების ჯაჭვით - სანამ კავკასიონის უღელტეხილები ჩაკეტილი იყო.

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Abbreviations

AE = *L'Année Épigraphique*.
CIL = *Corpus Inscriptionum Latinarum*.
DGA 1940 = *Directorate General of Antiquities*, 1940. *Hafriyyat Samarra* 1936–1939, 2 vols., Baghdad.
IGR I = *Inscriptiones Graecae ad Res Romanes Pertinentes*, I, Paris 1911.
ILS = *Inscriptiones Latinae Selectae*.
OED = *Oxford English Dictionary*, I-XX, 2nd edn, Oxford 1989.
RIC^2, I = Sutherland, C.H.V. 1984. The *Roman Imperial Coinage*, I, 2nd edn, London.
SEG = *Supplementum Epigraphicum Graecum*.

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Notes

1 https://transliteration.eki.ee/pdf/Georgian.pdf, accessed, *inter alia*, on 27/1/2018: National 2002.

2 https://www.loc.gov/catdir/cpso/romanization/russian.pdf, accessed, *inter alia*, on 27/1/2018.

3 E.g. Гаджиев, M.C. appears as Gadzhiev, M.S., as well as Gadjiev, M.S. and Gadžiev, M.S.; გამყრელიძე, გ. appears as Gamq'relidze, G., as well as Gamkrelidze, G.