
TOWARDS A CHRONOLOGY OF THE ERITREAN RED SEA PORT OF ADULIS (1ST – EARLY 7TH CENTURY AD)



Chiara Zazzaro, Enzo Cocca & Andrea Manzo

Abstract

The Eritrean coastal site of Adulis has been known to archaeologists since the second half of the 19th century. At the beginning of the 20th century, the Italian archaeologist Roberto Paribeni conducted extensive excavations in different areas of the site which uncovered the remains of monumental buildings, churches and houses, as well as rich deposits of related material culture. Since then, archaeological investigations have been limited to the activities of Francis Anfray in 1961–62 and to a survey conducted by the University of Southampton in 2003–04. Our team's first excavations in stratified deposits began in 2011, and soon revealed a complex chronological sequence of great importance for the understanding of the cultural history of the southern Red Sea region and the Horn of Africa. The project's main efforts were directed towards the identification of the main phases of occupation at Adulis, the establishment of a typological sequence of pottery, and the analysis of architectural change.

Résumé

Le site côtier d'Adoulis en Erythrée est connu depuis la seconde moitié du 19^{me} siècle. Au début du 20^{me} siècle l'archéologue italien Roberto Paribeni a mené des fouilles dans les différentes zones du site et découvert des constructions monumentales, des églises, des maisons et un abondant matériel archéologique. Par la suite, les travaux archéologiques ont été limités aux fouilles de Francis Anfray en 1961–62 et à une prospection menée par l'Université de Southampton en 2003–04. Les premières fouilles en stratigraphique ont commencé en 2011, révélant dès le début la complexité de la séquence chronologique et son importance pour la compréhension de l'histoire culturelle de la région. Les efforts ont été principalement dirigés vers la reconstruction de la séquence typologique de la céramique, l'observation des différentes techniques de construction employées au cours du temps et l'identification des principales phases d'occupation.

Keywords: Adulis, Northern Horn of Africa, Eritrea, Aksum, chronology, pottery typological sequence

Chiara Zazzaro ✉ czazzaro@unior.it / **Enzo Cocca** ✉ enzo.ccc@gmail.com / **Andrea Manzo** ✉ amanzo@unior.it
✉ Università di Napoli "L'Orientale", Dipartimento di Asia, Africa e Mediterraneo, piazza S. Domenico Maggiore 12,
80134, Napoli, Italia

Introduction

During antiquity, Adulis was the most important trading port in the northern Horn of Africa, serving the urban settlements of the Eritrean and Ethiopian highlands as well as the coastal and island peoples. A gateway for the movement of people, ideas and goods, the port of Adulis was intimately involved in major developments in the history of the Eritrean and Ethiopian highlands from the 1st millennium BC. The rise of the early Ethiopian/Eritraean-Sabean cults is indicative of the level of cultural exchange taking place between the opposite coasts of the Red Sea as early as the 8th century BC (FATTOVICH 2013). The subsequent introduction of Christianity, in the 4th century AD, also resulted from long-standing trade links and cultural interaction with the Romans and Byzantines through the Red Sea, as did the introduction of coinage in the mid-third century AD. The Eritrean coastal and insular regions, including Adulis, were foci for the incipient spread of Islam and settlement of Arab populations in the Horn of Africa during the 7th–8th centuries AD. The increasing islamisation of the Red Sea region may be connected to the crisis of the Adulitan and Aksumite trade and the abandonment of Adulis, of which the ultimate causes remain uncertain.

The excavations we report on are the first to apply modern archaeological methods to stratified deposits at Adulis. They began in 2011, and are aimed at providing a better definition of these important historical events, in which the coastal regions played a crucial role. The existence of a well-explored chronological sequence in the Aksum area, developed during 20 years of excavations conducted at Aksum and Bieta Giyorgis (FATTOVICH *et al.* 2000; PHILLIPSON 2000) as well as comparable data issued from recent and ongoing excavations in other contemporary Red Sea ports, particularly Berenike and Myos Hormos (SIDEBOTHAM & WENDRICH 2007; PEACOCK & BLUE 2011), allows the results from Adulis to be integrated into developments in the wider region.

The site of Adulis is located on the Red Sea coast of Eritrea, 56 km south of Massawa, on a crossroads of trade routes between the Mediterranean and the Indian Ocean (**Fig. 1**). Mentioned in a number of Classical and Byzantine sources, Adulis — along with other Red Sea ports, such as Berenike, Myos Hormos, Clysma, and Ayla — was a point of articulation for the Roman, Aksumite, and Byzantine trades from the first centuries BC to Late Antiquity. Adulis is described as “*oppidum Aduliton*” by Pliny in the 1st century AD (CONTE 1982: VI.172). In Casson’s interpretation of the *Periplus Maris Erytraei*, it is described as an *εμπόριον νόμιμον* — a legally limited port — (CASSON 1989: 51, 4.19–20)

and a *κόμμη σύμμετρον* — a fair-sized village — ruled by a sovereign (*βασιλεύς*) called Zoskales (CASSON 1989: 53, 4.5–6). Subsequently, the town is referred to as the harbour of the Adulites by Procopius (DEWING 1954: I.xix.23–24) and as a port with a naval station in Cosmas Indicopleustes’s Christian Topography (WOLSKA-CONUS 1968: 366–367, II.55, note 2), as well as in the *Martyrium Sancti Arethae* (ACTA SANCTORUM 1869; BAUSI & GORI 2006: 255, §29c) of the 6th century AD. It seems that Adulis grew into a town and port for trade to eventually play a central role in the exchanges between the Mediterranean and the Indian Ocean.

In its earlier stages, Adulis appears to have been an independent port of the *βρβαροι* and the Troglodytes ruled by a *βασιλεύς*. In Cosmas Indicopleustes’ Christian Topography, however, Adulis becomes the port of the Adulites, and is described as being ruled by an *ἄρχον* (ruler) but also used by the kingdom of Aksum. This highlights Aksum’s involvement in the Mediterranean-Indian Ocean trade and its military control over the southern Red Sea (MAZZARINO 1974). Aksumite attempts to gain control over the opposite coast of the Red Sea reach back to the late 2nd–early 3rd century AD (MUNRO-HAY 1991). A consolidated maritime Aksumite hegemony is attested by the 6th century AD (ZAZZARO 2012), its position reinforced by an alliance with the Byzantines, which extended both to the trade network to India and to a military intervention in South Arabia against the Jewish Himyarite ruler (BAUSI & GORI 2006: 240–243, §27b–d; BOWERSOCK 2013). Excavations conducted at the port of Qāni’, in Yemen (SALLES & SEDOV 2010: 23, fig. 71.664–665) produced Adulitan types of pottery starting from the “*période moyenne*” (3rd–4th century AD, SALLES & SEDOV 2010: 23, figs. 7.24, 7.32, 46.442 and 46.443) and becoming increasingly prevalent in the later phases through to the abandonment (5th–early 7th century AD), providing a material reflection of Adulis and Aksum’s periods of major expansion in the Red Sea and beyond that the literary sources attest.

Adulis’s history as a trading port is strictly connected to that of the other Red Sea ports and to the trade dynamics in the Mediterranean and Indian Ocean. Combined archaeological and written sources attest that, in the 1st and 2nd centuries AD, Berenike and Myos Hormos were clearly the mainstays of the Roman presence in the Red Sea. After the 3rd century, however, Myos Hormos declined, while Berenike kept its role until the 5th–early 6th century (SIDEBOTHAM 2011). From the 4th century onward, following a re-organization of the Roman trade, the northern Red Sea ports, Ayla and Clysma, became more and more directly linked to Adulis, especially during the time of Berenike’s decline at the end of the 5th–early 6th century AD (NAPPO 2009).

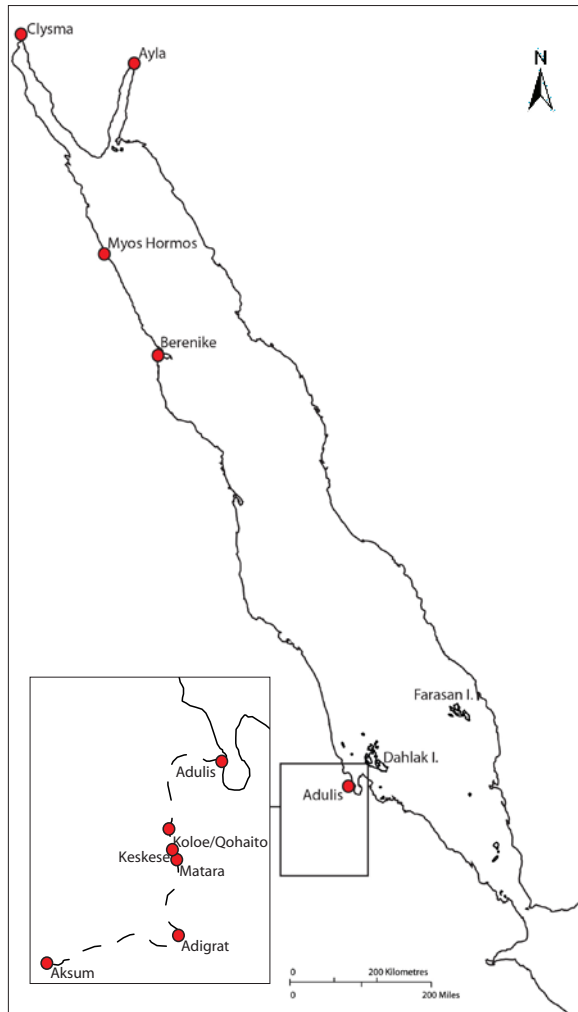


Fig. 1. Plan showing excavated Red Sea ports contemporary to Adulis and the highland sites connected to Adulis.

The presence of Adulitan merchants in these ports is implied by finds of Adulitan and Aksumite pottery found both at Myos Hormos and Berenike and as far as Kamrej, in India (TOMBER 2005).

Finds of decorative marble panels and amphora sealings bearing stamps with Christian monograms at Adulis have long attested to intense contacts between the Red Sea and the Syrian-Palestinian and Egyptian centres of Christianity, particularly in the 5th – early 7th centuries AD, through the northern Red Sea ports of Ayla and Clysma. The involvement of Adulis in these contacts is made evident by the widespread presence there also of Ayla/Aqaba ribbed amphorae. The wreck of a ship carrying such amphorae near the Eritrean island of Black Assarca (PEDERSEN 2008) represents a frozen moment in the maritime trade routes which lead to the spread of Christianity, from Egypt and Syria-Palestine to the southern Red Sea and beyond.

The recent finding of three “Nabatean” painted sherds at Adulis suggests even earlier contacts with the northern Arabia and southern Levant and, consequently, a greater time-depth to these maritime trade routes. The three sherds examined by Caroline Durand (Institut français du Proche-Orient) can be compared with Schmid’s phase 3c and dated to the 2nd c. AD or maybe to the 3rd c. AD. They also represent one of the first certain evidence of “Nabatean”/Petraean productions on the African coast of the southern Red Sea (SCHMID 1996: 209, figs. 702–704, 2000: figs. 378–381). South Arabian pottery imports, from the same period, were also identified (by Romolo Loreto, Università di Napoli “L’Orientale”) and are currently under study.

Adulis’ role as port was that of transshipping goods coming from both the nearby regions — the coastal lowlands and the islands — and much distant regions, as far as India. In the 1st and 2nd centuries AD Adulis exported raw materials of mainly animal origin, such as turtle shell, ivory, rhinoceros horns, apes and obsidian, products available in the region and in the nearby islands, and imported coarse cloth and metal from India, glass from Egypt, and wine and olive oil from Italy and Laodicea (CASSON 1989: 53, 6.23–33). In the later period Adulis transhipped products including silk, spices and aromatics from India, emeralds from the Blemmys (Beja) and gold from Sasu (Sudan), which had been exchanged for salt, iron and cattle (WOLSKA-CONUS 1968: II, 352–353, 360).

Among the imported goods found at Adulis so far are gems perhaps from India and beyond, decorative marble panels from the eastern Mediterranean, fine ware and glass perhaps from Italy, Egypt and Syria-Palestine. The contents of the amphorae are still under study, but may have consisted of *garum* and wine from the Mediterranean (C. Mandelli in Ce.R.D.O., unpublished C).

Data sources and methodology

This paper draws on data from both previous and current excavations. Among more recent research and studies on Adulis (PEACOCK & BLUE 2007; SCHMIDT *et al.* 2008) is the authors’ examination of museum collections and past investigations at the site (ZAZZARO 2013). This study re-examined material from the archaeological investigations of Roberto Paribeni in 1907 and Francis Anfray in the 1960s, who succeeded in bringing to light monumental buildings, churches, and housing quarters mainly dating to Adulis’s final phase of use and occupation. The main aim was to aid our ongoing research in direction and interpretation. By a combination of the results of said study, with those of previous excavations conducted at Aksum and Bieta

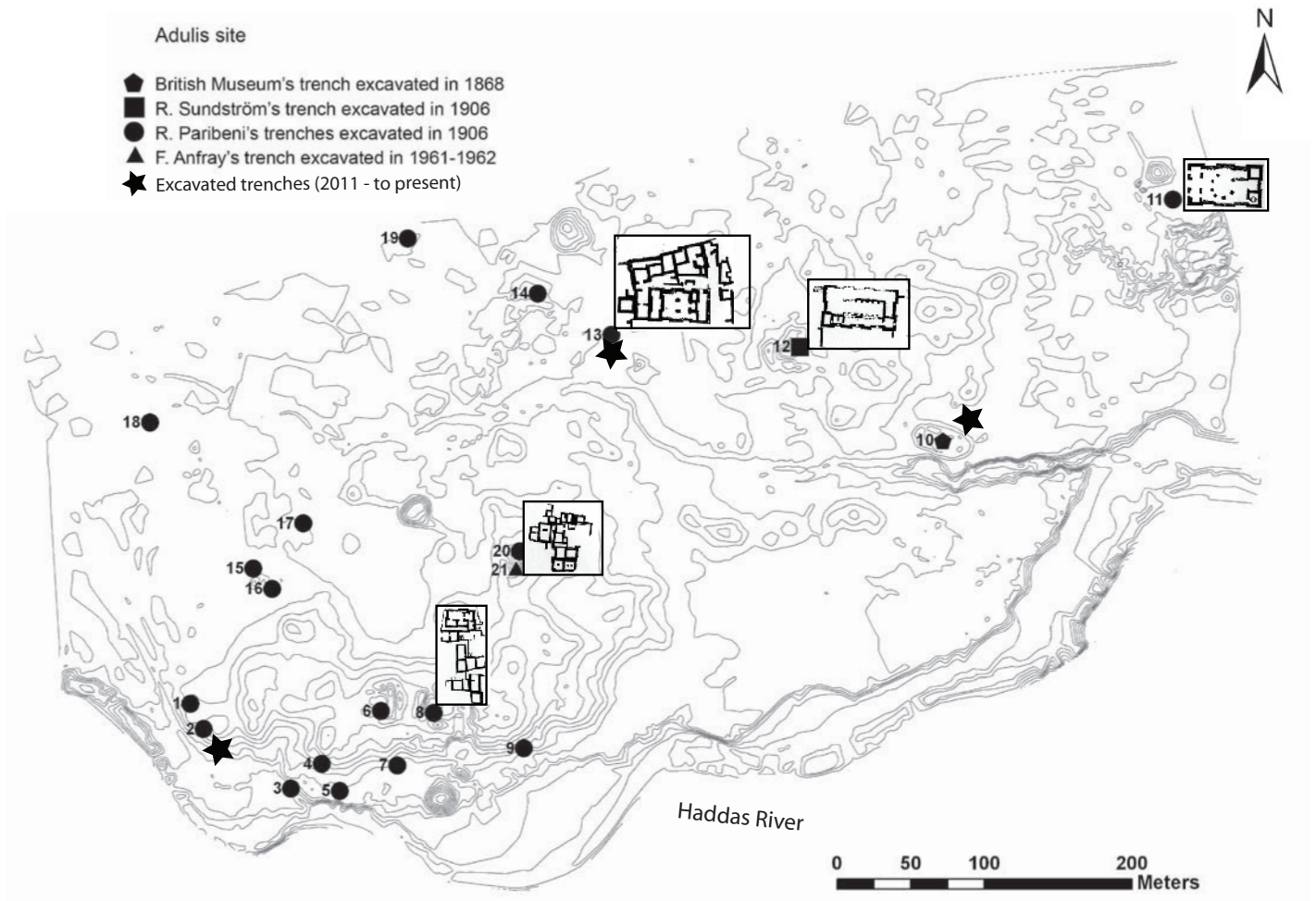


Fig. 2. Topographic map of Adulis showing the location of previous and recent excavated trenches (modified from BIGLIARDI *et al.* 2013).

Giyorgis (FATTOVICH *et al.* 2000; PHILLIPSON 2000) as well as of excavations of stratified deposits recently conducted in sectors 1 and 3 of the site (**Fig. 2**), we have established a preliminary chronology of Adulis, which will be presented in this contribution.

Current research refers to the ongoing Adulis project, which started in 2011¹. The site is currently located *ca* 5 km far from the coast, on the north edge of the river Haddas. Emerging from river sediments accumulated over the centuries, archaeological materials

such as basalt stones from ancient walls and amphora sherds are visible on the surface. Previous studies and recent surveys allowed the identification of the site extension of *ca* 40 hectares; the location of the ancient port infrastructures are still debated so as the dating of the earliest settlement.

Multi-period occupation of the site was initially proposed by Paribeni based on material finds — particularly the find of black ware pottery in an 11 m deep test pit excavated in the south western sector of the site — on the observation that there were different types of masonry, and on excavated contexts around the monument called “Ara del Sole”, a monumental substructure on top of which Paribeni found a church. According to Paribeni, the substructure is of an earlier date than the church (PARIBENI 1907: 446 and 463). Archaeological surveys conducted in 2003 and 2004 by the National Museum of Asmara and Southampton University also suggested the existence of at least two apparent building phases, an argument supported by the analysis of

¹ The project has been possible thanks to the financial support by the Eritrean Government, Gruppo Piccini, Ce.R.D.O. (Center for Research on Eastern Desert) and by the Universities. The collaborative project includes the participation of the National Museum of Eritrea, the Northern Red Sea Regional Museum, the Università degli Studi di Napoli “L’Orientale”, the Università Cattolica del Sacro Cuore (Milano), the Politecnico di Milano, and Ce.R.D.O., with the patronage of the Museo Civico di Rovereto and the archaeology magazine *Archeologia Viva*.

pottery collected during the survey and by radiocarbon dating of shell samples. In line with Paribeni's observations, the Eritrean-British survey also suggested that the area at the south western corner of the site might feature the oldest evidence on the surface of the site, dated by C-14 analysis to the 1st–3rd centuries AD. Nevertheless, survey results did not clarify whether the site's growth had been continuous or whether it had been interrupted by a period of abandonment sometime between the 1st and the 4th centuries AD (PEACOCK & BLUE 2007). Therefore, a more detailed definition and description of chronological events was not possible until excavations of stratified deposits were begun in 2011.

To address this question, two trenches located in two crucial areas of the site were investigated and considered for this study: Sector 1, located in the above-mentioned south western sector of the site — the assumed location of the most ancient phase of occupation — and Sector 3, located in the proximity of a building belonging to the final phase of occupation of the town, in the south eastern sector of the site (**Fig. 2**).

Trench S.1 was positioned close to the river Haddas *ca* 4 m lower than the area excavated by Paribeni, in the hope that the erosive action of the stream, which has affected a large part of the site, might have drawn the earlier levels closer to the present surface. To avoid substantial architectural remains relating to the later phases, which might have prevented archaeologists from accessing the earlier levels, it was decided to investigate an area immediately south of a wall and a mound originating from the collapse of a building which, according to associated materials, appears to date to the last phase of occupation of the town. While the stratigraphy of the upper layers was in fact disturbed by the action of the stream, the efforts made to avoid substantial architectural remains and to facilitate access to the earliest levels proved successful.

Trench S.3 was positioned few meters south of a basalt and schist mound and few meters north of a monumental building whose remains showed a basilica plan. This building, possibly a church, was excavated in 1868 by William West Goodfellow, Captain of the Royal Engineers, with the patronage of the British Museum during the British military expedition led by Lord Napier against King Theodore of Abyssinia (MARKHAM 1869; HOLLAND & HOZIER 1870). Excavations conducted in S.3 revealed the remains of buildings closely related to the basilica. Up to 2 metres of river sediment sealed the walls and their collapse layers, preserving almost intact deposits relating to the abandonment of the town.

The exposed structures in sectors 1 and 3 were surveyed using 3D photography with an open-source

approach based on computer vision techniques, *i.e.* image-based modelling such as Structure from Motion, Clustering Views for Multi-View Stereo (CMVS), and Patch Based for Multi-View Stereo (PMVS). This technique allowed archaeological surveying in the field to progress at significantly greater speed, since the strata unit plans were all subsequently created at the desk. In sector 3, the 3D survey was conducted only at the end of the excavation. The survey is based on 98 photos taken with a 50 mm lens Canon 1000D. In sector 1, four 3D surveys were carried out during excavation in order to record the different phases of use of the area (**Fig. 3**). All measurements were based on a total of 90 photos taken with a 50 mm lens Canon 1000D. Measurements obtained by the 3D survey were compared with laser scanner survey measurements taken by our Eritrean colleagues. There appears to be a slight divergence between the compared point clouds, especially in the marginal areas, probably due to the large amount of images. In fact, images in the central portion of the survey are in greater numbers than those in the marginal areas, which might have been more significantly affected by camera optical distortion. Despite Structure from Motion survey being slightly less accurate than laser scanner survey, the technique proved highly effective for archaeological purposes and for 1:20 and 1:50 scale drawings (BIGLIARDI *et al.* 2014).

The 2012 and 2013 excavations and surveys revealed very different wall constructions between S.1 and S.3. Massive walls, made of large stones, as well as different pebbles from those observed in the monumental buildings were recorded by BIGLIARDI *et al.* (2013) during survey in the south western sector of the site, as had also been reported by PARIBENI (1907: 461). While these observations appeared to imply a chronological development of building techniques, it was only the excavation of associated materials in S.1 and S.3 that allowed a precisely dated chronology of the different building phases to be established.

The site's chronological sequence mainly rests on pottery, coins, glass fragments, and C-14 dated samples. In particular, this paper will focus on chronological data based on pottery analysis and C-14 dating.

Two well preserved archaeological contexts in S.1 were dated by means of C-14 analysis of charcoal and shell samples. The ceramic sequence was established by documenting typological change through stratigraphically related deposits. A preliminary typology was obtained by integrating macroscopic observations of the fabric, shape characteristics, and decorations. An assemblage of over 20 almost complete vessels was recorded using 3D photography with an approach similar to the one adopted to survey structures and mentioned above. 3D pottery models were processed using

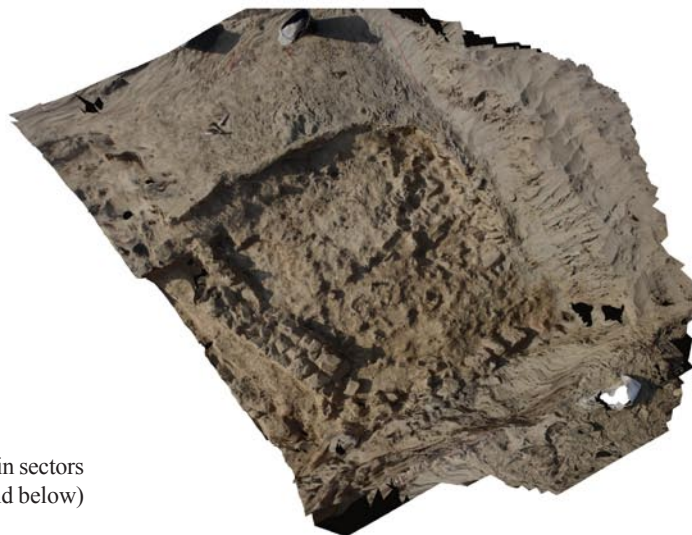


Fig. 3. 3D reconstructions in sectors 3 (above) and 1 (middle and below) (created by E. Cocca).

Meshlab software and section cut using Paraview software; finally, line drawings were traced using Adobe Illustrator. This method has the advantage of speeding up the work in the field. The final result of this approach are both traditional line drawings and realistic vessel models that can easily be displayed in Adobe Reader. Furthermore, fragmentary vessels can be virtually reconstructed, making this a useful tool for research, digital museums, and educational purposes.

Given the complexity of excavated contexts and the variety of data, the documentation work required the use of specific software applications for managing data in a GIS. The GIS software used for drawing and geo-referencing archaeological maps was QuantumGIS (qgis); alphanumeric data were inserted into forms especially created in PostgreSQL² with PyArchInit³ graphic interfaces. PyArchInit functions allow the simultaneous managing of topographic, cartographic and alphanumeric data; at the same time, descriptive forms of excavated contexts and materials, images, and drawings can also be displayed. These data can be updated, processed and analysed using special tools. Using this system, the collected data could be processed to create chronological sequences of excavated contexts and materials (*i.e.*, pottery), plans for each phase, Harris matrices, and to export forms as pdf. Specific implementations also allow the analysis of spatial distributions and geo-statistical analyses (MANDOLESI & COCCA 2013).

The project and the investigated areas

The Adulis Project mainly focuses on consolidating and preserving the site, creating an archaeological park, and disseminating its results to a wider public. Within this framework, resources have also been allocated to further excavations and study of the ancient port's cultural history.

The goals of the 2011 and 2012 field seasons were to conduct a complete topographic survey of the city in order to define the limits of the archaeological area, to excavate four sectors, to investigate the sequence of stratified deposits, and, lastly, to study the recovered materials and protect the excavated area with fences⁴.

The site is located *ca* 5 km inland from the coast and is delimited in the south by a seasonal river — the Haddas — which might originally have connected the town both to the sea and to the highland regions. The surface of the site is hilly and dotted with *Suaeda monoica* bushes, providing pasture for the camels bred by the inhabitants of the nearby villages of Zula and Afta.

The goals of the topographic GPS survey, conducted by the Centro di Geotecnologie of the Università di Siena, were to define the limits of the archaeological area covering a surface area of about 30–40 hectares⁵, to expand and enrich details from previous topographic surveys, and to record its geomorphological evolution. All structures visible on the surface were recorded, including collapsed buildings and walls, as well as the previous excavations, identifiable by the presence of exposed structures or spoilheaps. The survey conducted by the CGT team resulted in the following observations: the monumental buildings, including the religious ones — such as three buildings with a basilica plan, two of which were excavated by Paribeni and one by the British expedition — and the elite building excavated by SUNDSTRÖM (1907), are all located to the east of the city. Residential buildings, identified by PARIBENI (1907: 457–462) and ANFRAY (1974), are located on the south-western sector. As already mentioned, different types of masonry were identified during the surveys in the southern area along the river Haddas (**Fig. 2**) (BIGLIARDI *et al.* 2013).

Of the four sectors excavated in 2011 and 2012, only S.1 and S.3 have been taken into consideration in the present paper. Sector 4 was a test pit excavated by the team of the National Museum of Asmara in 2011, which revealed the presence of pottery which might date back to the 1st millennium BC (MANZO 2010). Sector 2 was located at the western edge of the city and was intended to further investigate one of the most impressive buildings at the site⁶. Here, the basilica plan of the Christian church and its continuous, projecting base of indented, stepped-back walls, typical of important buildings, had already been brought to light by Paribeni in 1907 (PARIBENI 1907: 463). At the time of the team's first visit in 2011, the monumental structure was no longer visible: buried under alluvial deposits, its location could only be identified after careful examination of old maps and current topography. After removing alluvial strata, the structure started to come to

2 PostgreSQL database is divided into three types of tables: alphanumeric data, geometries Postgis and View.

3 PyArchInit plugin is an application created in accordance with the needs expressed during archaeological work and already successfully tested in different archaeological projects.

4 The 2012–2013 field season has seen the beginning of a conservation and consolidation programme of the monumental structures at the site for the creation of an archaeological park by the Politecnico of Milan (BORTOLOTTI *et al.* 2014).

5 This area integrates the maximum extent of archaeological evidence on the surface documented by the surveys of the Eritrean topographic team and the team of the Centro di Geotecnologie of the Università di Siena.

6 This trench was excavated under the direction of Barbara Maurina (Museo Civico di Rovereto) in 2011 and of Serena Massa (Università Cattolica of Milano) in 2012 and 2013.

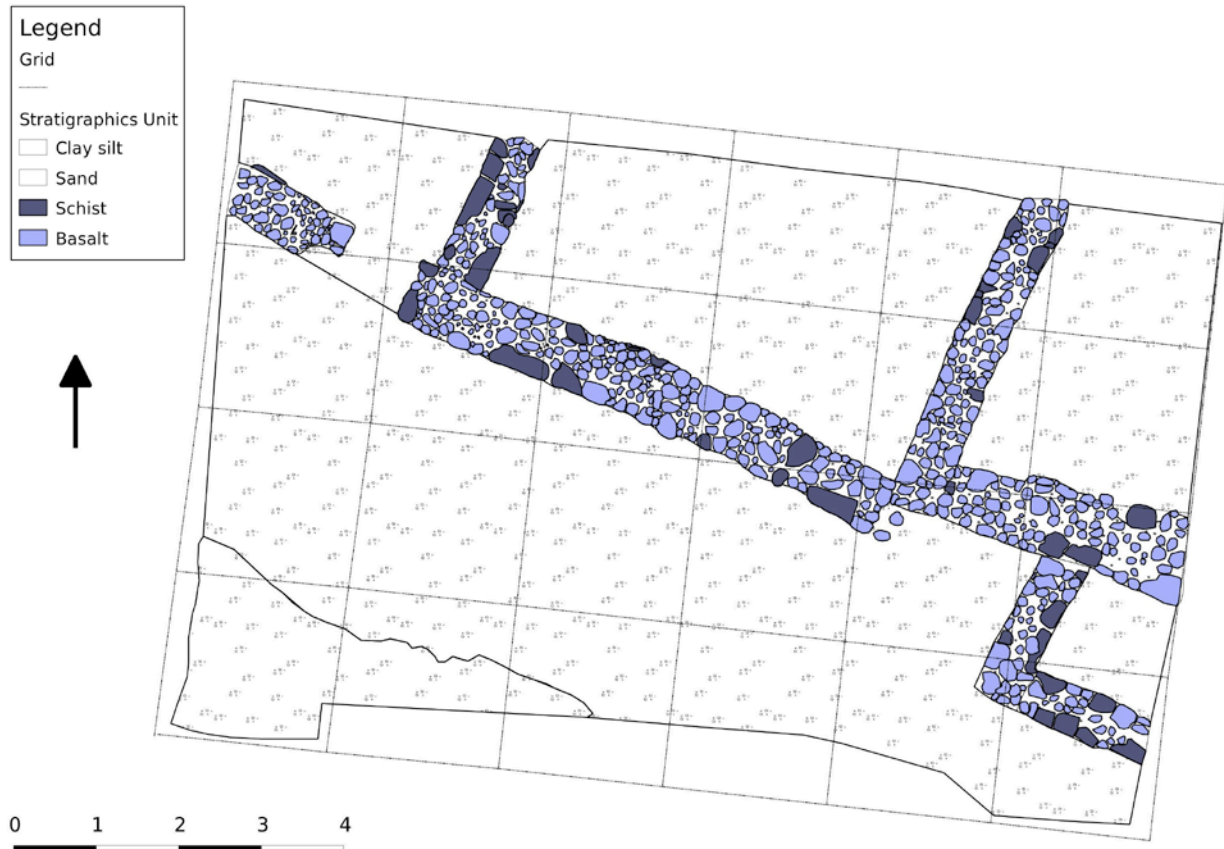


Fig. 4. Excavated area in S.3 (drawing by E. Cocca).

light and, so far, *ca* 3 metres of the elevation of one side of the monument have been unearthed. Unfortunately, dating elements for the monument are not preserved since Paribeni's excavation did not take a scientific approach to stratified deposits. Similar religious buildings, erected above massive substructures, were recorded in the highlands, such as the basilica "F", in Maṭarā and Enda Maryam Tsion Cathedral, in Aksum. Estimated dates for these basilicas range from the early 6th–late 7th centuries AD (PHILLIPSON 2011: 126–127; ANFRAY 2012: 19–20, 27). So far, the excavations in this sector seem to suggest the presence of two main architectural phases, but their chronology has yet to be clarified by further investigations into such areas where stratigraphy is better preserved (S. Massa in Ce.R.D.O., unpublished C).

Sector 3

The excavation of this 12 x 6 m trench revealed walls and collapse layers sealed by up to 2 m of alluvial strata. These remains thus allow us to access a precise moment in the town's history, one of sudden, catastrophic destruction (Figs. 4 and 5). The excavations uncovered seven partly collapsed wall alignments delimiting four rooms. Towards the north western corner of the trench,

a *ca* 1 m wide threshold was brought to light. Towards the south-western corner of the trench is the collapse of the adjacent exposed monumental building, excavated in the 19th century, which seems to suggest that both of these structures were destroyed at the same time.

The monumental building was built on a mound or on the top of an artificial substructure. In fact, the floor of the building is higher than the base levels of the adjacent excavated rooms. The difference in their elevation currently amounts to 2.56 metres with little more to excavate in order to reach the rooms' floors. This difference in elevation appears to correspond to the height of the Christian church's substructure, excavated in Sector 2 which PARIBENI (1907: 463–464 and tab. VII) measured to be up to 3.4 m. Similar buildings at Maṭarā were built on top of substructures ranging from 2.5 to 3 metres in height (ANFRAY 2012: 15–16).

Three walls are warped, two towards the north (SUs 3034 and 3053) and one towards the west (SU 3052). One of these shifts *ca* 20 cm away from the wall on which it originally leaned, forming a corner (SUs 3034 and 3052). Except for a wall (SU 3034) that shows an irregular, wavy profile, the other walls are



Fig. 5. Sector 3. Collapse layer SU 3042 filling room D (Photos by Castiglioni/Cocca).

all in good state of conservation (Figs. 4 and 5). The shifting, bending and irregularity in the wall profiles are probably the most manifest evidence of a natural catastrophe that affected the town in the late 6th – early 7th centuries AD.

The elders from the nearby village of Zula, interviewed in 2011 by the team of the Asmara National

Museum, traditionally believe that the town suffered a sudden, catastrophic destruction which led the disappearance of its inhabitants (The National Museum of Eritrea, unpublished). Paribeni also mentions a sudden destruction due to a catastrophe followed by a flood, and a short, scattered reoccupation phase during the Islamic era (PARIBENI 1907: 570).

The walls are *ca* 60 cm wide, consisting of typical rubble-work masonry with shapeless small and medium basalt stones in the middle, and sub-rectangular basalt stones and schist slabs on the sides, bonded with earthen mortar. Rows of sub-rectangular basalt stones, *ca* 50 cm high with smooth external faces (min. 10 cm, max. 15 cm thick, 10 cm in width, and 15 cm length in average), alternate with rows of schist slabs (10 up to 30 cm long, 3–4 cm thick). These alternating basalt and schist rows served to provide cohesion and stability to the wall structure.

Archaeological finds discovered in this context include local coarse ware vessels for domestic use, few fine ware bowls with incised Christian crosses, and imported ceramics. Among the imported items are several fragments of Ayla/Aksum amphorae, Late Roman Amphora 2, and one African Red Slip ware (*terra sigillata*) HAYES (1972) form 104 dating to 550–660 AD. Other finds include glass and metal fragments, alabaster and marble stone fragments, shells, bones, and bronze coins; particularly important amongst them are a precious gem and a pearl of the sea, perhaps from the Dahlak Islands, where pearl diving was practised up to the early 20th century.

The presence of an important building, the type of masonry, and the finding of precious or imported objects, such as the *sigillata* dish and the beads, all suggest that the area was used by the town elite during the abandonment in the late 6th – early 7th centuries AD. Further investigations of the rooms and wall collapse layers will better clarify its purpose — domestic, religious, or public — and the dynamics of its destruction. Future excavation seasons will focus on removing the last bit of the wall collapse to investigate the floor level and to uncover the adjacent monumental building to its south.

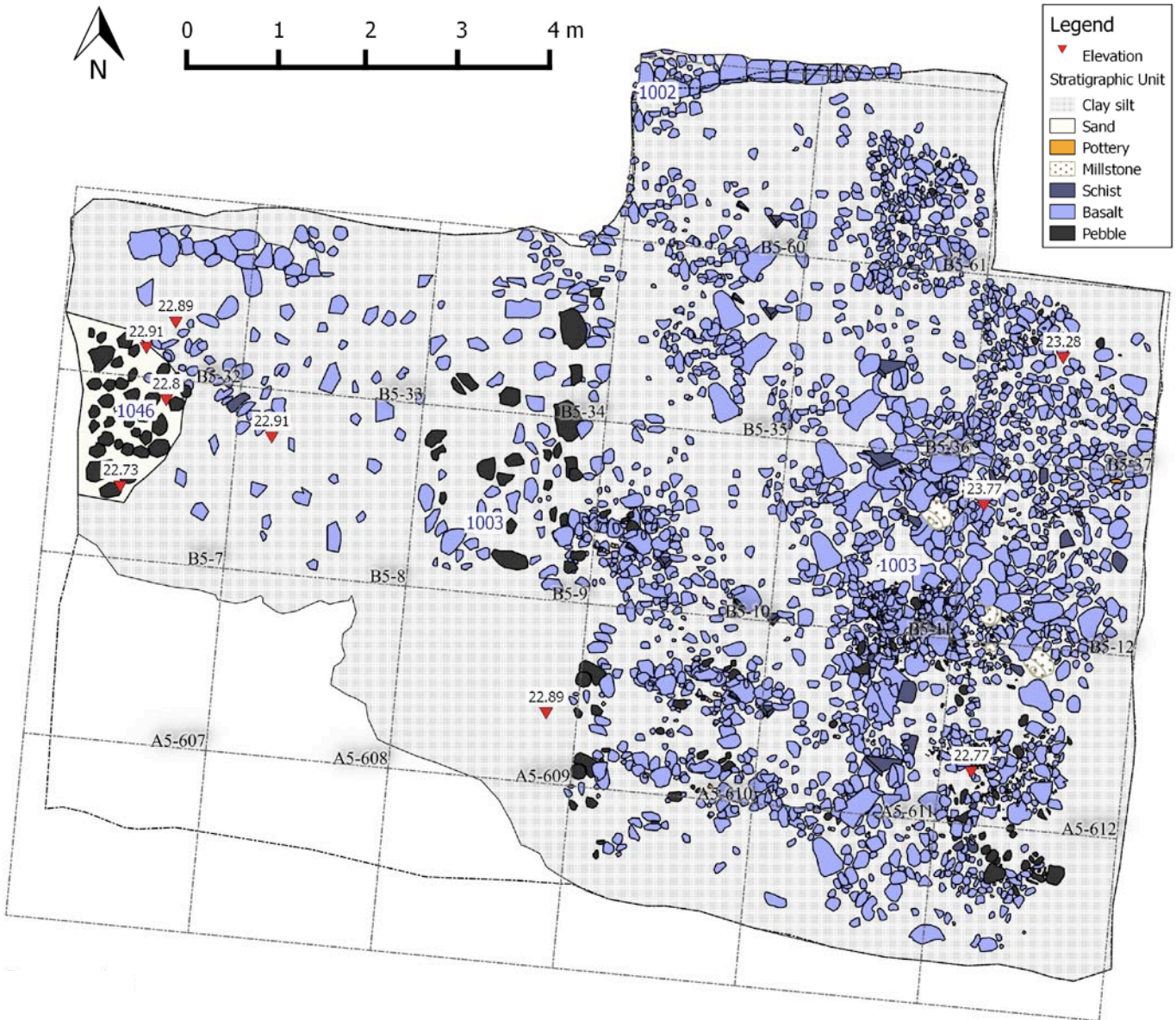


Fig. 6. Sector 1. Period 1, phase 1. Collapsed basalt stones (SU 1003) and river sediment (SU 1004) in the squares excavated during the 2012–2013 field season.

Sector 1

When excavations were begun in this sector, their main goals were to identify the different phases of occupation, use and abandonment of the area, and to understand the building sequence⁷. Two recent phases (abandonment and occupation), and at least two earlier building phases related to another intense, rather different occupation phase, have been identified so far. Because of the differences in the type of walls as well

the associated ceramics, two main periods including at least five phases were distinguished so far. The sequence of the stratified deposits is presented in periods and phases, from the most recent (period 1, phase 1) to the most ancient (period 2, phase 3)⁸.

S.1 — period 1, phase 1

The most recent archaeological evidence stems from an abandonment phase of collapsed basalt stones spread all over the trench (SUs 1003/1035) (*Figs. 6 and 7*) with no regular elevation profile. This stratum was thicker, *ca*

⁷ In November 2012 the excavation trench in Sector 1 was extended up to 12 x 8 m westward, southward and eastward. Excavations were conducted in collaboration with Enzo Cocca, Dawit Tesfay and Tigist Beidun of the Northern Red Sea Regional Museum.

⁸ Periods and phases are listed in ascending order to avoid confusion with future excavation reports that will include further periods and phases.



Fig. 7. Sector 1. 1: Period 1, phase 1. Photo showing surface silt deposit (SU 1001), river sediment (SU 1004), and collapsed stones (SU 1003). 2: Detail of two grinding stones in the collapse. 3: Period 1, phase 1/ period 1, phase 2. Wall SU 1043, bottom of living floor SU 1042, and top of SU 1044. (Photos by Castiglioni/Zazzaro).

50 cm, in the north of the trench on top of the slope, and thinner in the southern part, *ca* 10 cm. It was, however, not possible to detect a specific direction of the collapse due to the slope and to the fact that, some time in the past, the collapse was affected — and perhaps also caused — by the activity of the stream. This is particularly evident

in the southern sector of the trench, where the debris is mixed incoherently with the river sediment and archaeological finds clearly belonging to different phases. While the northernmost part of the trench delivered a higher concentration of ribbed amphora sherds, presumably dating to the last phase of occupation of the town (6th – early

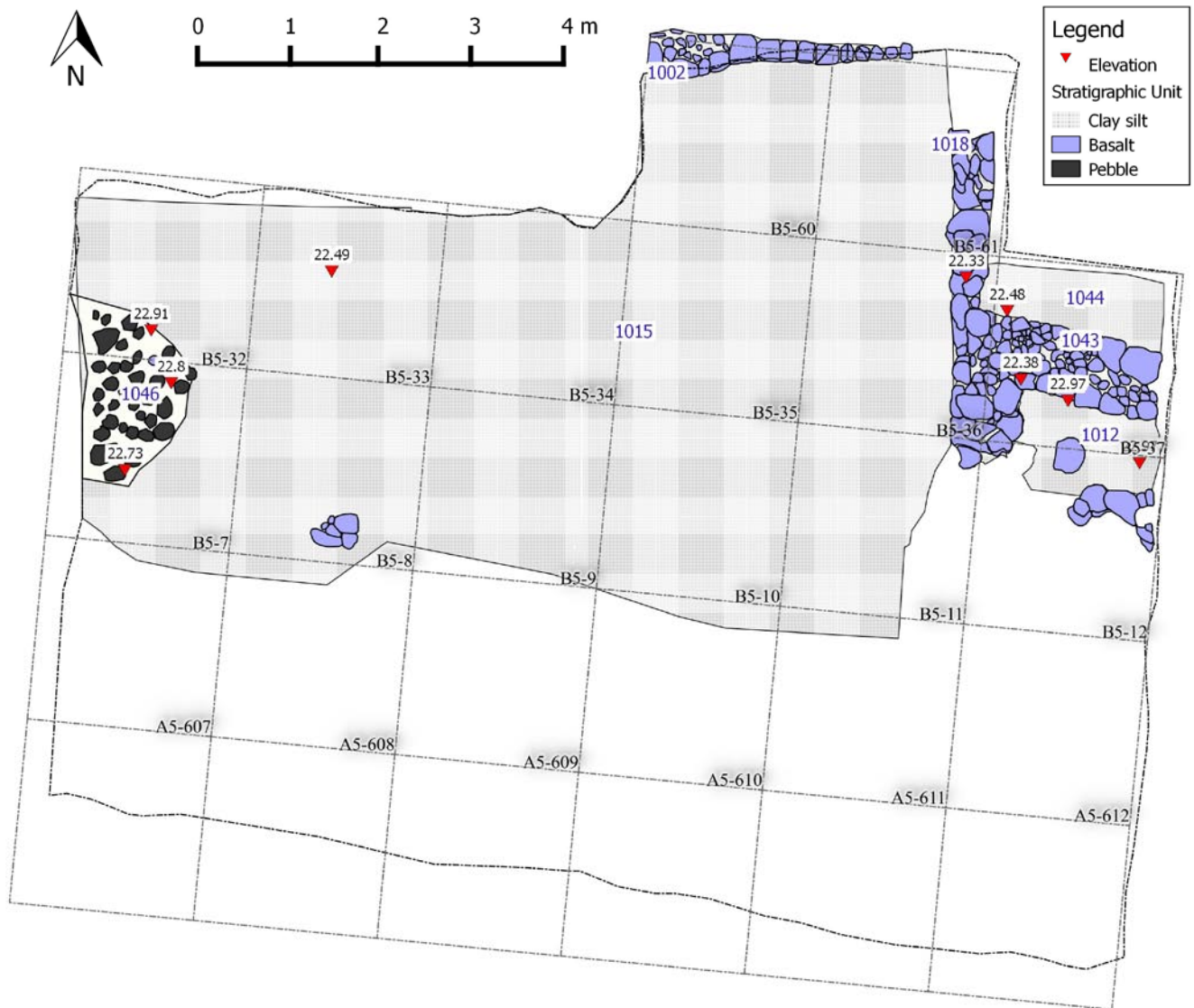


Fig. 8. Sector 1. Period 1, phase 2. To the north, elongated pit SU 1051 cutting SU 1015 and SU 1055.

7th century AD), it was in fact the southernmost squares which showed a higher concentration of pottery dating to an earlier phase (2nd–3rd and 4th–5th century AD). This confirmed that the combination of slope and erosion must have reduced the amount of archaeological deposit originally accumulated in the most recent phase.

Particularly striking evidence of stream disturbance comes in the shape of a concentration of pebbles, *ca* 20–25 cm in length over an area of around 150 x 100 cm, in the western limit of the trench (SU 1046). This feature cuts a living floor (SU 1055) belonging to an earlier occupation phase to a depth of 50 cm (**Figs. 6 and 8**).

Materials found in the collapse layer include local and imported vessels from the Mediterranean and the highlands, ribbed amphora sherds, impressed bowls with

crosses, a small amount of lithics, bones, copper fragments, glass, shells, mother of pearl, one square lead weight, one stone vessel fragment, two tiny gold fragments, precious beads, a mother of pearl discard from a cross inlay and copper coins. In the eastern sector of the trench, three large grinding stones — originally part of a wall — a small, almost complete jar, and a red stone faceted bead were all part of the collapsed material (**Fig. 7**).

S.1 — period 1, phase 2

The excavation of the areas with major concentrations of basalt stones revealed the presence of wall courses, partially preserved up to a height of 30 up to 50 cm. A well-preserved portion of a living floor (SU 1042) with pottery (SU 1045), near a wall (SU 1043) that had partially collapsed during abandonment, allowed the identification of specific pottery types associated with the occupation phase preceding abandonment. The wall

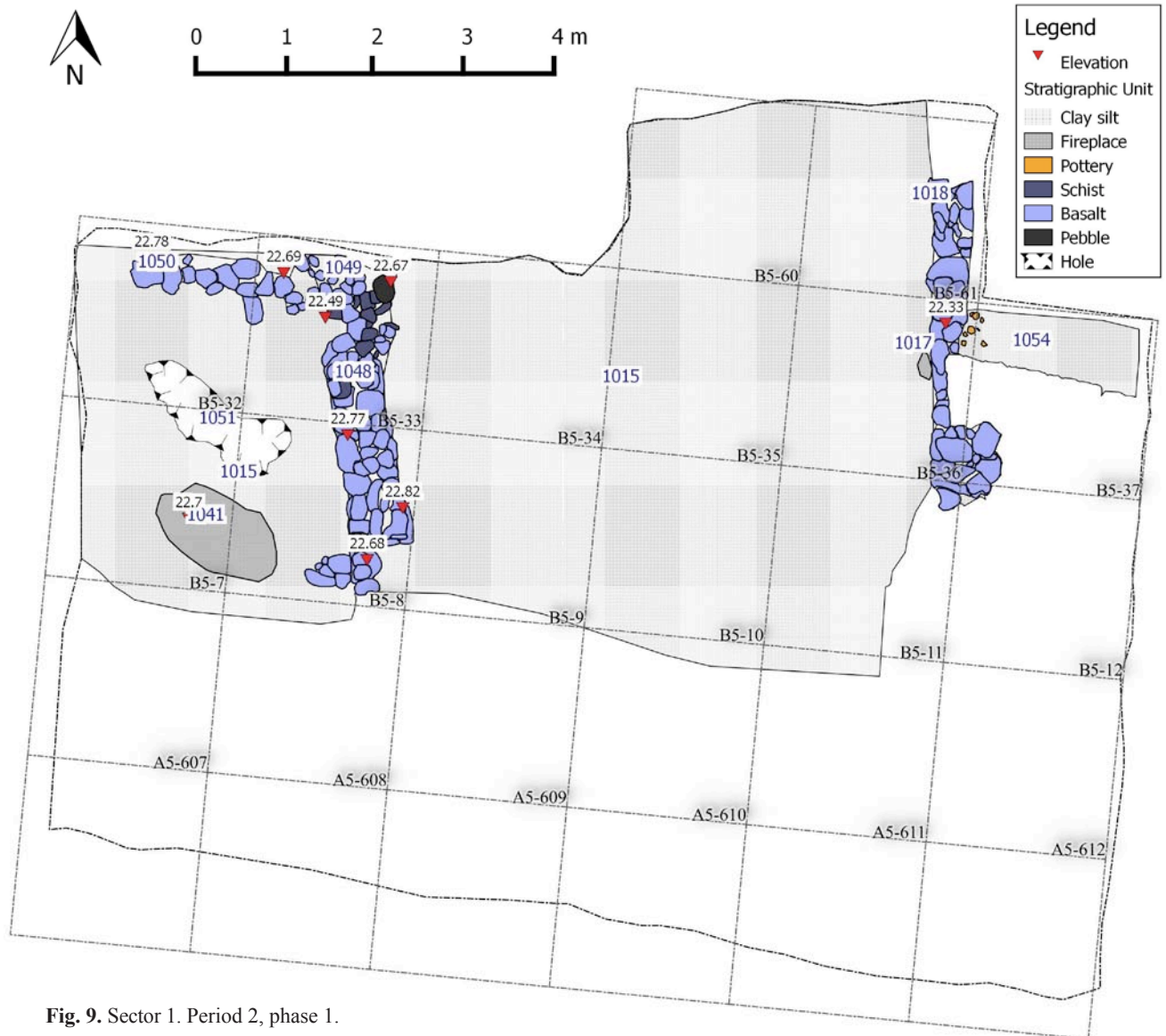


Fig. 9. Sector 1. Period 2, phase 1.

associated with this living floor is characterised by two rows of basalt stones on the outside, including both large and small stones measuring 40 x 34 x 18 cm and 15 x 15 x 10 cm in average. In the middle of the wall are small, rough basalt stones. The wall's northern and southern sides are characterised by three overlapping rows of ashlar basalt stones. The excavated strata from this phase contained traces of fireplaces, ashes, two fragmentary cooking pots, and three bowls. The diagnostic potsherds are comparable to those found in S.3 and dated to the 6th – early 7th centuries AD (Fig. 8).

S.1 — period 2, phase 1

An intermediate phase is represented by two walls (SUs 1018 and 1048) (Fig. 9). Wall SU 1048, only partially preserved, is 325 cm in length, 60 cm in width, and 44 cm in height. Its eastern elevation is made up of three rows of overlapping basalt stones. The lower row is built of

larger blocks measuring ca 36 x 28 x 35 cm, while the second and third rows consist of smaller basalt stones, measuring ca 20 x 13 x 20 cm. Only a small amount of the fourth row is preserved toward the north end of the wall and is made of schist stones, originally laid flat but now shifted towards the wall's northern end (SU 1049, see below). The wall consists in two external rows of larger basalt stones and of a row made of smaller, elongated basalt stones in the middle. The basalt stones employed in the masonry have flattened external faces and a sub-rectangular shape. The shifted schists to the north end extend 76 x 55 cm between a stone alignment (SU 1050) and the wall. Schist stones measure ca 20 x 22 x 5 cm. The other wall, SU 1018, is also made of basalt stones, and has only been partially excavated. Its deposits have been heavily disturbed, possibly due to reuse or readaptation in the most recent occupation phase.

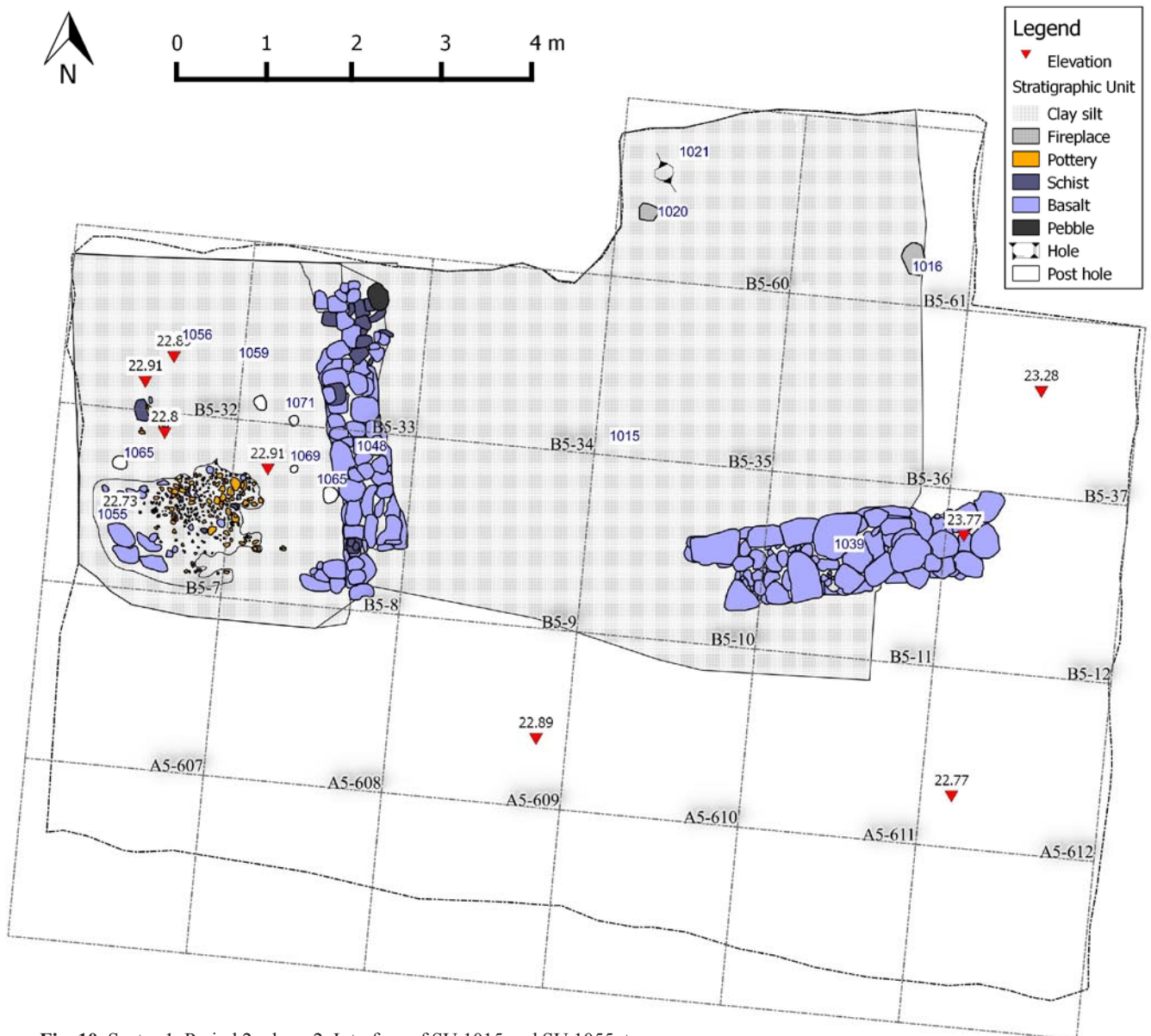


Fig. 10. Sector 1. Period 2, phase 2. Interface of SU 1015 and SU 1055, two occupation layers with high concentrations of pottery. Post holes cutting SU 1056.

Traces of a large fireplace (SU 1041) and a large, elongated pit to the west of the trench (SU 1051) might also be associated with this phase. The bottom and the southern side of the pit contained potsherds which seem to have slipped down from an earlier living floor (SU 1055) disturbed by the pit (*Fig. 9*). Pottery associated with the lower level of this occupation phase can be dated to the 4th c. AD based on comparisons with similar pottery found on the highlands.

A charcoal sample from another fireplace (SU 1017) was radiocarbon dated to 1731±50 BP by the Centro di Datazione e Diagnostica (CEDAD) of the Università del Salento using Accelerator Mass Spectrometry (AMS) (*Tab. 1*). The fireplace was partially excavated below wall 1018, therefore giving the con-

struction of that wall a *terminus post quem* in the late 4th or early 5th c. AD. Due to the stratigraphic disturbance caused by stream activity in the middle of the trench, it is unclear whether wall SU 1048 is contemporary or earlier than wall 1018. At any rate, it seems to represent an intermediate building phase later than the early 5th–6th c. AD (*Fig. 10*). Distinctive pottery types are very few for this phase and were found inside wall 1018 (SU 1054) and in the fireplace area (SU 1041).

S.1 — period 2, phase 2

A well-preserved living floor, identified as a domestic area, was discovered in the western sector of the trench and relates to an occupation phase which apparently lacks Byzantine imports and predates the adoption of Christianity as a state religion of the Aksumite kingdom (*Fig. 10*).

Sample	Lab. No.	Material/ Pretreatment	Analysis	Conventional radiocarbon age	2-sigma calibrated result	Intercept of radio- carbon age with calibration curve	1-sigma calibrated result
1_SU1055, living floor	Beta – 363925	shell: acid etch	Radio- metric- PLUS	2260±30 BP (2140±40 adjusted for local reservoir correction)	cal AD 140–330 (cal BP 1820–1620) (95% probability)	cal AD 240 (cal BP 1710)	cal AD 170–270 (cal BP 1780–1680) (68% probability)
2_SU1017, fireplace	CEDAD - LTL6175A	charred material (wood): acid/alkali/acid	AMS	1731±50 BP $\delta^{13}C$ (‰) -24.0±0.2	cal AD 130–420 (95.4% probability)		cal AD 240–390 (68.2% probability)
3_SU5023, oven	Beta – 374718	charred material (wood): acid/alkali/acid	AMS	1540±30 BP	cal AD 425–595 (cal BP 1525–1355) (95% probability)	cal AD 540 (cal BP 1410)	cal AD 435–490 (cal BP 1515–1460), cal AD 535– 560 (cal BP 1451–1390) (68% probability)

Tab. 1. The C-14 dates. Dating was carried out by Beta Analytic Radiocarbon Dating Laboratory, Miami, Florida. and by the Centro di Datazione e Diagnostica (CEDAD) of the Università del Salento using IntCal 13 (REIMER *et al.* 2013) and IntCal 09 and Marine 09 (REIMER *et al.* 2009) calibration curve.

The area is characterised by a clay silt stratum and a concentration of well preserved pottery fragments (SU 1055) extending 1.5 x 1.5 m west of wall SU 1048 and only partially excavated (**Fig. 10** and **11**). It includes more than ten nearly complete fine and coarse ware vessels found lying horizontally, as well as several other finds suggesting a domestic use of the area, such as four oil lamps (among them two complete, probably imported from North Africa), ten small cups, a small grinding stone and pestle, a pyramid-shaped pumice, and 12 bivalve shells showing traces of use. Two worked bivalve shells associated with this context were dated by C-14 to the 2nd–3rd c. AD (**Tab. 1**). The find of a Roman imported mortar from the Mediterranean area, bearing a stamp and dating to the 1st–2nd century AD, also suggests that this layer has a *terminus post quem* in the 2nd c. AD (R. Nardi, in Ce.R.D.O., unpublished C).

Seven post holes are also associated with this phase. They are cut into a level below the domestic area (SU 1056) up to 10–15 cm in depth, and measure 8 to 17 cm in diameter. Their alignment runs almost parallel to the wall and may originally have supported the ceiling (**Fig. 10**). However, it is not certain that wall SU 1048 was already in use in this phase.

S.1 — Period 2, phase 3

An earlier occupation phase than the one related to the domestic area described above was identified by the presence of massive stone structures (SUs 1040, 1038 and 1039) that differed from the walls visible on the site's surface and the last phase of occupation of the town, which were made of large basalt stones and roughly shaped pebbles (**Fig. 12**). In contrast, the stone structures encountered in this occupation phase were built using far larger basalt boulders and pebbles that were much more irregular both in shape and arrangement. Similar stone alignments at Adulis are found only along the riverbed to the south, near S.1. This type of wall might correspond to that which Paribeni, in his excavations, described as

rectangular stone structures (*ca* 40 x 80 cm) (PARIBENI 1907: 461), as their size was similar to the one uncovered in S.1 (SU 1024). Similar walls have been excavated in the earliest levels of occupation of the highland settlements dating to the end of the 1st millennium BC, such as Maṭarā (ANFRAY 1963: 100) and Mezber. A living floor (SU 1030 and SU 1056) is associated with these at Adulis walls, but is still awaiting more thorough investigation (Period 2, phase 3, see **Fig. 12**).

The chronological sequence of pottery

The ceramic assemblage from S.1 is very rich, compared to the ceramic assemblages from sectors 2 and 3, and delivered more than 2/3 of all diagnostic fragments found at the site. The deposits in which potsherds from S.1 were found are partially disturbed by the stream activity, particularly the layer of collapsed stones (SUs 1003–1035) which delivered mixed materials and potsherds dating to different phases of occupation of the town. As regards this phase, the lack of reliable stratified deposits is compensated by the good preservation of the destruction phase in S.3. Here, the layer of collapsed walls was sealed under up to 2 metres of alluvial soil, and the associated archaeological materials thus relate to the precise moment of destruction and immediate abandonment. Pottery found in these contexts is very similar to the main pottery assemblage collected by Paribeni and Anfray in the most recent occupation levels during their excavations at Adulis (ZAZZARO 2013).

As far as the earlier occupation phases in S.1 are concerned, the excavations conducted in 2012–2013 revealed well-preserved contexts which delivered very coherent pottery assemblages and several complete or reconstructable vessels. The preliminary analysis of local pottery finds will be discussed by periods and phases, from the most recent (period 1, phase 1) to the most ancient (period 2, phase 3).

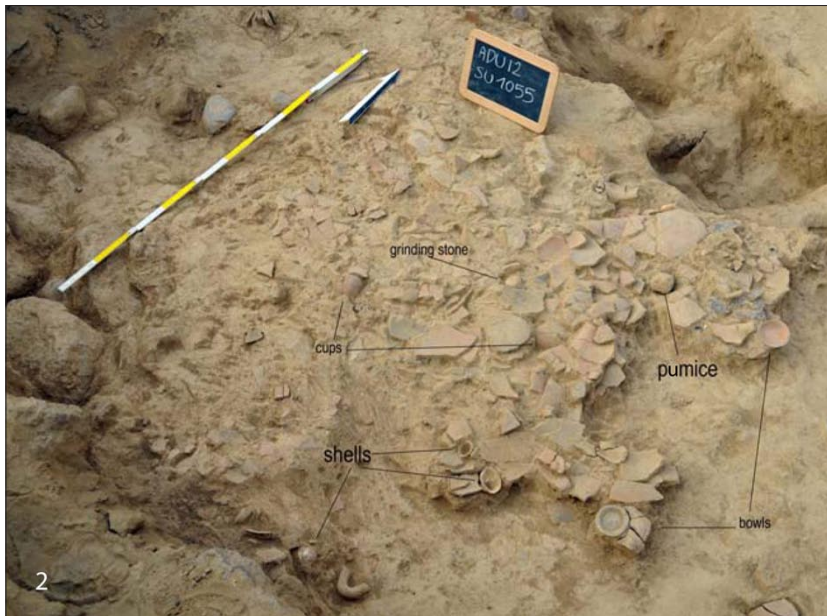


Fig. 11. Details of finds from SU 1055: a cup, a lid and an imported lamp (photos by Castiglioni/Zazzaro).

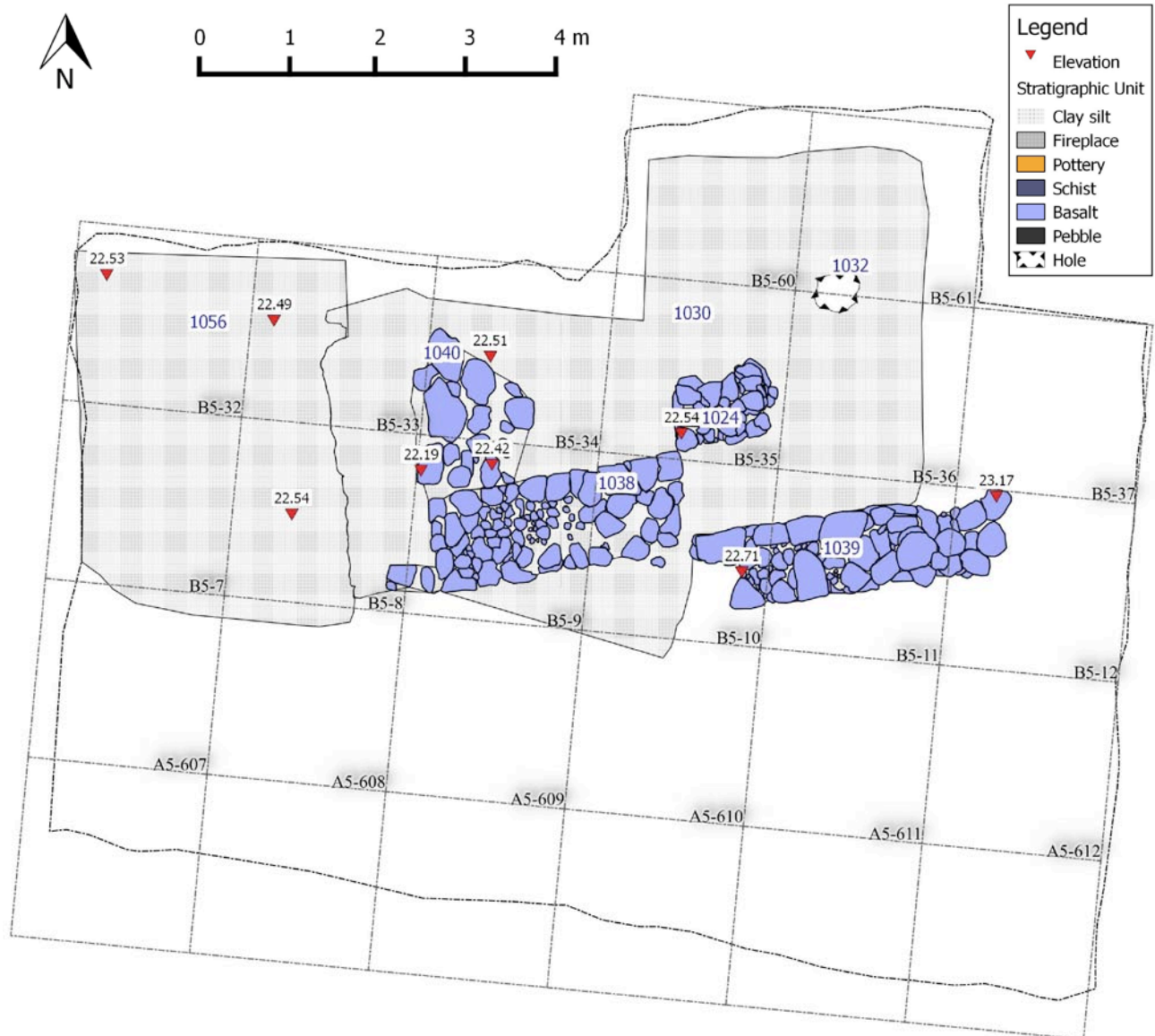


Fig. 12. Sector 1. Period 2, phase 3. Abandonment level SU 1056 and exposed walls.

Periods 1.1–1.2 (6th – early 7th century AD?)

Pottery samples collected in the later phases were analysed macroscopically. Most of them are characterised by a soft, moderately friable fabric, while surface treatments include slip and burnishing, on both the internal and external surfaces. Almost all samples are smooth to the touch, their thickness ranges from 3 mm to a maximum of 8 mm, and they have vacuoles of 1–2 mm in size. In most cases, vacuole frequency is low, except for some fragments marked by a higher presence of pores. In all samples, mineral inclusions, both black and white, are visible. Sometimes, they can be divided into two size classes. Mica is either visible in the section or on both surfaces (V. Perna in Ce.R.D.O., unpublished C). An ongoing analysis will provide further information on the chemical composition of each sample.

Sectors 1 and 3 contained diagnostic fragments of both coarse and fine ware bowls, some of which displayed impressed crosses, as well as cups, beakers, basins, cauldrons and jars.

Coarse ware fragments of restricted and unrestricted small bowls with rounded profiles, some incised with crosses below the rims (*Fig. 13*), can be compared to similar vessels found at Maṭarā (ANFRAY 1966: 26, pl. III JE3641) and Aksum (WILDING 1989: 11.16). We are proposing a 6th to 7th century AD date for these vessels, based on the fact that, at Aksum, impressed or incised crosses start to appear on pottery found in deposits dating to this period (FATTOVICH *et al.* 2000: 25).

Some fragments of restricted and unrestricted bowls with rounded or vertical profiles and stamps of one or

Occupation phase	Local pottery	C-14 dating	Imported pottery	Pottery with incised/ impressed Christian crosses (ca AD 550–699)	Ayla/Aqaba amphorae (ca AD 300–699)
Period 1 Phase 1	see <i>Figs. 13–15</i>	AD 425–595	AD 560–660	X	X
Period 1 Phase 2				X	X
Period 2 Phase 1	see <i>Figs. 16–17</i>	AD 130–420		X	X
Period 2 Phase 2	see <i>Figs. 18–21</i>	AD 140–330	AD 80–150; AD 100–299		
Period 2 Phase 3					

Tab. 2. Summary of the Adulis chronology based on ceramics and C-14 dates.

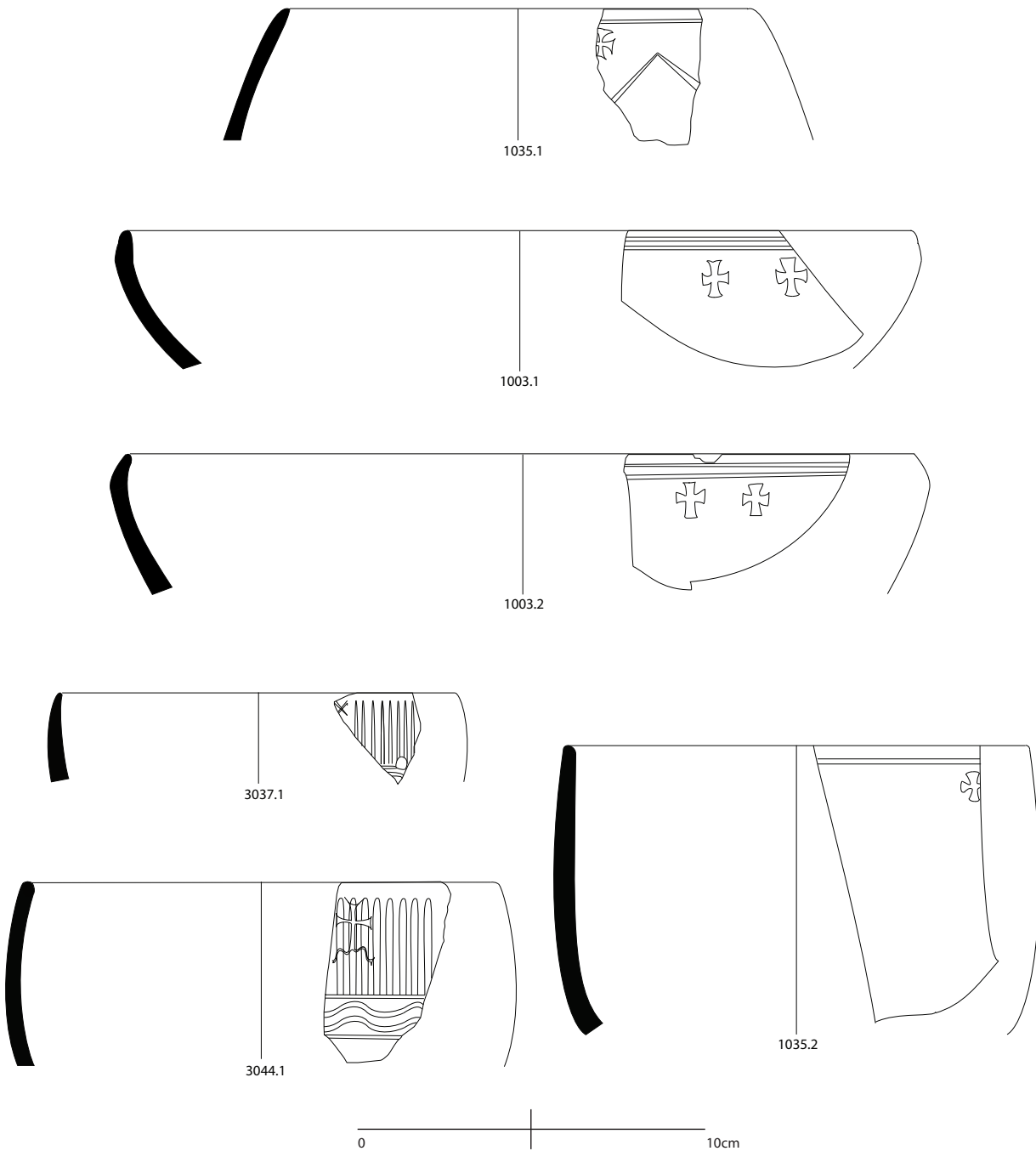


Fig. 13. Restricted and unrestricted bowls with crosses, period 1.1/1.2.

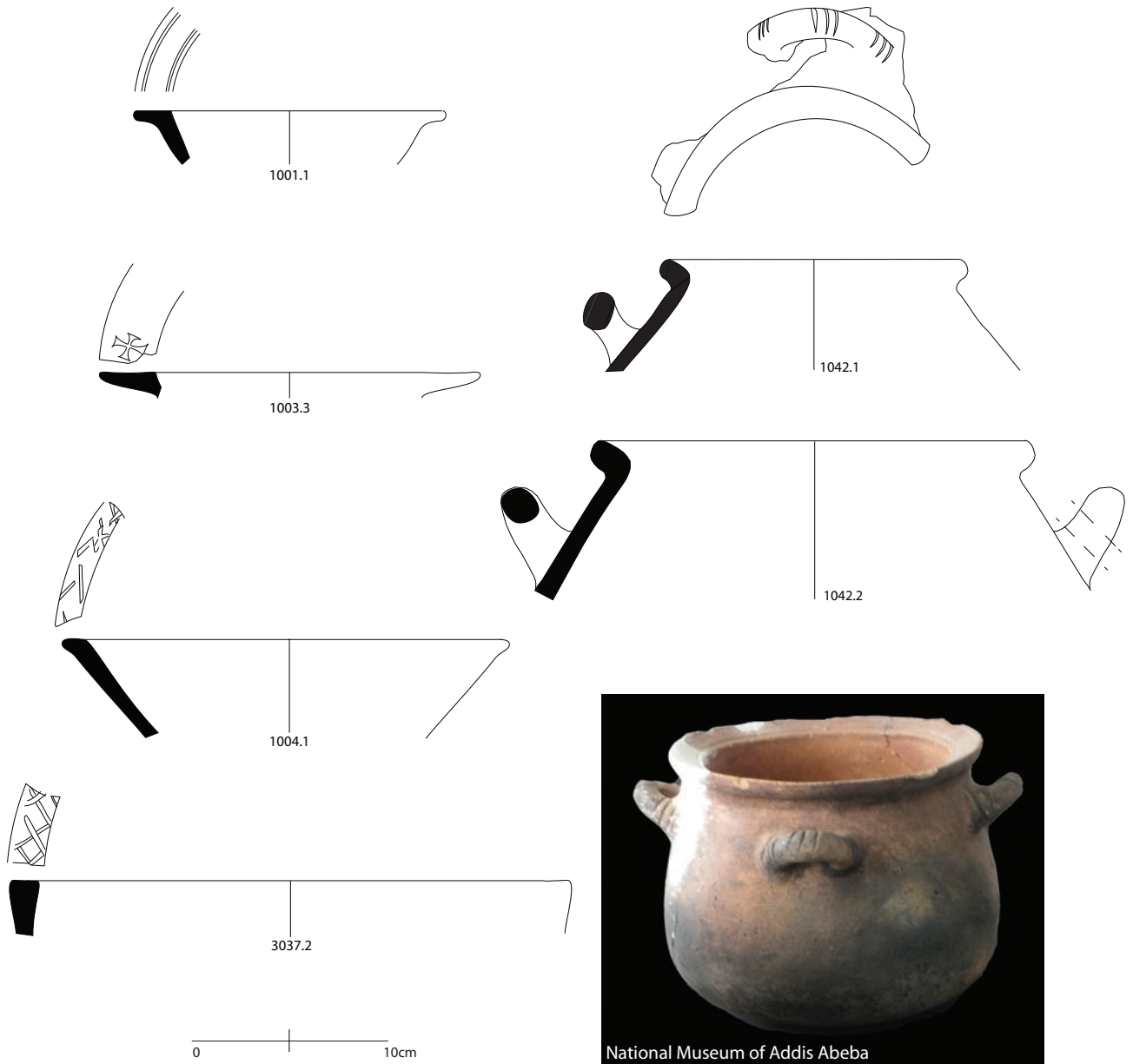


Fig. 14. Basins and cauldrons, period 1.1/1.2.

more crosses clearly differ from both local fabric as well as that described above (Fig. 13, Nos. 1003.1, 1003.2 and 1035.2). These may have originated in the highland settlements and are dated to the 6th – early 7th century AD, though they might be slightly earlier than the above-mentioned incised bowls with crosses. One of these bowls with vertical profiles has two holes which were repaired; another, with the same vertical profile, has striking similarities to sherds found at Aksum (WILDING 1989: fig. 11.16.b and 11.30). A fine ware bowl with flat flared rim and incised crosses on its flat surface is similar to bowls found by Anfray at Maṭarā (ANFRAY 1967: 35, pl. XII JE3618) (Fig. 14, No. 1003.3). Another bowl shows an impressed cross below its foot ring.

One fine bowl fragment with external burnishing or slip and a flat flared rim with grooved lip (Fig. 14, No. 1001.1) is comparable to well known types found at Aksum (PHILLIPSON 2000: 312–313, fig. 272) and could be interpreted as a local imitation of wheel-made African Red Slip ware bowls, particularly form Hayes 107/1, dating to the 6th century AD (HAYES 1972). In this case, the fabric is also clearly different from the local production, suggesting a highland settlement origin — an unsurprising fact, considering the intense trade contact between the two regions.

Rim fragments of large coarse ware bowls or basins with flat, thickened, flared rims and incised lips



Fig. 15. Jars, period 1.1/1.2.

with crosses are similar to vessels found in abundance in the domestic area excavated in the 1960s by Anfray, which also dates to the last phase of occupation of the town (ZAZZARO 2013: 57) (**Fig. 14**, Nos. 1004.1 and 3037.2).

Amongst the most interesting finds are flat flared rim fragments of a type of cauldron with horizontal handles — circular in section and incised with grooves — comparable to cauldrons which Anfray found in abundance in the aforementioned domestic area (ZAZZARO 2013: 52) (**Fig. 14**, right).

In the same area, Anfray also found coarse wear jar handles, which are very similar to the specimens recovered from the 2011–2012 excavations. These are either flat or oval in section, some with incised

decorations of plain and crossing lines (ZAZZARO 2013: 52; see also WILDING 1989: figs. 16.222, 226 and 269) (**Fig. 15**).

The imported pottery from this period and phase mostly consists of ribbed amphora fragments, most of which probably belong to the Ayla/Aksum type usually dating from the end of the 4th up to the 7th century AD. It is relevant to note the find, in S.3, of a fragment of African Red Slip ware (*terra sigillata*) comparable to form Hayes 104 (HAYES 1972), narrowing the context's dating for the last phase to the mid-6th–7th century AD.

A charcoal sample collected in the upper layers of a newly excavated domestic area (S.5) in the 2014 field season, suggested a date for the end of Adulis to the second half of the 6th century AD (**Tab. 1**). These two dates coincide with the Paribeni's find of a pot containing thirty three coins of the Aksumite king Israel in the upper level of the excavation in the northern sector of the site (PARIBENI 1907: 501).

Period 2.1 (late 4th–5th century AD)

Only few diagnostic pottery fragments can be ascribed to this phase. These include restricted and unrestricted bowls, 15–25 cm in diameter (**Fig. 16**, Nos. 1045.1, 1006.1, 1030.1, 1019.1), some with vertical handles and moulded ledges with bosses and foot rests (**Fig. 16**, No. 1045.2), similar to vessels from the highlands dating to an earlier phase (*cf.* DE CONTENSON 1961: pl. XII JE051; MANZO 2003: tab. IV.4a). Small basins with flat flared rims and crossed incision on the lips are similar to basin types from period 1 (**Fig. 16**, No. 1004.2).

The assemblage also includes a fragment of a large cauldron with a globular body, cylindrical neck and rectangular upright handle, an incised motif of crossed lines on the shoulder, and a moulded ledge at the handle attachment to body (**Fig. 17**, No. 1045.3). Another type of cauldron is characterised by an unusual, fine compacted fabric, while its shape is similar to the above-mentioned one, *i.e.* globular body, cylindrical neck, and upright, rectangular handle. Its decoration consists of a dark-red slip/paint on rim, neck and shoulder, scraping at the bottom, and incised lines at the handle attachment to body (**Fig. 17**, No. 1015.1). According to ethnographic comparisons with current, locally made pots, the bottom scraping might have been functional to the vessel's cooking purpose. Its characteristic rectangular handles are similar to types found in Aksum (*e.g.*, WILDING 1989: figs. 16.326 and 16.419–420).

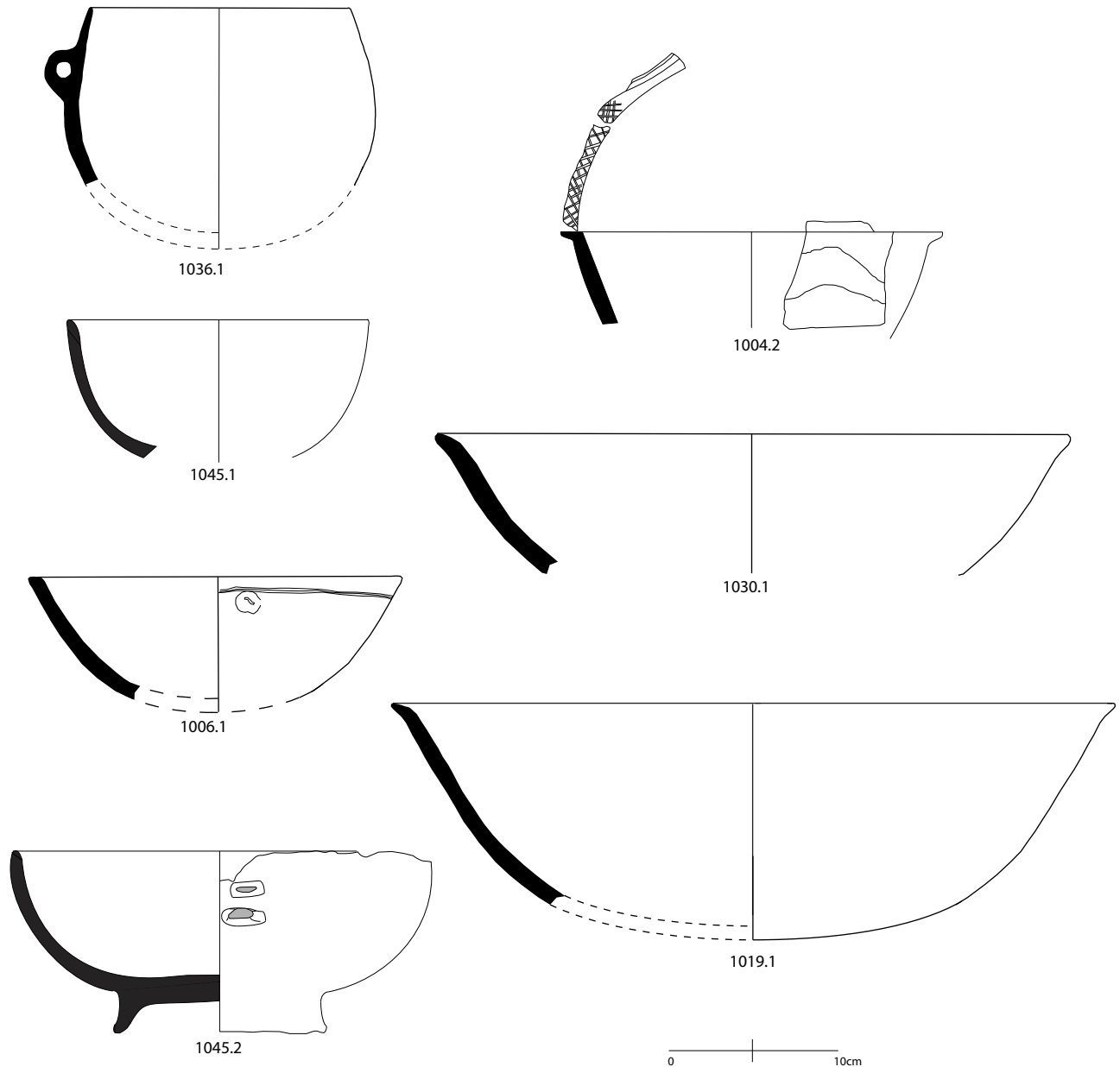


Fig. 16. Bowls, period 2.1.

Small and large jars were also found in S.1, and an almost complete sample could be reconstructed (Fig. 17, Nos. 1003.4, 1003.5). These jars are characterised by everted rims and elongated necks, globular bodies and moulded ledge between neck and shoulder. They belong to a type also occurring in the earlier occupation levels.

Periods 2.2–2.3 (2nd–3rd/early 4th century AD)

These periods and phases delivered several diagnostic sherds and more than ten complete vessels, including

jars, cauldrons, basins, bowls, one amphora, cups, lids, and other ceramic objects. Their fabric is very different from that observed in pottery samples from period 1. Mineral and micaceous inclusions seem to prevail, while organic inclusions are less prevalent.

Large (20 cm in diameter) or small (5–6 cm in diameter) bowls and cups of similar orange-red ware and slight red slip or burnishing are characterised by the presence of small, flat vertical handles and moulded decorations on the opposite sides. Moulded decorations include applied bosses, applied moulded ledges — with or without bosses — and multiple M-shaped moulded

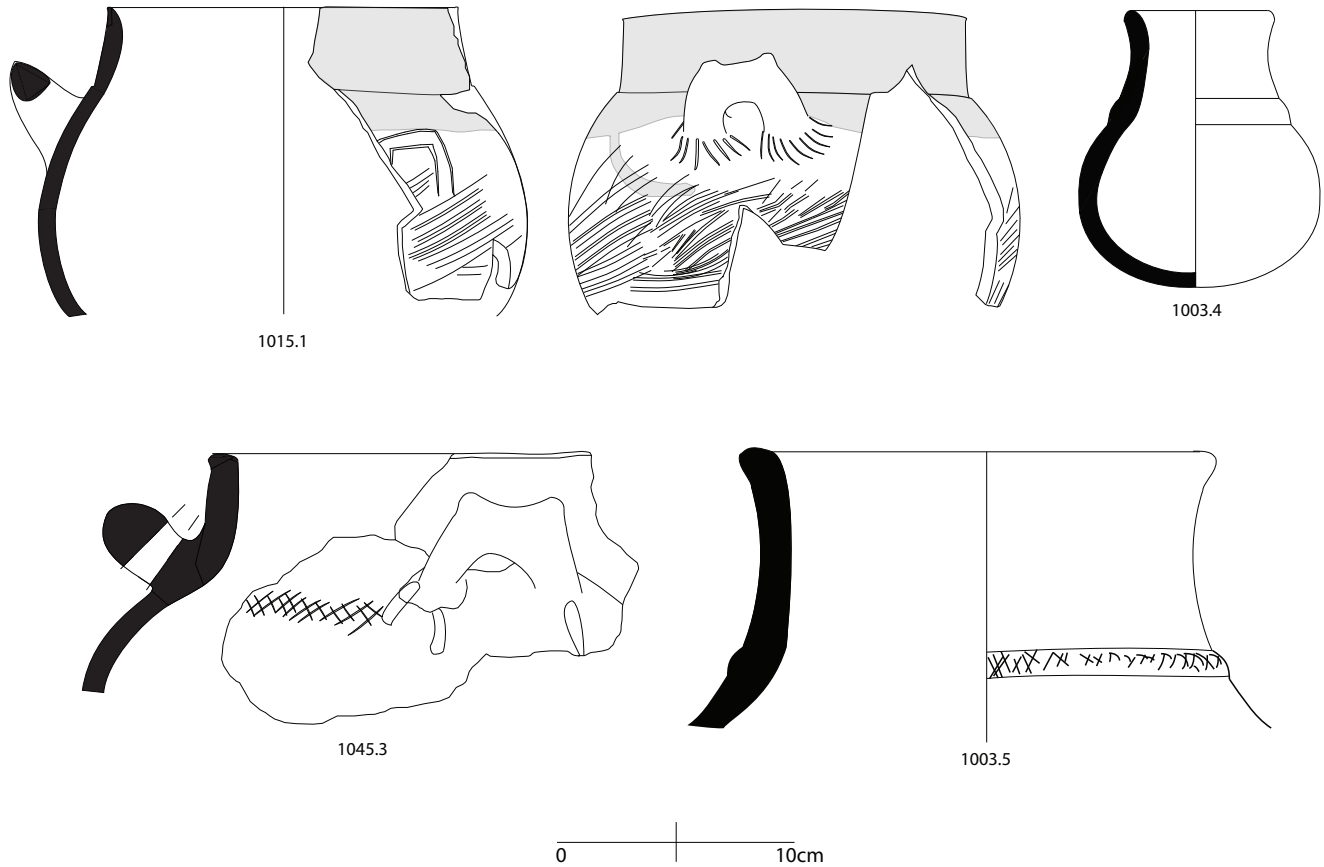


Fig. 17. Cauldrons and jars, period 2.1.

ledges with bosses (*Fig. 18*) (*cf.* ANFRAY 1963: pl. XCVIII.24). Some of these vessels also have grooves below the rims. Only one complete cup of this type has neither handle nor decoration (*Fig. 18*, No. 1055.6).

Unrestricted vessels include basins ranging from 22 to 32 cm in diameter with flat, thickened flared rims, sometimes showing moulded loop handles in the shape of human arms on the lips. This vessel type is similar to types dating to the mid-2nd–4th century AD in highland funerary assemblages (WILDING 1989: fig. 16.125, 16.148, 16.150). Other unrestricted vessels, 20–25 cm in diameter, with a similar type of fabric have small vertical handles and moulded ledges with bosses. One of these can be compared to a similarly decorated vessel found in Aksum and dating to the same period (*Fig. 19*, No. 1055.9) (the so called “classical period” in WILDING 1989: fig. 16.59). In general, this type of decoration is associated with vessels ascribed to an earlier phase of highland settlements (*cf.* PHILLIPS 2000: fig. 269a).

Red-painted beakers and bowls with alternated geometrical patterns of deep incised lines are also characteristic of this period (*Fig. 20*, No. 1019.3).

The most ancient cauldron types found at the site so far are made in a highly micaceous orange ware, very different from the cauldrons of later phases but rather similar to the ware from associated sherds of different forms. These cauldrons have a shallow globular body, cylindrical neck and upraised triangular horizontal handles (*Fig. 20*, No. 1055.1). Decoration consists of an incised horizontal line running along the vessel shoulder, and two pairs of incised bosses with x-shaped incisions. Clear evidence of burning is visible at the bottom of this type of vessel.

An amphora with a preserved rim, neck and handles is one of the most interesting finds. Its shape is unusual in that it has a vertical neck, a vertical handle attached below the rim and on the shoulder with a deep groove on the top, and a moulded ledge between neck and shoulder with cross incisions (*Fig. 21*, No. 1055.2). The moulded ledge with cross incisions on the shoulder of large jars and amphorae seems to be a common feature also in period 1 (*cf.* *Fig. 17*, No. 1003.5). Other jars include painted or highly decorated jars with moulded ledges and incisions (*Fig. 21*, right up), and globular jars with conical necks and applied bosses (*Fig. 21*, No. 1031.5).

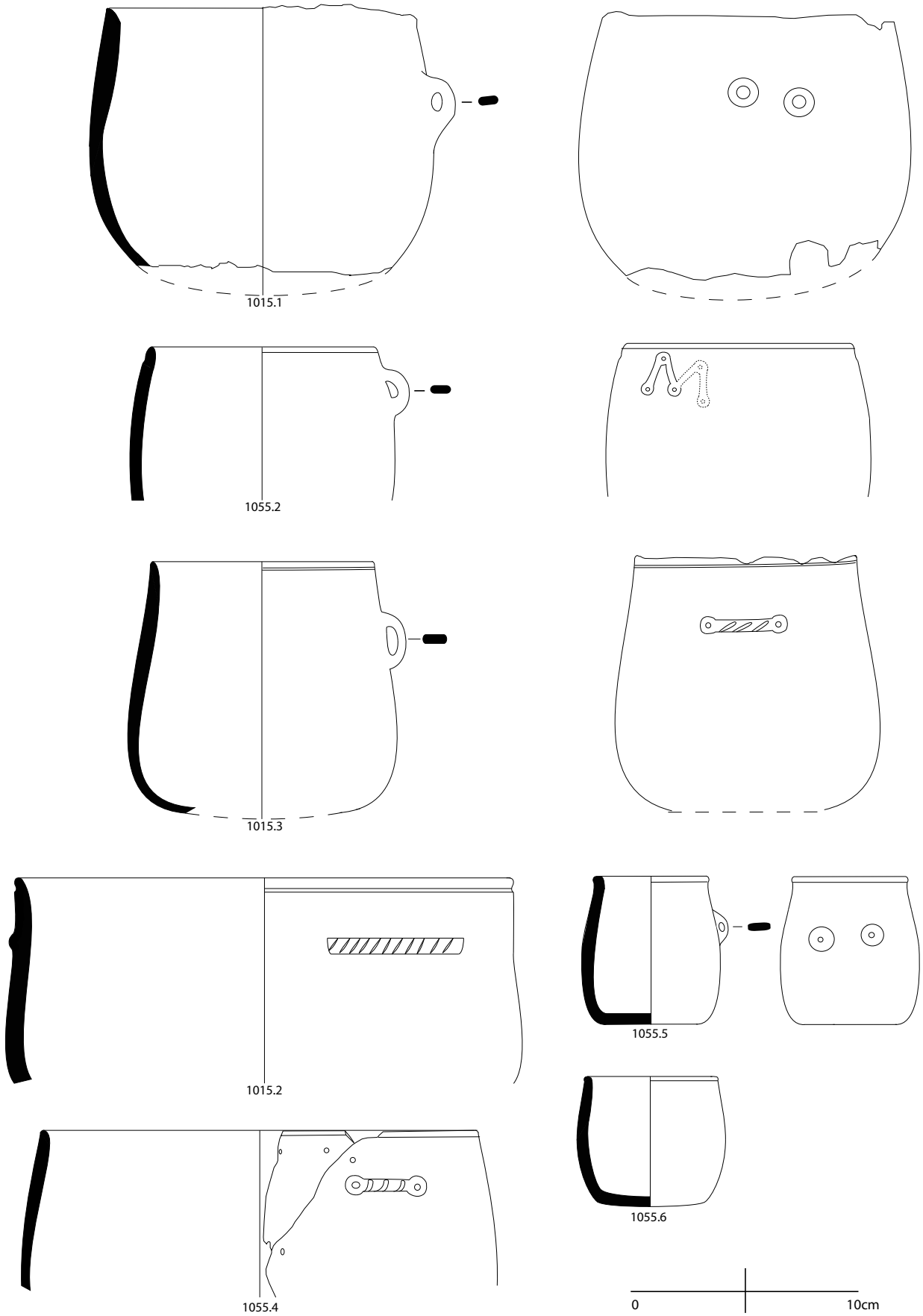


Fig. 18. Cups and bowls, periods 2.2–2.3.

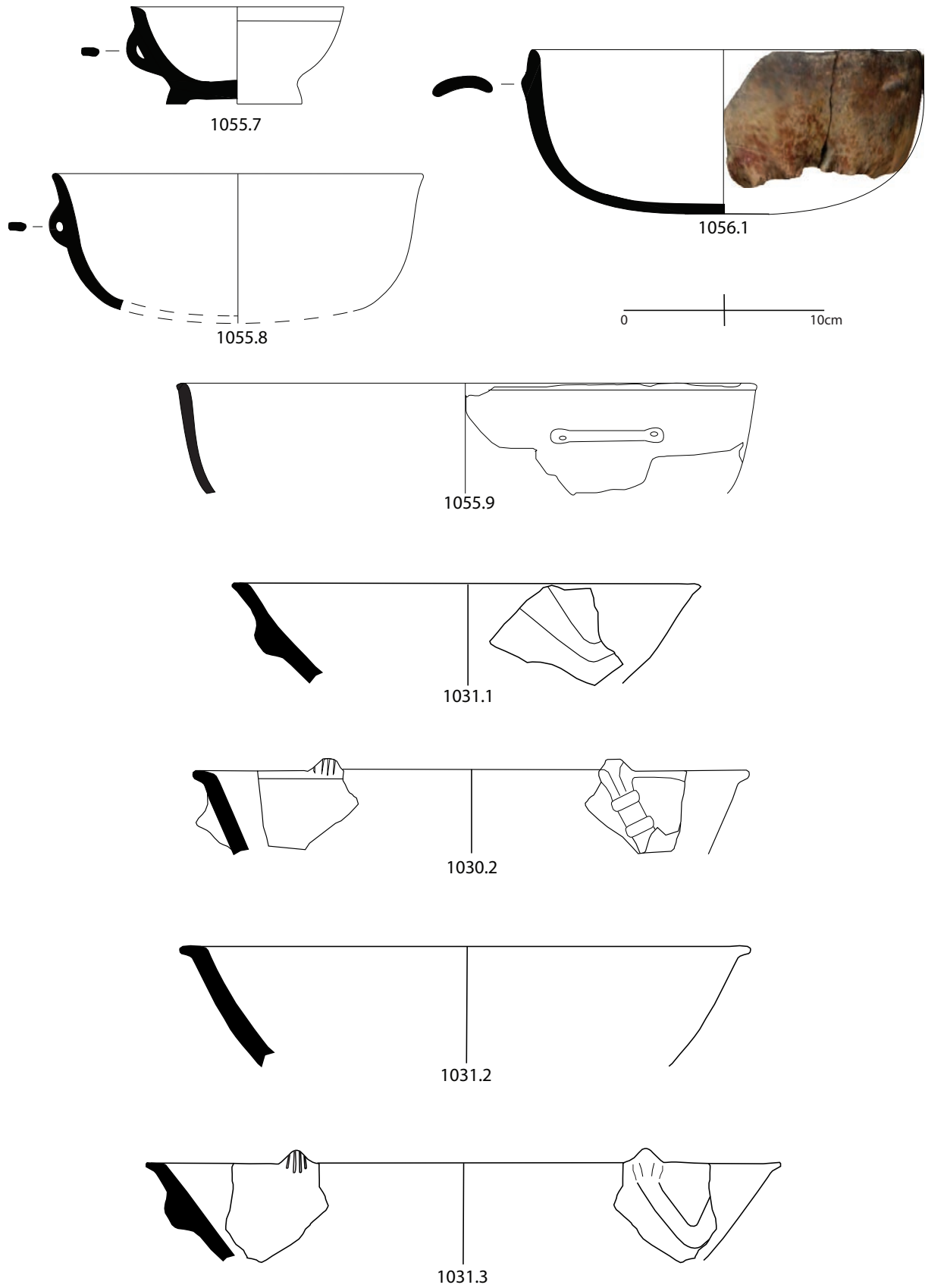


Fig. 19. Bowls and basins, periods 2.2–2.3.

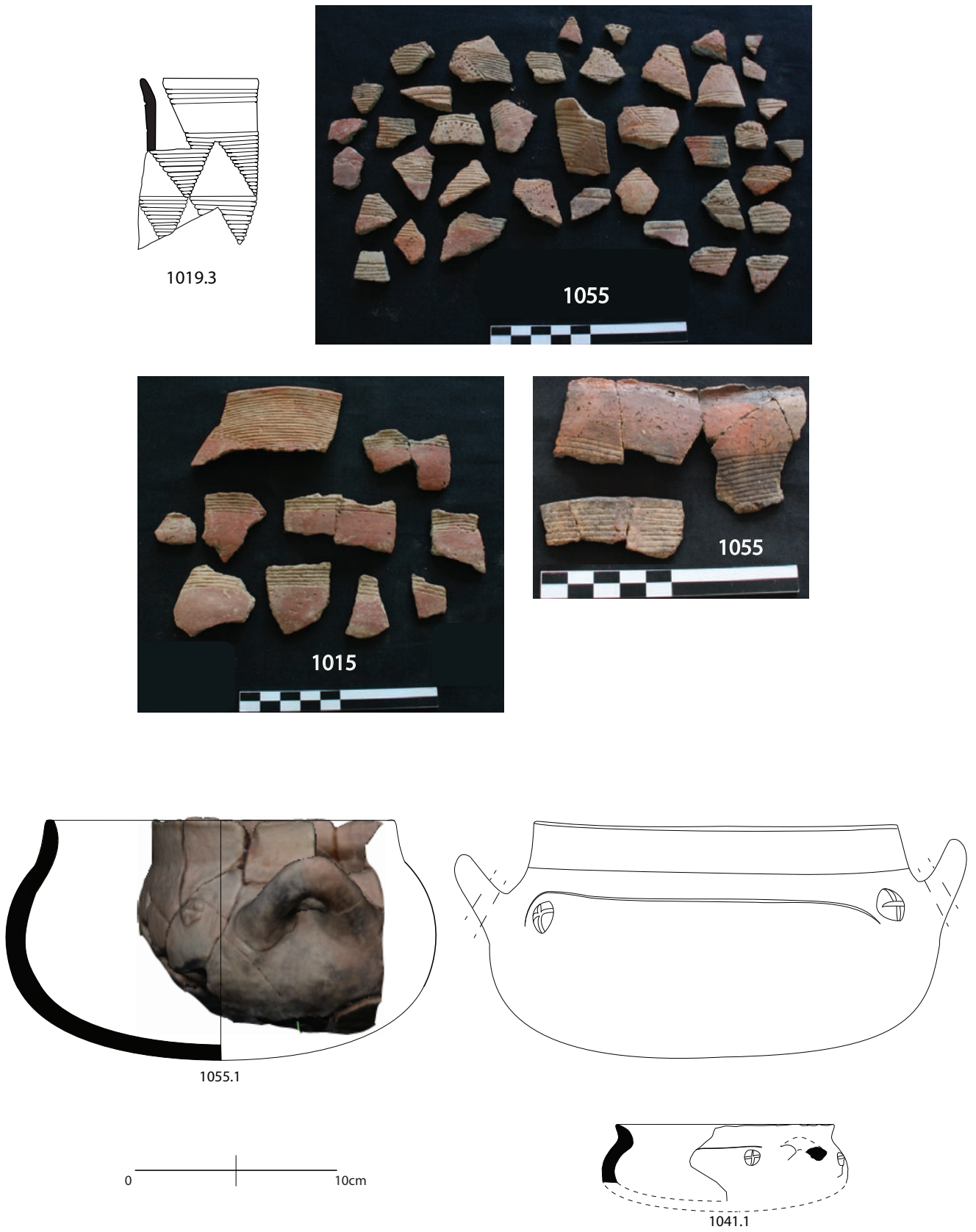


Fig. 20. Beakers, bowls and cauldrons, periods 2.2–2.3.

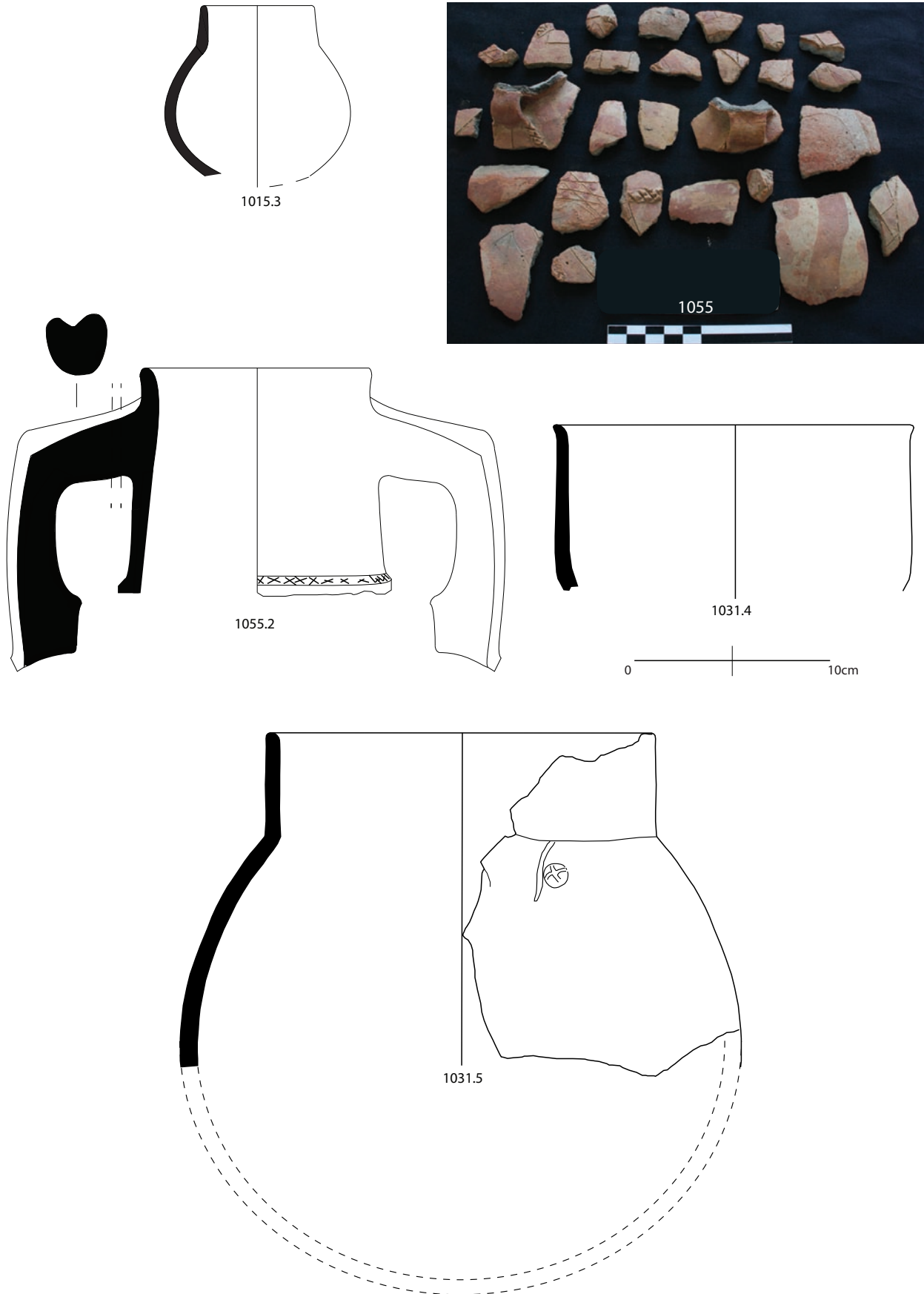


Fig. 21. Jars, periods 2.2–2.3.



Fig. 22. Miniature pottery (1–3), foot washer stand (4–5), lamps (6–8), lids (9–10, 12) and weight (11).

In addition to the above mentioned bowl, three other rounded miniature bowls were found. Two of these are roughly manufactured and display clear signs of modelling with the fingers. One might originally have been used as a lamp (*Fig. 22.3*). Another bowl is finer, its shape regular and well finished, similar in both shape and size to a half egg; its surface is smoothed and its lip slightly irregular (*Fig. 22.1*).

It is noteworthy that the associated imported pottery includes the above mentioned mortar from the Mediterranean area, bearing a stamp dating to the 2nd century AD (Ce.R.D.O., unpublished C), and one imported lamp, perhaps from North Africa (*Fig. 11.3*).

Only one fragmentary black-topped red ware bowl with a horizontal strap handle below its rim can be compared to similar vessels from the highlands dating to the 1st millennium BC (PHILLIPS 2000: fig. 266g) (*Fig. 19*, No. 1056.1).

Also worth mentioning is the black ware pottery with incised geometric decorations and burnished surfaces identified by Paribeni in the lower levels of Adulis' occupation. This type was recognised in the National Museum of Asmara collection and described in detail (ZAZZARO & MANZO 2012; ZAZZARO 2013: 35). Its dating, however, will remain imprecise until it is found in a stratified deposit.

The archaeological layers of periods 2.2–2.3 also contained other interesting clay objects, such as a foot support of a typical Aksumite foot washer type. This object is partially preserved: rectangular in section, its top is decorated with deep incised zig-zag motifs in three rows, while, on its bottom, it carries the imprint of the two supports on which it stands. It originally stood on three supports of which one is now missing. Similar foot washers are frequently found in other highland settlement contexts dating to the 1st–4th century AD (*cf.* WILDING 1989: 265, fig. 16.197–207) (*Fig. 22.5*). In this same context another support was also found, its fabric rather similar to that of the above-mentioned cauldron's. Its shape is more unusual, consisting of a square platform supported by four circular feet. Its original use is unknown (*Fig. 22.4*).

Three lamps were also found, one of which was possibly imported from North Africa, or a local imitation (*Fig. 22.8*). The second lamp has an open globular body and an open spout, with clear traces of burning on its body. Similar lamps are common in other archaeological contexts in the highlands (*Fig. 22.6*) (WILDING 1989: figs. 11.52, 12.91). A poorly preserved lamp handle is also part of the assemblage: it looks completely burnt and appears fragile to the touch. Its handle is vertical, circular, and rounded in section (*Fig. 22.7*).

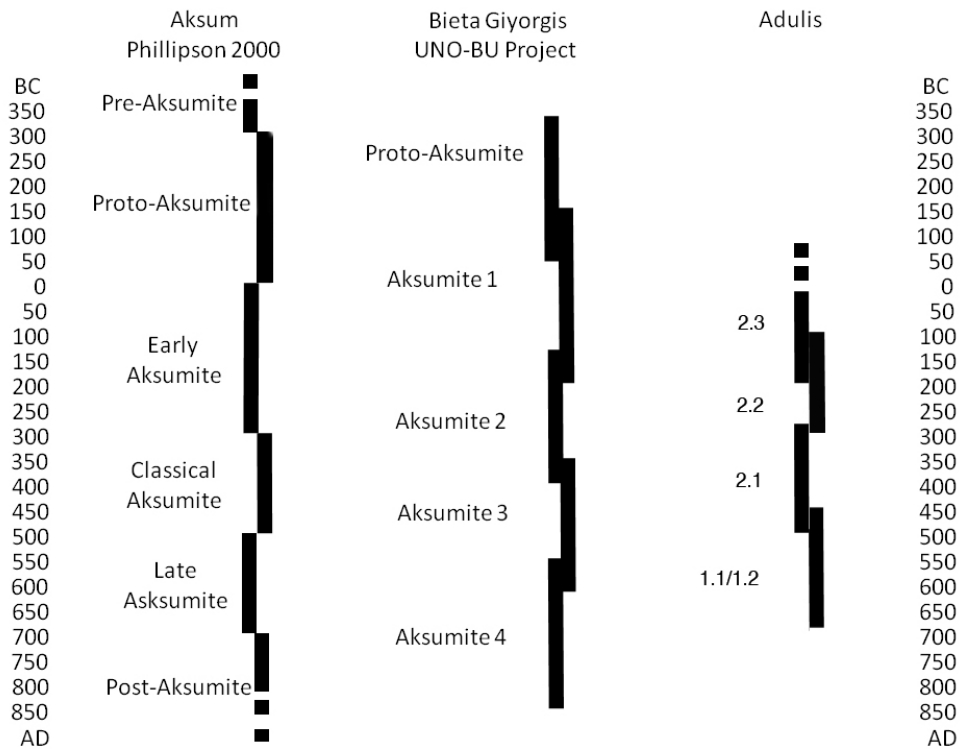


Fig. 23. Comparison of the chronological sequences of Adulis and Aksum.

Circular objects used for different purposes were also found, including a black ware concave lid cut out of a large pot (*Fig. 22.9*), an orange ware lid with nook (*Fig. 22.10*), a rounded pink ware lid, pierced in the centre (*Fig. 22.11*), a possible line weight for fishing, clearly cut out of a large vessel (*Fig. 22.12*), and half preserved disc. The latter are usually called “spindle whorls”, despite the fact that their actual use remains unknown.

Conclusion

The preliminary results of scientific excavations of stratified deposits at Adulis have revealed that the area of S.1 was continuously occupied between the 2nd and the early 7th centuries AD. Even earlier occupation phases are evidenced by the presence of massive walls associated with pottery dating to the 1st–2nd century AD, excavated during the last field season (2014) (*Fig. 23*). The black ware pottery found by Paribeni at a depth of 11 metres also points to the fact that the area must have been inhabited for several centuries more, at least since the 1st millennium BC. However, levels of occupation dating before the 1st–2nd century AD are still to be found by current excavations. Evidence of such early phases of occupation will be crucial for the dating of early settlement in Adulis and for our understanding of earlier contacts among communities on both sides of the southern Red Sea.

Three building phases have been distinguished so far in S.1. In the earliest phases, walls are massive and built using large, rough quarry stones and pebbles instead of schist, a masonry technique clearly different from the one of the recent phases. In the most recent phases, walls were made using well shaped, sub-rectangular smoothed basalt stones, usually regularly alternating with rows of schist slabs. The arrangement of two walls (SUs 1018 and 1039) excavated in S.1, apparently reused and clearly connected to one another, and the observation of other wall arrangements brought to light in the 2014 excavations, suggest that human occupation of the area has been more intense and steady through the centuries than at other recently investigated Red Sea ports. The definition of the intermediate phase (4th–5th century AD) seems more problematic in terms of pottery and architectural typology. This may be due to the fact that trade activities were limited. This hypothesis is supported by the fact that written sources attest a reorganization of the trade in the Red Sea and a progressive shifting of the Red Sea trade axis with India from Berenike to Adulis during the 5th century AD (NAPPO 2009: 71–77), implying that Adulis played a more marginal role in trade before this time.

The most ancient pottery assemblage so far identified in a dated context, is distinctive in its use of a micaceous, mineral tempered fabric, the presence of standardised cups, some of which have small, vertical handles, and the prevalence of applied decoration.

Fabrics are not as well defined in the pottery assemblage ascribed to the intermediate phase (4th–5th century AD). Typical of this period are jars with globular bodies, cylindrical necks, and squared handles.

Bowls with crosses impressed or incised are strongly indicative of the last occupation phase and so is the high percentage of organic inclusions in the fabric of all ceramic types. Common pottery in this period includes bowls, basins with flat flared rims, cauldrons with flat flared rims and cylindrical, horizontal handles, and bag-shaped jars.

The shape and fabric indicate that most vessels stem from local production, yet occasional fine imports are also found. Bowls with footrings, small vertical handles and applied decoration, from the earliest phase, and fine ware bowls with incised crosses found in the last phase (**Fig. 13**), both seem to have been imported from the highland settlements.

Laboratory analysis on the fabric of pottery samples collected during the 2012 and 2013 field seasons is still in progress and will certainly help to better define the diachronic changes in ceramic production. Further, it will highlight similarities and differences with pottery production from contemporary Eritrean and Ethiopian highland settlements. Meanwhile, macroscopic observation of the fabric and C-14 dating of associated materials have already provided a first benchmark for dating assemblages recovered in future excavations at Adulis, considering that both shape and decoration of the ceramics are highly distinctive for each period and phase.

The comparative analysis of the architectural and ceramic typological sequences allows us to draw some preliminary conclusions. Adulis was continuously inhabited from the 1st–2nd up to the 6th – early 7th c. AD, and intensely occupied in the 5th–6th c. AD. Remarkably, the occurrence of pottery imported from the highlands, or similar to the highland production, seems to be more abundant in the 5th–6th c. AD than in the earlier phases (2nd–3rd c. AD), which may reflect a more important inclusion of the coast in the Aksumite sphere of influence during the 6th c. AD.

The end of the 6th/early 7th c. AD dating for the end of Adulis, resulting from C-14 analysis, needs further research. If this is confirmed by further dated evidence from other areas at the site, it would certainly mean that the causes which triggered the abandonment of Adulis and the decadence of the other urban settlements of the Eritrean and Ethiopian highlands would need to be reassessed.

Planned further research at the site will address issues such as urban organization and life in Adulis, the cultural relationships between the highlands and the coastal regions, and further explore the dynamics of the Adulitan and Aksumite trade and expansion in the southern Red Sea.

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