SUDAN

BANGANARTI AND SELIB IN THE 2013/2014 AND 2014/2015 SEASONS

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Abstract: The Polish archaeological project excavating at the Nubian sites of Banganarti and Selib concentrated on uncovering domestic architecture: the northeastern and southwestern districts at medieval Christian Banganarti and selected houses of Meroitic date at Selib 2. The conservation and restoration program put the finishing touches on the Raphaelion church in Banganarti and did substantial work on the remains of the earlier churches. The oldest church from Selib 1 was investigated and dated to the 6th–7th century based on a study of a well stratified ceramic assemblage. Pottery from the northern and southern refuse dumps ranged in date from the 9th to the 12th/13th century. A group of liturgical vessels, containing mostly small juglets and chalices, was distinguished in this assemblage. Exploration of the earlier Northern Building revealed pottery contemporaneous with the earliest phase of the church on site. Anthropological research was carried out on skeletal remains from the medieval cemeteries of Selib 1 and from individual graves at Banganarti. The results of ceramic studies and of the anthropological examination are reported in separate appendices to the main report.

Keywords: Nubia, Banganarti, Selib, Meroitic settlement, church architecture, St Menas, St Thecla, pottery, liturgical vessels, oil lamps, Northern Building, archaeology of the Middle Nile, conservation, anthropology

Fieldwork in the seasons from 2014 to 2015 did not forego further work at the site of the church in Banganarti, while concentrating on new excavations at Selib. On both sites investigations of domestic architecture featured prominently in the program. At Banganarti, the northeastern and southwestern residential quarters were explored along with a section of houses by the north wall. Several houses were studied at Selib 1 and 2. The oldest phase of the St Menas church in Selib 1 was traced. The work was registered by kite-flown cameras regularly. Several graves were discovered at both sites, including a mausoleum tomb in Selib 1, and studied by a physical anthropologist Magdalena Bury (reported on in appendix 2). Intervention work on tombs outside the licensed area was also conducted at the invitation of local archaeological authorities. Extensive pottery studies were carried out by Aneta Cedro; her findings are discussed in the first appendix to this report. A midden at Selib 3 also yielded mainly early Christian ceramics.

At Selib, the excavation of a historic well from the 6th/7th century, which has reached a depth of 10 m and produced multiple *qawadis* pots for drawing water, led the team to undertake a reconstruction of the *saqiyah* complex in order to organize a museum display of ancient ways of drawing water. Financial support from the Qatar–Sudan Archaeological Project (QSAP) allowed the purchase of two cogwheels in el-Deiga and the *saqiyah* from Artigasha. It is famed to be the last *saqiyah* in Sudan and was found in January 2014 dismantled and stacked up on the island shore, apparently abandoned due to a drop in the level of the Nile. The *saqiyah* museum complex is now part of a new dig-house and storeroom in Selib, protected by an artificial dyke designed to stop the devastating effects of exceedingly high rainfalls like the one which hit the region in the winter of 2013.

Team

Dates of work: 19 November–22 December 2013/15 January–20 March 2014; 8 November–22 December 2014/13 January–20 March 2015

Director: Assoc. Prof. Bogdan Żurawski, archaeologist (Institute of Mediterranean and Oriental Cultures, Polish Academy of Sciences; 2013/2014, 2014/2015)

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Restoration assistant: Emilia Kujawska (freelance; 2013/2014)

Restoration trainee: Tamadir Ali Ebeid (NCAM; January–March 2015)

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Acknowledgments

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BANGANARTI

UPPER CHURCH (RAPHAELION)

Work inside the Upper Church started with refilling the test pits dug during the previous seasons in Chapels 3, 4 and 5, and outside the western portico (in Room 15 of the Lower Church). A huge archaeological dump, accumulated by the northern side of the Upper Church between 2001 and 2013, was leveled revealing a splendid view of the church from the north, which is the most common way of approaching the site [*Fig. 1*]. Repair work had to be carried out on the Raphaelion to remove the damage caused by devastating rainfall in August and September 2014. Cracks in the walls, especially in the northeastern corner, had to be plastered and repainted, and the whole structure reinforced with a buttress raised against the center of its east wall. At the same time, a 3D reconstruction of the church progressed, using hundreds of high resolution photographs of walls of both the lower and upper churches. Meanwhile, three corners were each topped with steel replicas of domes modeled after the one mounted earlier over the southeastern

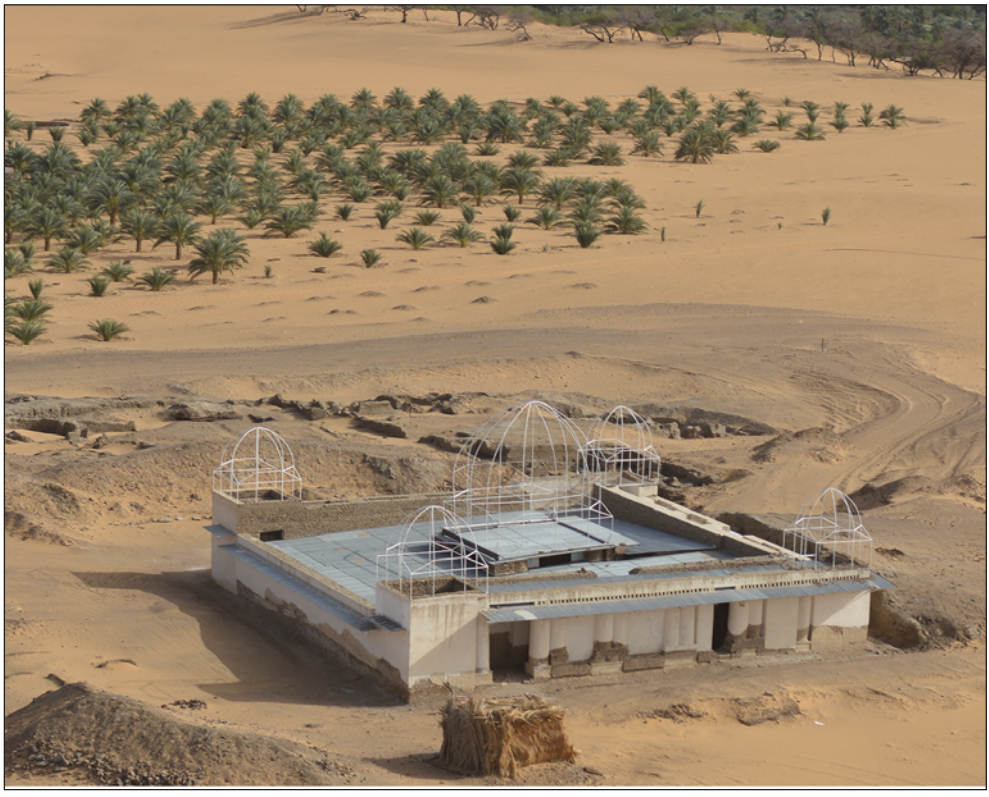

Fig. 1. The Raphaelion seen from the north, with five steel skeleton domes mounted on the roof, February 2014 (Photo and rendering B. Żurawski)

Fig. 2. Orthophotos generated from digital elevation models, based on photos and geodesic measurements taken in March 2014 (1, 3) and February 2015 (2): 1 – north section of the southwestern residential quarter; 2 – domestic architecture in trench I/2015; 3 – house E1/2014; inset, geodesic plan of structures unearthed to date at Banganarti (Photos B. Żurawski; rendering and measurements M. Dzik, R. Łopaciuk; drawing A. Deptuła; plan R. Łopaciuk and others)

corner. Together with the huge central dome, they facilitate the visualization of the silhouette of the edifice that could not be rebuilt otherwise. Reconstruction (using steel pipes as well) of other elements of the upper storey of the church will be continued.

RESTORATION AND CONSERVATION WITHIN THE RAPHAELION

The 2013/2014 restoration and conservation agenda focused on insect control, testing fungi prevention biocides, and mural reconstruction. Laboratory tests and analyses of pigments, binders and plasters by Paul van Pelt at the University of Cambridge laboratories produced data relevant to the restoration program and methods. Fungi colonies were mechanically removed, the places promptly soaked with formalin and the unpainted walls around sprayed with a water solution of Chlorpyrifos. The treatment was repeated on selected sections of the walls. The whole interior of the church was sprayed with this solution before the end of the season.

Standard conservation procedures were applied to the Upper Church murals, access to which became possible again after the deep trenches inside the church were backfilled. Peeling plaster had to be fixed and termite holes filled in. The treatment started in 2013 with Bresciani-made Xirein insecticide being injected into all the natural and drilled holes; it was repeated in 2014 and an 8% Primal E-330 water solution (with 0.1% formalin) was applied at the end. After evaporation, the holes were sealed with a paste composed of lime, sand and light brown clay (1:1.05:1) mixed with the Primal E-330 water solution. The sealed holes were then covered with kaolin whitewash (with some glue and formalin added) and smoothed with fine abrasive paper. Finally, the paintings were brushed with a 3% solution of Paraloid B-72 in toluene. The kaolin whitewash was insulated with a 4% polyvinyl acetate water solution.

The process of mural retouching started in Chapel 3. Fragments of the original painting, faded or otherwise damaged, were reconstructed with dry pastels. In places where the paint layer had totally degraded, a watercolor base was applied to the plaster and the missing fragments were reconstructed with high-quality earth colors mixed with a 6% Primal AC-33 water solution (tiny dots of paint were applied with a very fine brush). In Chapel 5, the wall surface was particularly badly preserved. Loose fragments of plaster were glued together by means of injections with an 8% Primal AC-33 water solution with the addition of Vinavil, and pressed against the wall until dry.

SOUTHWESTERN RESIDENTIAL QUARTER

The earliest traces of habitation within the Banganarti enclosure were unearthed in the southwestern sector (SW), nearest to the river bank, whence it could have expanded towards the church that was built in the center of a planned or already existing perimeter wall [*Fig. 2*]. The main objective of the current research was to reconstruct the chronology of structures around the southwestern corner of the church, tracing the longitudinal street that supposedly linked the so-called Western Building adjoining the Raphaelion with the south wall of the enclosure, where a communal toilet was located, among others.

The sector was difficult to excavate mainly because of poor preservation and a thick cover of sand with architectural debris. The structures had been dismantled down to the foundations in search of building material, both mud brick and red brick. The closer to the Western Building, the greater was the devastation [***Fig. 2:1***]. One of the finds, from the landing below the red-brick vault of a staircase, were two thin-walled bowls decorated with appliqué centerpieces encircled by concave dots (dated to the Classic Christian period) with numerical cryptograms scratched on the floor [***Fig. 3***]. It turns out that most of the structures in the northernmost part of the longitudinal street dated after the second half of the 11th century, which is the most plausible date for the construction of the Western Building. The youngest structure in this section was covered by the mastaba encircling the Raphaelion, which was built in the second half of the 11th century.

EASTERN RESIDENTIAL(?) QUARTER

A residential quarter from the times of the later phase of the Lower Church and the earliest phase of the Upper Church was discovered in the middle of the eastern perimeter wall [see ***Fig. 2:1*** and ***2***]. Exploration of the houses (and a section of the fortifications attached to them) in this area had begun in 2008 and continued over the 2013/2014 season. House E/2013 was contemporary with the Upper Church. Two habitation phases were recognized, the first one being with windows. The accumulation of ashes on the floor was associated with the oven in the northwestern corner. In the second phase, all the openings were blocked and the ground floor was turned first into a storeroom and later into a rubbish dump accessible from the upper storey.

Houses E1/2014 and E2/2014 in this sector were also explored. The outline of

Fig. 3. Bowls with numerical cryptograms (Photos A. Deptuła)

E1/2014 was exposed already during the 2013 season. There were two window slots on the north wall, horizontal bricks serving as lintels. The topmost layers were composed of loose sandy fill. Potsherds appeared about 1.50 m beneath the modern surface of the kom. Many of the sherds were sooted and burned, but no significant ash deposits were found.

A substantial collection of early Christian ceramics was found in a layer of compact mud attached to the enclosure wall between the wall and House E/2013. A test pit dug here established the stratigraphy of the *intra muros* habitation. The assemblage consisted of thin-walled white-slipped saucers, RW bowls and plates with ledge rims painted with white ornaments. Imports were also present (for a report, see appendix 1 below). The pottery assemblage is of a 7th–8th century date, confirming the early date of this occupation, concurrent with the Lower Church and the first fortifications.

House E1/2014 was explored to the floor level, which was 2.70 m beneath the local benchmark on the upper surface of the stone threshold in the southern entrance to the Upper Church. It appeared to be analogous in structure to House E/2013: both were local unit houses typical of the Classic Christian period, and in both similar ceramic deposits were unearthed. Unlike E/2013, however, House E1/2014 was a single-phased building. Another house (E2/2014) was found in the street along the northern side of E1/2014. Two narrow streets bordered it on the south and west. It was rectangular in plan (7.80 m by 6.00 m), comprising two elongated rooms on the ground floor, and it adjoined the perimeter wall. Two thick layers of sand intersected by a stratum of soft grey muddy earth filled the structure. It was much smaller than the other explored houses and it was built more neatly than the others, although using architectural spolia from other structures. Good-quality mud was applied in a smooth coating and the upper floor spaces were whitewashed. Interestingly, there was neither kitchen nor toilet, like in other houses attached to the perimeter wall.

The foundation foot of the perimeter wall was reached at a depth of 3.61 m below the local benchmark. Two distinct strata marked by a thick deposit of ash appered at 2.40 m and 1.80 m below the benchmark; traces of the conflagrations were stamped on the wall itself. Between them, 2.20 m below the mark, the sand layer was interrupted by the inclusion of hardened grey soil.

TRENCH OUTSIDE THE NORTH WALL OF THE RAPHAELION

Excavation on the northern side of the Raphaelion (in 2014/2015) uncovered about 900 pieces of outer wall plaster in the topmost layers, the greatest concentration being noted at about 0.40 m below the modern surface. A theoretical reconstruction of the facade was proposed on these grounds. It, and by the same token the building, was at least 8 m high. The debris had collapsed on the destroyed mud brick houses which once stood north of the church. Under it there was a red-brick container for slaking lime (situated in the northeastern part with minimum exposure to the sun) as well as a fragment of the overturned north wall of the Raphaelion, and the corner part of the mud-brick building (in the westernmost part of the trench).

Added to the collection of painted plaster were 33 pieces that were apparently

Fig. 4. Trench I/2015: House A, original habitation level in area 5; note the oil lamp (Inv. No. BA/2015/321) in situ , in the middle of the floor, among the cooking pots (Photo M. Dzik)

Fig. 5. Small finds from trench I/2015: top left, touchstone(?); top right, archer's thumb ring; bottom, pectoral decorated with the Nativity scene on the obverse and inscribed (in Greek) on the back (Photos M. Dzik)

part of the interior decoration. One fragment bore an inscription, preceded by a cross.

NORTHEASTERN RESIDENTIAL QUARTER

Domestic architecture northeast of the Raphaelion was investigated in trench I/2015 [***Fig. 2:2***], opened on the western side of the houses explored between 2010 and 2014 (altogether some 300 m² were explored in an area pitted by digging for *maroq* or natural fertilizer and *muna* or Nile silt). Altogether 29 units/areas were distinguished, forming at least six houses (E/2015/A in the eastern part of the trench was explored in detail) [***Fig. 4***]. The standing walls were recorded with orthophotographic images and modeled in 3D; 25 features and 105 stratigraphic layers were documented and 32 samples of soil, charcoal and seeds were taken. The bulk material from the trench included pottery: 20 complete vessels and 3008 fragments, making for about 15% of the collection from the site since the beginning of excavations. A quantification method relying on establishing a minimum number of vessels for each layer was used. The material was also classified based on shape and function. There were also some structural elements, like floor tiles, bricks and window grilles (10 fragments).

Other finds included animal and human bones (550 fragments); 88 stone tools; 10 clay spindle whorls; a weight made of Nile silt; a clay candlestick; an oil lamp; two fragments of glass vessels; four glass beads and one clay bead; an archer's thumb ring [***Fig. 5*** top right]; a fragment of a touchstone [***Fig. 5*** top left]; and a stone pectoral (*enkolpion*). The pectoral [***Fig. 5*** bottom] was made of dark greyish green slate. Its plain and smooth back side bears a brief inscription in Greek. It starts with a cross followed by three names: *Iesus ho Christos*, *Maria*, *Joseph* (the name of Joseph of Nazareth is written in abbreviated form). The schematic image on the obverse may be a Nativity scene (Żurawski 2016).

SELIB 1

ST MENAS CHURCH

Current work focused on reconstructing the complete plan and the subsequent alterations to the earliest phase of the church, especially its spatial arrangement and roof support system. Testing of the church foundations in two trial pits, S.01/14 and S.02/14, proved conclusively that this was the oldest phase of the church at the site [***Fig. 7***]. The deposits accumulated above the earliest pavement were composed mostly of red brick rubble mixed with chunks of mud mortar and lime plaster. Potsherds were few, mostly thin-walled bowls and some oil lamps characteristic of the Transitional/early Christian period. Among the terracotta lamps, a handmade local imitation of the "Aladdin"-type lamp merits particular note. The details of the ceramic assemblage are discussed below (see the appendix by Aneta Cedro).

Two entrances were known to exist in the southern side of the body of the church. On the opposite side, in the north wall, there was just one doorway. To its east was a niche, 1.15 m wide and 0.40 m deep, somewhat in imitation of a door. Beneath the pavement, made of terracotta tiles and red brick, the stone foundations for the

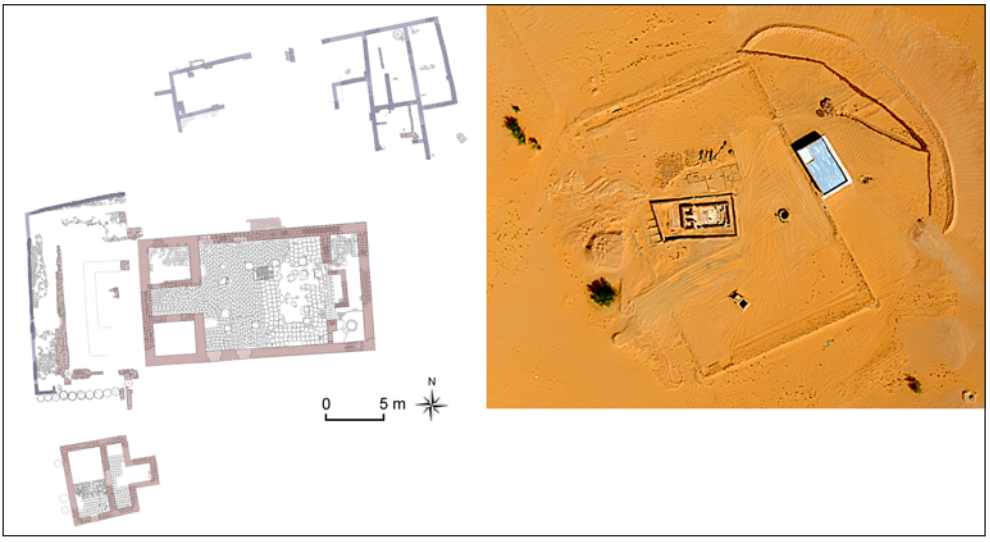

Fig. 6. Site of Selib 1: right, orthophotographic and digital elevation model of the site of Selib 1 generated from aerial (kite) photographs and geodesic measurements taken in March 2015; note the protective dike in the right-hand part of the picture; left, plan of the bigger (outer) peribolos at Selib 1 showing the oldest phase with the Northern Building and the putative shrine of St Thecla south of the St Menas church (Photos and rendering B. Żurawski; plan A. Cedro)

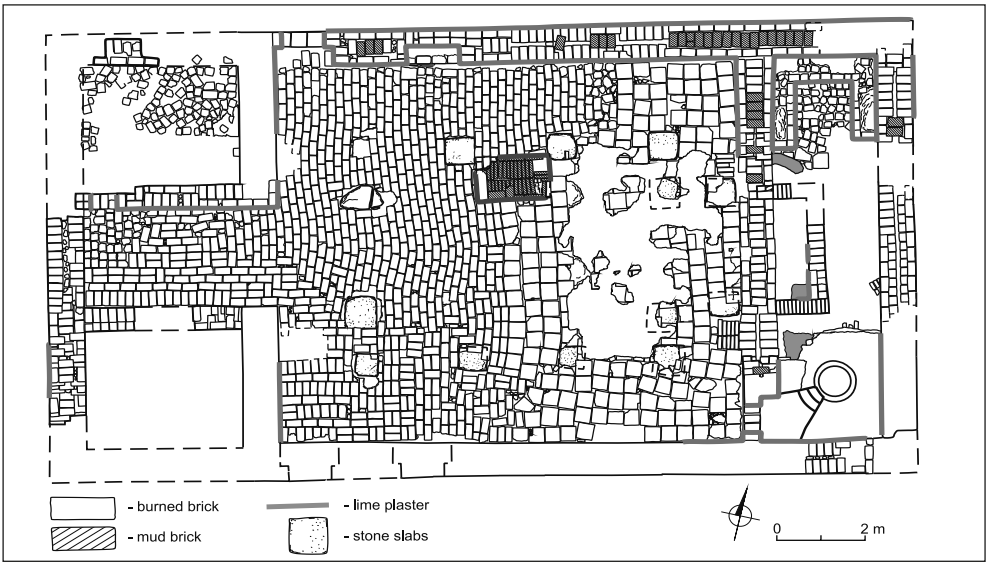

Fig. 7. Earliest phase of the St Menas church at Selib (Drawing A. Cedro)

columns supporting the roof were found. The pattern of these foundations suggests that the Old Church was furnished with both a western return aisle and, parallel to it, an eastern return aisle — an arrangement found in some early Egyptian basilicas.

The tripartite western part of the church houses a staircase to the gallery/first floor. The eastern end has a shallow, rectangular altar space and two sacristies, the northern one with a bricked bench running along the north and west walls. A mastaba-like counterfort made of red brick abutted the church itself. The gaps in the early pavement also suggest timber supports instead of stone columns. If so, the early complex had a roof resting on two rows of timber supports set in red-brick foundation footings. Fragments of ceramic window grilles from the ceramic assemblage were fairly homogeneous, representing a similar shape and size [*Fig. 8*]. They probably belonged to the early church.

A few more conjoining fragments were added to the earthenware polylobed tray found in Selib in 2011 (Żurawski et al. 2014: 334, Fig. 7), bridging the central depression [*Fig. 9*]. These elements strengthen the interpretation of the object as a paten used for Communion by intinction.

MAUSOLEUM TOMB (G.2014/E)

A built tomb was located outside the east wall of the smaller peribolos, in the middle of the east wall of the church. It was discovered in 2013 and excavated in late 2014. The red-brick superstructure was formed into the shape of a cross.

Fig. 8. Terracotta window grilles (Photos A. Cedro)

Fig. 9. Polylobed tray (Inv. No. S.1.117/2011) supplemented with an asteriskos (Photos A. Cedro)

Fig. 10. Altar casket (Inv. No. WS1.145/11–12); fold-out of the metope decoration on the side wall (Drawing and photos A. Cedro)

It was lime-plastered and whitewashed [*Fig. 11*]. A shaft 2.30 m wide was divided in two with a mud-brick divider wall plastered with mud. The two burial chambers were entered from the east via an arched entrance, 0.45 m wide in one case and 0.40 m wide in the other, and 0.51 m and 0.56 m high respectively.

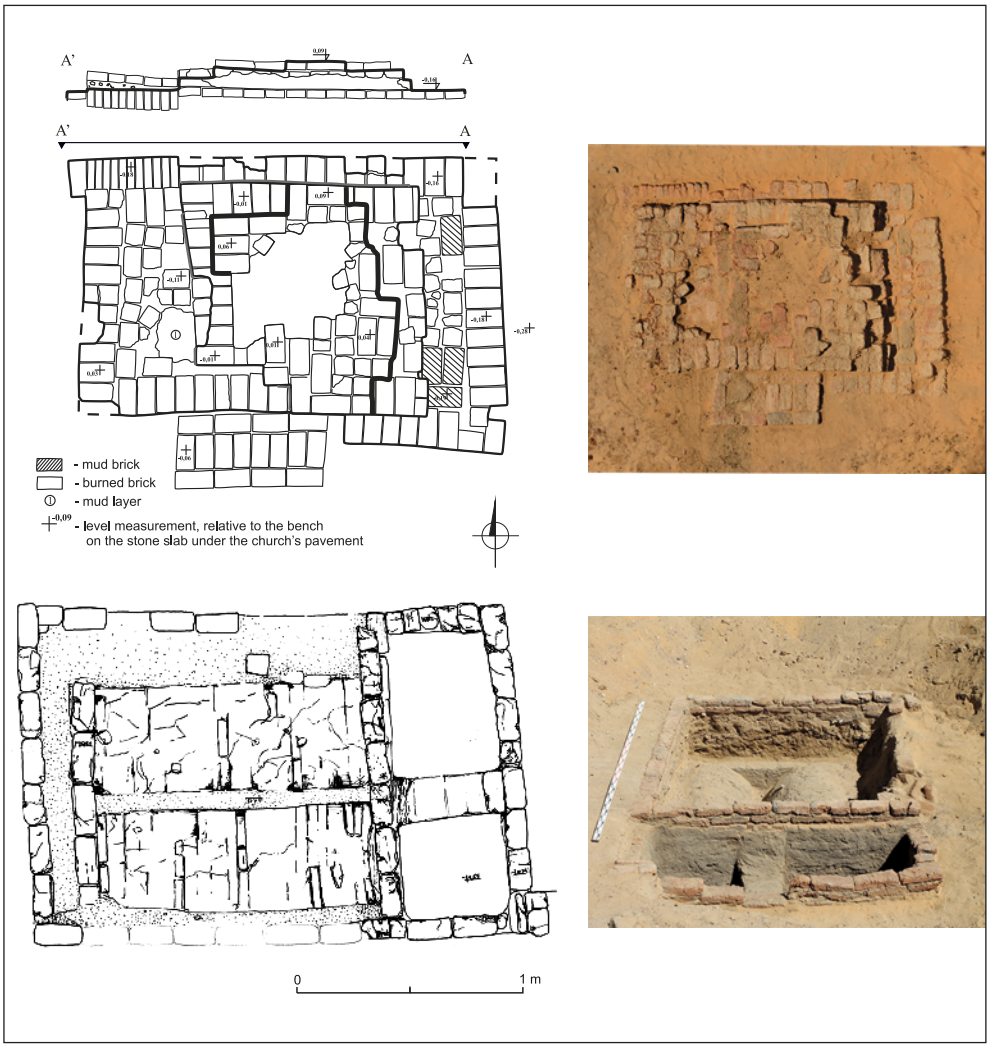

Fig. 11. Mausoleum tomb (G.2014/E): top left, plan and section through the tomb superstructure, looking south; top tight, orthophotographic and digital elevation model generated from aerial (kite) photographs and geodesic measurements; bottom left, plan of the tomb superstructure; bottom right, oblique view of the subterranean part of the mausoleum, before opening of the crypts (Photos and rendering B. Żurawski, M. Bury; drawing A. Cedro, K. Rozmus)

Both chambers were found sealed with bricks and plastered. The northern crypt was slightly bigger than the southern one. The skeletons inside the crypts were well articulated; they were identified as an adult woman in the northern crypt and an adult man in the southern one. Both were in their prime when they died (35 to 49 years old, see below, appendix 2 for an anthropological analysis). A child burial had been made in a grave pit cut into the partly dismantled south wall of the superstructure [see below, page 391 and ***Fig. 32***]. Fragments of a sandstone epitaph, that is, faint traces of two letters on a broken and not conjoining limestone slab, were discovered in the fill. The bones of the female skeleton were covered with a dark purple discoloration, which is believed to be of exogenic nature.

Four fragments of an altar casket (Inv. No. WS1.145/11–12), found between the mausoleum tomb and the east wall of the small peribolos, were added to the two found earlier, one in the northwestern corner of the peribolos and the other stuck in the north wall of a chapel. They were fitted together and reconstructed [***Fig. 10***]. The casket measured 35 cm in diameter and 12 cm in height.

NORTHERN BUILDING

The area north of the St Menas church was explored down to a level corresponding with the first pavement in the church, uncovering what has been interpreted as a building preceding the construction of the church. The Northern Building (BN.14) is a large complex, about 30 m long overall and an estimated 16 m wide [***Fig. 12***; see also ***Fig. 6***]. Its walls were made of mud brick (32–34 × 17–19 × 6–8 cm), averaging one stretcher course in the width of the wall. The technique resembles a masonry practice known from the nearby settlement at Selib 2. The westernmost part is best preserved with walls rising four to five brick courses high. Otherwise they are barely preserved over the foundation courses. The biggest hall was 9.00 m long by 2.60 m wide and had buttresses reinforcing the long walls and the western end. The fill accumulated inside the structure consisted of sand and mud and yielded numerous sherds, dated for the most part to the early Christian period with some Transitional fragments as well. The building underwent at least one major reconstruction. A round bread(?) oven (approximately 0.80 m in diameter) was found in one of the units. Another feature (G.13/14 on the plan) turned out to have a wall one red-brick thick and an interior heavily crusted with lime on the inside. This could have been a container for slaking the lime used in the construction of the church.

Graves were dug into the deposits accumulated over the so-called Northern Building, hence the designation "Northern Cemetery". Altogether eight burials were discovered (for a preliminary discussion of the anthropological results, see below, appendix 2 by M. Bury). Most of the burials were marked with flat rectangular platforms [see ***Fig. 12*** top]. The thick rubble layer they were dug into consisted of grey, granulated sediments mixed with red brick.

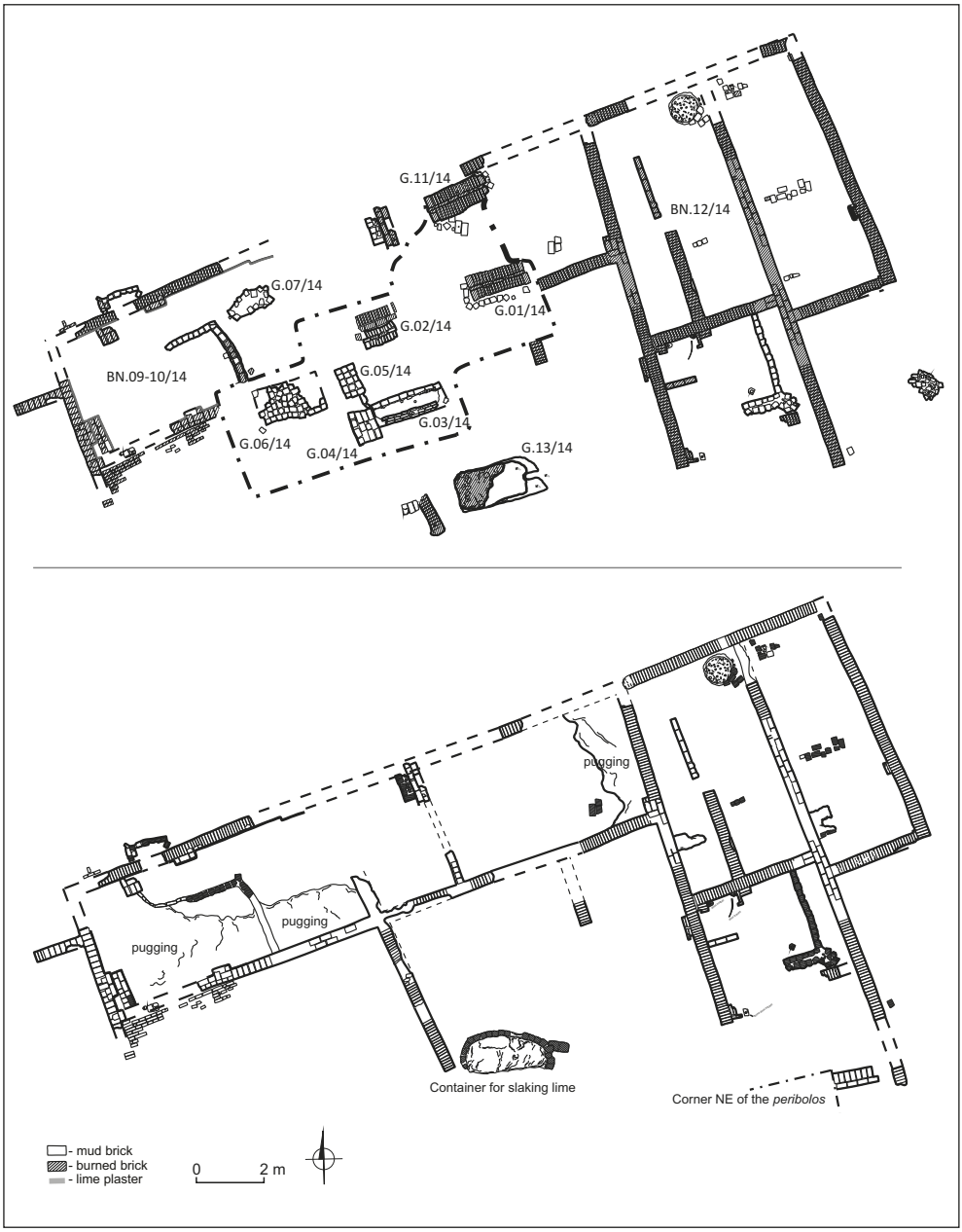

Fig. 12. Northern Building, general plan: top, layer showing location of grave superstructures from the Northern Cemetery; bottom, plan of the building after removal of the burials (Drawing A. Cedro)

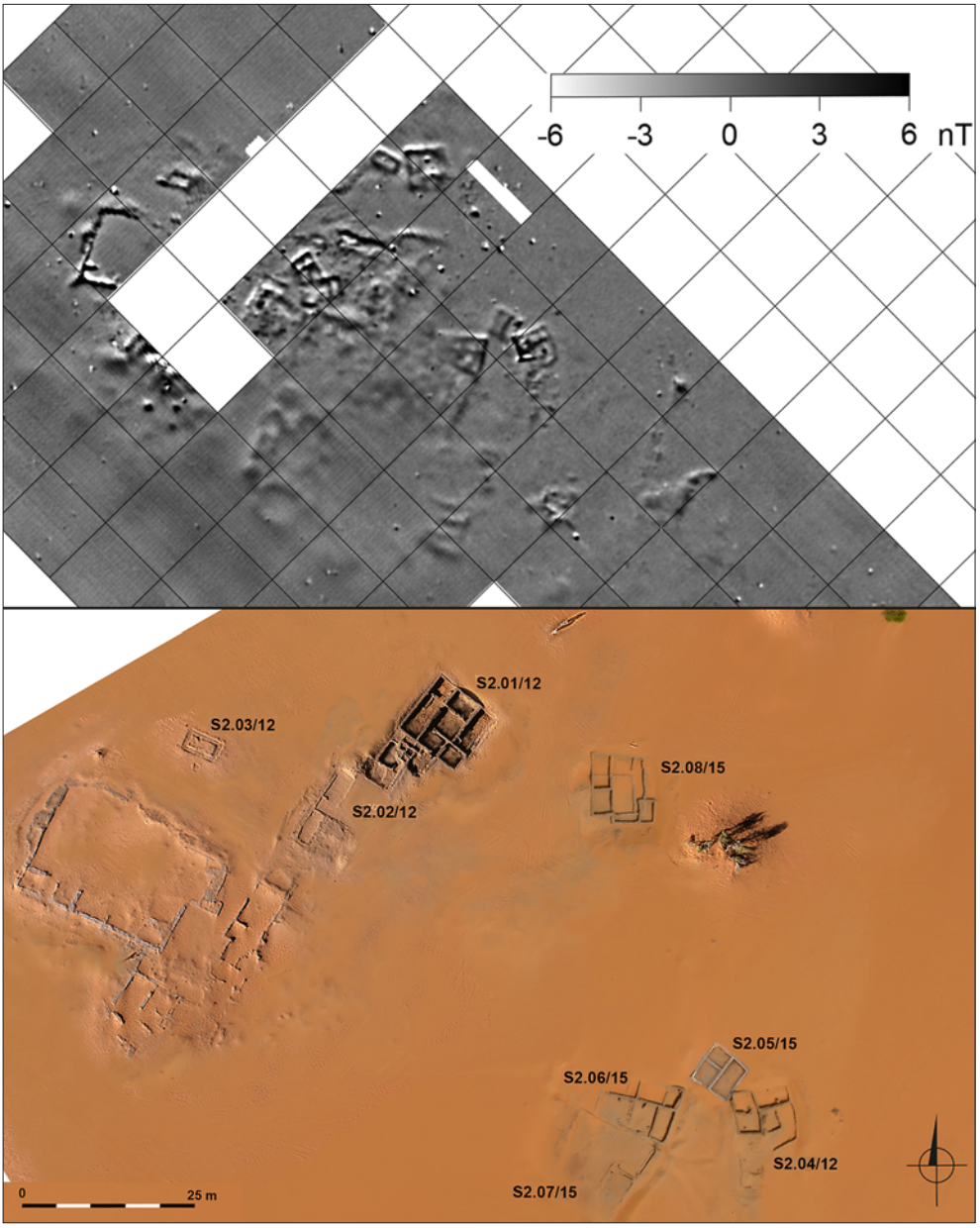

Fig. 13. Selib 2 site with houses excavated in 2012 and 2015: top, corresponding section of the magnetic map with the houses measured in 2013; bottom, orthophotographic image of the same part of the site generated from the aerial (kite) photographs and geodesic measurements in 2013 and 2015 (Photos and rendering B. Żurawski; magnetic map processing T. Herbich)

SELIB 2

The houses explored in 2015 were identified on a map of magnetic anomalies measured in 2013 [*Fig. 13* top]. The structure designated as S2/05/15 [*Fig. 15* bottom left] appeared to be the earliest, underlying House S2/04/15 in part. It turned out to be quasi-bicameral, consisting of two similar rooms, the northern of which was subdivided into two compartments by a low divider wall.

Two vessels filled with charcoal were found in the smaller (northernmost) compartment. A painted jar (S2/62/15) [*Fig. 14* top left] found inverted in a thin layer of ash and organic debris, its bottom part intentionally cut off, is a rare example of a large painted vessel from the 1st century AD or even earlier. Apart from the hash and a few animal bones, there were no traces of either cooking or burning. A deep

Fig. 14. Finds from the houses in Selib 2: top left, painted jar (Inv. No. S2/62/15) from House S2/05/15; top right, thurible (Inv. No. S2/161/15) from House S2/08/15; bottom, iron spear head (Inv. No. S2/06/15) from House S2/06/15 (Photos R. Hajduga)

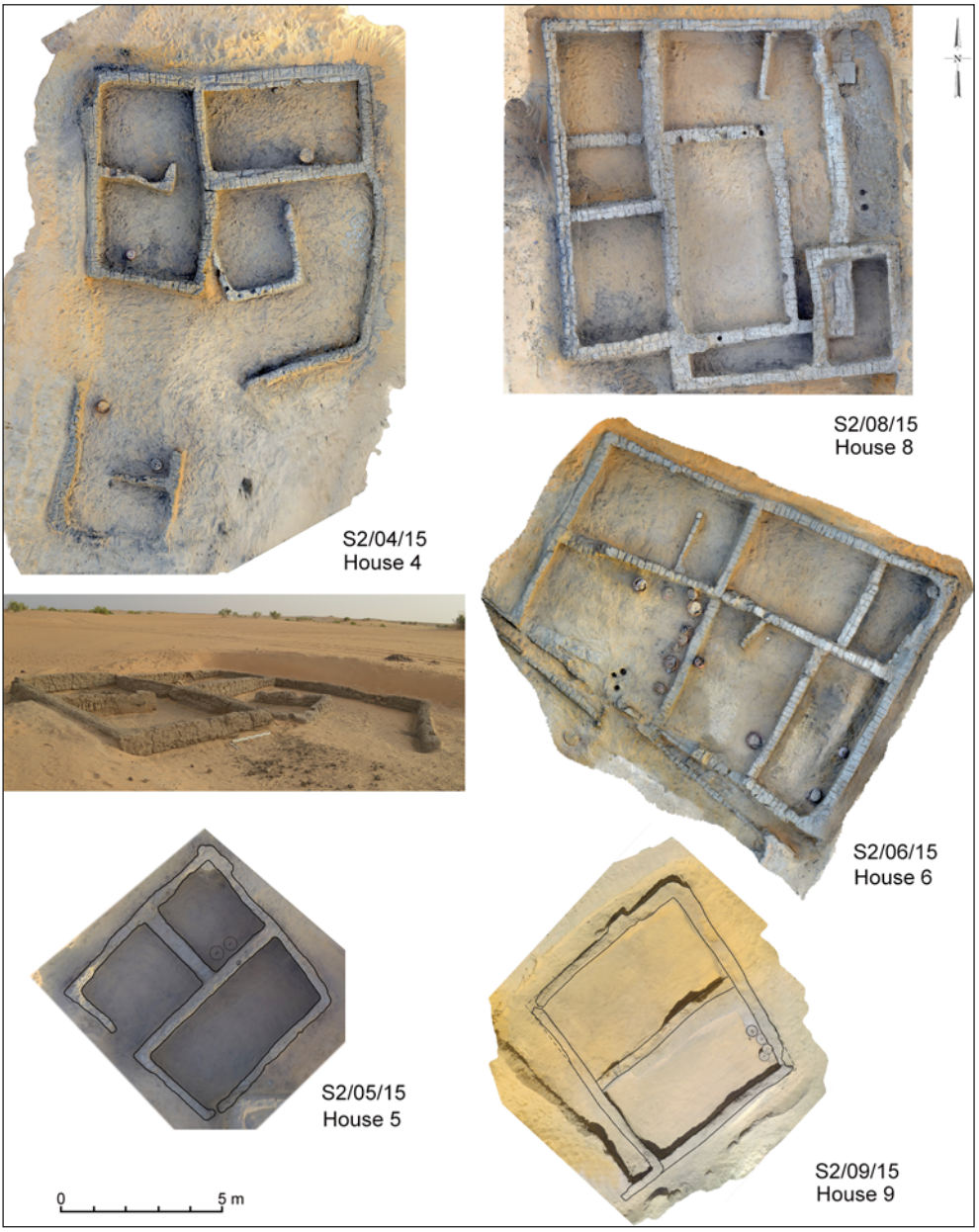

Fig. 15. Houses at Selib 2: orthophotographic and digital elevation models of houses: top and center left, S2/04/15 (general view from the south); top right, S2/08/15; center right, S2/06/15; bottom left, S2/05/15; bottom right, S2/09/15 (Photos and rendering R. Hajduga, based on geodesic measurements taken in March 2015)

bowl (Inv. No. S2/65/15) found next to the jar(?) was filled with sand mixed with ash and charcoal. The contents suggest that the two vessels were reused in the process of preparing food on charcoal placed inside a vessel, in much the same way the modern Sudanese do.

The superimposed house, S2/04/15, also had light walls no more than one brick thick, the upper parts screened off with a palm-branch and timber construction (the holes for the vertical poles were discovered) [***Fig. 15*** top and center left]. A grinding stone (S2/204/15) in the shape of a bowl--like mortar stood in the northwestern corner; it most likely belonged to the later of the two occupational phases identified in the building.

House S2/06/15 was trapezoidal [***Fig. 15*** center right], the rectangular house S2/07/15 was added later to its south wall. A cluster of vessels was found along the east wall, two of these installed upside down in the hardened mud floor. Both were filled with burned *doum* palm fruit and charcoal, attesting to the use of this resource as a fuel. It may have served more than just the inhabitants of the household.

House S2/08/15 was a large and multiphased unit, about 100 m^2, entered from above at least in its latest phase. In its present shape, it resembles two houses built into and on top of the other. Its light structure was reinforced with wooden poles inserted into the walls (see north wall of the center space, ***Fig. 15*** top right).

SELIB 3: EARLY MEDIEVAL MIDDEN

A linear feature identified as a magnetic anomaly on a map produced in 2013 was investigated in seven test trenches, which came after the site was tested originally in 2013 (Żurawski 2015: 382). A rich collection of early Christian pottery sherds, from the late 6th through the early 7th century AD, was collected, suggesting that a refuse dump from a settlement flooded by the Nile or the *seel* apparently ran parallel to the course of the paleobed of the Nile. Excavations revealed a layer of greyish-brown soil mixed with ashes, charcoal and red brick debris, sandwiched between layers of windblown sand. It sloped down to the south, that is, towards the Nile, and ranged in thickness from 0.50 m to 1 m. The trench produced about 11,000 sherds of 6th/7th century ceramics, including the rim and shoulders of a wide mouthed jar (Inv. No. S3/178/15), bearing the inscription in Greek: *Sellene* [***Fig. 16***]. This inconspicuous word, misspelled (double *lambda*) in a manner typical of the Nubian rendering of the Greek word, is the first attestation (dated to the 7th century) on the Middle Nile of a time computing system based on the phases of the moon. The agricultural context of this find suggested the Egyptian origin of the lunar calendar in Nubia.

Fig. 16. Graffito reading Sellene from Selib 3 (Photo A. Cedro)

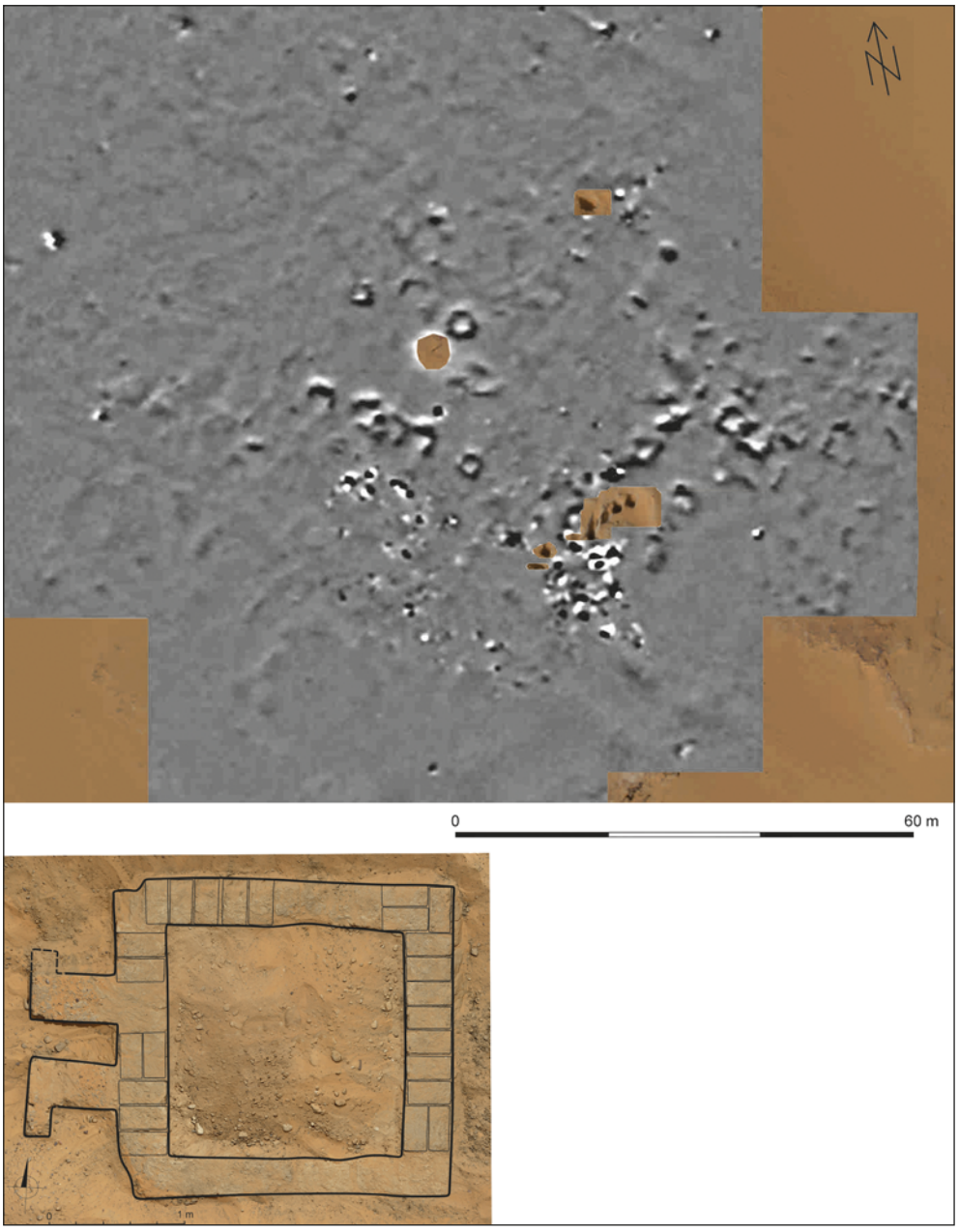

Fig. 17. Argi Bahri cemetery: orthophotographic image combined with magnetic map of the site; inset, plan of the superstructure of a presumed Meroitic grave drawn on the orthophotographic image (Magnetic map processing T. Herbich; drawing A. Cedro)

ARCHAEOLOGICAL INTERVENTION OUTSIDE THE CONCESSION AREA

An accidental discovery of a cemetery of probably Meroitic date at Argi Bahri during bulldozing work led to the site being surveyed on foot and photographed from a kite. The superstructure of one grave was cleared of sand and documented. The site was prospected producing a magnetic map of the area [***Fig. 17***]. Graves were also discovered by accident in a field on the northern outskirts of the Selib village, in the area known as Selib Bahri. They had been disturbed in the past. Some glass beads and a few indistinctive potsherds were found along with five skulls and the remains of mummified bodies. No traces of the superstructures were noted, whereas the subterranean parts had either a side or a foot niche.

REMARKS ON LOCAL POTTERY MAKING

The traditional method of making large ceramic forms like the water containers called *aziar* was documented in the course of several visits to the el-Debba potteries. This process is said to have been brought from Sinnar, where the potters lived before moving to el-Debba. First, a mound kiln is formed on flat ground by covering the load of vessels with a sort of roof made of ceramic tiles and big potsherds. Heat comes from burning a layer of animal manure (approximately 5 cm thick), on which the vessels have been placed. Another layer of manure covers the heap and is, in turn, covered with a thin layer of earth. Dried palm twigs, stalks, field leftover etc. put on this layer are used to set the kiln alight [***Fig. 18***].

Fig. 18. Kiln set alight on 7 March 2014 (Photo B. Żurawski)

APPENDIX 1
POTTERY FROM SELIB. PRELIMINARY REPORT (2013/2014 AND 2014/2015 SEASONS)

Aneta Cedro
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Ceramics from the 6th/7th through the 12th/13th century were collected from archaeological excavations carried out in the 2013/2014 and 2014/2015 seasons at sites coded "Selib 1" and "Selib 3" in the neighborhood of the modern village of Selib. The exploration in Selib 1 continued work done in previous years in and around a structure identified as the church of St Menas (see Żurawski 2011: 259–261; Żurawski et al. 2014: 330–336; Cedro 2015). At Selib 3, the scatter of sherds that was investigated was situated near the modern village, approximately 300 m to the northwest of the Meroitic settlement of Selib 2 (Żurawski 2015: 382; for details on the current excavation work, see above).

CERAMICS FROM SELIB 1

CHURCH

The assemblage recorded from the fill between pavements under the altar and in the northwestern part of the church (the only section still unexcavated in 2013/2014) was relatively small and did not add anything new to the already recorded group (see Cedro 2015: Fig. 5). It consisted mostly of thin-walled spherical bowls, slipped either red or white, the red-slipped variety being in prevalence. One of the white-slipped bowls was decorated with a unique motif, a black-painted stylized face positioned between the vertical radial lines on the whole body [***Fig. 19:A***]. A single fragment of a rare, grey ware bowl of kaolin clay featured stamped decoration in the form of small diamonds [***Fig. 19:B***]. Ornaments typical of red-slipped bowls included black rim stripes, "metope" motifs against the background of the upper red band, cross motifs and hatched squares or rhombuses. Analogous bowls are known from many Upper Nubian sites and, in all probability, were a product of the Dongolan pottery workshops, where similar vessels were discovered in the R1 kilns attributed to the Transitional/early Christian period, that is, from the mid 6th through the 7th century (Pluskota 1991: 41–43).

The bases of two bowls, made of south Egyptian pink clay, were discovered in the northwestern corner of the church. One of these had an equal-armed cross with double crossing lines stamped on the floor inside [***Fig. 19:C***]. This motif was of rather unique design and larger in size than those usually found on the so-called Aswan-ware bowls of this fabric.

Oil lamps made up a small but distinct group in this assemblage. Four lamps, two almost intact and the other two preserved in fragments, belong

to the so-called Aladdin type, that is, a small, squat bottle with a very narrow neck. Typically, no two specimens of the type are ever identical. The most typical variant was made on a wheel, red--slipped, with an oblate carinated body (WS1.11.14) [***Fig. 20:A***]. A wick hole was cut above the ridge and a loop handle was attached to the opposite side. Similar lamps had been found at Selib 1 before (Żurawski et al. 2014: Fig. 5). "Aladdin" lamps were attributed until recently to Lower Nubia, where they were considered indicative of the X-Group (post-Meroitic) and early Christian periods (Adams 1986: 104). A large number of such lamps from Selib and recent discoveries at el-Zuma indicate that they were not limited to Nobadia. Although the production centers were probably located in the north, the absence of such lamps from layers of a related period in the Dongolan pottery kilns is striking (see Pluskota 1991).

The other complete lamp is an unusual example of the "Aladdin" lamp or rather its local imitation (WS1.24.13) [***Fig. 20:B***]. It was handmade of Nile silt, tempered with organic matter and covered with a red slip. The execution was a bit rough, with little attention to utility (the hole is too small for pouring oil). A similar lamp was discovered in the church in the previous season (WS1.154.11–12). One may assume that these handmade examples are proof of the desirability of "Aladdin" lamps' in Upper Nubia, as it is not easy to copy this form.

Some utilitarian wheel-made ware was also recovered: fragments of large storage containers, *qawadis* (*saqiyah* pots) and amphorae. However, these were mostly non-diagnostic sherds, among them, a fragment of imported LR1 amphora.

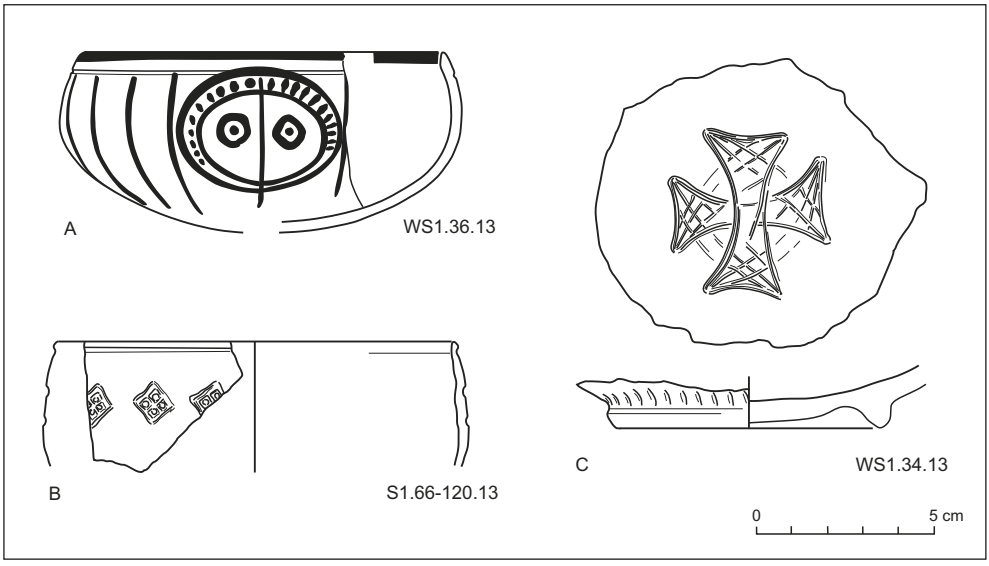


Fig. 19. Fineware bowls from the St Menas church: A, B – probable Dongolan production; C – so-called Aswan ware (Drawing A. Cedro)

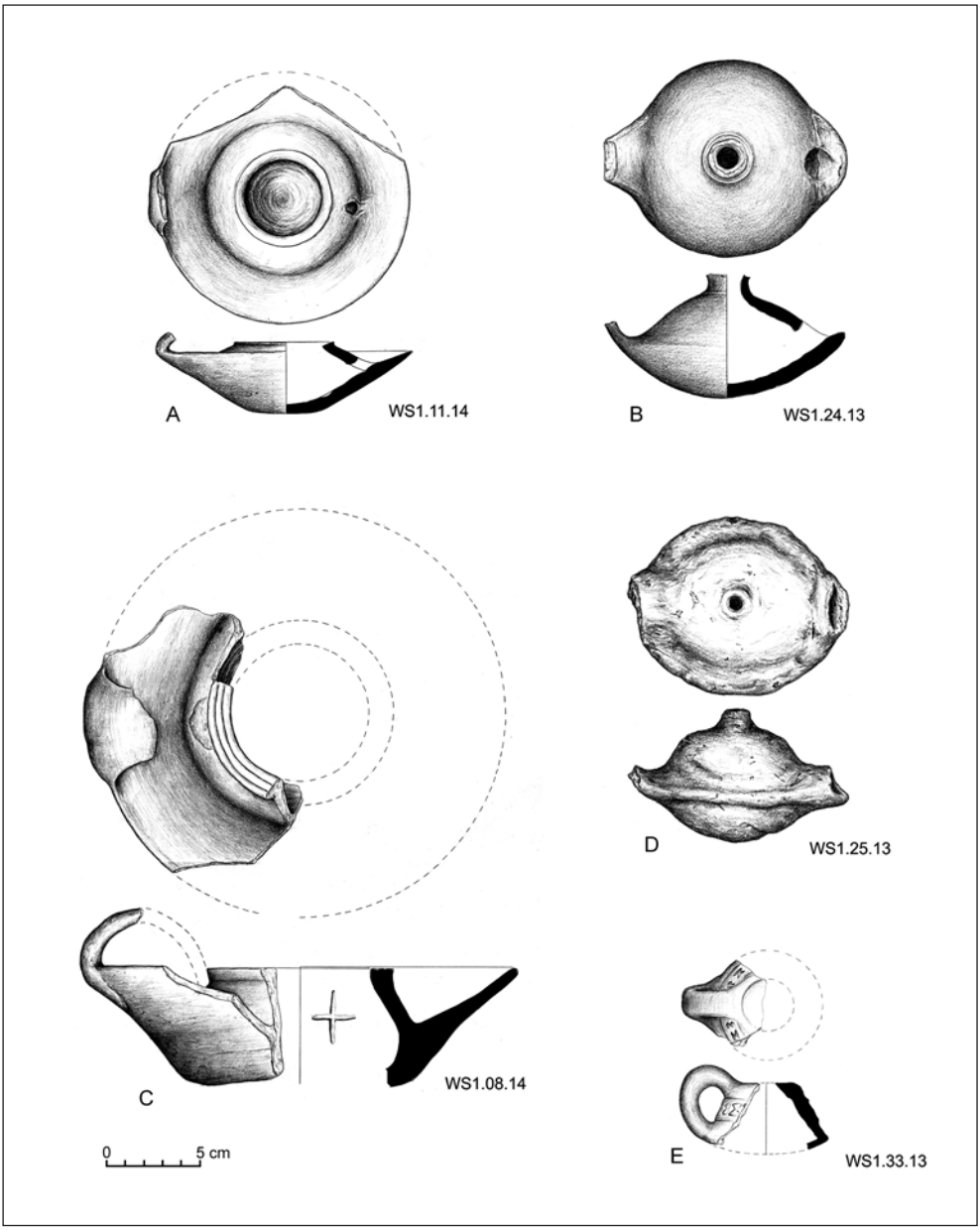


Fig. 20. Examples of oil lamps from Selib 1: A, C – variants of "candle-holder" lamps from the Northern Building (WS1.11.14 and WS1.08.14); B, D – two types of "Aladdin" lamps from the church (WS1.24.13 and WS1.25.13); E – lamp with loop handle (WS1.33.13) from the southern rubbish dump (Drawing A. Cedro)

SOUTHERN SECTOR: TRENCH W09/13

Explorations on the slope behind the southeastern part of the small peribolos identified the deposit there as a refuse dump. The huge amount of red brick rubble, fragments of lime plaster and numerous pieces of terracotta window grilles suggests that the accumulated debris represents successive rebuilding events.

The rubbish also contained quantities of fragmented ceramics, which formed a heterogeneous set representing a wide range of functions and a broad chronological span. The distribution of forms and types within the trench was noticeably uneven. Utilitarian ware, mostly *qawadis* sherds, predominated in the eastern part, accompanied by storage and transport vessels, cooking ware (mostly *dokas*), as well as water pipes in addition to the ceramic window grilles. The central and western parts of the trench yielded mostly tableware, representing a typical repertoire of Nubian Classic Christian pottery. A small group retrieved from the uppermost layers consisted of late Christian pottery, not reaching beyond the 12th/13th century.

The most numerous tableware bowls were of the White Ware type, ranging from small to large in size [***Fig. 21:A–E***]. Small bowls with plain flat or slightly rounded bases and flared sides represent the finest quality of production. The slip of white or cream color was often highly polished. Decoration was often limited to a red or orange border, sometimes combined with an overpainted central stamp [***Fig. 21:B, E***]. The most sophisticated decoration found on a bowl combined floral motifs, painted in black and red, inscribed within squares repeated on the inner wall, and a central motif on the base. The slip was shaded from white to orange [***Fig. 21:A***]. Decoration similar in style was found on a few other vessels, among them an orange-slipped pilgrim bottle with a connected "leaf" ring-frieze around the edge of the main body [***Fig. 21:F***].

A middle-sized rounded bowl with an orange slip and decorated with incised grooves and wavy lines in the upper part bore a post-firing graffito. A line of text was engraved on the exterior below the grooves ending in a cross. The letters can be read easily as "ΜΙΧΑΗΛ" despite the missing parts of some of them [***Fig. 21:G***].

One of the most distinctive forms found in the southern rubbish heap, also recorded in other areas at Selib 1 (see below) was a juglet with a ring base and a handle rising above the rim. The slip varied from white matt [***Fig. 22:F***] to polished orange [***Fig. 22:A–B***] and occasionally covered both exterior and interior. The only decoration, found exclusively on the orange slip, was a brown band painted over the rim and handle [***Fig. 22:A, D, E, H***]. The capacity of these jars rarely exceeds 100 ml and their function was surely liturgical. Similar simple decoration in the form of a wide band painted around the rim appears on other liturgical vessels, such as chalices and patens. A set of liturgical implements with matching decoration was discovered in a niche under the altar at Banganarti (Phillips 2003: Pls 80, 81, 83). The only fragment of a chalice that was identified from the southern trench [***Fig. 22:K***] was part of a slender pedestal, with a creamish slip and thickened ring around the joining to the bowl.

Oil lamps were also noted among the refuse. The one intact lamp was a small handmade saucer, a type that rocketed

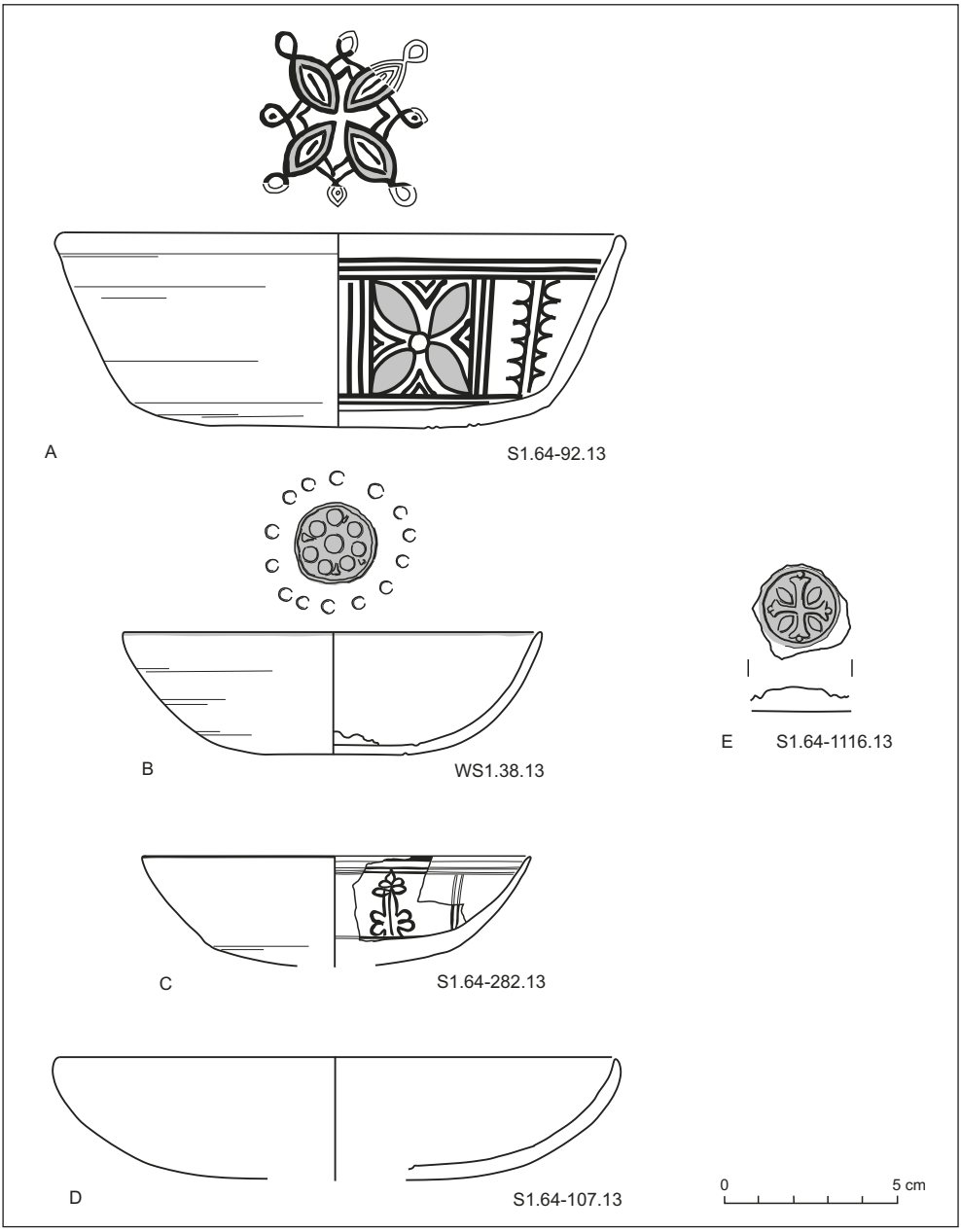
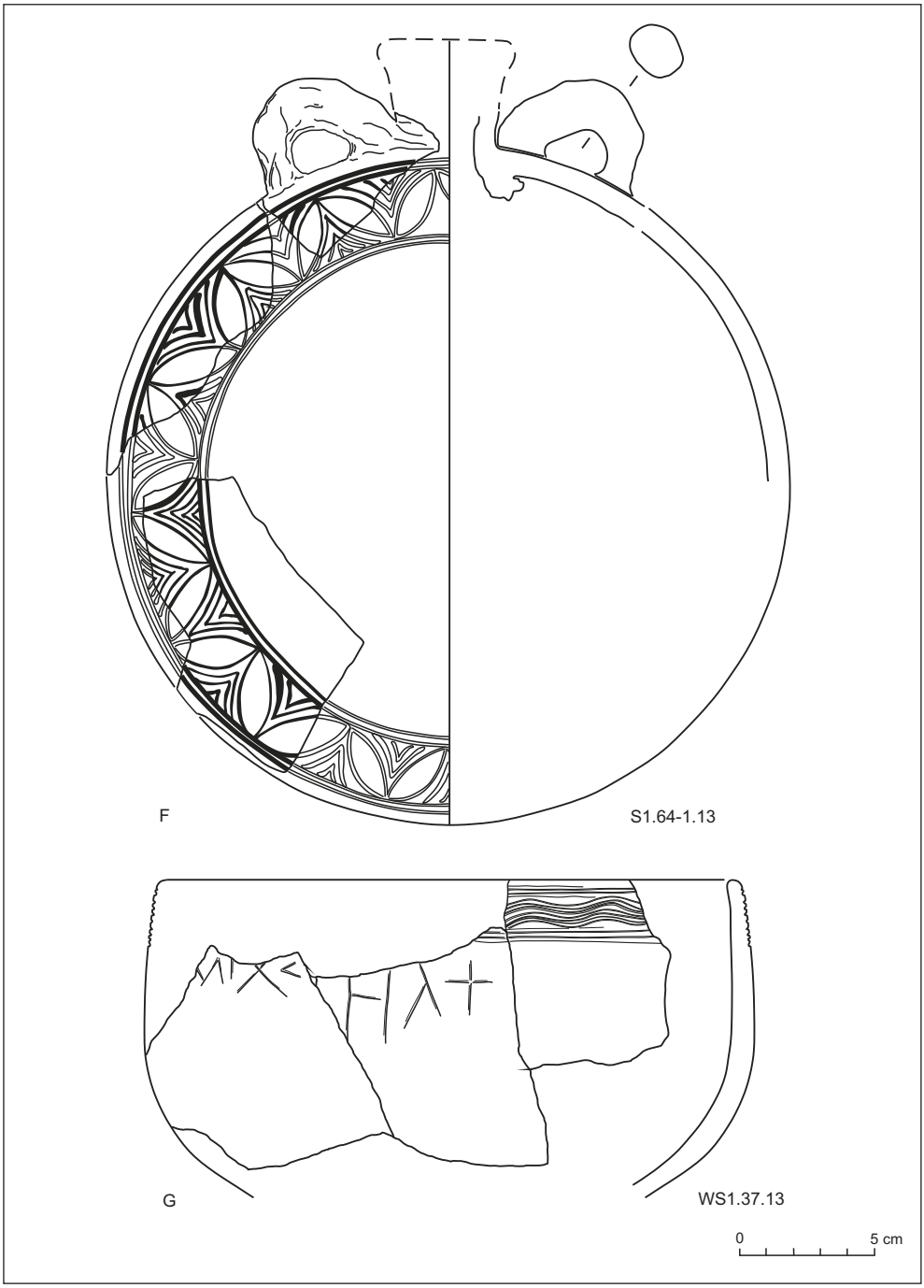


Fig. 21. Selection of pottery from the refuse dump in the southern sector: A–E – White Ware bowls with and without painted decoration, including stamp on the center of the floor; (opposite page) F – pilgrim bottle; G – bowl with post-firing graffito (Drawing A. Cedro)


F
S1.64-1.13
G
WS1.37.13
0
5 cm

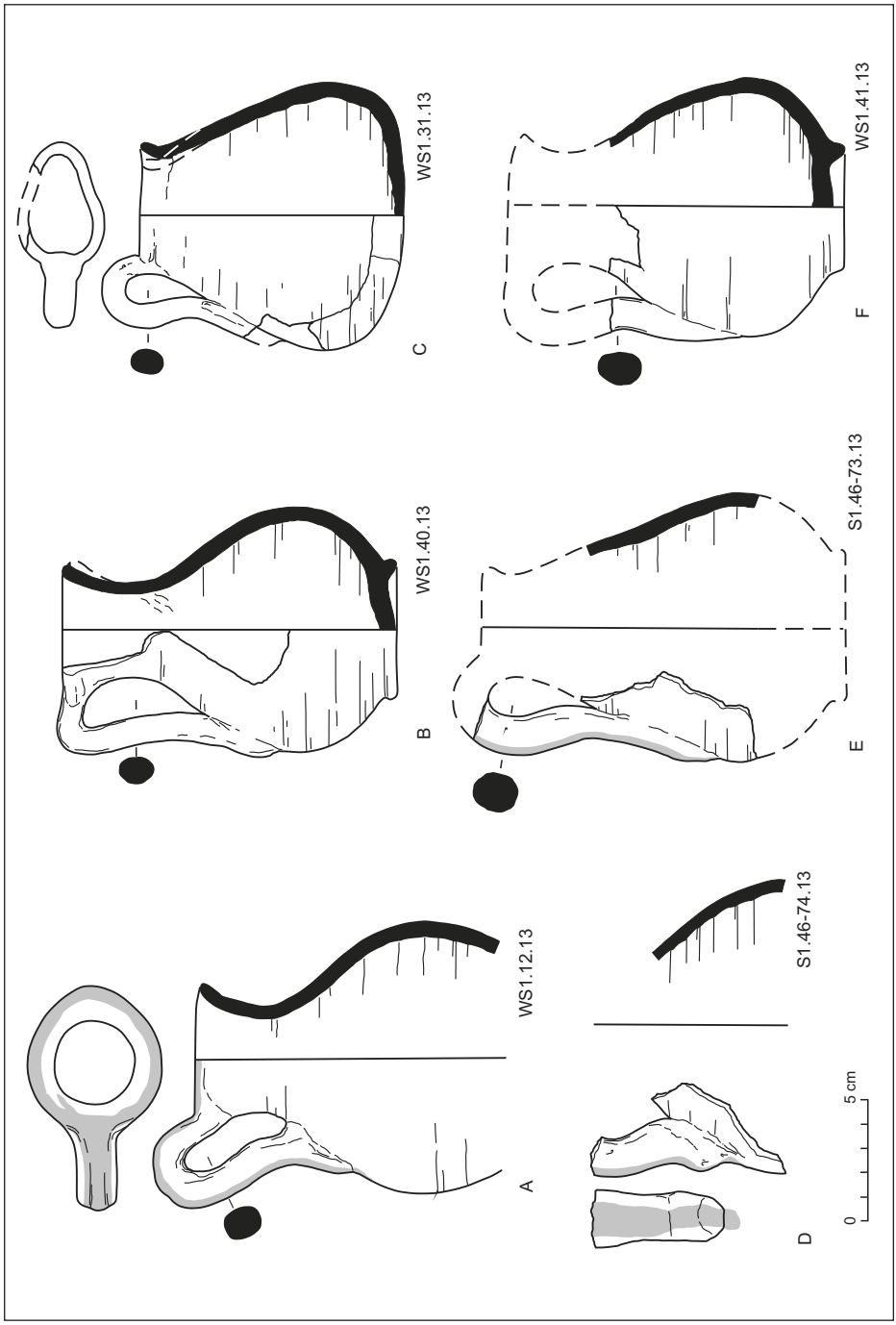


Fig. 22A. Selection of liturgical vessels from the southern rubbish dump: A, B, D–F – juglets; from the northern rubbish dump: C – juglet (Drawing A. Cedro)

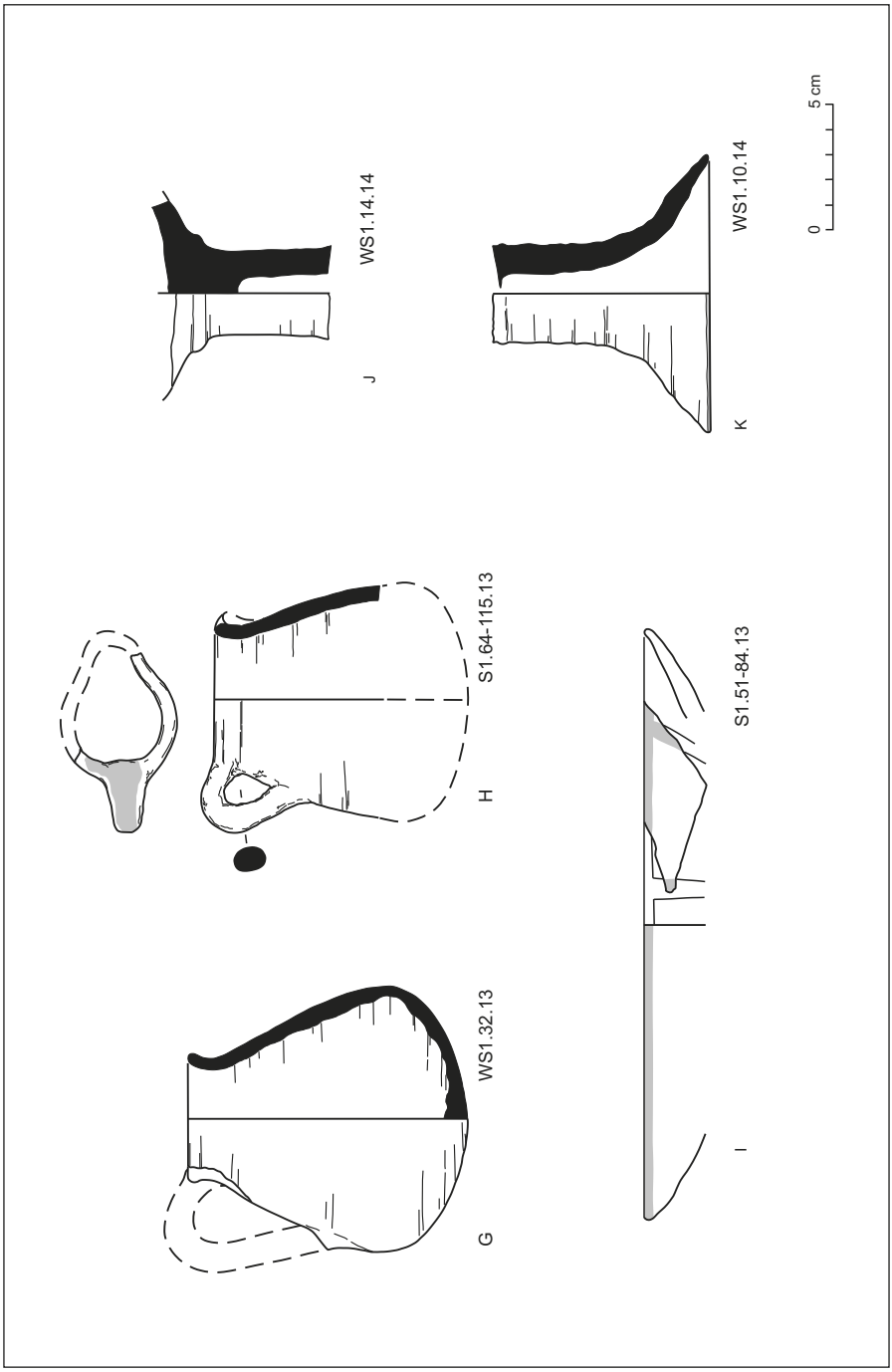


Fig. 22B. Selection of liturgical vessels from the southern rubbish dump: H – juglet; J – chalice; from the northern rubbish dump: G – juglet; I – paten; K – pedestal of a chalice (Drawing A. Cedro)

to popularity around the 11th century when pottery production generally declined. It easily became the predominant lamp form throughout Nubia. A rich collection of parallels comes from other sites, including the church at Banganarti (Cedro 2014: Pls 1–3) and the cemetery at Dongola (Żurawski 1999: Fig. 27).

Other lamp fragments represented the "candle-holder" type, which is basically a wheel-made open saucer with a cylindrical oil reservoir in the center. The best preserved fragment of this type (S1.05.14) was orange-slipped. One fragment came from a red-slipped lamp with a loop handle, straight sides decorated with small stamps on the shoulder and a trapezoid body (WS1.33.13); no parallels are known [***Fig. 20:E***].

NORTHERN SECTOR: TRENCH W01/13

Exploration of the layers underlying the mud-brick building BN.13 adjoining the small peribolos on the northern side yielded fill similar to that in the southern refuse dump, that is, dense soil, mud-brick and red-brick rubble, with mixed fragments of lime plaster and abundant potsherds. The repertoire of forms was much the same as in the southern sector and could be attributed to the period from the 9th through the 11th century. The prevalence of wheel-thrown coarse ware was evident; however, most of the fragments were non-diagnostic. The one intact vessel was a roughly made large bowl with an everted rim (WS1.13.14) and traces of white residue on the inside walls [***Fig. 23***]. Parallel objects are known from Old Dongola (Danys-Lasek 2014: Fig. 5) and Banganarti (Phillips 2003: Pl. 75c), where the type was attributed to the "post-Classic Dongola" period.

Tableware included a few fragments of Classic Christian fine White Ware, represented by small bowls. An orange band on the rim was their usual decoration, while a central motif or guilloche frieze, painted on the inner or outer wall, was

Fig. 23. Large bowl of coarse ware from the northern rubbish dump (Photo A. Deptuła)

also featured in this group [*Fig. 24:D,E*]. Elaborately decorated central stamps appearing inside the fine bowls or saucers were often found separately, reused as tokens or pendants [see *Fig. 21:E*]. Abundant parallels may be found among the pottery from the monastery in Ghazali (Shinnie and Chittick 1961: Figs 7, 32).

Middle-sized bowls usually had a yellow or orange slip. Decoration was rare, limited to the interior, and usually featured radial patterns of spikes or leaves. One bowl bore a graffiti +ΜΙΧΑΗΛ, inscribed inside [*Fig. 24:A*]. Fragments of vases, a form that became popular in Nubia in the Classic Christian period, were also present in the

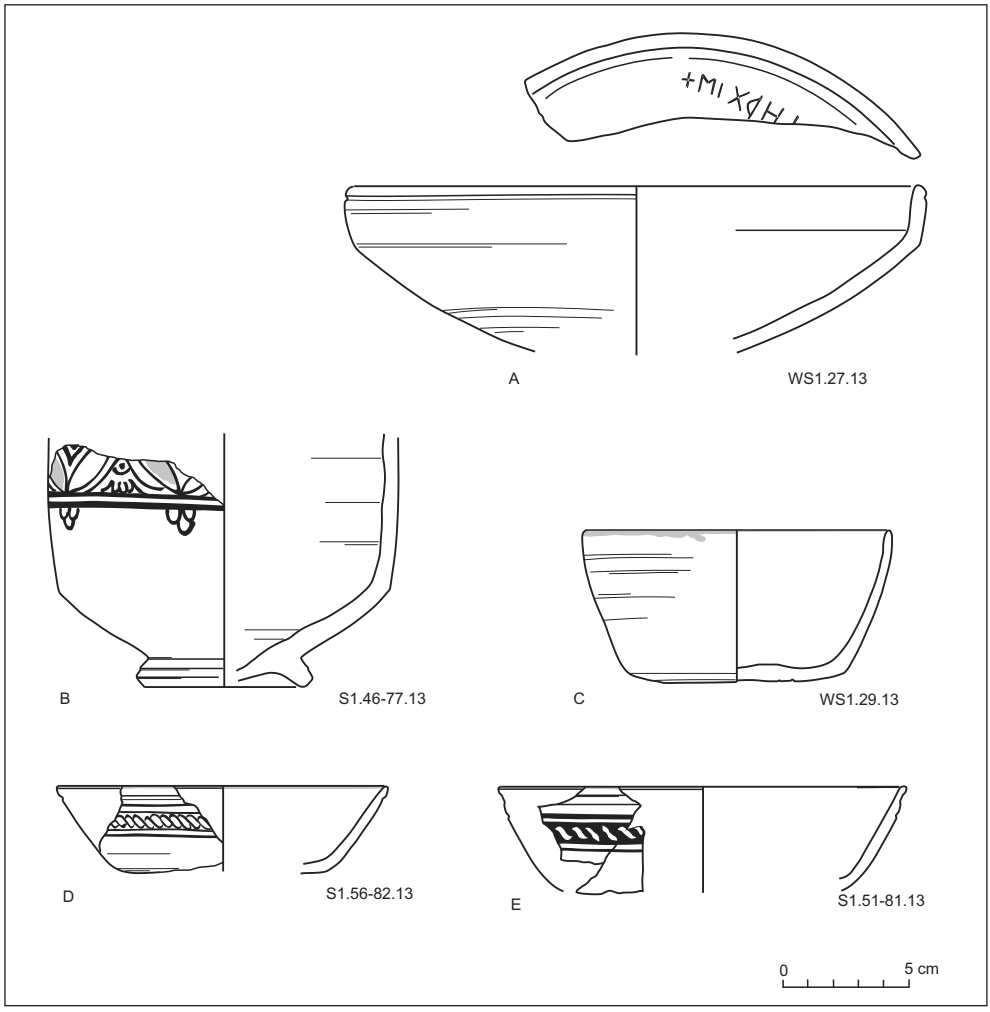


Fig. 24. Selection of pottery from the northern rubbish dump: A – bowl with inscribed name; B – carinated vase; C–E – small White Ware bowls (Drawing A. Cedro)

collection. A vase with a carinated body and a ring base was coated with a light--orange slip and decorated on the exterior with a painted frieze of connected leaves, similar in style to bowls and pilgrim bottles from the southern trench described above [*Fig. 24:B*].

The northern trench also yielded a distinctive group of liturgical vessels, which included juglets of the same form as described above, as well as a different bag-shaped variant, without a distinct neck and with a plain rounded base and a pink [*Fig. 22:C*] or creamish-pink slip [*Fig. 22:G*]. A parallel object was discovered at the nearby site of Banganarti (Żurawski 2012: 201, Fig. 8). Belonging to this group was the pedestal of a chalice, with a wide base, white-slipped and decorated with an orange stripe around the edge [*Fig. 22:K*]. Also included was a fragment of a paten shaped as a flat saucer, coated with a yellow-orange slip and a painted dark-orange band around the rim and radial lines [*Fig. 22:I*].

The oil lamp fragments from this assemblage represent different variants of the "candle-holder" type. Since in most cases only the inner containers are preserved, the differences consist in the shape, proportions and number of wick holes (for example, lamp S1.59.13 has two holes on the opposite sides). When the original slip can be seen, it is usually white, light yellow or creamish pink.

NORTHERN BUILDING (BN.14)

The fill of the mud-brick Northern Building (BN.14), which represents probably the first occupation at the site of Selib 1, yielded a substantial set of pottery which, judging by the stratigraphy as much as by the repertoire of shapes, may come from the period between the 6th and the 7th century.

Spherical bowls of the Red Ware family clearly prevailed among the tableware. They repeat forms and decorative patterns already noted from the site, especially from the fill between the church pavements (see above). The proportions and depth of the vessels vary from a deep, nearly hemispherical shape to shallow forms with almost flat base. Common exterior decoration includes incised grooves (from one to four) below the rim or a painted black stripe, often conjoined with other painted motifs [*Fig. 25:C,D*]. Red Ware bowls with knobbed rims and ring bases, which are regarded to have been inspired by Late Roman Egyptian pottery, also constituted a numerous group. Fragments of vessels similar to Hayes' form 103 [*Fig. 25:B*] or 104 were also found (Hayes 1972: 158–166, Figs 29, 30).

Other forms of tableware, sometimes represented by singular finds, included a pitcher with a slender neck and a globular body [*Fig. 25:G*], wide-mouthed bottles with rounded bottoms [*Fig. 25:A*], and small S-shaped pots, often decorated with a yellow painted stripe and festoons under the rim. Fine ware also included small squat bottles with a flange on the neck [*Fig. 25:E*]. Considering the repertoire of forms, fabrics and decoration, most of the tableware assemblage can be linked to Dongolan pottery workshops of the 6th and 7th centuries. Similar ceramics were discovered at the R1 kiln site situated in the western suburbs of Old Dongola (Pluskota 2001: Figs 6, 7)

A small bottle with heavily ribbed body finds no parallels; it is of unknown purpose [*Fig. 25:F*].

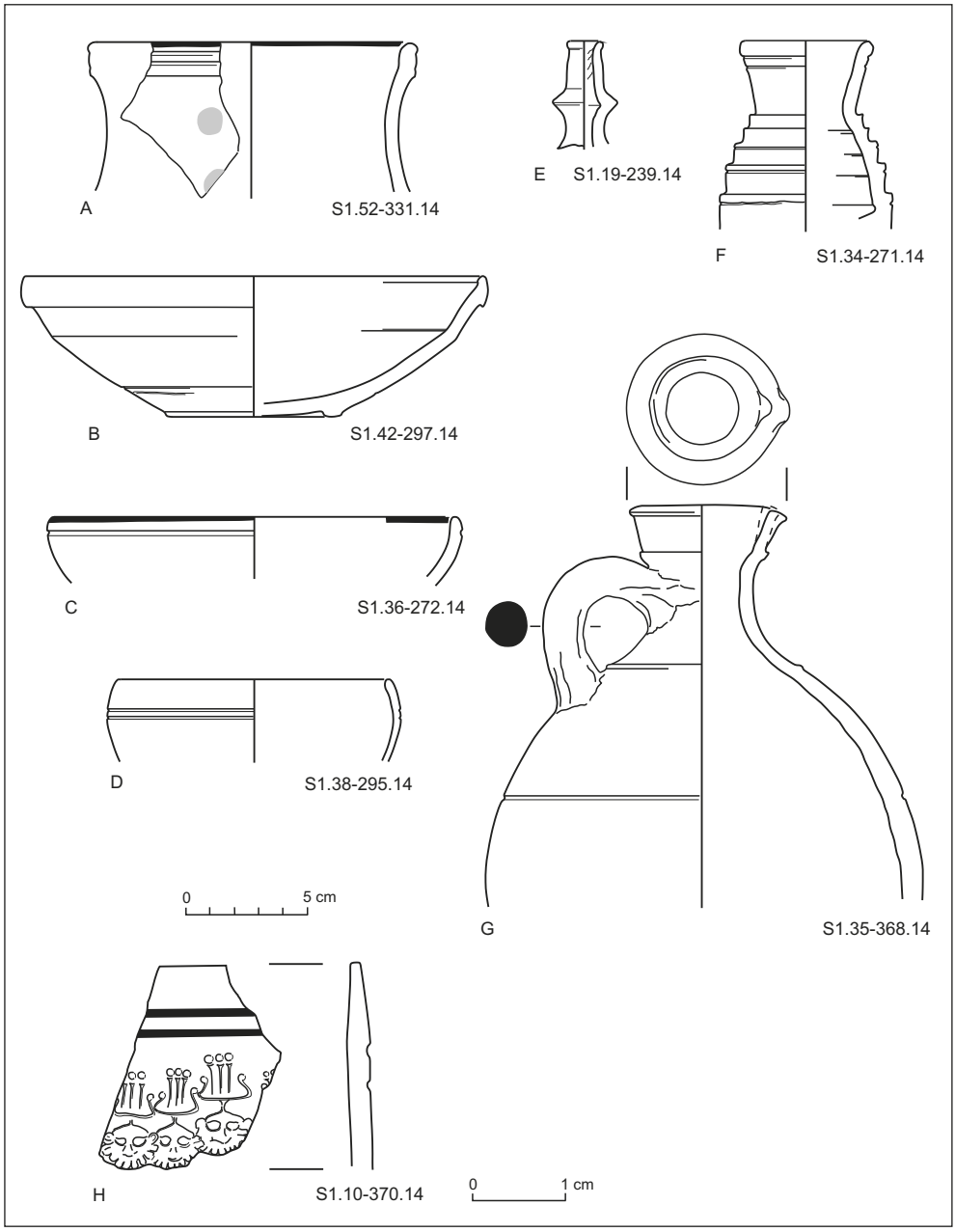


Fig. 25. Selection of pottery from the Northern Building: A – bottle; B–D – Red Ware spherical bowls; E, F – small bottles; G – pitcher; H – Meroitic "eggshell" cup with stamped decoration (Drawing A. Cedro)

Most of the oil lamps discovered in the Northern Building represent an early "candle-holder" type with a flat and wide inner container. Parallels were abundant in Lower Nubia and were also found in Dongola (Danys-Lasek 2012: Fig. 9) and in graves of the post-Meroitic cemetery of Jebel Ghaddar North (Żurawski and El-Tayeb 1994: 313–315). Lamps from Selib comprised mostly local products made of Nile silt and red-slipped, yet there was also a fragment with yellow matt coating and a black stripe on the rim of the outer bowl (S1.19-238.14). A red-slipped lamp (WS1.25.13) was discovered *in situ* in the southeastern corner of room A, where it was stuck in the mud pugging of the floor [***Fig. 20:D***]. A fragment of another uncommon lamp was retrieved from the fill in the adjacent room. Having a maximum diameter of 23 cm and a height of 10 cm, it is the biggest oil lamp discovered in Selib so far. It is pink-slipped and has a cross symbol incised inside the central container (WS1.08.14) [***Fig. 20:C***]. There was also a fragment of a handmade lamp of the "Aladdin" type, analogous to objects that have already been discussed (see above, page 371).

Amphorae sherds were mostly non--diagnostic body sherds, some with painted yellow or white monograms typical of Dongolan type A or B (Pluskota 2001: Fig. 9; Danys-Lasek 2014: Fig. 4). South Egyptian imported amphorae were also present in the group, but again mostly as body fragments.

The assemblage included a small set of handmade cooking vessels, which are on the whole a rare find at Selib 1. Fragments of *doka* and cooking pots with impressions of mats on the exterior, and bottles with rims flaring out and burnished in the upper part were all typical of the period.

A fragment of a Meroitic "eggshell" cup featured decoration composed of painted double stripes below the rim and small stamps of crowned lion heads [***Fig. 25:H***]. It is surprising that despite the proximity of a Meroitic settlement, where pottery is densely scattered on the surface, at Selib 1 almost none of this material was found.

ENCLOSURE WALL

Excavation of the enclosure wall was designed to clear the face of the wall for orthophoto documentation, one meter down below the surface and one meter away from the structure. No structures or features were recorded and pottery finds were modest to say the least, mostly fragments of *saqiyah* pots.

However, in a rare case of perfect preservation in the dry sand, four complete vessels in near perfect condition were found by the inside north wall. Two bowls accompanied by a small pot came from the middle sector, and a small table amphora from the northeastern corner. Both bowls represent typical forms of Classic Christian White Ware (Adams 1986: 492–493) with flat bases and flaring walls, white polished slip and a painted orange rim stripe [***Fig. 26*** bottom right]. The small pot was without slip or any decoration, and could not be unequivocally connected to any specific Nubian ware [***Fig. 26*** bottom left]. The table amphora is an example of a rare form, although the fabric is suggestive of a Nubian workshop [***Fig. 26*** top left]. This small container could hold about a liter of liquid and bears traces of long usage. There is a pot mark on its shoulders cut before firing.

Fig. 26. Complete vessels from the enclosure wall area: top left, table amphora; top right, pilgrim bottle; bottom left, small pot; bottom right, small White Ware bowl (Photos A. Deptuła, A. Cedro)

Fig. 27. Ceramic sample from the Selib 3 midden (context S3/15.II/09): top, White and Grey Ware bowls; bottom, Red Ware bowls (Photos A. Cedro)

An intact pilgrim bottle was found in the area adjacent to the wall, on the opposite side, near the southwestern corner of the enclosure It was of typical form, made of Nile silt and covered with a pinkish-red wash [*Fig. 26* top right].

SELIB 3

The main goal of the investigations at Selib 3, a site situated 300 m to the northwest of the Meroitic settlement of Selib 2, was to examine a dense surface scatter of potsherds attributed to the early Christian period. The excavation was carried out in four test pits and revealed a stratum of greyish-brown soil mixed with ashes, charcoal, and red bricks in all of them, identified as a rubbish dump. The fill contained a huge amount of potsherds, fragments of bones and stone implements.

The deposit of nearly 5000 potsherds was analyzed provisionally with statistical methods. The ceramics cover a short time span and encompass abundant tableware, numerous fragments of handmade cooking vessels and amphorae, all perfectly fitting a 6th–7th-century repertoire [*Fig. 27*].

Work on the Selib 3 rubbish dump, because that is how one would like to interpret this deposit, has to be completed (reaching bedrock) before sounder conclusions can be drawn.

APPENDIX 2
OSTEOARCHAEOLOGICAL ANALYSES OF SKELETAL MATERIAL FROM SELIB 1 AND BANGANARTI (2013/2014 AND 2014/2015 SEASONS)

Magdalena Bury
Independent

The skeletal material subject to analysis came from two different archaeological sites, Selib 1 and Banganarti, and from heterogeneous archaeological contexts. In the first of the two seasons (2013/2014), eight burials were investigated in Selib 1: five in the cemetery east of the bigger (outer) peribolos (coded CE) and another three found by chance and explored while digging in the immediate neighborhood of the main church (CNCh I, CNCh II) and next to the small peribolos. Two skeletons were discovered in the southwestern sector of Banganarti. In the season of 2014/2015, eleven skeletons were studied, all of them in Selib 1. Three of them (G.2014E/1, G.2014E/2 and G.2014E/3) were buried in a fine mausoleum tomb located east of the St Menas church. The two adult skeletons were deposited in two separate chambers of the tomb, whereas a juvenile individual had been buried in a pit dug into the south wall of the enclosure. Eight more burials were found in a trench to the north

of the Old Church (coded CN). Most of the burials were marked with substantial flat superstructures, set on a thick layer of rubble consisting of grey, granulated deposits mixed with red brick, one level higher than the remains of the so-called Northern Building found below them (believed to be the earliest occupation of the site, see the excavator's report above).

The collection of 21 individuals from different archaeological contexts does not constitute a representative population that could support far-reaching anthropological inferences; hence the main objective was a general assessment of the preservation and anthropological potential of this assemblage. Biological profiling was in this case of a cognitive nature, aiming at determining the four principal biological parameters: sex, age-at-death, stature and ethnicity. Provided the poor preservation of a substantial number of collected bones and the incompleteness of particular skeletons, not all of these parameters could be determined in every case. Furthermore, for 12 out of 21 individuals (more than 50%), who were of a juvenile age, nothing but age-at-death could be diagnosed with any degree of reliability. Analyses of both skeletal and dental age were made, although the latter was of greater importance, the relationship between chronological and dental ages (emergence of teeth and state of maturation) being stronger than between chronological and skeletal ones (Scheuer and Black 2004: 3). Wherever dentition was missing, skeletal age was assessed on the grounds of bone size and morphology. Establishing ethnic identity in biologically mature skeletons is difficult and all but impossible in the juvenile category (Scheuer and Black 2004: 1).

The age-at-death, sex and stature of the adult skeletons were estimated wherever possible referencing the well published methods of T.D. White and P.A. Folkens (2005), M.H. Raxter et al. (2008), W.M. Bass (2005), L. Scheuer and S. Black (2004), W.A.B. Brown (1985) and J. Piontek (1999). Instructions and protocols for recording human remains followed *Standards for Data Collection from Human Skeletal Remains* (Buikstra and Ubelaker 1994) and *Guidelines for Documentation of Human Remains* (Arizona State Museum n.d.). Pathological conditions were compared with the publication of T. Kozłowski (2012). Skeletal segments were described thoroughly and measured, but the information given here will be summarized only, the objective being to give an overview rather than a detailed analysis of the skeletal material.

SELIB 1
EASTERN CEMETERY (CE)

The five cases of skeletal interments (CE I–CE V) came from a single middle-sized mud pit and were recorded in the course of a salvage dig. The partial or even fragmentary completeness of some of the skeletons (25%–75% for CE III and CE IV, 1%–25% for CE II) suggests discrete, articulated burials that were disturbed by the pit, sometimes even cut through. Moreover, the condition of the bones and their quantity were affected by the nature of the deposit and by taphonomic processes, including post-depositional disturbances. The pH level of the sediment filling the burial pits — predominantly eolic sand, which tends to be acidic — exerts a highly negative impact on preservation of bony matter, which turns ultra light and

very fragile. Even if a particular bone or segment remains intact during exploration and exposure, the process of lifting the material usually causes destruction. In general, the bones excavated in the late Christian Eastern Cemetery (for the interpretation of the site, see the excavation report above) broke easily into large splinters. Therefore, most of the observations and measurements were made in the course of cleaning and excavation.

Sediment movement also impacted the bones in a negative way. In burial 1, a gravel-like sediment lay on top of a thin layer of sand barely covering the skeleton (CE IV). The sizeable granularity and voids between grains caused the superstructure to subside, largely crushing the bones.

The orientation of the corpses was homogeneous and showed a particular preference for east–west alignment with

Fig. 28. Child burials from Selib 1: left, CE I; right, CE V (Photo M. Bury)

Table 1. The Selib 1 and Banganarti burials in summary form (for a detailed discussion of the pathologies observed on individual skeletons, see the text)

No.	Site	Context	Skeleton No.	Age-at-death	Sex	Pathology
1.	SELIB 1	CE	I	6 years ± (SD) 24 months–7 years ± (SD) 24 months (child)	Indeterminate	Porotic hyperostosis (cribra orbitalia, degree 2)
2.		CE	II	approx. 30 months (infant)	Indeterminate	Not observed
3.		CE	III	9 years ± 24 months (child)	Indeterminate	Porotic hyperostosis (cribra orbitalia, degree 2)
4.		CE	IV	50+ years (Old Adult)	Female(?)	Osteochondrosis, osteoporotic bone loss, osteoarthritis
5.		CE	V	10 years ± 30 months (child)	Indeterminate	Not observed
6.		Small peribolos	Skeleton	9 months ± 3 months	Indeterminate	Porotic hyperostosis (cribra orbitalia, degree 1)
7.		CNCh	CNCh I	9 months ± 3 months	Indeterminate	Porotic hyperostosis (cribra orbitalia, degree 1)
8.		CNCh	CNCh II	Infant/child	Indeterminate	None
9.		G.2014E	G.2014/1	Middle Adult (34–49 years)	Female	Degenerative joint disease, signs of periostities; oral pathologies, calculus
10.		G.2014E	G.2014/2	Middle Adult (39–45 years)	Male	Degenerative joint disease; congenital anomaly in the form of sacralization of L5
11.		G.2014E	G.2014/3	Infant (18 months ± 6 months)	Not applicable	Anemia-associated disorder: porotic hyperostosis (cribra parietalis), morbid porosity
12.		CN	I	40–50 years (late Middle Adult)	Male	Non-malignant cranial tumor; possible skull and bone fractures with dislocation, signs of periostitis; degenerative joint disease; oral pathologies
13.		CN	II	25–40 years (late Young Adult/ early Middle Adult)	Female	Abundant oral pathologies; degenerative joint disease; signs of biomechanical stress, bone porosity
14.		CN	III	7 years ± 24 months (child)	Not applicable	Signs of periostitis
15.		CN	IV	8 years ± 24 months	Not applicable	Signs of periostitis
16.		CN	V	18 months ± 6 months	Not applicable	Signs of periostitis; dense bone accretion; porotic hyperostosis (cribra orbitalia)
17.		CN	VI	50–60 years (Old Adult)	Male	Severe tooth attrition, root distortion, age-related changes
18.		CN	VII	7 years ± 24 months	Not applicable	Signs of periostitis
19.		CN	VIII	40–45 years (Middle Adult)	Female	Moderate tooth attrition and calculus, caries, porotic changes, signs of degenerative joint disease
20.	Banganarti		BNG I	45–59 years (late Middle Adult/early Old Adult)	Male	Signs of degenerative joint disease; severe tooth attrition
21.			BNG II	Adolescent (14–15 years)	Male(?)	None

heads to the west and facing east, which is typical of Christian burials. Skeleton CE I [*Fig. 28* left] was the only one laid on the left side and facing north. Legs were extended, the lower limbs being registered as flexed only for skeleton CE IV. Hand placement differentiated skeletons CE I and CE V [*Fig. 28* right], but was difficult to establish accurately in the case of CE II–CE IV.

No pattern was observed in terms of a relationship between body orientation and the biological profile (age-at-death or sex) [see *Table 1*]. The second parameter was assessed, with some degree of probability, only for CE IV. It was a mature individual, most likely a female, who had died at the age of 50 years+ (Old Adult). Age-at-death was estimated on the basis of ectocranial and endocranial suture closure (see Piontek 1999: 151), the poor preservation of the postcranial skeleton in particular leaving no other method open. The deceased woman suffered from various senile skeletal deformities, e.g., osteochondrosis (degeneration in the lower surface of the corpus vertebrae as a result of vertebral disc disease), which was observed on the thoracic and cervical vertebrae [*Fig. 29* left], a depression in the superior vertebral body due to Schmorl's node [*Fig. 29* top right], as well as senile osteoporosis visible on the fragment of right femoral, surgical neck. Also osteoarthritis resulting from the process of eburnation around the edges of articular surfaces could be diagnosed. It took the form of bony lipping and osteophytes formation on the lumbar vertebrae and on the dens of axis (C2) [*Fig. 29* bottom right]. Changes on

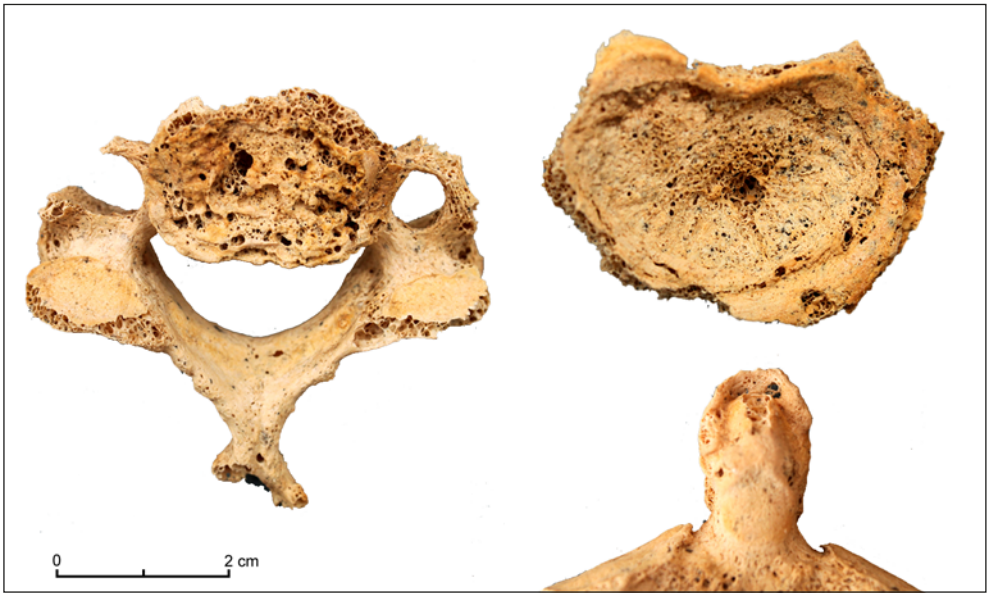


Fig. 29. Skeleton CE IV from Selib 1: left, osteochondrosis observed on the cervical vertebra; top right, depression in the superior vertebral body due to Schmorl's node; bottom right, large spur formation on dens of axis (Photos M. Bury)

both parietal surfaces were also observed, but were identified as *post mortem* alteration due to friction of the preserved fragment of calva against bedrock.

The other four cases were sub-adult skeletal remains, estimated age-at-death being approximately 6 years ± (SD) 24 months–7 years ± (SD) 24 months (CE I), infant at the age of 30 months (CE II), approximately 9 years ± 24 months (CE III), and approximately 10 years ± 30 months (CE V). Porotic hyperostosis was observed on the anterolateral quadrants of orbital roofs in the case of skeletons CE I [***Fig. 30***] and CE III. Bilaterally symmetrical cribra orbitalia (degree 2) resulted most likely from iron deficiency, supposedly from an anemia-associated disorder.

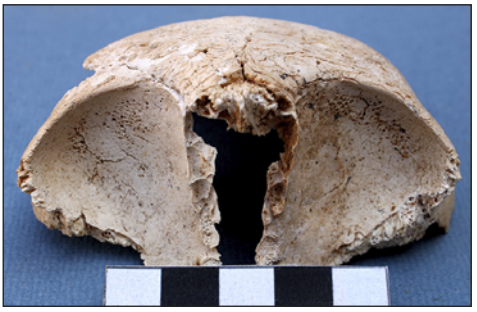


Fig. 30. Bilaterally symmetrical cribra orbitalia, skeleton CE I (Photo M. Bury)

ST MENAS CHURCH AND SMALL PERIBOLOS

CNCh I, CNCh II and the skeleton excavated next to the small peribolos were discovered during salvage digging in the

Fig. 31. Skeleton discovered in a rubble layer just next to the small peribolos in Selib 1 (Photo M. Bury)

immediate vicinity of the St Menas church, on the east and north of the structure (see report above). They turned out to constitute part of the Northern Cemetery, which was explored later.

Skeletons CNCh I and CNCh II belonged to sub-adult individuals. The state of preservation and completeness of the bony assemblages was rather low. CNCh I had deciduous teeth not erupted, still in the alveoli, the first maxillary incisors being the only exception. This gave an age-at-death estimate of 9 months ± 3 months. The skeletal evaluation was consistent with the dental age. The maximal length of the left humerus placed this infant within the range between 6 to 12 months. Bilaterally symmetrical cribra orbitalia (degree 1) were identified.

The CNCh II skeleton displayed significant disarticulation; it was at best a conglomeration of bones with no anatomical order. Moreover, the overall completeness was significantly low, less than 25%. In a group of a hundred skeletal splinters smaller than 2 cm, the unfused proximal epiphysis of femur with a diameter of approximately 18 mm was the only measurable fragment. Age-at-death was estimated at, roughly, late infancy or early childhood (approximately 3–5 years).

The third skeleton was discovered in a gravel and rubble layer next to a small peribolos [***Fig. 31***]. It represents a fairly well preserved skeletal assemblage, the bones showing minimal cracking of fibrous structure, even on articular surfaces. The completeness was markedly

Fig. 32. Mausoleum tomb in Selib 1; infant skeleton G.2014E/3 exposed (Photo M. Bury)

Fig. 33. Skeleton G.2014E/1 from Selib 1: top, general view of the dark purple discoloration on the cranium; left, close-up of dark purple stains on the cranium; center right, palatine bone with visible porosity and traces of inflammable reaction in the periosteum; bottom right, discoloration at the roots of the teeth (Photos M. Bury, M. Orzechowska)

high, over 75%. The child died at the age of 9 months ± 3 months (infant). Again, bilaterally symmetrical cribra orbitalia (degree 1) were identified, which indicates yet another malnourished baby.

MAUSOLEUM TOMB G.2014E

The solid structure dug out and explored during the spring and winter seasons of 2014 revealed human remains belonging to three deceased (G.2014E/1, G.2014E/2 and G.2014E/3). Two adult skeletons were found in discrete vaulted burial chambers. The third skeleton, belonging to a sub-adult individual, was discovered in the partly dismantled upper part of the south wall of the southern crypt [***Fig. 32***]. A significantly high level of preservation in terms of completeness was observed in all three cases. The crypt structure prevented skeletal dispersion and protected against acidic erosion, but the bones became dry and brittle because of the hot and dry air inside the chambers after sealing, mixed with the accumulation of organic material and putrefactive acids.

All the inhumations were articulated, representing typical Christian burial patterns. The skeletal remains in the northern chamber belonged to a female (G.2014E/1), who died at the age of approximately 34–49 years (Middle Adult). Some non-metric traits like gracile skull, nasal sill, retreating zygomatic bones, flat (orthognathous) face, narrow nasal openings as well as high-bridged nose were all observed. The mean stature was calculated at 153.39 cm ± 2.517 (see Raxter et al. 2008: 150), which indicates that the woman was between 150.9 cm and 155.9 cm tall. Also some pathological conditions were noted on this skeleton. Large osteophytes were to be seen around the edges of articular surfaces on the lumbar vertebrae (L4 and L5), as well as a spur formation on the dens of axis (C2) and signs of periostities on the proximal ends of both femora. Oral pathologies consisted of the palatine bone with visible porosity and traces of inflammable reaction in the periosteum [***Fig. 33*** center right], substantial wear of the occlusal surface of the lower teeth crowns with the chamber openings, deep caries reaching the tooth chamber in the crown of the 2nd mandibular premolar, as well as a severe bone defect in the alveolous (on the maxilla) and a root abscess of the maxillary 2nd molar. Moreover, a calculus deposit could also be observed. All the oral defects and issues led most probably to partial edentulism, that is, ante mortem loss of most of the teeth (see ***Fig. 33*** center right) with signs of bone remodelling (see Kozłowski 2012).

The color of the bony surface is another issue to mention. Discoloration in the form of dark purple stains was visible all over skeleton G.2014E/1 from the northern chamber. This atypical discoloration may be of exogenic nature (see Gładykowska-Rzeczycka 1998: 53). It has been interpreted as being the result of the decomposition of a purple-dyed textile or shroud that the deceased had been wrapped in. It was found unevenly distributed, being the most widespread in the innominate area, on the bones of the left arm, the clavicle and the skull [***Fig. 33*** top and left], where it can be seen on both sides of each bone. The other two skeletons from G.2014E did not reveal any discoloration of this kind.

The south chamber of the crypt yielded an articulated skeleton (G.2014E/2), probably of a male, who died at the age of approximately 39–45 years (Middle

Adult). Sex estimation was not entirely unequivocal as some diagnostic traits of the cranium were not prominent enough. The skull was rather gracile and the mastoid processes, nuchal crest and mental eminence were all substantially delicate. The final assessment was made on the basis of the general shape of the pelvic girdle and on the basis of measurements of the femoral and humeral heads, which yielded values typical of a male. Individual G.2014E/2 was quite tall. The mean stature was calculated at 169.67 cm (see Raxter et al. 2008: 150), and taking into consideration standard deviation, the person measured between 166.45–172.88 cm. As for pathological conditions, large osteophytes were noted on lumbar vertebrae L3 and L4 [***Fig. 34*** top right], as well as osteophytes and deep and irregular damage on the articular surface of vertebra L5 [***Fig. 34*** bottom right]. Furthermore, a congenital anomaly in the form of sacralization of L5 was observed [***Fig. 34*** left]. The fusion occurred symmetrically on both sides of the body and was complete. It is difficult to say whether it was asymptomatic in terms of pain and problems in biomechanics. It certainly strained the spinal segments above, which

Fig. 34. Skeleton G.2014E/2 from Selib 1: left, congenital anomaly in the form of sacralization of the fifth lumbar vertebra; top right, large osteophytes on the fourth lumbar vertebra; bottom right, deep and irregular damage on the articular surface of the fifth lumbar vertebra (Photos M. Bury, P. Terendy)

explains the large osteophytes on the lumbar components and damage on L5. Oral pathologies like massive wear of occlusal surface of the lower and upper teeth with openings of chamber crowns as well as displacement of the right mandibular canine were also recorded.

A child inhumation (G.2014E/3) had been placed in a gap of the south wall of the crypt. The bone matter was extremely delicate, but the degree of completeness was considerable, 75%–100%, and the embryonic position evident [*Fig. 35*]. The age-at-death of the child was estimated based on tooth formation and eruption at 18 months ± (SD) 6 months (see Ubelaker in: Buikstra and Ubelaker 1994: 51, Fig. 24). Measurements of the postcranial segments, such as humerus, radius, femur and tibia, gave complementary results. This infant suffered from an anemia-associated disorder: porotic hyperostosis observed on the left anterolateral quadrant of orbital roof and cribra parietalis noted on a cranial vault fragment – on the right parietal (degree 1, activity degree 1). Also, a distinctive morbid porosity on the proximal and distal ends of the humeri and femora was registered. The child seems to have been dramatically malnourished and ailing. The relation between the deceased in the mausoleum tomb G.2014E is unknown.

NORTHERN CEMETERY (CN)

Skeletons I–VIII excavated in the area of the Northern Cemetery at Selib 1 were in much better condition than those from the eastern burial ground, the completeness

Fig. 35. Infant skeleton G.2014E/3 from Selib 1 (Photo M. Bury)

of the individuals being 75%–100%. The sediments in graves G.01/14–G.14/14 consisted mainly of rubble with abundant fragments of red brick and lumps of lime plaster. The considerable granularity (bigger size of particles) and alkaline reaction of the calcium component, which countered the more acidic eolic sand, presented a better environment for bone preservation. The presence of wall remains prevented sediment movement to some extent, and limited the dispersion of small skeletal fragments, even those of sub-adults (skeletons III, IV, V and VII). The burials were undisturbed [*Fig. 36*] and intact, which resulted in high average completeness of the skeletons. Four of the eight skeletons were sub-adult individuals, which added to the CNCh I and CNCh II skeletons from this area (see above) makes for a considerably

Fig. 36. Burials from the Northern Cemetery (CN) at Selib 1: top, skeleton VIII; bottom, infant skeleton V (Photos M. Bury)

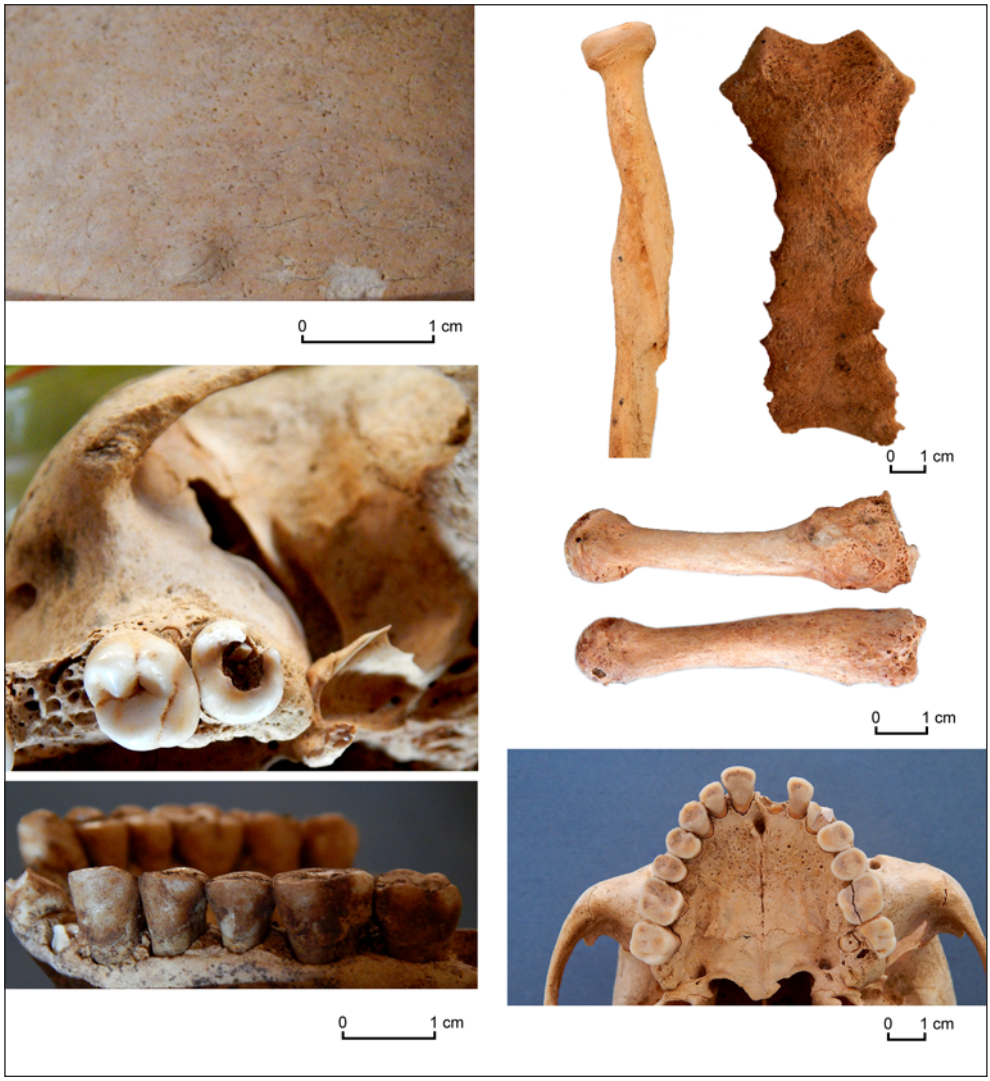


Fig. 37. Pathologies observed on skeletons from the North Cemetery (CN) in Selib: top left, non-malignant tumor osteoma (skeleton I); top center, healed fracture with dislocation of shaft of right radius (skeleton I); top right, complete accretion of manubrium and corpus sterni (skeleton II); center right, sclerotization on two left metatarsals (skeleton I); center left, deep caries reaching tooth chamber in crown of left 3rd molar (skeleton II); bottom right, substantial wear of occlusal surface of upper teeth (skeleton I); bottom left, deposition of calculus covering teeth crowns from buccal side (skeleton VIII). Note the different scales in the left and right columns (Photos M. Bury, M. Orzechowska)

high percentage in a population as small as this within a restricted area. It indicates a markedly high mortality among children; the age-at-death estimates were 7 years ± 24 months (III); 8 years ± 24 months (IV); 18 months ± 6 months (V) and 7 years ± 24 months (VII). Signs of periostitis were present in all these individuals on the shafts of the upper and lower limbs. Dense bone accretion was observed also on the shafts of femora of skeleton V. It was the youngest of the children and suffered also from cribra orbitalia and porotic hyperostosis.

The other four skeletons belonged to adults [see ***Table 1***]. Bone preservation made basic biological profiling feasible. Skeleton I belonged to a male, who was approximately 40–50 years old at death (late Middle Adult). Skeleton II was a female aged 25–40 years at death (late Young Adult/early Middle Adult), and VI a male 50–60 years old (Old Adult); finally, VIII was a female who died at the age of 40–45 years (Middle Adult).

Regarding pathologies, a high number of various skeletal alterations was observed. Skeleton I was an intriguing case. The cranium revealed a small (0.5 mm) round node on the ectocranial surface of the frontal bone, which can be interpreted as a non-malignant tumor (osteoma) [***Fig. 37*** top left], and a small (1 cm by 0.5 cm) depression on the right parietal, which could possibly be a healed depressed skull fracture. Furthermore, a healed fracture with dislocation of the shaft of the right radius [***Fig. 37*** top center], as well as signs of periostitis on a distal epiphysis of the tibae were registered. Degenerative joint disease of different skeletal segments occurred in the case of this individual. It took the form of osteophytes on the L3–L5 lumbar vertebrae, needle-like ossification on the external patellae surfaces and osteophytical changes and sclerotization on the left calcaneus, talus, cuboid, navicular and two left metatarsals [***Fig. 37*** center right]. Substantial wear of the occlusal surface of the lower and upper tooth crowns [***Fig. 37*** bottom right] and ante mortem loss of mandibular central incisors were included in the group of oral pathologies.

Skeleton II showed just as many pathological conditions: abundant oral pathologies in the form of ante mortem loss of the lower left second premolar, as well as the lower molars with the exception of the left third one. Teeth sockets were completely obliterated. Severe occlusal wear with chamber opening in the case of the left third molar and ante mortem loss of the maxillary left first molar and first right premolar (in both cases teeth sockets partially obliterated) were observed. Deep caries reaching the tooth chamber in the crown of the left first premolar and third molar [***Fig. 37*** center left] occurred together with attrition of the molar crowns. In the postcranial skeleton, complete accretion of the manubrium and corpus sterni [***Fig. 37*** top right] was noted, as well as signs of biomechanical stress on the femoral proximal part of the shaft and proximal epiphysis (enthesopathy). Finally, the porous surface of the anteromedial corner of the acromion on both the left and right scapulae, and porosity on the sternal end of the right clavicle appeared.

Virtually the same pathological conditions were observed in the case of skeletons VI and VIII. Severe attrition of teeth (chamber opening visible in the first and second molars), distortion of roots in the mandibular left first molar, age-related changes on the manubrium (osteophytes

on costal notch I), on lumbar vertebrae L3–L5 and dens of axis were noted on skeleton VI. In turn, skeleton VIII revealed: moderate attrition of teeth, deposition of calculus covering teeth crowns on the buccal side [*Fig. 37* bottom left], caries on the buccal side of the maxillary right second molar, mandibular right first molar and mandibular left second molar, and finally porotic changes on the acetabulum and in the nucleus pulposus of the lumbar and thoracic vertebrae, a sign of degenerative joint disease.

Mean stature calculations (see Raxter et al. 2008: 150) for the CN individuals gave the following results: skeleton I, 163.74 cm, range 159.5–167.95 cm; skeleton II, 167.43 cm, range 164.92–169.94 cm; skeleton VI, 168.88 cm, range 165.66–172.09 cm; and skeleton VIII, 153.16 cm, range 150.64–155.67 cm.

BANGANARTI, SECTOR SW

Skeletons BNG I/2014 and BNG II/2014 were excavated by chance in the southwestern sector at Banganarti in February 2014 while removing a layer of gravel and rubble. Most skeletal segments were acquired loose, not in situ, therefore mixed. Completeness of the assemblage ranged from around 50% for BNG I to less than 25% for BNG II. According to the biological profiles that were generated, BNG I was a male, who died at the age of approximately 45–59 years (late Middle Adult/early Old Adult). The skull was too fragmented for reconstruction and could not be measured, but some general non-metric traits, such as nasal guttering, alveolar prognathism and wide nasal openings, were visible on the reconstructed facial parts. Mean stature was estimated at 170.23 cm, range 166.01–174.44 cm. Pathologies observed in this case included: osteophytes around the edges of the articular surfaces on lumbar vertebrae L4 and L5, a large spur formation on dens of axis on C2 and severe tooth attrition [*Fig. 38*]. The most extraordinary discovery about BNG I were well-preserved toe-nails and a few scraps of textiles. This rate of preservation was obtained due to the gravel layer and remnants of red-brick superstructure, which was registered together with skeletal remains.

The bones of BNG II were less informative. It was an adolescent individual about 14–15 years old. Sex at this age is difficult to assess and prone to error. The union of the distal epiphysis starts at the age of about 11–13 years for females and about 14–16 years for males (see Piontek 1999: 148). Given that the union of the epiphysis was not observed in the BNG II skeleton, it is more likely that the individual was male. However, this observation should be treated with caution.

Fig. 38. Severe tooth attrition on skeleton BNG I from Banganati: top, maxilla; bottom, mandible (Photos M. Bury)

CONCLUSION

The present report provides a general overview, the set of just 21 individuals from five different contexts being insufficient for drawing elaborate anthropological inferences. Nevertheless, some interesting observations were made on the basis of osteological material acquired during the 2013/2014 and 2014/2015 seasons. First of all, the discoloration on skeleton G.2014E/1 from the mausoleum tomb has shed some light on possible burial practices in the early Christian world. The overall high level of preservation of skeletal remains, with the exception of the Eastern Cemetery and Banganarti where mechanical disruption had been involved, permits studies to be undertaken on the morphological differentiation of skulls. No direct relation between the spatial location of the inhumations, the presence of a burial structure or its type and morphological variations of the crania can be drawn, but the results provide a promising base for future research.

Furthermore, the preliminary studies on the Selib 1 assemblage draw attention to high mortality among infants and children. Iron deficiency disorders, most probably related to malnutrition, as well as some metabolic problems occurred widely across sub-adult individuals. Adult skeletons showed an equal abundance of pathological cases, including degenerative joint diseases, oral pathologies, fractures and a non-malicious tumor. Therefore, the osteological material from Selib 1 as well as from Banganarti holds high potential for further archaeological and anthropological studies.

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