

# **OLD DONGOLA**

## **DEVELOPMENT, HERITAGE, ARCHAEOLOGY**

FIELDWORK IN 2018–2019. VOL. 1. EXCAVATIONS

EDITED BY Artur Obłuski and Dorota Dzierzbicka



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DEVELOPMENT, HERITAGE, ARCHAEOLOGY  
FIELDWORK IN 2018–2019

VOLUME 1. EXCAVATIONS





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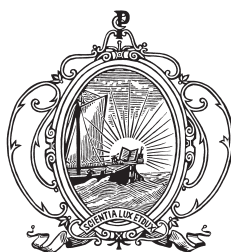
# OLD DONGOLA: DEVELOPMENT, HERITAGE, ARCHAEOLOGY

Fieldwork in 2018–2019

Volume 1. Excavations

Edited by

Artur OBŁUSKI and Dorota DZIERZBICKA



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Artur OBLUSKI





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## INTRODUCTION

Artur OBLUSKI

This volume is a report from the first fieldwork season conducted in 2018–2019 at the site of Old Dongola by the archaeological expedition of the Polish Centre of Mediterranean Archaeology, University of Warsaw (PCMA UW), within the framework of the project “Urban Metamorphosis of the Community of a Medieval African Capital City”, or UMMA (Arab. أمة – community). Other activities carried out at the site by the PCMA UW during the 2018–2019 season, namely surveys, finds analyses, as well as two projects funded by the Qatar-Sudan Archaeological Project (QSAP.A.10 and QSAP.A.31) and a community engagement project funded by the Ministry of Science and Higher Education of the Republic of Poland within the Dialog funding scheme (agreement no. 0298/2018) will be presented in successive, dedicated volumes of the report. The 2018–2019 season was the first of four excavation seasons envisaged in the project, so the results presented below are, inevitably, still preliminary. The volume is intended to be the first in a series of volumes presenting the results of successive fieldwork seasons. Integration of information, a holistic summary of the conclusions and an attempt to answer key research questions will be offered in the final publication, planned for the end of the project in 2023.

The project, which received funding from the European Research Council (ERC) under the European Union’s Horizon 2020 research and innovation program (grant agreement no. 759926), is a multidisciplinary endeavor conceived of as the first study of the liminal phases of a Christian African community inhabiting Old Dongola, the capital city of Makuria (modern Sudan) [*Fig. 1*].

The kingdom of Makuria was one of the largest medieval states in the world, encompassing a territory the size of Spain and France combined. It was also one of the few to hold off the Arab armies in the mid-7th century, when half of the Byzantine Empire fell to the conquerors. To date, research on its capital, Old Dongola, called Tungul in the native Old Nubian language (Łajtar 2013), has focused primarily on monuments of the Makurian period. The establishment of the city has been placed in the 5th century (Godlewski 2013: 7). This early period in the city’s history is still in need of further research, and its founding date has yet to find support in conclusive evidence, such as radiocarbon dating. In its heyday, the agglomeration of Old Dongola covered a territory of about 200 ha [*Fig. 2*]. The core of the urban settlement was an area of approximately 4.5 ha, enclosed by a stoutly built stone wall 10 m high and up to 5 m thick. This was the very heart of the kingdom, its administrative center and seat of the royal house and elite. The walled settlement was surrounded by residential areas, which extended approximately 1.5 km north and 1 km south. Immediately to the north of the enclosure lay two large churches excavated in the 1960s and 1970s (Gartkiewicz 1980; 1990). In addition, two monasteries were discovered on Kom D and Kom H, on the northern outskirts of the city (Obłuski 2019: 38, 40, respectively).

The time in which Old Dongola functioned as the capital of Makuria includes the period from the first encounters of Sudan with Arabs and Islam, which can be dated to the Conquest era in the mid-7th century (Elzein 2004: 15), to 1365, when the royal court left the city. Two major

Arab invasions on Nubia took place during the reigns of the first two caliphs: ‘Umar (634–644) and ‘Uthmān (644–656). The first invasion was organized by ‘Amr al-‘Aṣ (642), but after initial success the Arabs withdrew from Nubian territory with heavy casualties and pressed by the Nubian forces (al-Balādhurī 1916: 379–380; Ibn ‘Abd al-Ḥakam 1922: 56–58; al-Ṭabarī 1964; Forand 1971; Vantini 1975: 56–58). Despite ten years of partisan warfare, neither side gained a decisive advantage, and ‘Abdallāh b. Sa’d’s expedition (651–652) aimed to clarify the situation once and for all. This invasion resulted in a peace agreement with the Nubians (Ibn ‘Abd al-Ḥakam 1922: 56–58; Vantini 1975: 145). Over the next 650 years Islam continued to encroach on Nubia, but without political support or conversion of elites or masses (Cuoq 1986). Political relations between Egypt and Nubia were marked by periods of tensions, albeit generally the relationship remained peaceful, and both neighbors refrained from acts of hostility (Seignobos 2016).

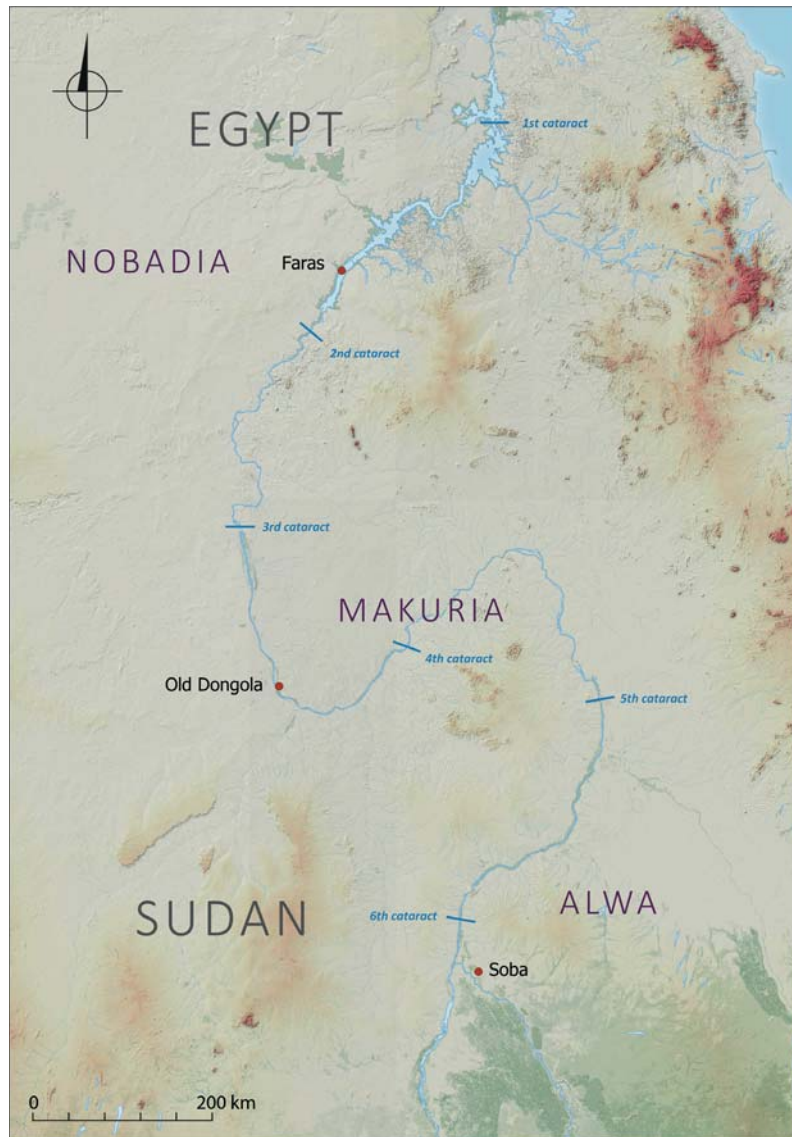


Fig. 1. Location of Old Dongola and the medieval kingdoms of Nobadia, Makuria and Alwa on a map of modern Sudan

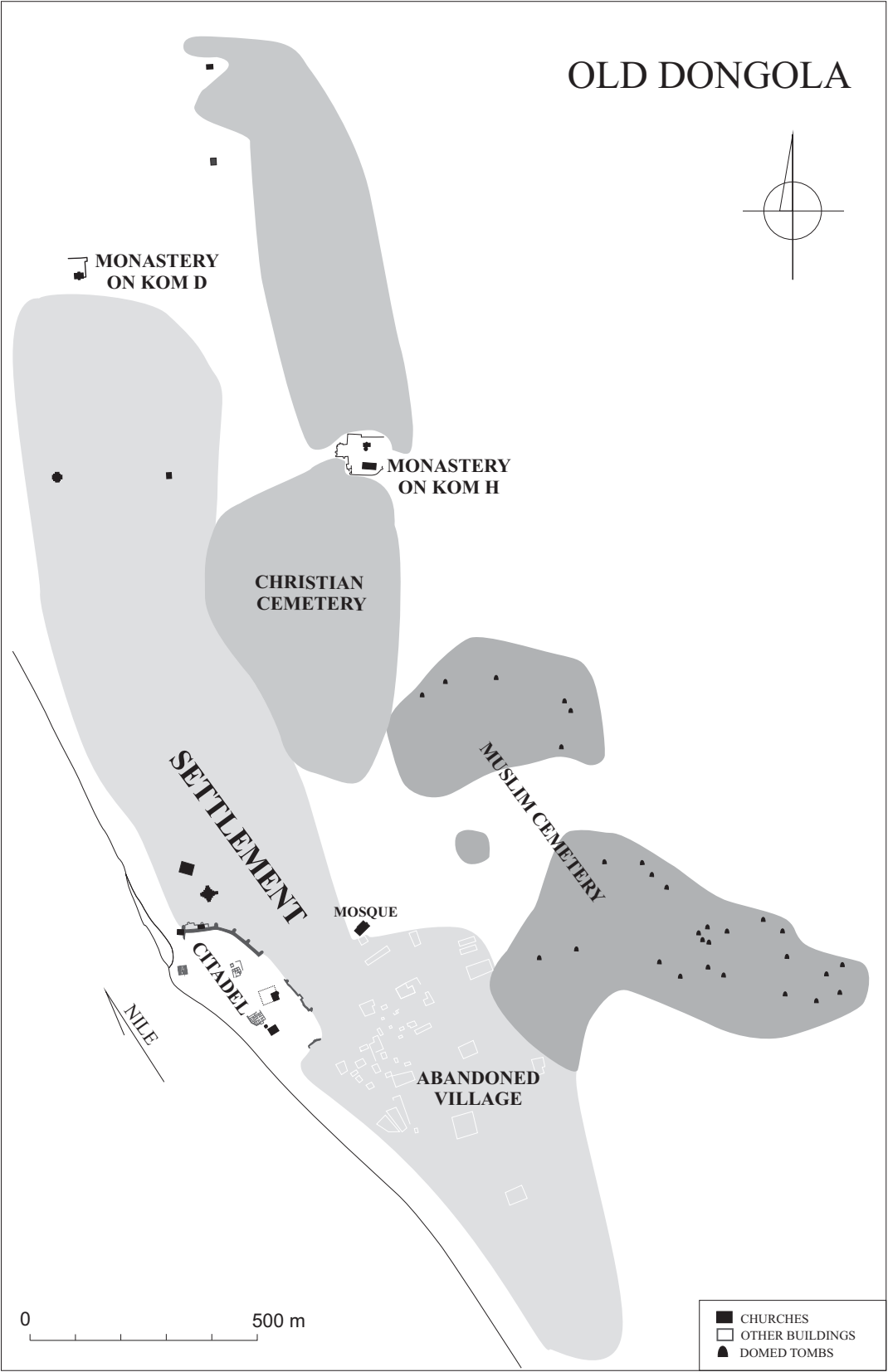


Fig. 2. Schematic plan of the site

Old Dongola continued to be inhabited after the decline of Makuria. Houses from the Islamic period have been found both on the citadel hill and beyond its walls (Godlewski 2015a; 2015b). The site also features the oldest preserved mosque in Sudan, dated by a foundation inscription to the year 1317 (Obłuski et al. 2013). The vast Muslim cemeteries in the vicinity include a large group of domed tombs attributed to early teachers of Islam. Settlement in the area continued through the early modern era until the 1960s, when the last of the houses ceased to be inhabited in the latest residential district occupying the southern part of the site, referred to as the “Abandoned Village”. Neither the Muslim cemeteries nor the Abandoned Village have been the focus of regular research published to date; however, the cemeteries are a telling testimony of religious change, while houses in the Abandoned Village provide evidence of continuity of settlement and building traditions from the late medieval period (12th–14th centuries) into the modern era (from the 19th century onwards).

#### THE UMMA PROJECT

Old Dongola provides a unique opportunity to study the collapse of the civilization of the Christian kingdom of Makuria followed by the rebirth of its urban community as a new entity organized according to different social and religious paradigms. This community, as noted by Leo Africanus, comprised at least 10,000 families and was exceedingly civil and rich (Vantini 1975: 772) thanks to thriving trade relations. The primary research objective of the UMMA project is to study social processes taking place in the liminal phase of the kingdom of Makuria and the transitional period that followed, from the second half of the 14th through the 15th and maybe even into the 16th century. Its goal is to deliver the first synthesis on this topic, as well as to produce an open-access online database with all data collected during the project, thus laying the foundations for research on the social history of the precolonial Middle Nile Valley.

The project focuses on two processes: religious conversion and migration. Both will be scrutinized from a two-tier perspective of the household and the community. Conversion is crucial for understanding the overall nature of the social and political change that took place in Old Dongola. Tackling this topic is not easy, since there are some vexing methodological issues to consider. Among these, of fundamental importance is the question of indicators of Islam and Islamization (Insoll 1999; 2003; Edwards 2005): Should we regard a state as Islamized when its rulers convert, or when the population converts? In the case of the latter, how large a part of the population needs to convert in order to consider a state Islamized? And how to determine whether Islam has become embedded in society, or whether the conversion is superficial? We assume that a religion is embedded in a community only when it can be traced down to the level of the smallest social unit: the family.

The second focal point is the relationship between the weakening of the central authority in Makuria and the influence of migrations of Arab tribes on the kingdom’s capital city and its community. Migration of Arab tribes into Sudan is reported in historical sources, but information about it hardly goes beyond mentioning that it happened (Adams 1977: 560 and 590). The project aims to investigate the scale and character of migration in the context of Old Dongola:

Was it a one-wave invasion or a steady infiltration? What were the strategies adopted by the migrating Arab tribes and the inhabitants of the city—conflict, assimilation, or negotiation? What was the impact of migration on the shape of the new society? The project seeks to find material traces of ethnic and social diversity in the spatial organization of the city, such as separate quarters or distinctive house inventories. This fieldwork season has addressed this question to a certain extent. In future seasons, complementary evidence should be delivered by micro-archaeology and analyses of collected finds and samples, for instance isotope analysis, which may help track migrating and settled populations. Archaeobotanical and archaeozoological research should also identify differences in diet and subsistence strategies. The hypothesis that the project intends to explore is that a complete breakdown of this urban organism and its hinterland was avoided thanks to cooperation established between the remaining local community and migrant population groups arriving in the period under consideration. The project seeks to identify strategies of interaction between the local community and the newcomers, as well as patterns of survival of the old traditions on the household level.

We hope that by revealing a new research perspective on the period from the gradual decline of the kingdom of Makuria (14th–15th centuries CE) to the Egyptian invasion in 1820 the UMMA project will lay foundations for further inquiries into the evolution of precolonial African communities, provoking a general discussion on social changes in urban environments.

#### THE FUNJ PERIOD IN SUDAN: A BRIEF HISTORICAL OVERVIEW

The focus of research conducted within the framework of the UMMA project is Old Dongola after the decline of Makuria. The time span between this event and the 19th century can be divided into two phases, as proposed by Intisar el-Zein Soghayroun (Elzein 2004: 15):

- 1300–1500 CE, the beginning of which is marked by the decline and collapse of the Christian kingdoms;
- 1500–1821 CE, when the Funj and Ottomans held sway in Sudan.

#### 1300–1500 CE

During this transitional phase of about 200 years, the population gradually abandoned Christianity and converted to Islam. This period is sometimes called the Nubian/Sudanese Dark Ages because virtually no information about it survives in the textual and archaeological record (Crawford 1951: 168; Holt 1967: 18; Adams 1977: 592). However, some major events are known: the installation of Muslim puppet rulers on the Makurian throne by the Mamluks (Vantini 1975: 693), the conversion of a church in Old Dongola into a mosque in 1317 as commemorated by an extant inscription, as well as the abandonment of the capital by the Makurian royal court in 1365 after a long struggle of the Makurians allied with the Banu Kanz tribe against the Banu Ja'd (Vantini 1975: 699). In this period, the state institutions of Makuria and Alwa dissolved, and the medieval territorial states disintegrated into a series of smaller polities, some of which formed around urban settlements dating from the Makurian period, like Old Dongola.

## 1500–1821 CE

The beginning of the second period can be tentatively placed at the turn of the 16th century. In about 1504, the kingdom of Alwa fell to Amara Dunqas, who established the Funj Sultanate with its permanent capital at Sinnar and who converted to Islam. At the dawn of the sultanate, its ruler was a despotic military governor, who rendered judgment concerning life and death and punished the offences himself (Spaulding 1977: 411). Sinnar rulers exercised their authority through retaining the right to choose the vassal's successor from his family and through the exaction of tribute. Funj also allowed indigenous institutions to continue (Trimingham 1949: 86). Internal conflicts were almost permanent due to the presence of a large number of local kinglets and the lack of regional authorities that could play a stabilizing role.

From the mid-16th century, Sudan was split into two major political organisms, the Ottoman Empire in the north (Lower Nubia up to the Third Cataract of the Nile) and the Funj Sultanate in the south. The shift of the Ottoman frontier south of Aswan took place late in the reign of Suleyman I (1520–1566), most probably around 1550 (Alexander and Adams 2018: 21). Its main purpose was to form a buffer zone between the Ottoman Empire and the Funj Sultanate, which had expanded north in the meantime. Two periods of Ottoman occupation can be distinguished in Lower Nubia. First, the years about 1550–1583 saw the creation of the *sanjaq* of Ibrim, a lower-level administrative district with the capital in al-Derr (Alexander and Adams 2018: 21). Then, in approximately 1583 the *eyalet* of Ibrim was established in order to provide more resources to support southern expansion along the Nile (Alexander and Adams 2018: 22). When these plans failed during the two years that followed (1585), the *sanjaq* of Ibrim was recreated and an Ottoman fortress was erected on Sai Island further upstream (Alexander and Adams 2018: 22).

In the late 16th century, the Funj Sultanate suffered from internal conflicts with the Abdallab tribe led by Ajib. Finally, after the battle of Karkoj in 1611, the defeated Abdallab accepted the superiority of the Funj rulers. Subsequently, in 1618 and 1619 the sultanate went to war with Ethiopia. The conflict, in which both sides claimed to be victorious, ended in a peace that lasted for over a century.

Around the mid-17th century, the Shaigiya revolted successfully and occupied both banks of the Nile from Deiga in the Southern Dongola Reach to the upstream end of the Fourth Cataract (Crawford 1951: 195). The Funj Sultanate never regained real authority over this region. The revolt was also an important event in the history of the *sanjaq* of Ibrim in the north, as it reduced the direct military threat of the Funj Sultanate. As a result, the role of the *sanjaq* considerably diminished (Alexander and Adams 2018: 23).

The 17th century was an age of vigorous economic development for Sinnar. Regular caravans traveled to and from Egypt, and a large community of foreign traders settled in the capital (Crawford 1951: 188). This was also a time of the emergence of the qadirate in the Funj Sultanate (Spaulding 1977: 425). The first (anonymous) *qadi* of Sinnar is attested during the reign of Sultan Rubat (from 1614 to 1642/1643). The new *qadis* were chosen from among the prominent leaders of the Muslim community. For example, *faqih* Muhammad b. Isa, a native of Old Dongola, was appointed *qadi* by King Hasan *walad* Kashkash of Old Dongola in 1684 (Spaulding 1977: 417). He was incorporated into the local networks of power and authority in a typical Nubian fashion—through an arranged marriage to one of the king's daughters and the bestowal of the honorific title Suwwar al-Dhahab (Golden Bracelet).



The period from about 1675 to 1725 was a transitional era for Sinnar. In 1718, Unsab overthrew the ruler of Sinnar and the sultanate passed under the authority of an illegitimate Funj dynasty (from 1718 to 1761–1762). Subsequently, the Hamaj Regency, which lasted until the fall of Sinnar to the Turks in 1820–1821, was established by Muhammad Abu Likaylik (Spaulding 1977: 415). The 18th century was also a time of important administrative change. During the reign of sultans Nul and Badi IV and the rule of Muhammad Abu Likaylik (from 1718 to 1775–1776), the multitude of local judges were linked formally to the *qadi* of Sinnar and incorporated into a single institution—a “national qadirate” (Spaulding 1977: 422).

#### EXCAVATIONS IN THE 2018–2019 SEASON

During the 2018–2019 season, fieldwork on the site of Old Dongola was conducted from 1 November to 19 December 2018 and, after a short interlude, from 3 January to 21 February 2019. The team was led by Artur Obłuski, Director of the Expedition and Principal Investigator in the UMMA project. Field activity was conducted under the supervision of Dorota Dzierzbicka, Field Director. Archaeological work was performed by Agata Deptuła, Stefan Jakobielski, Lorenzo de Lellis, Szymon Maślak and Maciej Wyżgoł, archaeologists. Field documentation was prepared by Agnieszka Wujec and Joanna Szewczyk, architects; Adrian Chlebowski, topographer; Jonasz Przestrzelski, student of archaeology; and Mateusz Reklajtis, photographer. The pottery team comprised Katarzyna Danys (methodology, daily processing of the material, drawing, ethnographic work), Bogusław Franczyk (daily processing of pottery, drawing, ethnographic work), Katarzyna Szymańska (drawing), and the pottery team leader Anna Wodzińska (methodology, daily processing of the material, drawing). Small finds were processed by Angela Cervi, Karolina Warecka, and Magdalena Warowna.

The team also included the following specialists: Barbara Woronko, geologist; Tomasz Derda, papyrologist; Tomasz Herbich and Robert Ryndziejewicz, geophysical survey experts; Salima Ikram, archaeozoologist; Mennat Allah el-Dorry and Mohammed Nasreldin, archaeobotanists; Robert Stark, anthropologist (member of the Ghazali project team); Krzysztof Chmielewski, Tytus Sawicki, and Maciej Baran, conservators; Karolina Wójcik, conservation student; Monika Drab, architect; Tomomi Fushiya and Katarzyna Radziwiłko, community engagement experts.

The National Corporation for Antiquities and Museums was represented by Zaki ed-Din Mahmoud, to whom the mission is very grateful for continuous, much-needed support and active involvement in all endeavors. His commitment and efforts significantly surpassed the usual obligations of an inspector.

The majority of works conducted in the 2018–2019 season centered on the objectives set for the UMMA project. The primary aims of archaeological fieldwork on the hill of the citadel this season were as follows:

- to investigate the latest preserved occupational levels and determine their date;
- to expose the urban layout of the city in its latest preserved phase and to learn more about daily life in Old Dongola in that period;
- to locate the city walls (fortifications) in the eastern part of the citadel and to determine if they remained a meaningful feature of the city in its latest phases.



Fig. 3. Results of the ground-penetrating radar and magnetic surveys carried out on the citadel hill

## MAGNETIC AND GROUND-PENETRATING RADAR SURVEYS

In order to study the urban layout of the site and to plan future fieldwork, magnetic and GPR surveys were conducted by Tomasz Herbich and Robert Ryndziewicz in December 2018 [*Fig. 3*] (Obłuski et al. forthcoming). In order to prepare the site for the GPR survey, all loose fired bricks were removed from the surface of the citadel (over 3.5 ha) and three old dumps from earlier excavations were cleared. The first results of the survey show a dense urban plan with long streets running parallel to the citadel wall. Also visible on the magnetic map is an outline of the wall in the southeastern part of the citadel.

The magnetic survey showed a large anomaly in square 10Y45. Excavations undertaken to identify its cause unearthed walls of fired and sun-dried brick (F965–F968) forming an outline of a structure. A test trench of 2 m by 2 m uncovered a thick dump deposit (arbitrarily divided into contexts 459 and 464). A sample was taken for magnetic analysis.



## METHODOLOGY

Dorota DZIERZBICKA

In order to meet the aims set for this season, it was necessary to launch area excavations using the single-context system [see *Fig. 9* and loose foldout plan]. A new recording system was implemented, and uniform policies of excavation, sampling and finds collection were introduced. Fieldwork was conducted according to the *Old Dongola Field Manual*, version 2.1 (Dzierzbicka et al. 2018).

The site of Old Dongola was divided into contiguous sectors. The citadel, the focus of work in the UMMA project, is located in Sector 1, which occupies columns 22–75 of rows 10 and 11 of the newly established grid [*Figs 4–5*].

In order to facilitate excavation and documentation, the investigated space within the sector was divided into “units”, or spaces enclosed by architectural features (most units are rooms, courtyards, or streets). If such units were recognizable from the start (i.e. walls were clearly visible on the surface), they formed the basic excavation areas. If no units were distinguishable on the surface due to the lack of visible architectural features, the basic excavation area was initially a square measuring 10 m by 10 m (see below), and units were distinguished later, when walls were uncovered. Units were numbered continuously within the sector and their numbers were preceded by the letter “U”.

Excavated units were interpreted as rooms, streets, courtyards, etc. based on analyses of access routes and the character of finds assemblages uncovered within. Units were also combined into “buildings” and “compounds”. A room or set of interconnected rooms entered from an open, common space and forming an autonomous, detached or semi-detached structure was called a “building” and referred to with a combination of unit numbers that formed it (e.g. building U5/25/72). A building-and-courtyard or a set of buildings that shared one or more courtyards and was sheltered from publicly accessible areas was referred to as a “compound” and also designated with a combination of unit numbers. Neighboring compounds forming contiguous clusters within the street grid were grouped into “zones”, which are separated from one another by streets and walls. The zones presented below are strictly topographic and do not constitute any historic quarters of the city that may have resulted from administrative and social divisions or urban planning. They are merely intended to organize the presentation of excavation results. In addition, occupational levels and deposits uncovered within the zones permit us to distinguish phases and to establish chronological relationships between neighboring compounds.

The basic excavation unit was a “context”. Contexts were divided into two categories: “features” and “deposits”. A feature is a human-made “object” built to give shape to a space (e.g. a wall, an oven, a pit), provided it is still in its original position. A deposit is a natural or intentionally deposited layer. Each context was excavated and documented separately, and placed in a Harris matrix showing the stratigraphic sequence and temporal relationships of its components (see Appendix). Secure deposits were sieved whenever possible.





Fig. 4. General view of the site showing the grid of 10 m by 10 m squares in white and the linear division in red

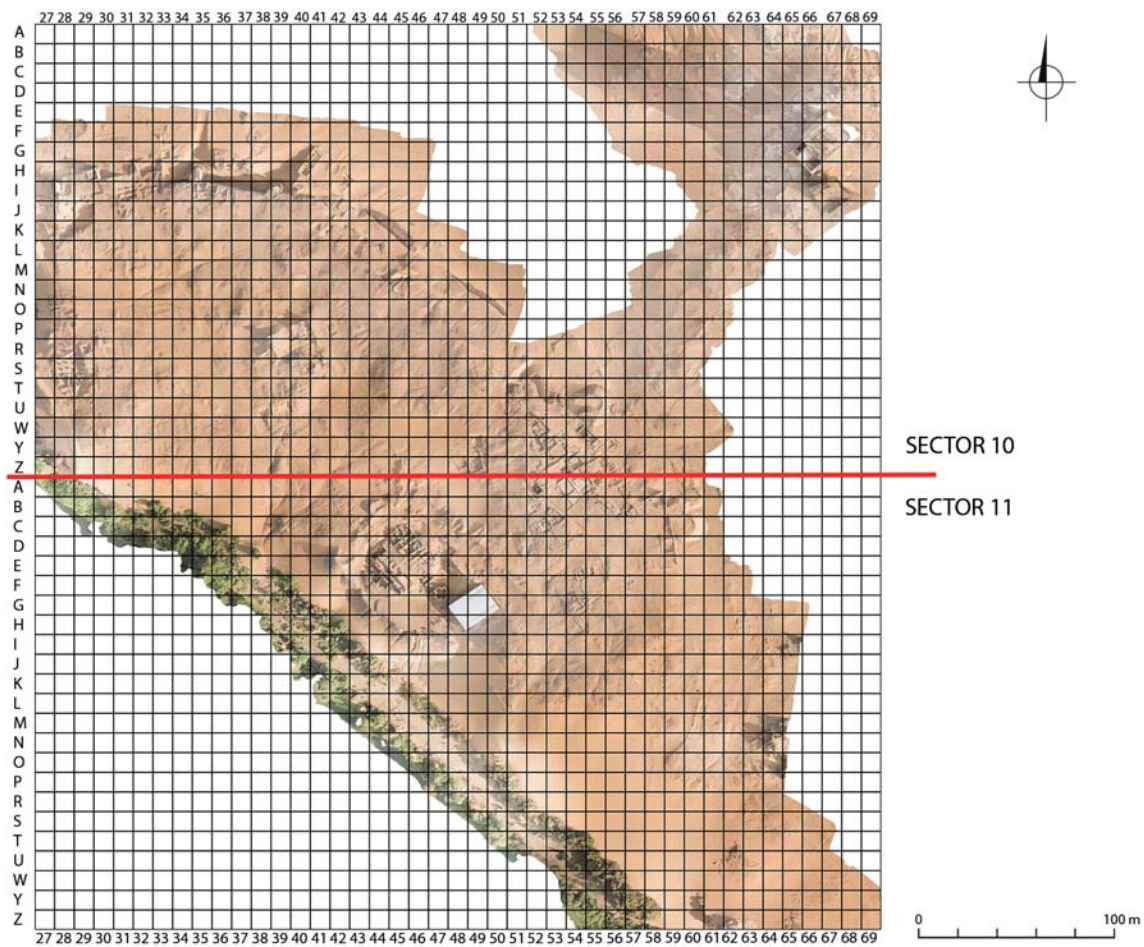


Fig. 5. Orthophoto of the citadel area (Sector 1) with the square grid overlaid

Samples were taken when the material was potentially useful for laboratory testing and when the sampled context was secure (not surface or disturbed layers). Wood, charcoal and burnt or desiccated organic particles were collected for  $^{14}\text{C}$  dating and botanical analysis; samples of pottery and slag were collected for technological studies; bones were sampled for isotope analyses and species determination.

All finds including pottery and animal bones were collected in bags corresponding to individual contexts and labeled with the context number. Finds *in situ*, complete vessels or objects of special interest received a “field object number”. A double numbering system was used for all objects including pottery: every object that was individually documented in its context and marked on a plan received a field number assigned by the archaeologist. This number functions in parallel to the inventory number, which is later assigned during processing. Within a sector, feature numbers, deposit numbers, sample numbers, and field object numbers form parallel sequences that never restart. For clarity, feature numbers are preceded by “F”, sample numbers by “S”, and field object numbers by “FN”.

Some terms recurring in the archaeological report require definition. Many of the excavated features have parallels in modern-day Sudanese villages and are referred to with Arabic terms.



However, it was decided to refrain from using common terms like *mastaba* or *gesseba* in the documentation and report in order to avoid controversies surrounding their meaning and spelling, and to prevent direct imposition of modern functions on archaeological material. The only exceptions are the Arabic terms *gir* (locally available kaolinitic clay, white or pale gray in color) and *qurba* (yellowish desert clay of local origin), since they do not have easy-to-use, precise counterparts in English. In Old Dongola, both clay types were commonly used in construction.

English terms used throughout the report to describe the commonly attested archaeological features are briefly defined below. Arabic names of their modern counterparts are provided in brackets for the sake of clarity.

- Bench (*mastaba*) – a rectangular, oval or semi-circular feature with brick-lined facing walls and plastered upper surface, raised above floor level. It was used for sitting, sleeping or performing household tasks. Narrow benches also served as supports for storage vessels.
- Bin made of unfired clay (*gesseba*) – a large, roughly cylindrical container with hand-formed walls of unfired clay, up to 6 cm thick, typically used for storing grain. It has a wide mouth and a small, round opening in the wall near the bottom.
- Hearth – an area that is burnt and covered with ash resulting from the presence of a small fire used for cooking or heating. A hearth may have edges lined with bricks, or it may be a negative feature if it destroyed a floor.
- Quern (*murkhaka*) – large stone with a worn upper surface, used for grinding foodstuffs and other materials by crushing them with a handstone (grinder, *mubrad*).
- Quern emplacement – a masonry-built base for a quern.
- Silo (*matmura*) – a large storage space sunk into the ground and accessed from above, with walls faced with masonry and covered in plaster.
- Stove – a feature for cooking or heating that operates by burning fuel. It is typically an encased pot or bin constructed of bricks with traces of burning on the inner surfaces.
- Stub wall (*tuddik*) – a short wall flanking the doorway to a room, perpendicular to the threshold. It formed part of a short entrance corridor, which increased the privacy of the interior space and played a structural role in mounting the door.

# TOPOGRAPHIC SURVEY WORK AND FIELD MEASUREMENTS

Adrian CHLEBOWSKI

Measurements were recorded using a robotic total station/laser tachymeter Leica Viva TS16 with a CS20 radio controller unit. The main software used to acquire data and generate digital documentation based on the survey results was WinKalk 2014, AutoCAD 2019, AutoCAD MAP 3D 2019, Agisoft Metashape Professional, and QGIS 3.4.

For the purposes of the project, a new local coordinate system and measuring grid were devised (in metric units: EPSG 9001). Fixed reference points established for the geodetic grid are given in *Table 1*. In the 2019 fall season, the metric grid will be transformed into an absolute coordinate system using GPS RTK. The area under investigation was divided into virtually delineated squares measuring 10 m by 10 m [see *Fig. 5*]. Each square has a code designation consisting of letters and numbers. Due to the large expansion of the site, the area was divided into numbered columns and rows. The columns are 10 m wide, while the rows measure 230 m north–south, but each is subdivided into twenty-three 10 m wide rows designated with letters of the alphabet (for technical reasons, letters Q, V, and X were omitted). Each resulting square is labeled with the number of the row followed by the letter/number set of coordinates within the row (e.g., 10Y55, in which 10Y refers to the row and 55 to the column). With the progress of fieldwork, excavation squares were set up in the field. The rows excavated this season ranged from 10T to 11H and columns from 48 to 57.

A separate square grid was set up for magnetic and ground-penetrating radar (GPR) surveys of the citadel area conducted in December 2018 by Tomasz Herbich and Robert Ryndziewicz (Obłuski et al. forthcoming). In this case, the work method required squares measuring 20 m by 20 m. Points of the grid corresponded to points of the 10 m by 10 m grid set up for archaeological purposes.

**Table 1.** Fixed grid points in the local, metric coordinate system, EPSG: 9001

No.	X	Y	H
P0	0.00	0.00	0.000
P1	15.91	18.60	7.916
P2	4.46	0.00	0.778
P3	25.08	122.70	12.683
P4	45.20	197.49	20.523
P5	- 60.64	245.89	18.377
PT3	- 19.98	270.00	20.118

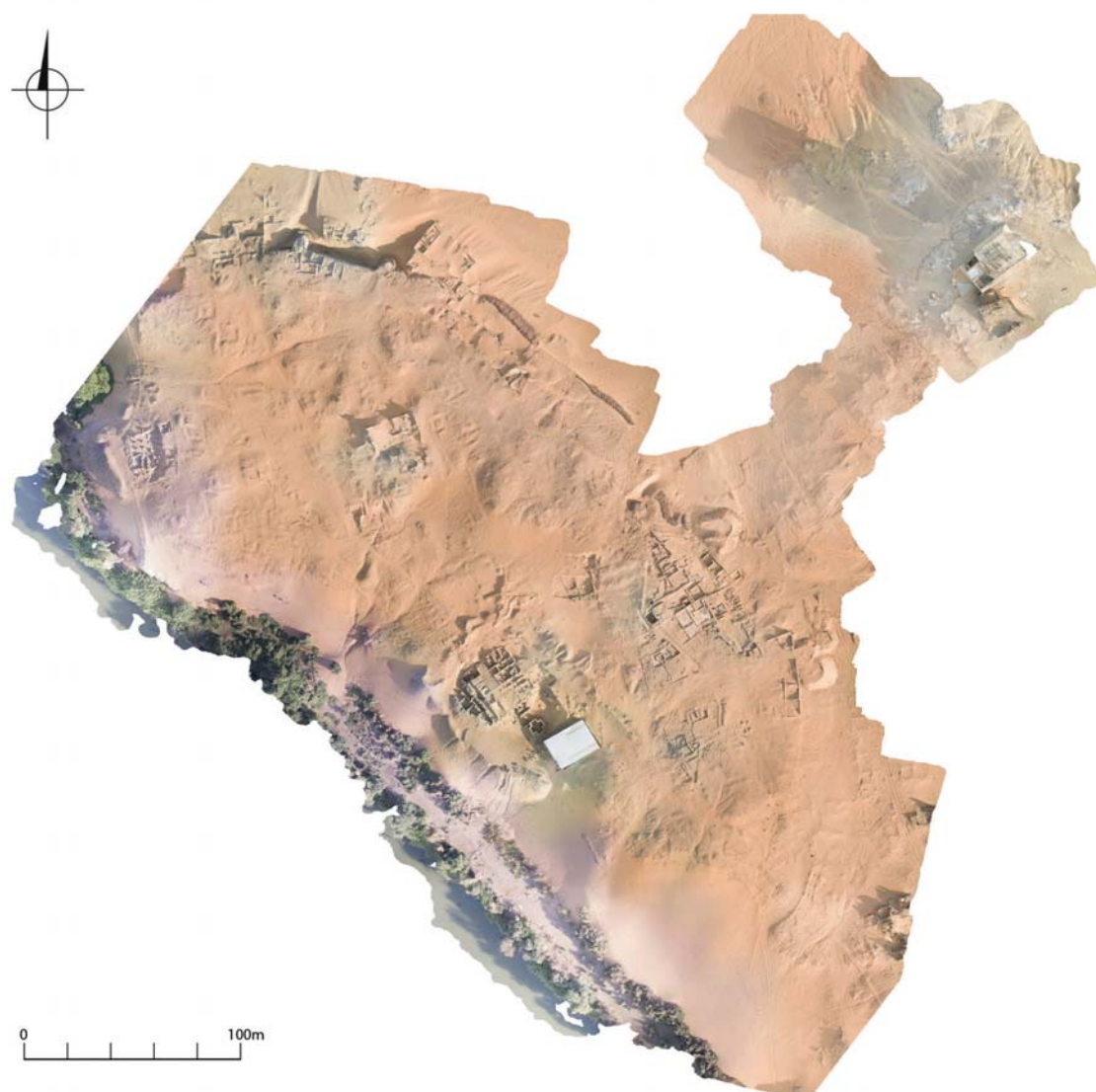


Fig. 6. Orthophoto of the citadel and the mosque building

Points taken by the topographer were used by the archaeologists and architects to create base plans for onsite documentation, such as day drawings, sections, plans, and for plotting and recording elevations. In addition to routine archaeological fieldwork and recording, tachometer measurements were also used during geological research conducted on the hill of the citadel by Barbara Woronko from the Faculty of Geology, University of Warsaw (Woronko forthcoming).

The method of spatial documentation of individual features implemented on the site required extensive use of photogrammetry. The workflow consisted of three stages:

- setting and measuring photo points;
- taking photographs of the flat or horizontal areas for creating orthophotos;
- taking multiple vertical and horizontal photographs for creating 3D models of particular areas, rooms or structures.

All photos required for the creation of such documentation were taken with a Nikon D3300 camera and saved in RAW format. Further work required the photos to be processed in Agisoft Metashape software to create a dense point cloud and then a mesh, subsequently adding texture, coordinates, and exporting ready orthophotos/models in desired formats. Twenty-five 3D models were made of structures and architectural complexes selected for this form of documentation [Fig. 7]. Models were also created of several small finds recovered during excavations, as well as of claystone formations selected by the geologist. Selected soil sections were also documented with orthophotos.

The fieldwork progress was documented with aerial photographs taken from a drone. The equipment used for this purpose was the DJI 3 Professional. The images were recorded and saved in RAW format. The use of a drone for aerial photography allowed for full control of the shot and the scale of the photographed area. In 2019, a model of the excavation site was created and an orthophotomap of the whole citadel was made with the use of drone imagery [Fig. 6]. It will constitute a dedicated raster layer serving as a base for further measurements and documentation projects. The drone was also used for smaller photo sessions documenting the progress of excavation works.

Operating a drone in semi-desert conditions on the exposed high ground of the Dongola citadel meant dealing with strong winds, bright sunlight and contrasting textures of the unearthed archaeology. However, the precision and objectivity of the images obtained compelled the team to try to include the drone as a standard documentation tool. A particular challenge the team encountered, especially at the beginning of February, was adverse weather, namely very strong winds and sandstorms, which significantly hindered and sometimes prevented taking aerial photographs. In order to continue documenting in unfavorable weather conditions, pictures were taken with a camera mounted on a telescopic pole 5 m long. All aerial photographs, both from the pole and from the drone, were taken in the mosaic technique in order to capture as many common points as needed to combine the results into one composite image. Pole photographs were taken with a weather-proof Olympus TG-5 camera controlled using a dedicated application installed on an Android device. Photo mosaics and photogrammetric images were merged using QGIS software.





Fig. 7. Orthophoto map of the excavation area combining photographs taken from a drone and from a pole. Architecture documented in detail using photogrammetry is enclosed within white boxes

## ARCHAEOLOGICAL FIELDWORK IN SECTOR 1

Agata DEPTUŁA, Lorenzo DE LELLIS, Szymon MAŚLAK and Maciej WYŻGOŁ

The area selected for excavation was located in the southeastern part of the citadel, at its highest point (grid rows 10T to 11H, columns 51–57). The spot was also of interest due to its location on the sight line connecting two monumental buildings, the mosque and the so-called Palace of Ioannes. From that point, excavations progressed south and southeast, stopping when the edge of the uppermost occupational level was reached.

The area excavated in this season measured approximately 4500 m<sup>2</sup> (work was conducted in a total of 49 squares, but some squares were only partly excavated). It featured over 100 rooms, inner courtyards and other spaces with walls preserved up to 1.8 m in height, which formed part of over 20 partly or completely excavated compounds belonging to different occupational stages. In addition, three streets and one square were uncovered.

The investigated occupational levels can be dated to the 17th and 18th centuries on the basis of pottery finds (Danys forthcoming) and radiocarbon dates (see Phasing and chronology below, *Table 9*, pp. 234–235). Sondages indicate that the excavated building phases lay on top of earlier structures with walls preserved up to 2 m in height. Samples collected from these strata point to their 16th-century date.

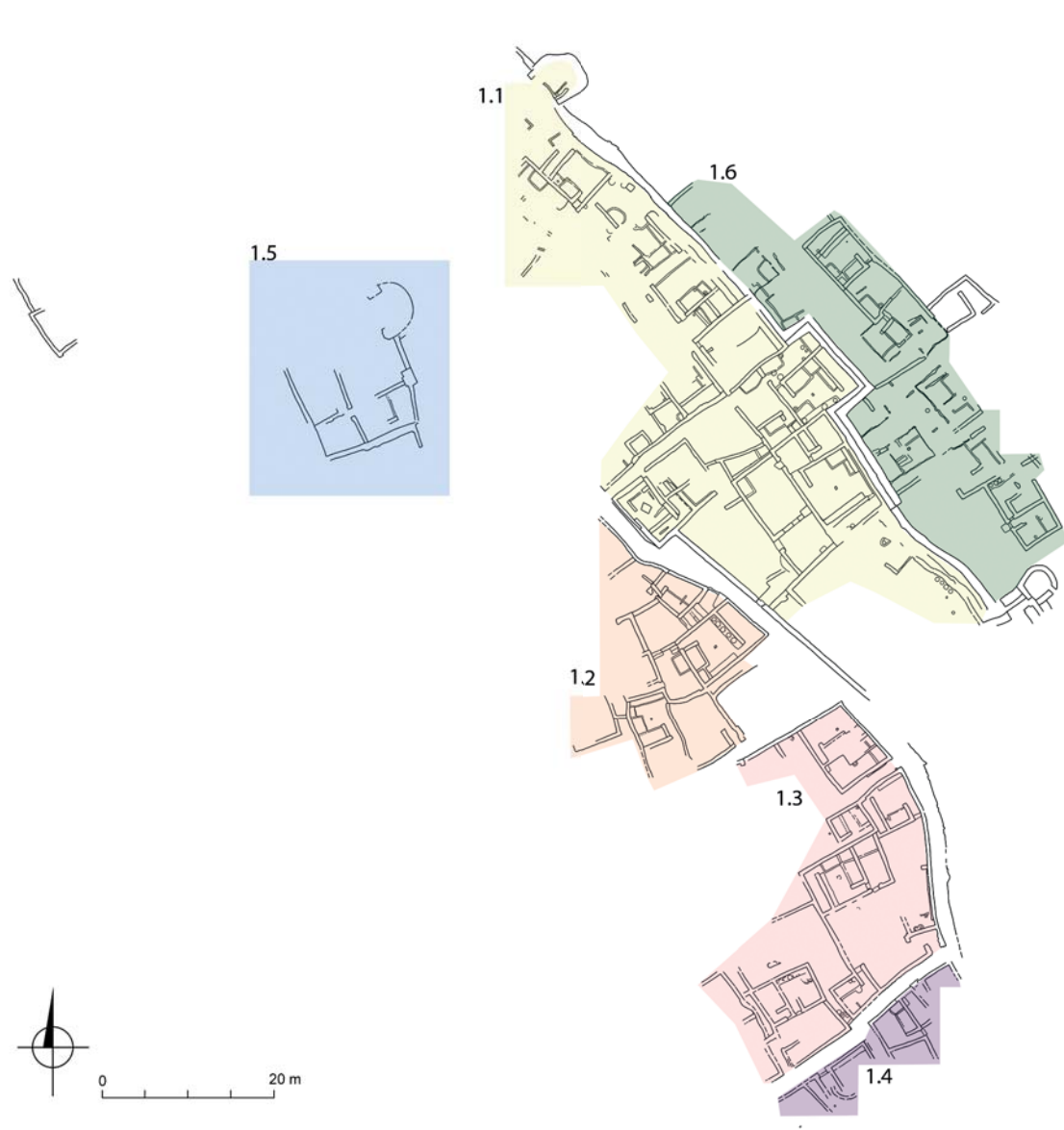
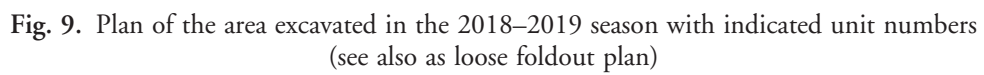


Fig. 8. Plan of the area excavated in the 2018–2019 season indicating the localization of zones 1.1–1.6





## PERIMETER WALL

- 23 Tower U66
- 25 Curtain wall and subsequent additions
- 27 Tower U42 and the adjacent city wall



#### PERIMETER WALL (*Agata Deptuła and Maciej Wyżgół*)

The perimeter wall in the east-central part of the citadel in the latest investigated phase consisted of a series of abutting walls of various materials and dimensions, stretching between two towers, U66 in the northwest and U42 in the southeast.

#### Tower U66

U66 is a semicircular tower forming part of the fortifications of the city [*Figs 10–12*]. It consists of a C-shaped fired-brick and stone wall (F963 = F830) abutting the perimeter wall (F79, F964). In the investigated occupational phase, the area within the tower was separated from the area to the southwest by wall F828 and surfaced with a contemporaneous mud floor F831. South of the tower, floor F814 was laid in U78, presumably a courtyard located between the city wall, U58, and wall F654 in the southwest. At the same time, enclosures or benches consisting of walls F657–F658 and F812–F813 were constructed in the courtyard. Subsequently, the space of the tower was used as a rubbish dump (deposit 455).

Both the space inside tower U66 and the presumed courtyard U78 are most probably connected with yet-to-be-uncovered structures to the west of the excavated area, as they are neither accessible from U58, nor from the area southwest of it. Floor F814 was covered only by the surface layer, so the function of this space in the phase under investigation is difficult to determine. Little can be said about the tower in the phases prior to its use as a refuse dump and further investigation is required to establish its occupational history.



Fig. 10. Tower U66, view looking southwest

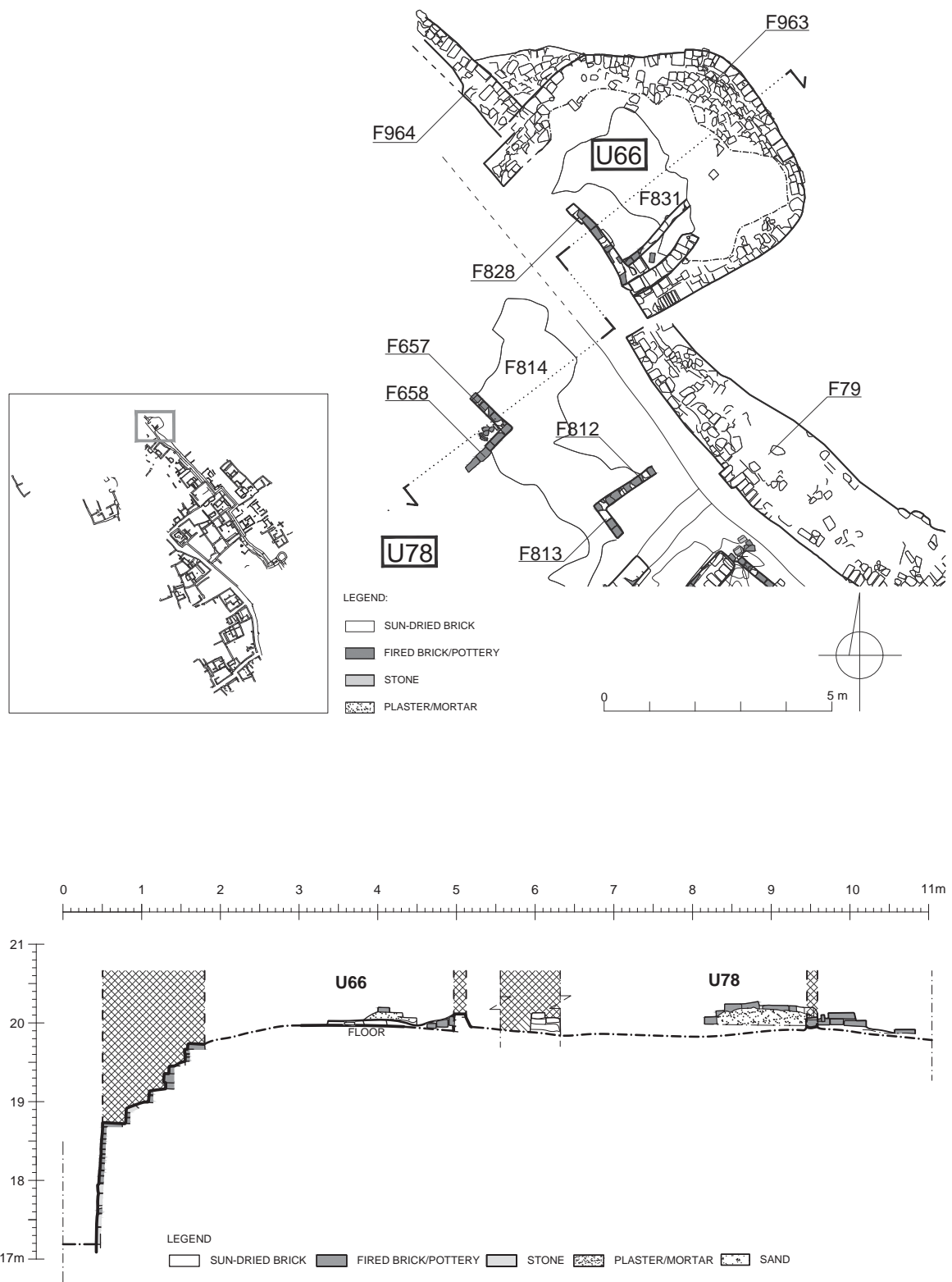


Fig. 11A–B. Tower U66 with its neighboring area, plan (top) and NE–SW section looking southwest (bottom)

### Curtain wall and subsequent additions

In the northernmost section of the excavated area, the earliest part of the uncovered perimeter wall was most probably wall F301, made of stone blocks, and wall F79, built of sun-dried brick partially on top of wall F301 [Fig. 13A–B]. Wall F79, possibly equal or contemporary with wall F233, ran parallel to wall F585, which was later dismantled in squares 10U51 and 10W51–52. The chronological relationship of these two walls remains unclear.

Further to the southeast, external walls F341 and F188 formed a rectangular protrusion of the wall to the northeast, possibly following an earlier layout of the walls in this place. On the inside of the citadel they are accompanied by parallel walls F528, F357 and F524. In this part, external walls F341 and F188 seem to have been added to walls F528 and F357, but as in other places the chronological relationship of these parallel walls remains uncertain. Walls F523 and F524 are bonded with perpendicular walls F112 and F108, respectively, which continue in the direction of tower U42, but both end about 4.20 m from it. The space in between is filled by a sequence of walls that make a right angle to reach the tower and then continue toward the south-east again.



Fig. 12. Tower U66, aerial view





Fig. 13A. City wall between spaces U20 and U74, view looking southwest

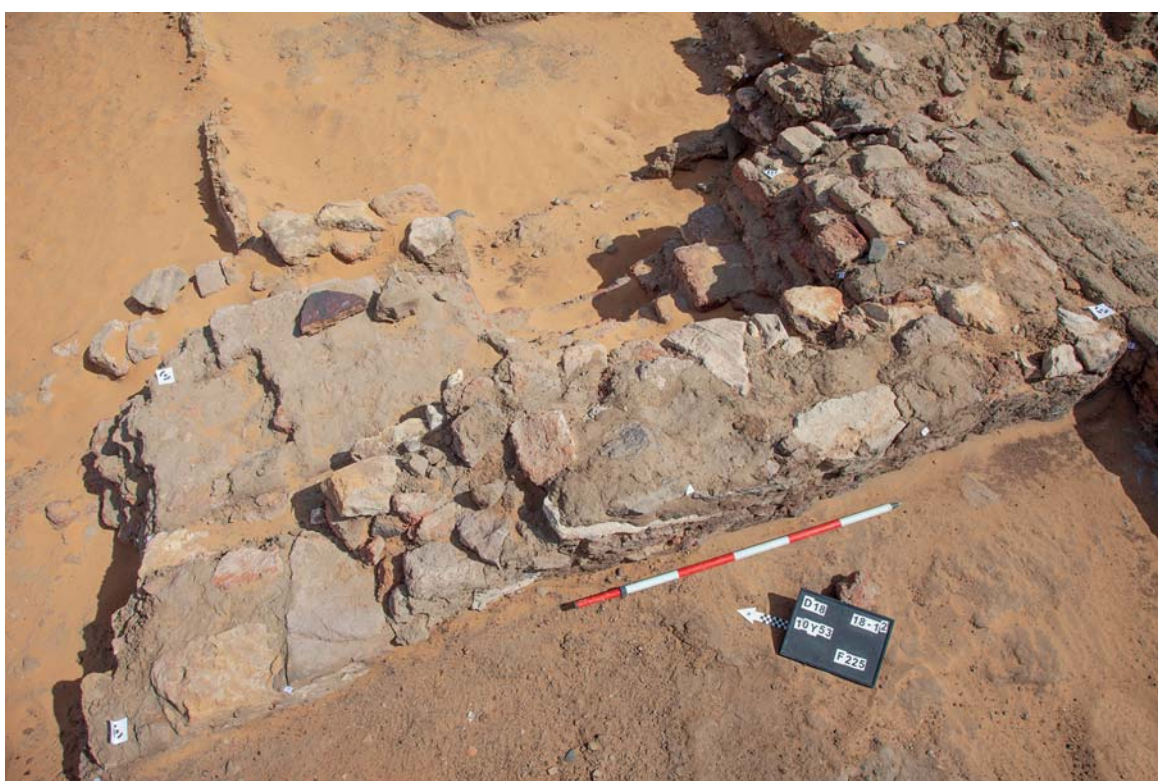


Fig. 13B. City wall between spaces U20 and U74, view looking east

### Tower U42 and the adjacent city wall

Removal of the surface layer of clean windblown sand within squares 11A57–58 revealed a stretch of the city wall comprising three abutting walls running parallel to each other (four in squares 11B55–56), as well as tower U42 [Figs 14–16]. In this place, the curtain wall seems to have changed its original course, turning at a right angle toward the east and, after 5 m, once again toward the south, forming a kind of extension with a corner ending in a tower. Although the foundation level of two of the three parallel walls has not been reached, it is possible to establish their sequence based on the architectural layout. One of the earliest elements was certainly the curved wall F587, forming the tower. The wall was 60 cm wide and was made mostly of sun-dried bricks with an addition of sandstone slabs and fired brick. The entrance was located in its eastern part. Probably contemporaneously, two walls, F586 and F588, were built, abutting the tower respectively to the southwest and southeast. Both were 1 m wide and made of sun-dried brick (possibly of the same kind as the one used in wall F587). Wall F586 was bonded with the northwest–southeast-oriented wall F109, which abutted F108 on its northwestern end. The relatively thin (0.5 m) wall F595 of fired bricks (bonded with F590) ran parallel to the existing structure. F590 was also bonded with wall F331, which was, in turn, parallel to F111. At this stage, the interior of the tower was coated with mud plaster covering both the older and the more



Fig. 14. Tower U42, view looking southwest



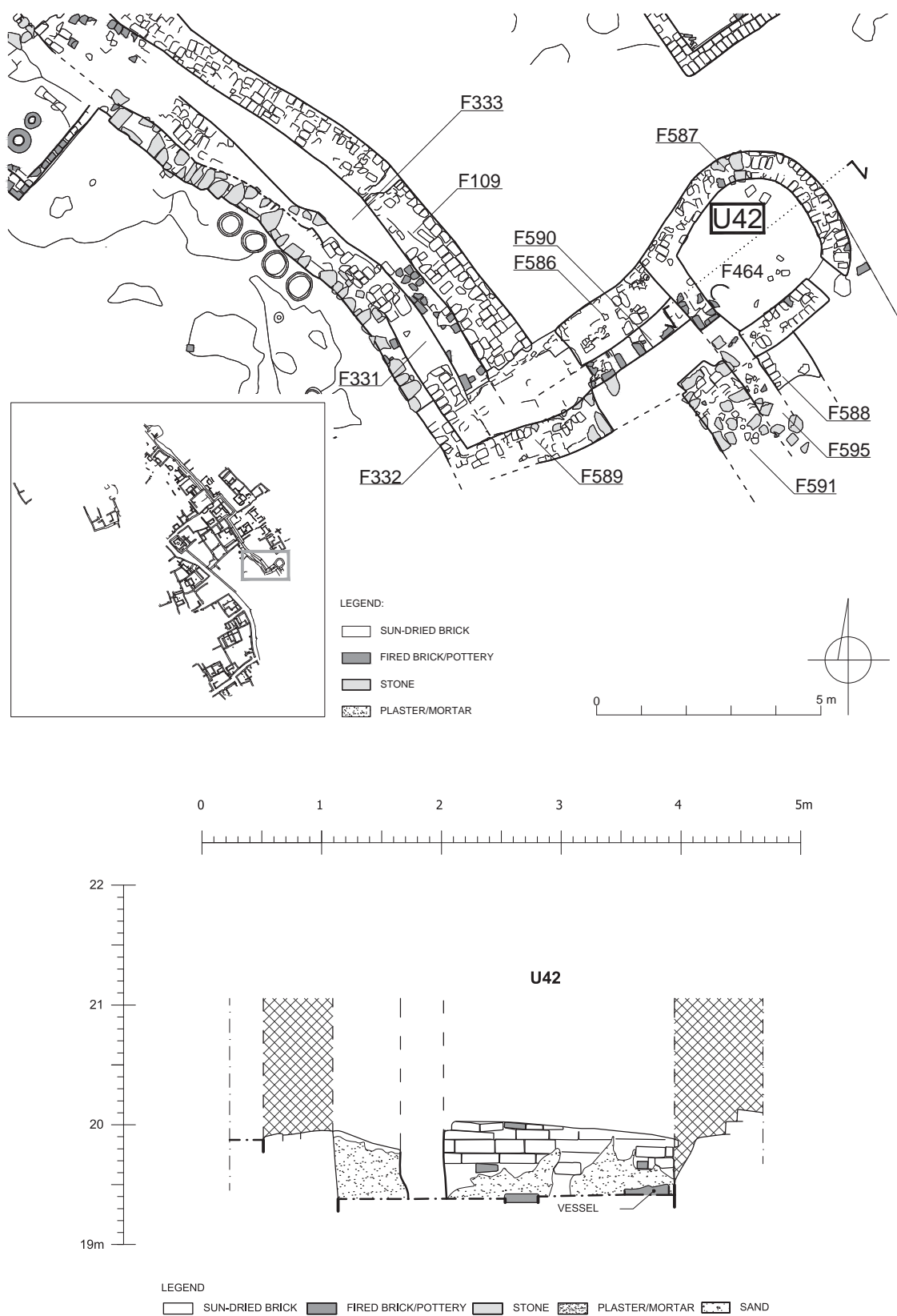


Fig. 15A–B. Tower U42, plan (top) and SW–NE section looking southeast (bottom)



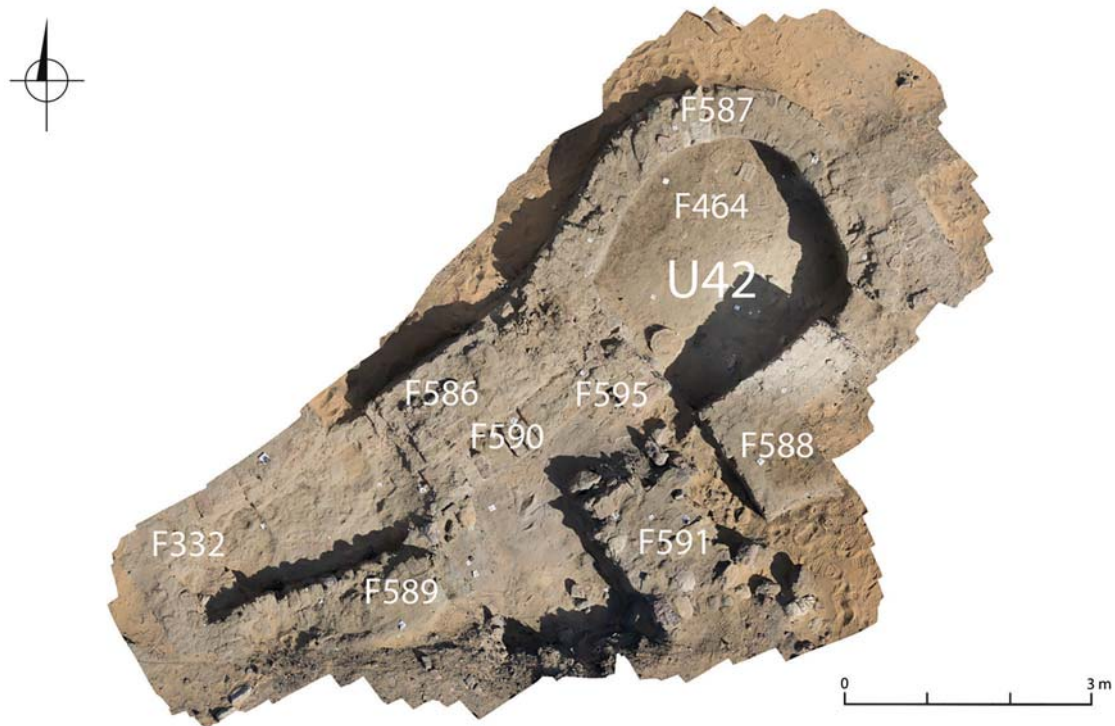


Fig. 16. Tower U42, orthophoto with overlaid feature numbers

recent walls. The latest addition was the 1.4 m wide wall made of large stone slabs bonded with poor-quality mud mortar (F591 and F589, foundation level 19.92 m). Similar sequences of walls can also be found in other areas under investigation, for example walls F301, F79, F585 and F225 (see below). From the period when the tower was out of use, it suffered progressive damage, as the walls were dismantled in order to source building material.

## Discussion

Structures forming part of the perimeter wall belong to several different construction phases. The towers and the two parallel sequences of walls [Fig. 17: blue and green] seem to be earlier than walls abutting them on the inner side [see Fig. 17: yellow]. However, the foundations of only a few walls have been reached, and the chronological relationship of most walls forming part of the perimeter wall remains obscure.

The inner additions [see Fig. 17: yellow] to the walls stretching between the two towers were built successively after the construction of the two external wall sequences. Foundations have been reached only for some of the innermost wall sections (F591 at 19.92 m and F225 at 20.30 m). These transformations of the city walls were closely related to the remodeling phases of the excavated houses and seem to constitute facing walls of rooms, built to provide them with refurbished, uniform interiors and reliable structural support [Fig. 18]. A prime example of this correlation is house U5/25/72, preserved in the northern part of squares 10Y52–53, which adhered to the fortifications from the southwest [see below, Fig. 42]. In that area it is possible to

distinguish at least three general stages during which new sections of walls were added piecemeal, parallel to the previous structures, at the same time changing the original layout and size of the house.

The external mud-brick walls and the two towers [see *Fig. 17*: blue] seem to form part of a late line of fortifications. Their construction date cannot be established at this point. In its central part, the curtain wall seems to abut walls (F303, F528, F357) that clearly were a part of earlier domestic complexes, which are concealed by extant later structures and therefore impossible to investigate.

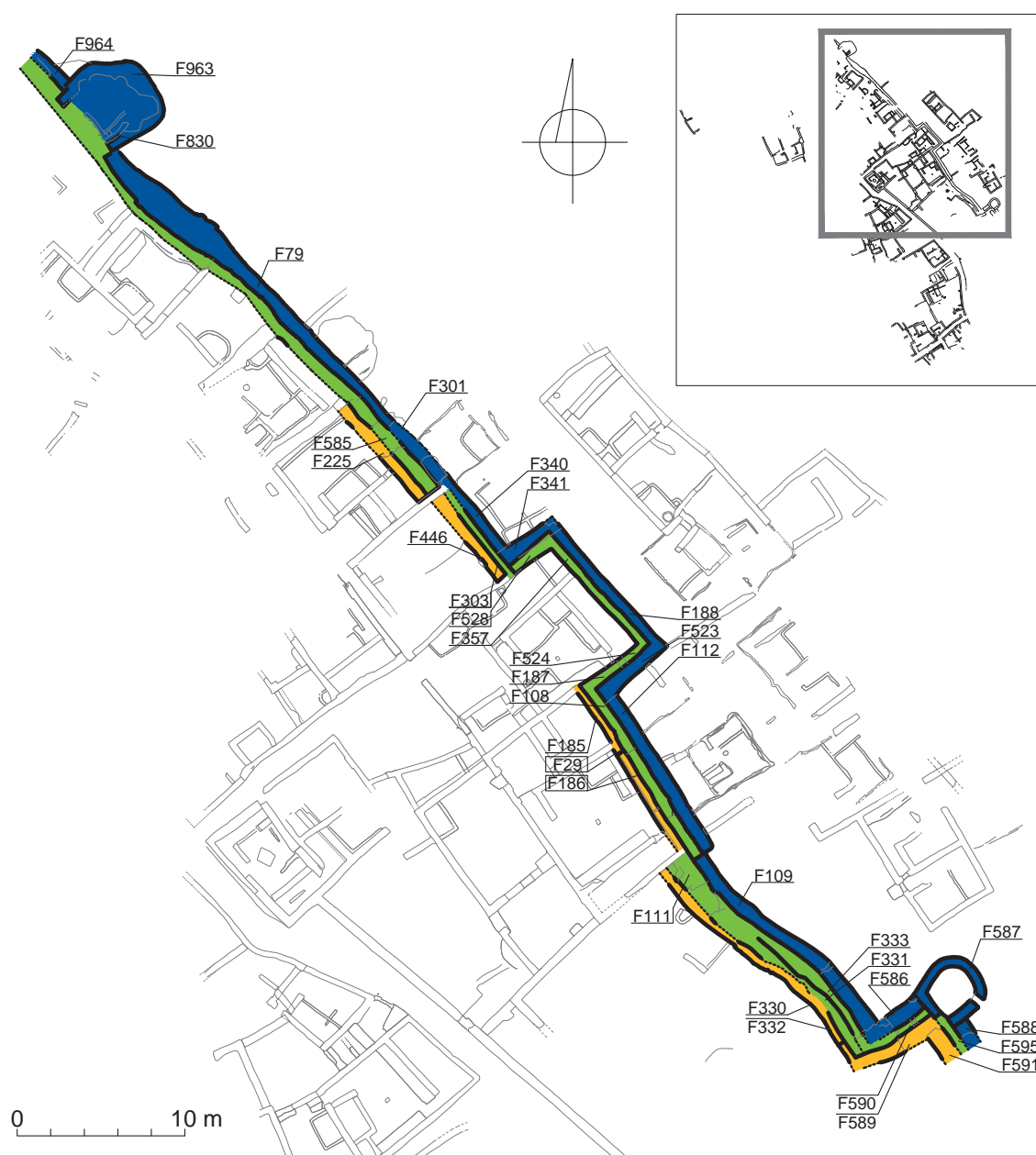


Fig. 17. Structures constituting the perimeter wall with color indication of the phases: green is the earliest or contemporary with blue, and yellow is the latest

In the latest phase (period II, 18th century; see Phasing and chronology below, *Table 9*, pp. 234–235) of the residential area on the hill of the citadel, the curtain walls and towers seem to no longer play a military role; rather, they appear to divide the urban space into quarters within and outside the citadel, or perhaps into terraces. Dwellings are clustered against them on both sides and the towers no longer serve their original purpose. The relationship between the residential areas inside and outside the walls is unknown, as no evidence for gates through the walls functioning in this period has been found.

The relationship of these walls to the fortifications of Old Dongola identified in other parts of the site is difficult to determine. While it is plausible that the line of the perimeter walls in the excavated area follows the course of Makurian citadel fortifications visible further to the north-west (Godlewski 2015b), it cannot be proven at this point. The excavated wall sequence also does not appear to be aligned with the citadel walls identified thanks to the geophysical survey along the east and southeast edge of the citadel [see above, *Fig. 3*]. However, the date of that stretch of perimeter walls is also unknown in the current state of research, and they need not be contemporary to any of the other known sections of the walls.



**Fig. 18.** Series of abutting walls forming part of the perimeter wall; the trench after the dismantling of one of the walls is filled with sand

## STREET GRID

- 33 Street U24
- 34 Courtyard U56
- 36 Street U62
- 38 Street U49





### STREET GRID (*Lorenzo de Lellis*)

During the area excavations conducted this season, three streets and a courtyard were investigated [Fig. 19]. They divided the urban district within the perimeter walls of the citadel into four zones discussed separately below. GPR results have shown that the streets remain consistent in outline also in deeper strata (see Figs 3, 229). This was archaeologically verified for street U24, whose northern wall, F123, descends over 1.5 m lower than the exposed walking surface. It therefore seems that the street grid is earlier than its uncovered 17th- and 18th-century walking levels.

#### Street U24

Street U24, running from northwest to southeast (squares 11A52–11B52, 11B53–11C53), clearly outlines two distinct blocks of residential buildings along its sides, their outer walls being F122, F123, F130 in the northeast and the curved wall F257 in the southwest, which served as the main



Fig. 19. Orthophoto of the excavated area with elements of the street grid marked in blue

wall of house U23/32/38/39 that developed along its southern side. The street measures 1.70–2.40 m in width throughout its length, widening to 4.00 m in the corner of walls F130 and F122.

The street had a series of tamped surfaces datable to the 17th and 18th centuries (from period II.C to period III.D; see Phasing and chronology below, *Table 9*, pp. 234–235), the main one being F265 (elevation 19.06 m), overlying level F262 (elevation 18.68 m). Above the main level of the street (F265) and the abutting wall (F257) there were three small layers of collapse from some structures: 277, 278 and 279. In square 11B53, the walking level F265 sits just below the surface sand, but in comparison to its southwestern part it is less evident and compact. As revealed clearly by a section in squares 11C53–54 (where the street level merges with the walking level of courtyard U56), this walking level is made of sand and sun-dried-brick rubble and seems to derive from structure collapse. After collapse, the deposit filling the street was used as the new walking level and its surface was tamped during use.

### Courtyard U56

Courtyard U56, a vast, open area that extended in squares 11C53–54 and 11D53–54 during period II.C (18th century), was delimited on the southeast side by wall F685, and on the southwest end was separated from room U52 by wall F662 [*Fig. 20*]. The wall along the northwest limit of the courtyard, F405, separates the open space from rooms U32 and U39. The northeast limit is formed by wall F130.

The organization of the area was likely different during period III.A and earlier (17th century). A sizable ash layer found in its northern part (345, 344) and the top of wall F663 concealed by it suggest that the occupational sequence in U56 was similar to that in other parts of the excavated area (see below, U52 and U63), where substantial deposits of ash were dumped to obliterate earlier structures and to create a new, uniform occupational level. Wall F662 defining the southwest edge of the courtyard is bonded with F663, forming a rounded corner at the junction. It is made of sun-dried and fired bricks laid in alternating rows of stretchers and headers. The fired bricks used for its construction, and randomly distributed in the structure, are unusual, as they are square in shape (approximately 30 cm by 30 cm), while the overwhelming majority of fired bricks on site are rectangular (see below, Conclusions, p. 237). On the southern face, a few traces of whitewashed plaster are visible. On the northeast end, F663 is bonded with F664, a similar wall that has not been excavated.

Inside the area delimited by walls F685 and F662 there are various traces of floor levels pertaining to different phases. Floor levels F565 and F566 represent probably the latest phase (period II.C) in the life of the courtyard, together with F569. F565, the remains of a floor level made of a thin layer of mud mortar, is associated with street U24 coming down from the northern part of the citadel. It is likely the latest walking level, as it lies above an earlier floor, F567, from which it is separated by layer 350 [*Fig. 21*] composed of sand mixed with rubble and sun-dried and fired brick fragments. This layer could be the result of a phase of abandonment represented by the rubble and sand on which a new floor was laid in street U62 departing toward the southeast. Another, more extensive remnant of a mud-mortar floor was F568, followed by F570 on its northeastern edge. This last floor level was covered with a thick layer of tamped rubble and sun-dried-brick fragments, lumps of *qurba* and traces of organic matter (300) probably originating



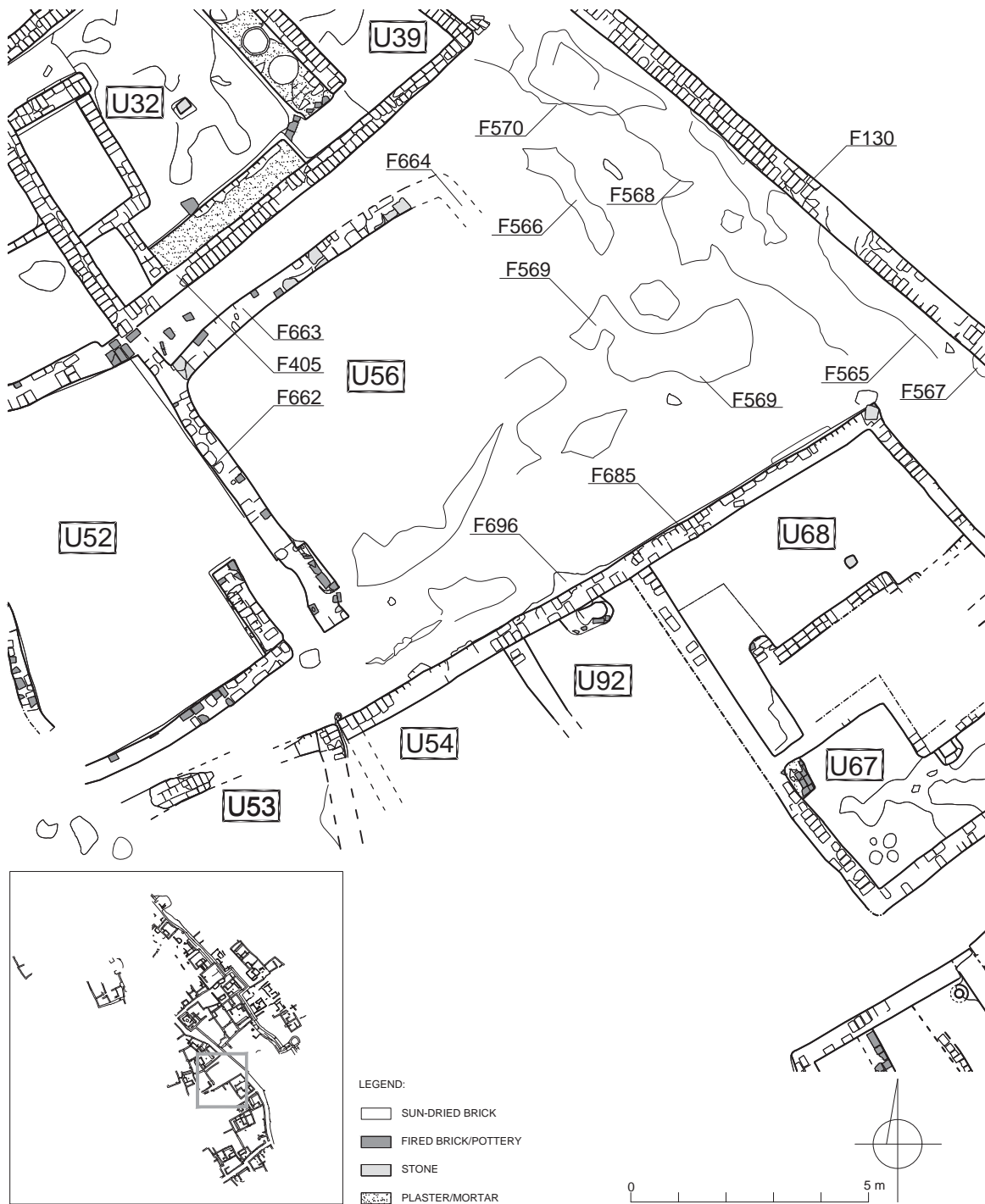


Fig. 20. Courtyard U56, plan



Fig. 21. Courtyard U56, rubble layer 350, view looking northeast

from the destruction of nearby buildings. After their collapse, layer 300 served as a temporary walking surface, attesting to the long-lived usage of the space even after the collapse of some of the buildings flanking it.

In the inner part of the courtyard, to the southwest, there were two distinct floors of mud mortar with traces of yellow *qurba*, F566 and F569 [Figs 22–23]. Because of their irregular surface and lack of whitewashing, those floors corresponded well to the idea that this space was an open area serving as a courtyard linking streets U24 and U62 with the houses further to the southwest.

In the southern part of the courtyard, northwest of wall F685, some traces of a floor level of mud mortar (F696) abutting the wall have been found. F685 was carefully plastered on its external face with a three-layer plaster consisting of one layer of mud, one of *qurba* and a final one of *gir* whitewash. Floor level F696 was physically connected with the plaster, attesting to a phase in which the whole area, walls and floors, was restored and possibly even built together. Subsequently, a layer of yellow sand with some organic matter accumulated against the northwestern face of wall F685 and on the remains of floor level F696 along the face of the wall, probably indicating abandonment of the area.

### Street U62

Street U62, running from north/northwest to south/southeast, measures 1.50–2.36 m in width, tapering as distance from courtyard U56 increases. In the northeast, it is flanked by wall F130, which descends from square 11A52 toward the south. In its northern stretch (squares 11D54/11E54), the street's southwest limit is F564, a long wall of sun-dried brick serving as the main outer wall of units U67 and U68. Further to the south, U62 runs along the east wall of building U59/60 and courtyard U71. It is adjoined from the west by a perpendicular street U49.



Fig. 22. Courtyard U56, floor level F566, view looking northwest



Fig. 23. Courtyard U56, floor level F569, view looking northwest



The street preserves various traces of floor levels (F565, F567, F568, F570), suggesting a long period of use. One floor level (F570) consists of compacted rubble from sun-dried bricks, presumably originating from the collapse of the nearby buildings, marking the progressive rise of the walking levels along with the reuse of older, lower-lying buildings as foundations for new ones.

### Street U49

The southeast area of the city is concentrated along street U49 [Fig. 24]. The street runs north-east–southwest and turns toward the south in the west. It measures 1.46–2.01 m in width. According to the magnetic map, it did not continue toward the east but at its eastern end it stopped at street U62, which also determined the eastern boundary of the excavated zone. The street gave access to several compounds: U43/46/51, U44/45/48/55/59/60/71, U57/70, and U102 (see below, zones 1.3 and 1.4). Originally the entrance to U50 was also from this street.



Fig. 24. Street U49, view looking southwest

## Discussion

Two of the three uncovered streets, U24 and U62, seem to run parallel to the city walls, while street U49 is perpendicular to them and runs toward the southwest. The average width of these streets was 2 m. They correspond in width to a street uncovered in SWN.B.I.E, a 17th-century residential area in the south-central part of the citadel (Godlewski 2015a: Figs 16-1, 16-2). That street apparently formed part of the same concentric street layout, following the outline of the citadel [see also *Fig. 229* below].

Courtyard U56, located at the junction of streets U24 and U62, was clearly a publicly accessible area in the last stage of its use (period II.C), but a different earlier purpose cannot be excluded. The space of the courtyard connected streets U24 and U62 with residential complexes to the southwest. In the southern corner of U56, a passageway departs to the southwest between U52 and U53/U54. No entrances to households directly from the courtyard have been identified. The lack of structures (walls, pillars, etc.) within U56 seems to support the idea that it was an open area, as does the “crude” nature of its walking levels.

## ZONE 1.1

- 41 Compound U6/8/58a/58b/73
  - 41 Building U58a/58b
  - 45 Space U8
  - 46 Building U6
- 50 Building U5/25/72
  - 50 Room U5
  - 52 Space U25
  - 54 Vestibule U72
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## FUNJ-PERIOD RESIDENTIAL QUARTER WITHIN THE CITY WALLS: ZONE 1.1

Zone 1.1 is delimited by the city wall in the northeast, while in the southwest it is closed off by street U24, courtyard U56 and street U62 [see *Fig. 8*]. The best-preserved residential compounds are located in its central part. In the northwest, street U24 was destroyed by surface erosion and is, therefore, not extant. Its course in this part of the site is inferred from its preserved fragment found in the western part of the excavated area and from the results of the magnetic survey. Erosion of the latest occupational levels in the northwestern part created a slope inclined from north to south, destroying parts of the dwellings and exposing an open area in which layers of refuse were interspersed with tamped walking levels. This refuse may have also come from the 18th-century occupational levels of the excavated living quarter within the city walls. In the southeastern part, in turn, the area along the city wall was occupied by courtyard U86, but the occupational level eroded away a few meters from the wall, leaving the space between it and street U62 without any identifiable structures. The compounds in this zone are presented below, proceeding from northwest to southeast.

### **Compound U6/8/58a/58b/73** (*Maciej Wyżgoł*)

The compound is only partly preserved due to the surface erosion of its southern part [*Fig. 25*]. It seems to consist of three adjacent spaces with floors on roughly the same level: semi-open U8 and buildings U58a/58b and U6. They may have been connected, but the state of preservation of their walls makes their relationship impossible to ascertain. They seem to have shared a courtyard space, U73, which stretches along their southwestern sides. The three buildings are located at a lower level (elevation 20.00 m) than the neighboring building U5/25/72 in the southeast and therefore seem to belong to an earlier phase than the latter.

The relationship of U8/58a/58b to building U6 is difficult to establish due to the fact that the outer walls of U6 were almost entirely dismantled. However, it is not to be excluded that they constituted one household. The floor of U6 lies on a higher level (20.00 m) than U8/58a/58b (19.60 m, 19.80 m), but this may have also been caused by the fact that the houses stood on a slope [*Fig. 26*]. The units functioned in the same phase and shared some features, as well as the same open space, U73, in the south.

### *Building U58a/58b*

The dwelling has the common form of a square building divided into two unequal parts, U58a and U58b, by partition wall F655 [*Figs 27–28*]. Such a layout is well attested at Old Dongola (Godlewski 2015a; 2015b; 2018), as well as at other sites in the Middle Nile Valley, like Attiri (Adams 1987: 335–336; Osman and Edwards 2012: 192), Gergetti (Vila 1977a: 32–37) and Keyendi (Vila 1978: 81–85). The northwestern part, U58b, is much smaller than the southeastern, U58a. The entrance to the building, located in the southwestern wall of U58a, is screened off by stub wall F651. The main room is equipped with three benches, two of which abut one another and are located behind the stub wall. The third is located opposite the entrance. The building is delimited from the northeast by a negative of a wall (F835) that abutted city wall F79, and from the southeast, southwest and northwest by mud-plastered and whitewashed mud-brick walls F102, F654 and F816 (removed in the northeastern part, leaving the negative F844).

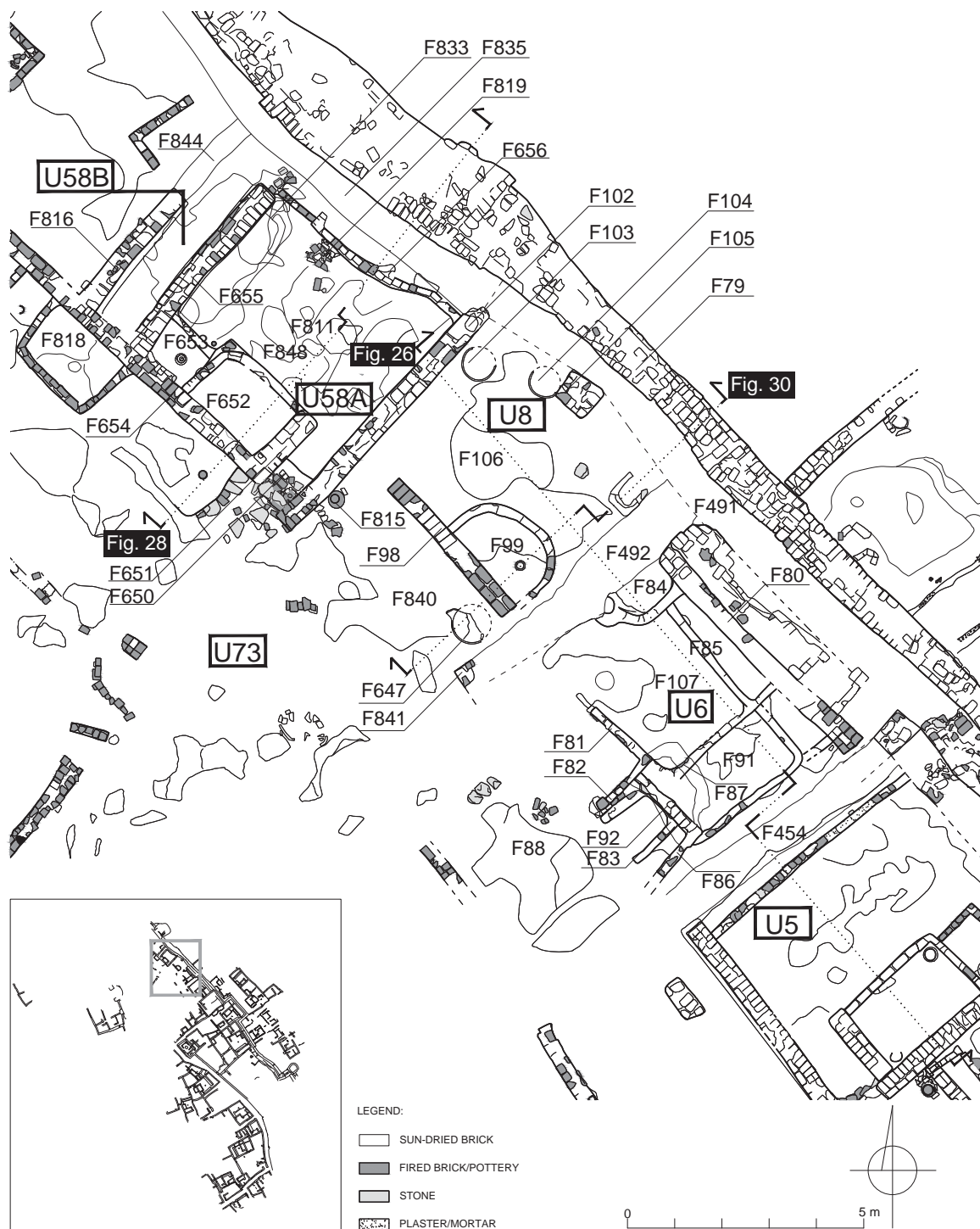


Fig. 25. Compound U6/8/58a/58b/73, plan

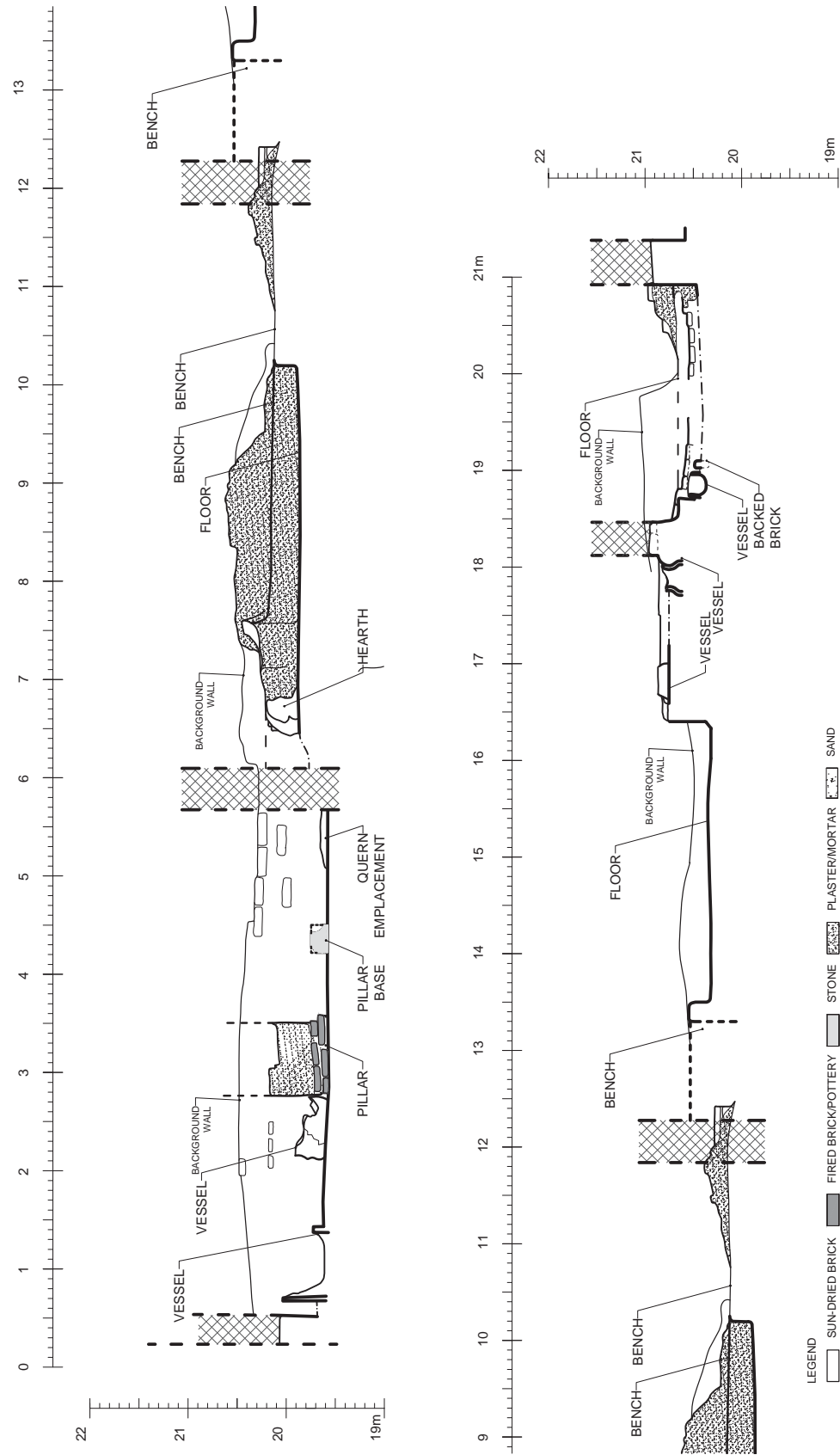


Fig. 26. Compounds U6/8/58a/58b/73 and U5/25/72, NW-SE section looking northeast



Fig. 27. Building U58a/58b, aerial view

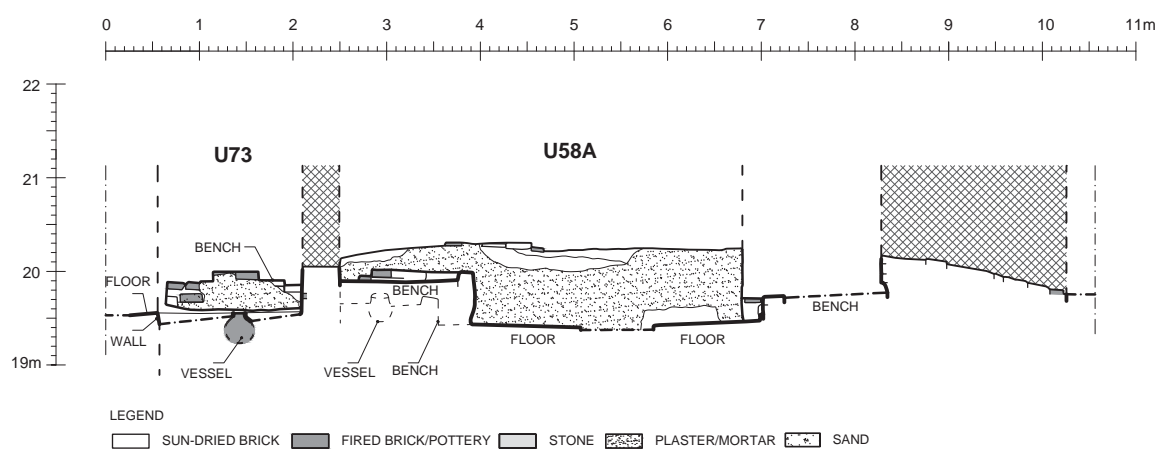


Fig. 28. Room U58a and courtyard U73, NE-SW section looking northwest



*Space U8*

U8 was a square space with a mud floor surrounded by mud-brick walls [Figs 29–30]. From the northeast, U8 was delimited by F491, a negative of a wall; from the northwest, it was enclosed by a plastered mud-brick wall (F102), from the southeast by a negative feature (F492) left behind after the dismantlement of a wall, and from the southwest by a fired-brick wall (F98). It was

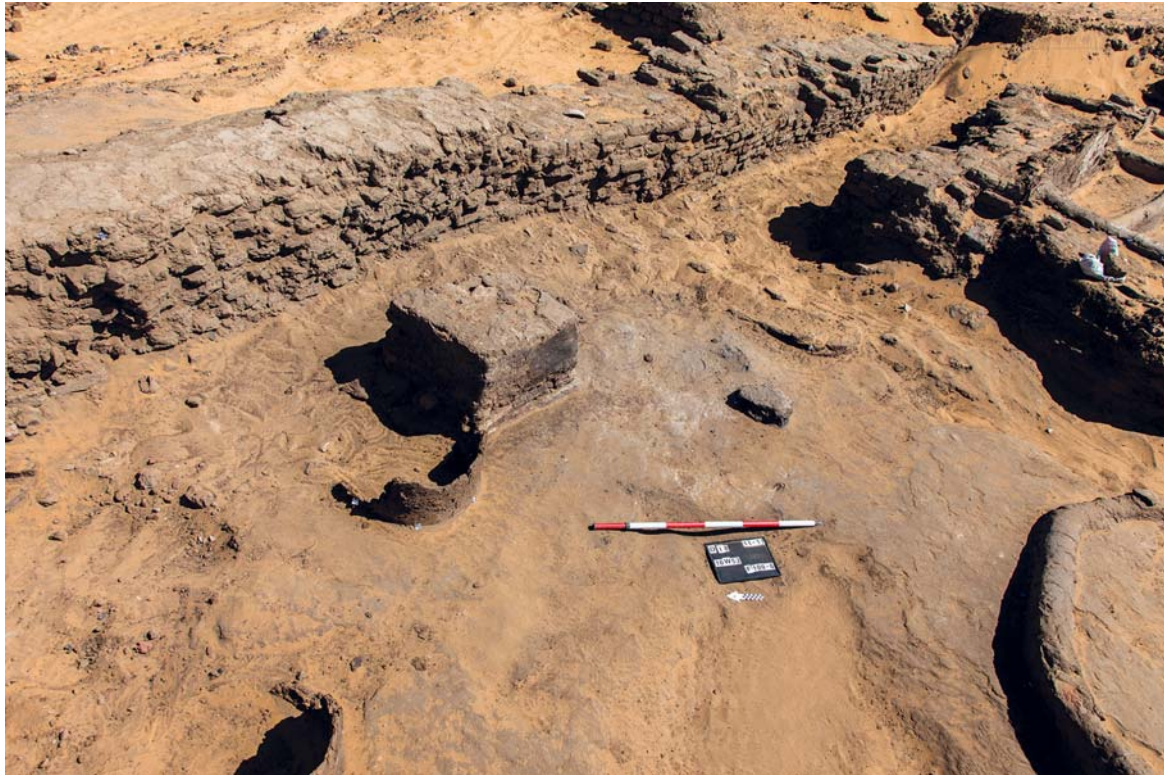


Fig. 29. Space U8, view looking east

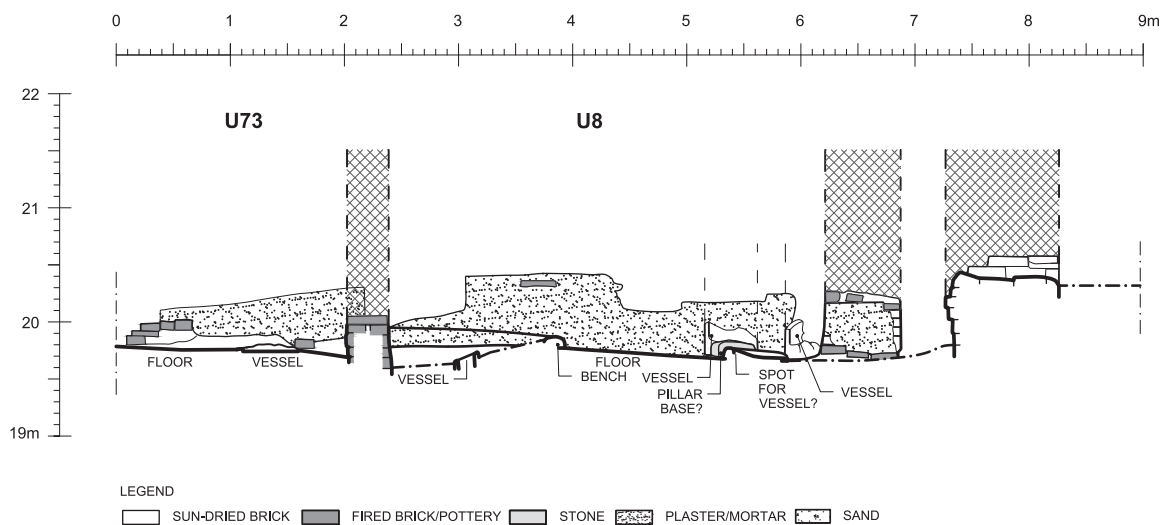


Fig. 30. Space U8, NE-SW section looking northwest



equipped with a semi-circular bench abutting the southwestern wall and with two storage bins placed by the northeastern wall. There is no evidence of doors, a threshold, or a stub wall, so the unit was most probably a semi-open area. The features are preserved up to a height of 60 cm.

### *Building U6*

U6 was a square, one-room building with a mud floor [Fig. 31]. Of the surrounding walls, three out of four were dismantled. From the northeast, the room was delimited by plastered sun-dried-brick wall F80, from the southeast by a negative of a wall extant only in the northeastern part (F454), and from the northwest by a negative of a wall (F492), which remains only in the southwestern part (F841). The southwestern wall of U6 was also dismantled. The room was furnished with three contiguous benches located in its northern part. One (F84) was equipped with an abutting stove. In the southern part, there were two more benches, F81/F82 and F92/F86. The entrance to the room could not be identified due to the dismantlement of the outer walls, but its only possible location is in the western part of the southwestern wall. The building was associated with courtyard U73 located to the southwest, where its contemporary level was floor F88. The features are preserved to a height of 80 cm.



Fig. 31. Central part of room U6, view looking north

### Discussion

The compound was established when building U58a/58b was constructed by erecting walls F654, F102, F816 and the absent northwestern wall (F844). Most probably at the same time, bench F656, stub wall F651, partition wall F655, and benches F652 and F653 were constructed (whether this construction episode consisted of two phases has yet to be investigated). Floor F848, made of mud mortar and whitewashed, was laid at the same time.

Initially, in periods III.D and III.C (see Phasing and chronology below, *Table 9*, pp. 234–235), U58a/58b was used simultaneously with room U8 and courtyard U73 located southwest of the room, with its contemporary floor F840 and bench F818. Room U8 was constructed when wall F102 and the dismantled southeastern wall (negative F492) were built to abut a now-missing wall (negative F491) that ran alongside city wall F79. At the same time, wall F98 was built. Pillar F105 was most probably erected during this construction episode. Together with the walls, floor F106 was laid (elevation about 19.80 m), and its level gradually rose with the accumulation of thin layers of mud. Bench F99 and two containers, F103 and F104, were also installed at that time.

The second phase of use of building U58a/58b (periods III.B and III.A) is connected with the accumulation of fill layer 462 in U58b and of layer 460 in U58a (equal to floor F811). In courtyard U73, occupational layer 456 accumulated at this time. As a result of the rise of the occupational level, a carelessly laid threshold (F650) formed of fragments of sun-dried and fired bricks, stones and broken containers of sun-dried clay was added at the entrance to U58a [*Fig. 32*].



Fig. 32. Threshold F650 in room U58a

Following abandonment at the end of period III.A, the building fell into ruin, as attested by deposit 446 from the collapsed roof and by rubble layers 444 and 451 associated with the walls. At the same time, the roof of room U8 collapsed (layer 131). Subsequently, the area of rooms U58a and U58b filled with windblown sand (441) and livestock was kept within the compound, as indicated by concentrations of animal dung (440). In addition, fire-burning took place in U58a (439). It was most probably in this phase that parts of the outer walls were removed (pits F835, F844). In courtyard U73, a layer of animal dung (442) accumulated, and several fire-spots appeared. After abandonment of room U8, the space filled with windblown sand (128) and layers of animal dung (119, 436, 437) accumulated on its surface [*Fig. 33*].

Room U6 was constructed in period III.D by building wall F80 and the subsequently removed walls (F454, F841). At the same time, benches F84, F91 and F85, as well as the benches incorporating walls F81, F82, F86, and F92 were built. Floor F107 was laid (elevation 20.00 m), and its thin layers of mud gradually accumulated. In the same phase, floor F88 was laid in courtyard U73 (elevation 19.98 m).

In the second occupational phase (period III.B), the space between the benches was used for cooking activities or the deposition of ashes from hearths. This is attested by an accumulation of ash (129) at the level of 20.05 m. Subsequently, layers consisting of animal dung and sand (125) accumulated. During that time, the hearth between walls F82 and F86 was no longer used. The area was covered with floor F83, while the hearth (F87, 137) was moved northeast of F92.

The last phase of use of U6 (period II.C), is connected with a deposit of animal dung and trash (122), which started on the level of 20.23 m and continued to accumulate until the northeastern wall or walls collapsed (126). In the same phase, the outer walls were removed (F454, F491, F492) and their negatives filled with sand (123).

The functions of the different spaces in this compound are strictly related to their equipment and spatial organization. Space U58b in the northwest most probably had a storage function, and its occupational layers (much thicker than in U58a) suggest that this room was not swept. Finds of grinding and pounding stones, a spindle-whorl and basketry lids also suggest that household equipment was stored in this space. Additionally, pieces of worked wood unearthed in this area might constitute remains of wooden furniture. Similar spaces were also found in other houses, where they have a clear storage function (see, e.g., U26b). In the main space of the house, U58a, traces of fire on floor F848 (two layers of ash about 40 cm in diameter and approximately 4 cm thick) and the presence of hearth F833 suggest that the room was used for food processing, although this is not confirmed by any artifacts. The interior is also equipped with three benches of unclear purpose. The area southwest of the house had a service function, as is attested by an accumulation of animal dung, as well as the presence of storage bin F647 and vessel F815. The function of room U8 might have been connected with food processing at some point, given the traces of fire on the floor, but also with storage, as indicated by mud containers F103 and F104. The lack of a stub wall or traces of the presence of doors suggest that the unit was a semi-open service area associated with U58a/U58b, with which it shared courtyard U73.

From the later occupational phase to abandonment, the whole area was a service space, and livestock was kept inside the remains of the house, as well as outside. However, in this occupational phase the benches were probably still in use. In addition, structure F819, possibly a quern emplacement, was built inside the room. Several concentrations of ash within layer 460 (F811) suggest fire-related activities as well. In the abandonment phase, a large concentration of ash (439) by wall F655, which also bears traces of fire, may indicate long-lasting or intense burning [*Fig. 34*].





Fig. 33. Accumulation of animal dung (layer 436) in room U8



Fig. 34. Ash layer 439 in room U58a

In room U6, the bench with an abutting stove (F84) and the occurrence of wheat and sorghum in botanical samples suggest that the space was likely connected with food processing at some point. The function of the other benches has not been determined. In subsequent phases, the room was either intensively used for food processing or for depositing ashes (129). In the latest phase, the space of U6 was associated with the keeping of livestock.

### **Building U5/25/72 (*Agata Deptula*)**

This dwelling was rectangular and consisted of two different-sized spaces referred to as U5 and U25, separated by wall F43, and a vestibule in the front (U72), most probably enclosed only from three sides and open to the yard, U73, from the southwest [*Figs 35–36*]. The excavated contexts in this building date from periods III.D–II.C (17th and early 18th centuries; see Phasing and chronology below, *Table 9*, pp. 234–235).

#### *Room U5*

U5 was a rectangular room approximately 5 m wide and 5.80 m long. Before removing the entire fill of the room (layer 121), a north–south section made it possible to identify two occupational phases: an earlier one (period III.B) connected with mud floor F46 (elevation 20.48–20.60 m, sloping from south to north), and a later one (period III.A) with a thin walking level of tamped animal dung, F244 (elevation 20.70 m), visible only in cross section. Exploration was halted at the level of mud floor F46 (contemporary with wall F225), which covered the whole interior of the unit, but U5 was surely already in use earlier in period III.D, as indicated by the fact that external wall F40 was founded 60 cm below the level of floor F46 (elevation 19.78 m). Exposing the earliest phase was left for future seasons.

The doorway, which was also the main entrance to the whole dwelling, was located in the southern corner of U5. It was furnished with a three-step threshold (F49) made of fired brick and stone and had a jamb made of a stone slab. A doorway located in the eastern corner of the unit links U5 with U25. It was cut in the northeastern part of wall F43 after wall F225 had been built. It was contemporary with floor F46.

U5 was furnished with three benches. Bench F41, long and narrow (maximum width 50 cm, length 560 cm), stretching along the northwestern wall, was surely connected with floor F46 (elevation of foundation 20.45–20.55 m). Neither its upper surface nor its filling are preserved. Against the opposite wall there are two large, rectangular benches, both of which are earlier than mud floor F46 (foundation levels have not been reached). The larger one, F48, was screened off from the main entrance by the mud-brick stub wall, F42 [*Fig. 35*]. Its edge was lined with a thin mud-brick facing (16 cm in width), with the external (northwestern) face coated with mud mortar and *qurba*, and whitewashed with *gir*. Later it received a second layer of mud plaster (F55), which sloped to the level of floor F46. The upper surface of the bench is covered with tamped mud mixed with animal dung, but along the facing there are also traces of a mud coating. Two pots (F221 and F234) were embedded in the bench in opposite corners, both filled with secondary deposits consisting of sand mixed with organic matter. In the northern corner, there was an oval accumulation of charcoal on the surface of the bench. Another bench, F219 [*Fig. 38*], abutted



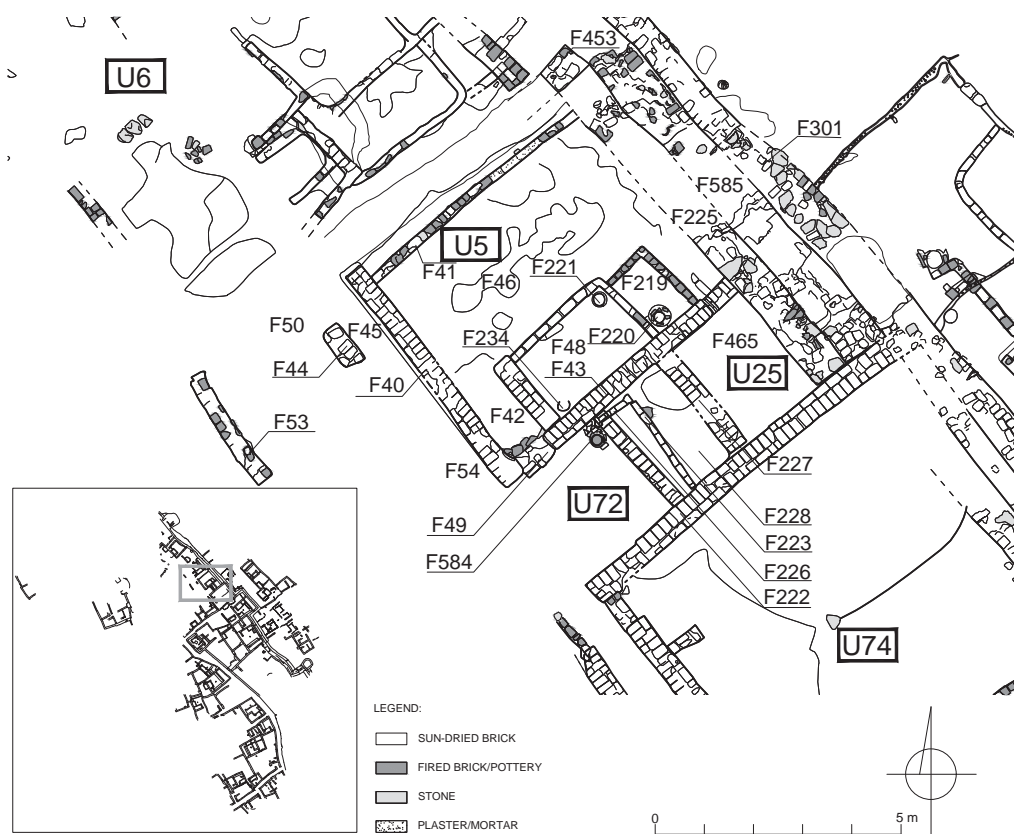


Fig. 35. Building U5/25/72, plan



Fig. 36. Building U5/25/72, aerial view looking east



Fig. 37. Pot F220 embedded in bench F219

the first one on the northeast. Its facing was made of fired-brick fragments and the fill was a loose deposit with no trace of surface coating. In the southern corner, a pot (F220) was embedded [Figs 37, 38]. The entire handmade spherical vessel (maximum diameter and height 45 cm) was sunk in the upper surface of the bench. Above its rim was an additional raised edge made of fired-brick fragments covered with smoothed mud mortar. On the inner surface of this feature there are two rounded depressions (diameter 4 cm) located on opposite sides, indicating the existence of an additional, now-lost element. The interior of the pot is covered with soot. Both benches were most probably connected with food processing.

All walls bear traces of the same layer of plaster, 0.6–1.00 cm thick, consisting of a layer of mud covered with desert-clay mortar and whitewashed. On the eastern face of wall F40, in its southern part, below the plaster, there are traces of burning (140 cm long), covering the whole visible height of the wall [Fig. 39]. Since they are not preserved on any other surface in the unit, they must be connected with an earlier occupational phase that has not been reached yet.

### *Space U25*

The entrance from U5 led to a much smaller, rectangular space (U25), delimited by walls F43 in the northwest, F225 in the northeast, F222 in the southeast, and F227 in the southwest [Fig. 40]. The latter wall was dismantled in its northwestern part. The unit measured about 2.35 m by 1.80 m. The upper part was filled with rubble (layer 687, lower elevation 20.80 m) overlying a thick and compact layer of organic matter (715) and ashes (217) accumulated in the southern part, along





Fig. 38. Benches in room U5



Fig. 39. Traces of burning on the eastern face of wall F40 in room U5

wall F222. The layer of ashes was relatively thick (bottom not reached), and it was abutted by a series of walking levels of tamped earth mixed with animal dung (F465). The interior was coated with plaster, which was burnt, and the walls were covered with soot, especially in the southern part of the space, in the vicinity of a regular accumulation of ash. The space might have been used as a kitchen, though no equipment connected with food processing has been recorded.

### *Vestibule U72*

Vestibule U72 was covered with layers of refuse (887, 716, 717), damaged by hearths (layers 690 and 691) and overbuilt with later structures, such as one-brick-high walls F223 and F226. In the earliest phase reached (probably contemporary with floor F46; period III.B), it was furnished with a large bench (F228) with storage vessel F584 added in the front against its eastern wall [Fig. 41]. The original walking level was not reached. Further exploration was halted after a hole in the ground opened into a void in an earlier structure located underneath.

### *Courtyard U73 (east part)*

The space extending south and southwest of the house probably formed part of U73 (see above) and served as a courtyard of the house. Its earliest excavated phase (period III.D) in this area (not reached inside the building) is represented by floors F50 (elevation 19.98 m) and F54 (elevation 19.85 m), as well as by facing wall F53. Later features in the courtyard, most probably contemporary with floor F46 in U5 (second half of period III), are walking levels F45 (elevation 20.41 m) and F47 (elevation 20.39 m), and relics of wall F44. Finally, in period III.A/II.C, the whole area was turned into a rubbish dump, as is clearly indicated by layers of waste comprising animal dung interspersed with thin layers of ash and tamped walking levels (layers 41–47; see Harris matrix of U73).

### *Discussion*

The layout of house U5/25/72 does not differ significantly from other houses in the area under investigation. It was a rectangular building made of sun-dried bricks laid in alternating courses of headers and stretchers, built to abut earlier structures. It was entered from a large, open courtyard shared by several buildings, and it comprised three spaces: semi-open vestibule U72, large, rectangular, multifunctional space U5, and a small, square space most probably used as a kitchen. U5, furnished with three benches of different sizes, must have been the main living space and the place where most of the daily activities were performed. While the smaller benches (F42 and F219) were connected primarily with food processing and storage, the main bench (F48), shielded from the entrance by a stub wall, might have been used for sleeping, as well as for food preparation. The storage function of the space is indicated by the occurrence of a large amount of sorghum grains and spikelets, as well as by the dung of rodents in botanical samples collected from the occupational layer above the floor. Vestibule U72, equipped with a large bench with an abutting stove, also seems to have been multifunctional, whereas U25 may have been used as a kitchen. This is indicated by traces of burning and soot on the walls and a massive accumulation





Fig. 40. Space U25, view from the entrance in the northwestern corner



Fig. 41. Bench F228 in vestibule U72



of ashes, though no equipment connected with food processing has been recorded. Finds collected within the building, comprising mostly potsherds and objects of personal adornment, correspond to the typical assemblage of Funj-period houses.

In the development of building U5/25/72 several phases can be distinguished, but only two of them have been examined so far. Walls F454, F585 and F222 delimiting the house from the northwest, northeast and southeast, respectively, surely belonged to an earlier building, and a new house was added to them. Determining the exact sequences of those walls is difficult, since their foundation levels have not been reached. Furthermore, F454 was dismantled by looters following abandonment in period II, and only a negative filled with windblown sand remains. From the southwest, the house was delimited by wall F40, which belonged to the original phase (period III.D) [Fig. 42]. A subsequent addition in period III.B was a wall of stone (F225, foundation level 20.30 m) built along the inner face of the city wall. A similar sequence of remodeling of the curtain wall can be observed in square 11A56 (see above, Fig. 18).



Fig. 42. Building U5/25/72 and phasing of walls marked in color

U5 shared at least one wall (F454) with U6 to the northwest (see above). However, there is no direct passageway between those two spaces. One cannot exclude the fact that the wall which had been dismantled, leaving negative feature F492, was actually bonded with a continuation of wall F40, and that F841 is the corner formed by these two walls. The two compounds, U6/8/58a/58b and U5/25/72, also shared courtyard U73. However, occupational levels indicate that the excavated phase of U5/25/72 was later than the dwelling complex to the northwest. Therefore, they were not considered as part of the same compound.

### Space U74 and relics of houses from the latest occupational phase

(*Agata Deptuła and Szymon Maślak*)

Square 10Z52 and the southwest part of 10Y52 were covered by refuse layers consisting mostly of ashes and animal dung, only incidentally interrupted by thinner or thicker layers of sand frequently mixed with the above components. These layers sloped gently from north to south and abutted a southwest–northeast-oriented wall, F118. This wall seems to have separated the compound to the southeast from an open area filled with refuse layers to the northwest. However, when the open space ceased to be used, at least one house was built on top of these deposits [*Fig. 43*].

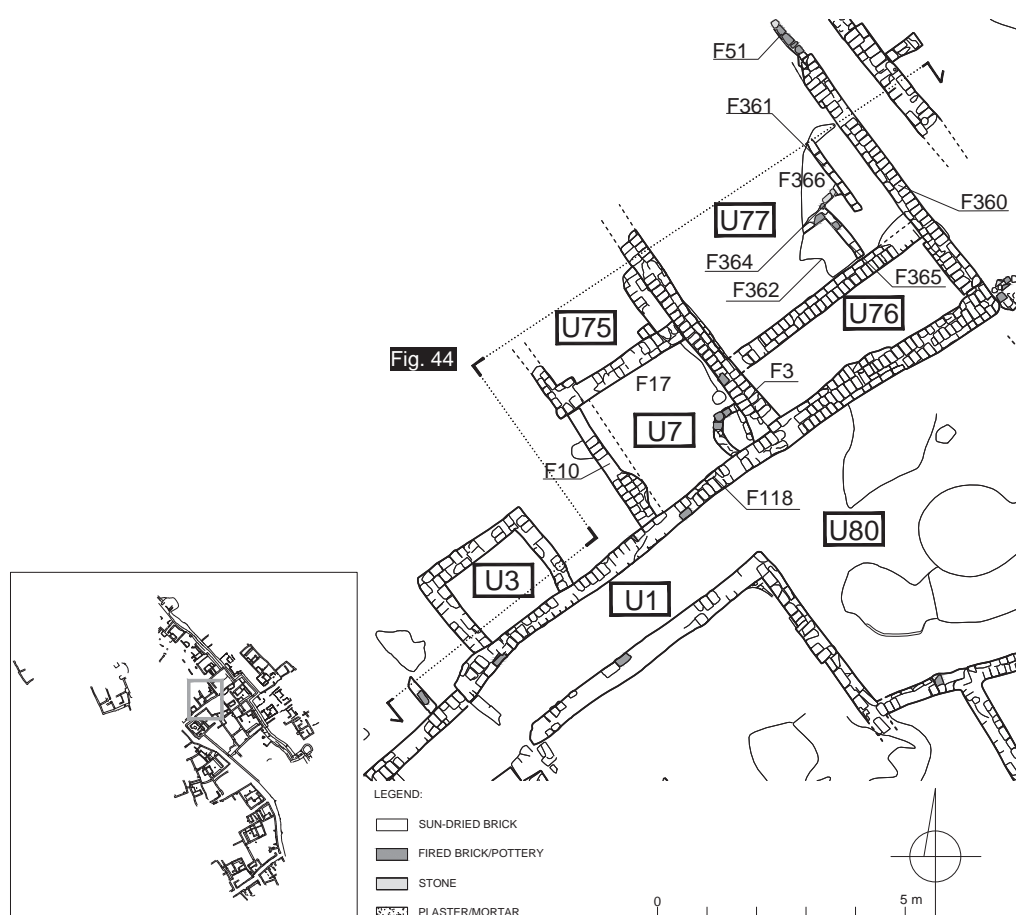


Fig. 43. Buildings U7/75, U76/77 and silo U3, plan

*Space U74*

A space connected with the latest occupational phase (periods II.C–II.B; see Phasing and chronology below, *Table 9*, pp. 234–235) in this zone is located in the southern part of square 10Y53 and is delimited by walls F222, F303, F171, F242 and F443 [*Figs 45–46*]. Features preserved in this space are highly eroded, leaving only remains of walls (F444, F449), a floor (F448) and a relic of an earlier rectangular structure (F445) [*Fig. 46*]. The entrance was likely located in the western corner, where a relic of a blocking wall, F583, has been recorded. This area requires further research. All the excavated deposits can be assigned to a post-occupational phase of the space, when it served as a place of rubbish disposal. Its features were covered with thick deposits of waste composed of organic matter with a high concentration of sorghum spikelets, dung and bones, along with fur, feathers and horns (layers 689 and 694) separated by a dump layer (692) with a very high ash content.

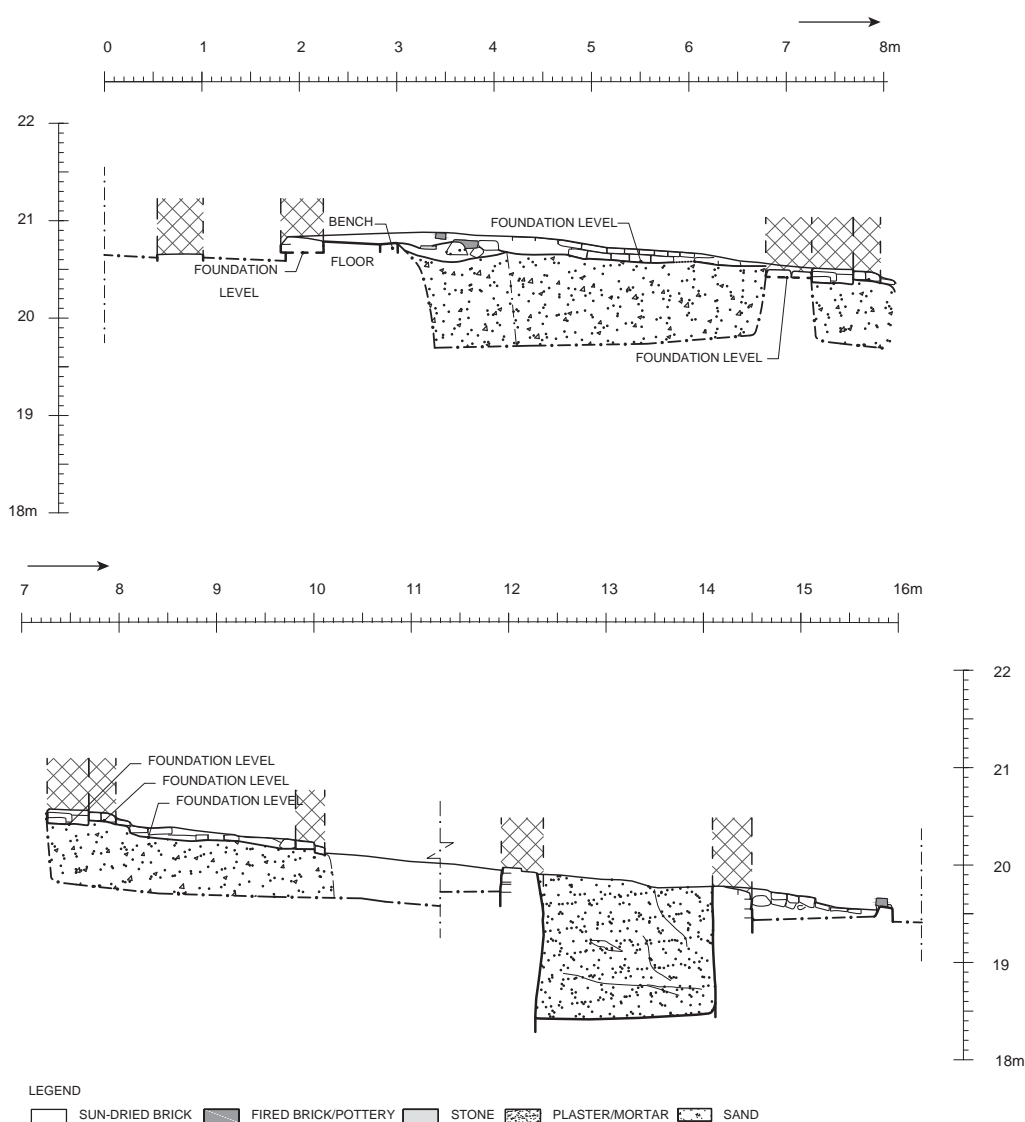


Fig. 44. Buildings U7/75, U6/77 and silo U3, NE–SW section looking southeast



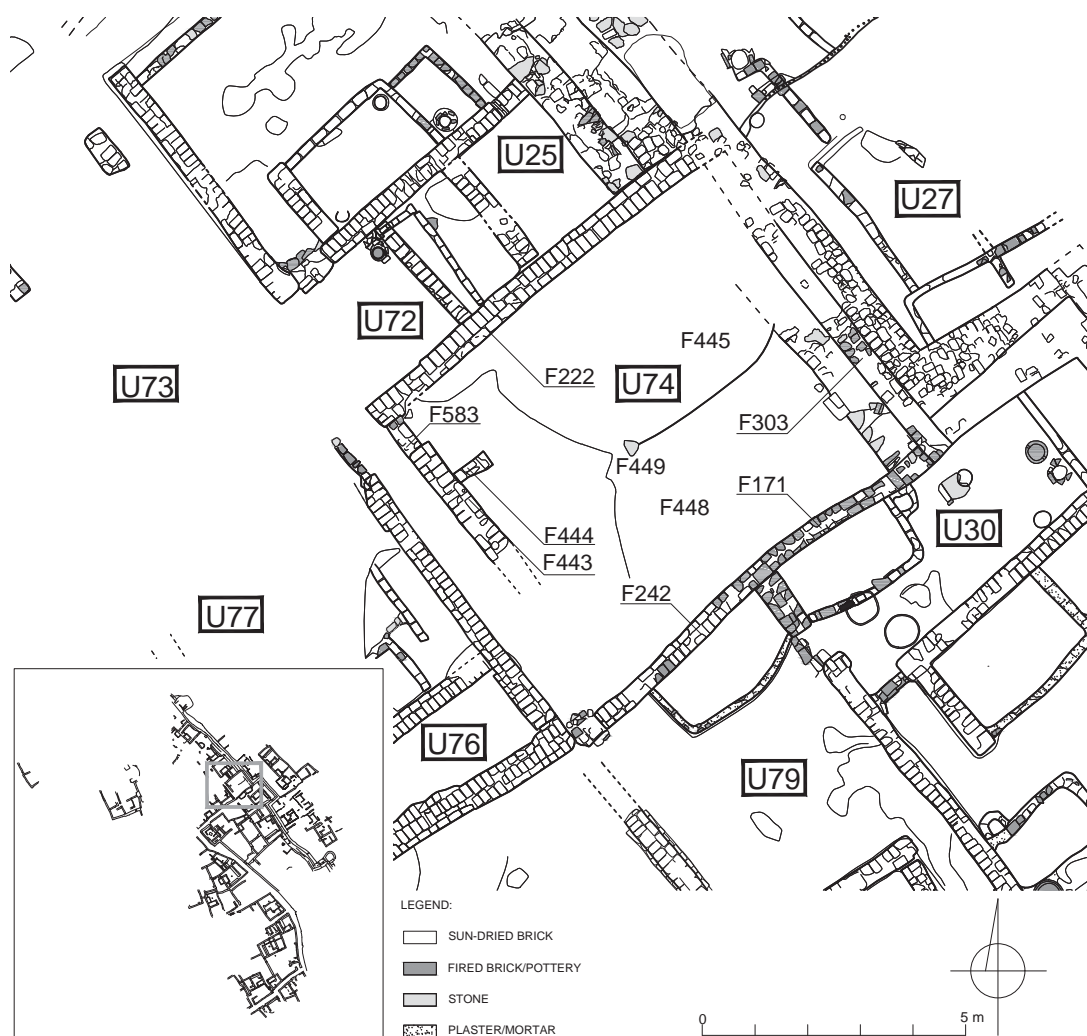


Fig. 45. Space U74, plan



Fig. 46. Space U74, view looking northwest with indicated feature numbers





Fig. 47. Room U7

*Building U7/75*

A small unit (U7) measuring roughly 2.5 m by 2.5 m is all that survived of a certainly much larger compound, which existed here in period II (see Phasing and chronology below, *Table 9*, pp. 234–235) [Fig. 47]. It was built on top of rubbish deposits (elevation about 20.35 m) accumulated in the courtyard to the west of U74, against wall F118 separating the open space from a corridor of a different compound (U1) to the southeast of it. The layers immediately below foundations included pottery datable to the 18th century. It must have been entered through a passage in wall F10 in the southern corner. A thick layer of ash deposits in its western corner, as well as traces of burning (hearths) on its last floor (F17), suggest that this space was used as a kitchen. Virtually nothing survived of other units of the compound. The scant remains of walls to the northwest of U7 show that U75, which was located there, may have been of the same width as the former.

*Building U76/77*

After some sand (9) had accumulated against the northeastern wall (F3) of U7 and U75, a new building was constructed on top of it (elevation about 20.50 m) in period II (see Phasing and chronology below, *Table 9*, pp. 234–235). Only scarce remains of the walls of a rear, elongated room (U76) and a southeastern part of a room to the northwest of it (U77) survived. The passage between them was poorly visible, but its location in the northern corner of U76 is likely. In the

preserved part of U77, a set of typical benches and a floor coated with *gir* were exposed (F361, F362, F364, F365, F366) [Fig. 48]. The building seems to have a typical layout comprising a larger room furnished with benches and a narrow storeroom in the rear part.

At an undetermined date (most likely also in period II), a silo (U3) measuring 1.5 m by 1.7 m and over 1.5 m deep was dug into the deposits against the southwest–northeast-oriented wall (F118) [Fig. 49].



Fig. 48. Relics of benches F362, F364 and F365 in building U76/77



Fig. 49. Silo U3, view looking southeast



### Discussion

Units uncovered in this part of the site belong to the latest occupational phases (periods mid-II.C to mid-II.B) of the investigated residential area. Their sequence may be determined on the basis of occupational levels. The rubbish layers in the courtyard to the west of U74 were the earliest contexts excavated in this spot so far. U76/77 is the latest building in this area, only slightly later than U7/75 to the southwest of it. Unfortunately, little can be said about the function of the units, as the state of preservation of structures in this part is very poor. In addition, the thin deposits filling these spaces were surface and subsurface layers, whose insecure nature hinders conclusions based on the finds.

### Compounds U1/16/17/18/30/35 and U1/17/30/79/80 (*Lorenzo de Lellis and Szymon Maślak*)

The space under consideration occupied the area southeast of wall F118. In the northeastern part it reached the city wall, and in the southwest it had access to street U24 through passageway U1 [*Fig. 50*]. Excavations carried out this season made it possible to distinguish two main phases of its use (see also Phasing and chronology below, *Table 9*, pp. 234–235). An earlier phase (periods III.C–II.C) datable to the 17th and early 18th centuries featured compound U1/16/17/18/30/35), with buildings U16/30/35 and U17, both accessed from large courtyard U18. A later phase (periods II.C–II.B) dated to the 18th century comprised compound U1/17/30/79/80 with only room U30 still in use for dwelling purposes, together with a newly created room, U79, accessed from a smaller-sized courtyard now called U80 [*Table 2*].

**Table 2.** Correlation of occupational phases of rooms in compounds U1/16/17/18/30/35 and U1/17/30/79/80

Period	U16	U35	U30	U17	U18, U79, U80
II.C–II.B	Abandonment	Abandonment			
	U16.1	U35.1–2	U30.1–2	U17.1	U79, U80
III.C–III.A	U16.2	U35.3			
	U16.3		U30.3	U17.2	U18
	U16.4	U35.4			
Prior to III.C				U17.3	

### Compound U1/16/17/18/30/35

#### Passageway U1

U1, a narrow, northeast–southwest-oriented passage between walls F118 and F119, connected street U24 with courtyard U18. The passageway was filled with sand with scant remains of organic material (82), which concealed traces of a floor level attributable to period II.B. Its excavation has not been completed, and side walls of the passageway continue to descend below the elevation of 19.78 m. A cluster of bricks lying on sand at the southern end of the passageway seems to be

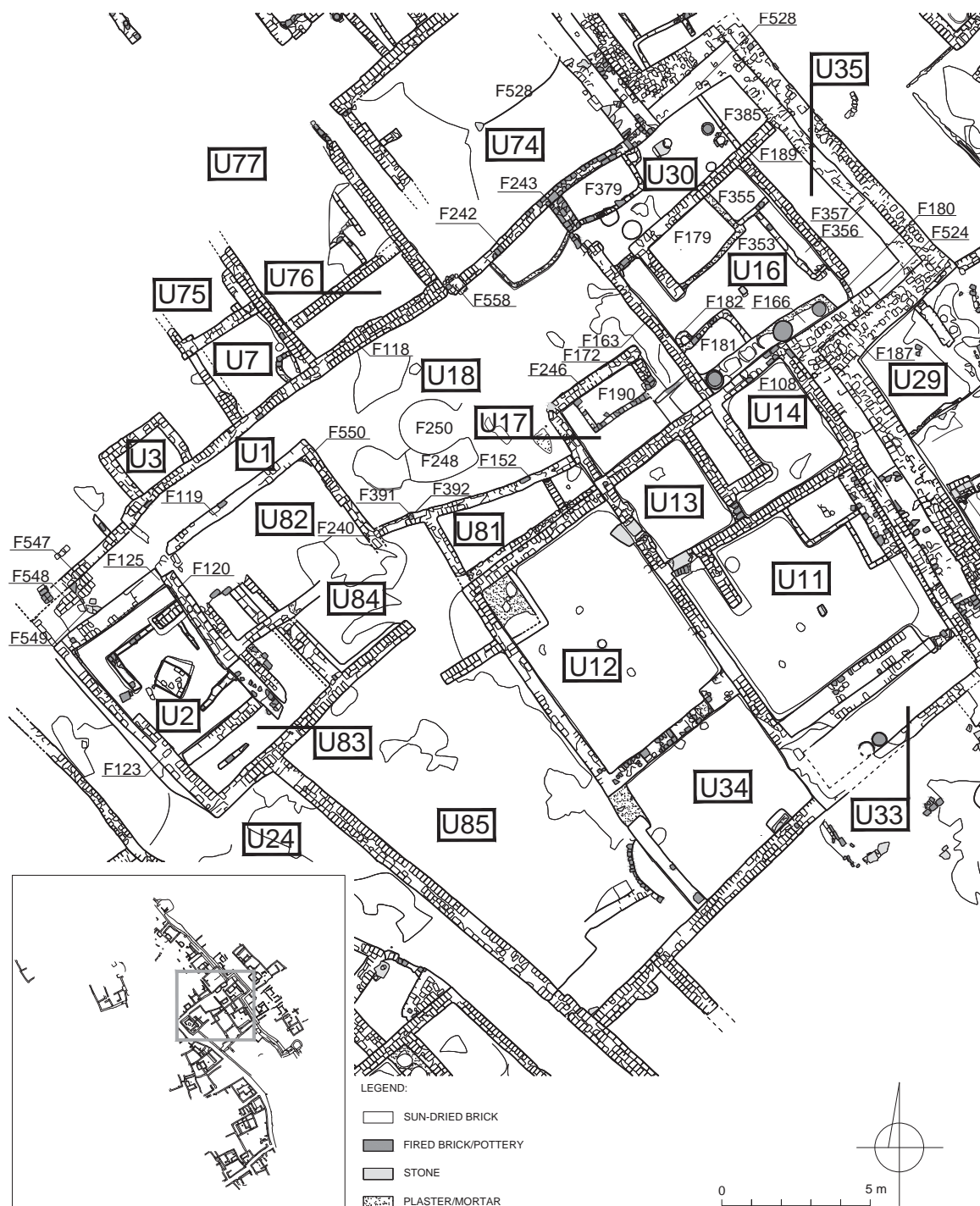


Fig. 50. Compound U1/16/17/18/30/35, plan



connected with later transformations in the area to the southwest, between the street and wall F120. Here, the function of walls F547, F548 and F549 is still unclear. Under wall F123 there may have been a threshold of fired bricks, originally constituting part of the entrance from the street into U1. The closing of the passage between street U24 and U1 seems to have been related to transformations in room U2 (see below), the accumulation of refuse layers and the construction of F125, but the nature of these changes requires further investigation. At its northeastern end, the passageway reached U18, a large courtyard.

### Courtyard U18

Courtyard U18, delimited by walls F118, F242, F243, F163, F246, F152, F240 and F550, originally (periods III.C–II.C) must have been an open area accessed from street U24 through U1, the narrow corridor between walls F118 and F119, as well as from building U16/30/35 to the northeast. The lack of structures inside this vast area and the presence of a very rough floor, F248, suggest that it was an open, unroofed space.

The courtyard was also accessed from a house located to the south (in square 11A53; see below and *Fig. 69*) through a doorway with threshold F391 (lower elevation 19.58 m), and probably from the northwest through an opening between walls F118 and F242, later closed with blocking wall F558. This passage, however, had already been blocked in the excavated phase of the courtyard; the lower elevation of this blocking wall was not reached during the excavation of the courtyard, where the lowest elevation of floor level F248 is at 19.72 m [*Fig. 51*].

At an undefined moment (period II.B or later), a large, circular pit (F250) was dug in the central part of floor F248, which had originally covered the entire space of the courtyard. It was filled with yellow sand (106, unexcavated). This fill in its upper part is the same as 100, but it has been distinguished arbitrarily to provide a stratigraphic reference for further excavation. Subsequently, a uniform and extensive layer of yellow sand (deposits 100 and 105, periods III.A–II.C)—probably resulting from the natural filling of the space before the beginning of wall collapses—covered the patchy remains of floor F248. In the later period (II.B), the courtyard space was divided into two units, U79 and U80, forming part of household U1/17/30/79/80 (see below).

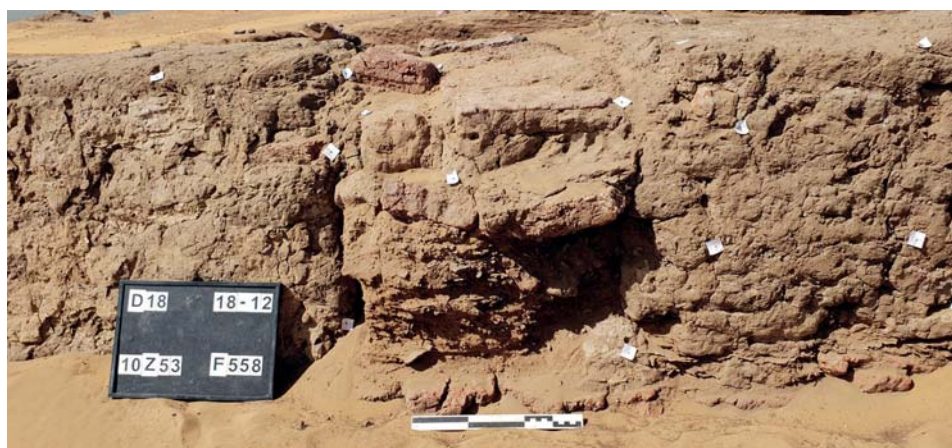


Fig. 51. Blocking wall F558

## Building U16/30/35

Building U16/30/35 [Figs 52–53A–B], measuring 8.9 m by 8 m, used the outer wall of the settlement (F108, F187, F524, F357 and F528) as its rear wall. Based on pottery finds, occupation of this compound may be dated from period III.C into II.C at least. It was entered from the west (from courtyard U18) through a 70 cm wide door, which opened into an elongated room, U30 (2.3–2.8 m by 7.10 m), originally equipped with two benches, F379 to the left of the entrance (1.4 m by 2.6 m) and F385 at the northeastern end of the room (2.35 m by 1.35 m) [Figs 54–55].

From room U30 one entered U16, the main room of the house, by passing through a door in the southern corner of U30, followed by a short corridor (2.40 m by 0.85 m). The relatively small area of the room (5.30 m by 5.60 m) was almost completely filled with five benches (F181, F166, F179, F355 and F356), which were certainly not contemporaneous with one another. The two oldest benches were, as it seems, located against the southeastern wall of the room and in its northern corner. The bench against the southeastern wall (F166) measured 0.75–0.9 m by 4.95 m. It served as a stand for seven large storage vessels, which were integral parts of the structure [Fig. 56].

The bench in the northern corner was much smaller, 1.6 m by 1.6 m (F355). Later, two more benches were built in the room. The larger one (F179), 1.85 m by 2.8 m, was built behind the stub wall forming the entrance corridor, partly overlapping with the older bench in the northern corner (F355). Another was built against the bench with vessels (F166) in the southern corner of

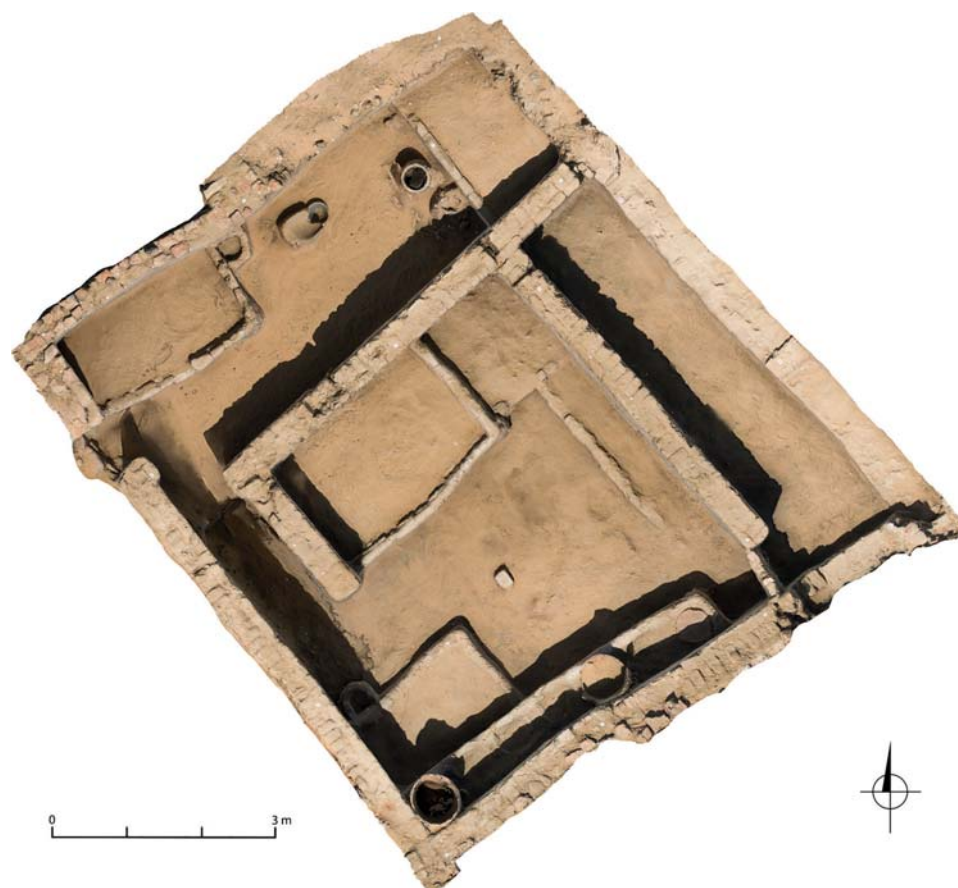


Fig. 52. Building U16/30/35, aerial view





Fig. 53A–B. Room U16, views looking southeast (top) and southwest (bottom)





Fig. 54. Room U30, bench F379, view looking west



Fig. 55. Room U30, bench F385 aerial view



the room (F181). This one, as with the benches in the elongated room, U30, was equipped with a small abutting stove (F182) [Fig. 57]. The last bench, F356 (3 m by 0.75 m), was added along the northeastern wall of the room just after the last plastering (F354) of the whole interior (phase U16.3). In the eastern corner of the room there was a passage (with no threshold) to the rear room of the house (U35), which was long and narrow (6 m by 1.9 m).

The house was built almost completely of brownish-grey sun-dried brick bonded with Nile alluvium. Fired bricks appeared in benches, as well as in walls that formed part of other buildings and were used by this house. All the walls were coated with brownish-grey plaster covered with multiple layers of *qurba* plaster whitewashed with *gir*. The *gir* coating was found also on the vessels standing on the bench built against the southern wall (F166). Rooms must have been covered with flat roofs constructed using beams slightly longer than 3 m (the maximum span between the sandstone ashlar in the middle of the main room and the surrounding walls).

In the original occupational phase (from period III to early period II, phases U16.4, U17.2, U30.3, U35.4), the dwelling featured numerous benches clustered in a relatively confined area. The house was gradually abandoned. After a fire, which burned all wall faces [Fig. 58], as well as the floor of the room at the rear of the house (U35), the entrance leading to it from the main room (U16) was blocked (F180) (phases U16.1, U35.2). The fact that the blocking wall was not built on the level of the original floor (F353, elevation 19.86 m), but on top of sand accumulated inside the room (deposit 27, elevation 20.04 m) may suggest that room U16 had already been deprived of a roof [Fig. 59]. Later on (still in phase U16.1), U16 also went out of use, and the entrance to it from the elongated room (U30) was blocked by heaps of sun-dried-brick rubble (context 199).

### Room U17

A small unit, U17 (4.15 m by 2.75 m), was located southwest of U16. Three phases of its use have been recognized. In phase U17.2, U17 resembled a small dwelling with a stub wall (F172) and bench F190 (elevation 19.71 m). The entrance to the room from courtyard U18 was located in the northern corner. This “dwelling phase” seems to correspond to the phase of use of compound U1/16/17/18/30/35 (phases U16.4, U30.3, U35.4). The original phase of its use (U17.3) has not been uncovered (lowest elevation reached 19.20 m).



Fig. 56. Vessel F164 on bench F166 in room U16



Fig. 57. Room U16, bench F181 with stove F182





Fig. 58. Burnt southern face of wall F189 in room U35



Fig. 59. Blocking wall in the doorway between rooms U16 and U35

*Compound U1/17/30/79/80*

The compound constitutes a later phase (periods II.C–II.B – phases U17.1, U30.1–2) of compound U1/16/17/18/30/35 described above and makes use of most of its units. It consists of a two-room dwelling, a courtyard and a passageway leading to it from the south (for U1, see above). The compound came into being as a result of a general transformation, with the construction of wall F245 in the space of courtyard U18 bringing a partial change of function to this space [Fig. 60]. The wall divided courtyard U18 into two spaces, U79 to the northeast and U80 to the southwest.

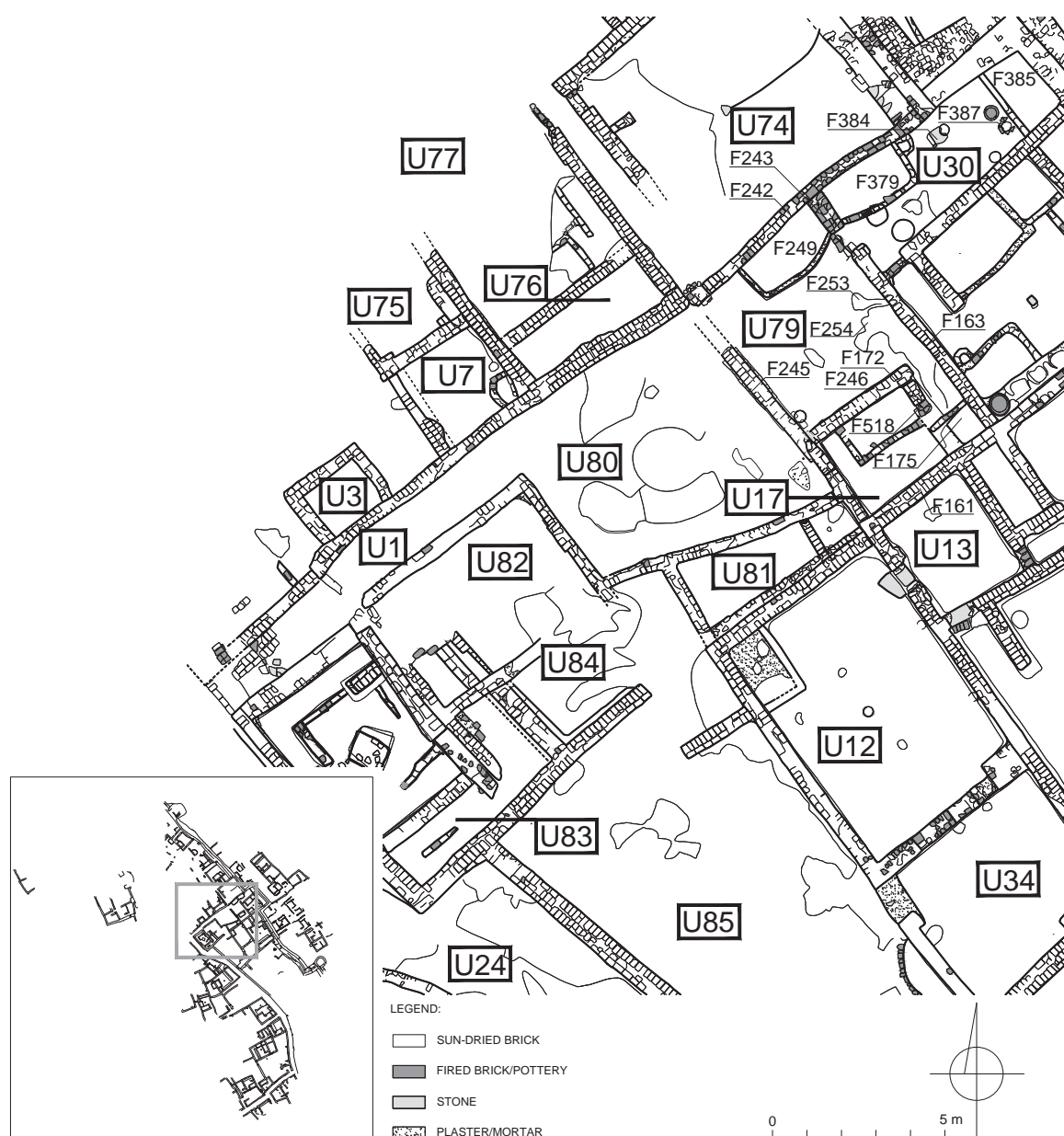


Fig. 60. Compound U1/17/30/79/80, plan



## Building U17/30/79

In the 18th century (period II.C), following the construction of wall F245 (standing on yellow sand deposits 100 and 105), the northeastern part of courtyard U18 was turned into U79, a room in a two-room building. It featured bench F249 [Fig. 61], as well as floors F253 and F254, which clearly indicated a residential function of the room. Floor F254 on its preparation layer 111 was earlier and was superimposed over the floor of courtyard U18, F248. It was followed by floor F253 laid on preparation layer 108. These two floor levels also corresponded to the building of bench F249 in the corner of walls F242 and F243 (however, they currently have no physical connection to one another or to the bench, so this supposition is based on elevations and sequencing alone). In the post-abandonment phase, room U79 was a place of some fire-related activity, followed by the collapse of structures. Traces of fire (104) were found in the southern corner, while the northern part of the room was occupied by structure collapse 97 lying over a layer of ashes, 98, which covered bench F249. Finally, all was concealed by surface layer 94.

U30, an elongated room to the northwest (previously part of building U16/30/35; see above), remained in use in period II, although the original floor was covered with a thick layer of blown-in sand (phase U30.2) [Figs 62–64]. Both benches still protruded above the sand, and to the eastern one a roughly made stove was added (F387). A find indicating the household function of this room was a quern (F384) with a ceramic bowl set directly on top of a layer of windblown sand that covered the floor after the room had been deprived of a roof [Fig. 65A–B]. The top of this sand deposit became the new walking level of this space.

Contemporarily with the late phase of the compound (periods II.C–II.B), a change of function occurred in U17, now accessed from room U79. A layer (32) of mixed animal dung and sand (elevation 19.66–19.97 m) was deposited against the southern face of bench F190, suggesting that after a short period of use of the unit for dwelling purposes it started to serve as a livestock pen. Subsequently, the bench and layer 32 were concealed by deposit 30 (elevation about 20.00–20.58 m) and a floor (F183, elevation about 20.58 m). On the same level, F175, probably a



Fig. 61. Bench F249



Fig. 62. U30 in the late phase of use, aerial view



Fig. 63. Finds from the late phase of U30: a baking plate





Fig. 64. Finds from the late phase of U30: reused clay storage vessels

bench (only a fragment of its northwestern facing wall survived; lower elevation 20.59 m), was constructed in the corner between walls F163 and F161. The location of the bench is puzzling in view of the traditional location of benches in local houses, as it is found across from the entrance, at the end of the entrance corridor formed by the stub wall. In a somewhat later period, stub wall F172 was extended to the southeast by adding a short wall F518. Although it is founded at the elevation of 20.55 m, it must have been built after bench F175 had gone out of use, as otherwise this structure would have significantly constricted the passage into the unit.

After accumulation of deposit 23 (20.50–20.72 m), the last preserved occupation level here was formed by a tamped surface of animal manure (F173, elevation 20.75 m), suggesting that in this phase (phase U17.1) the unit served as a pen for sheep/goats. Though only a patch of this walking level survived, abutting the tops of adjacent walls (F246, F172 and F518), originally it must have spread all over the unit.

#### Courtyard U80

The remaining part of courtyard U18, now designated as U80 (period II.B), probably retained its character of an open area (as suggested by the lack of structures), giving access only to building U17/30/79. Finally, the entire space was filled by deposit 96, a sand-and-mud layer probably deriving from the collapse and decay of sun-dried-brick structures. A substantial layer of grey ashes (99) and remains of a wall collapse were also found on top of the sand in the southwest corner of the courtyard.





Fig. 65A–B. Quern F384 in context, view looking west (top) and aerial view (bottom)



### Discussion

In the space accessed from street U24 through passageway U1, two distinct occupational levels were identified. On the lower, earlier level, dated to the 17th and early 18th centuries (period III and into period II), we find compound U1/16/17/18/30/35 with the large courtyard (U18) giving access to a three-room building (U16/30/35) and a single-room dwelling (U17). The higher, later level is occupied by compound U1/17/30/79/80 with a smaller courtyard (U80) and a three-room dwelling, U17/30/79 (periods II.C–II.B, 18th century).

Three phases may be distinguished in this area, though further research is needed to confirm them and deepen the understanding of their functioning:

- Early phase (unexcavated) (period III.C and earlier), when courtyard U18 presumably gives access to an early phase of U17 (U17.3), to houses to the northwest and south (their doorways are later blocked), and to building U16/30/35 to the northeast, meaning U18 was either a publicly accessible space or a courtyard of a much larger household.
- Middle phase, when U18 is a courtyard of the house to the northeast (building U16/30/35) (period III into period II.C). U18 also gives access to room U17 (phase U17.2), which is a small dwelling furnished with a bench. The main building of the compound consists of a large multifunctional room preceded by a vestibule and connected with a long and narrow storeroom.
- Late phase, when courtyard U18 is divided into two parts by wall F245. The northeast part of the courtyard becomes a room (U79) of the house to the northeast, giving access to rooms U30 and U17 (U17.1), while the rest of the open space (U80) seems to be a private courtyard of this house. In this phase (periods II.C–II.B), the function of U17 changes. It is no longer a dwelling but a household space used for keeping livestock and depositing rubbish. U30, in turn, seems to fulfil a household and service function. The other rooms of the same building, U16 and U35, are no longer in use.

At the present state of research, it is impossible to determine when the northwestern and southern doorways leading to the courtyard were blocked, but for the northwestern one it seems reasonable to suppose that it occurred contemporarily with or, more likely, earlier than the construction of wall F245 (period II.C), since an entrance in that corner would not make sense with the new layout of this part of the compound (see below). The bottom of the blocking wall, however, was not reached due to the presence of floor levels and deposits left *in situ* in that area, and thus this chronological relationship has yet to be clarified. Compounds functioning probably at the same time on the other side of wall F118 (U7/75 followed by U76/77; see above) are therefore not connected with this compound.

The blockage on the southern side could be later or could be part of the same reorganization phase (periods II.C–II.B). If so, the courtyard would have been accessible only from the newly created room U79, meaning also a probable reduction and/or change of its functions. The likelihood that the access route through the narrow corridor U1 from the west (between F118 and F119) remained unchanged is high, at least for the earlier phase of the structures, prior to the construction of walls F123, F125 and F131 that goes with the creation of room U2, but, as noted, only further exploration at the southwestern end of U1 could help clarify this issue.

**Structures from period III.D (early 17th century) along the east side of courtyard U18***(Lorenzo de Lellis and Szymon Maślak)*

Excavation of compound U1/16/17/18/30/35 also brought to light spaces and features that belonged to earlier occupational phases of the area and that were no longer in use during the period under investigation (see Phasing and chronology below, *Table 9*, pp. 234–235). They are still too fragmentary and scattered to be interpreted with confidence, but should nonetheless be presented in order to provide a basis for future excavation and to facilitate planning. To the southeast of U79 and U80, three such areas were uncovered: room U81 and the space to the southwest; the earliest phase of room U17 (phase U17.3) [*Fig. 66A–B*]; and earlier phases of room U2 (U2.2–U2.4; the space of the latter was reused at a higher level in building U2/82/83/84, discussed in detail below).

*Room U17: early phase (U17.3)*

The earliest deposit excavated in room U17 is a layer of sun-dried-brick rubble with some potsherds and fired bricks (33), rising to an elevation of 19.66 m (the lowest elevation reached was 19.20 m) [*Fig. 66B*]. It constitutes certain evidence of the collapse of the tops of nearby walls (F161, F174, F246, F172), the foundations of which descended to an undetermined level below this layer. In the phase corresponding to the use of compound U1/16/17/30/35, the space was turned into a room with bench F190 (elevation 19.71 m) built directly over collapse layer 33, in the corner formed by a stub wall (F172) and the northwestern wall of the unit (F246).

*Room U81 and the space to the south*

Walls F151, F152 and F174 delimit a narrow space additionally lined on the southeastern side by a wall of sun-dried bricks (F244) abutting F155 [*Figs 67–68*]. This wall was laid out with headers facing the room but not bonded with mortar. The room was filled by a wall collapse (276). Debris concealed floor F660 (elevation about 19.30 m) and a part of bench F659, which continue eastward below walls F244 and F155 and clearly pertain to a phase (period III.D, early 17th century) precedent to that of the house built on a higher level to the southeast (building U11/12/13/14/33/34; see below).

The space between the narrow room U81 and the edge of building U2/82/83/84 in square 11A52 once served as a passage between the structures in 11A53 (predating building U11/12/13/14/33/34) and open space U18. At a certain point (period III.C), this passage was closed off almost completely by wall F240 with threshold F392 (upper elevation 19.38 m). Subsequently, the entrance was completely blocked with wall F391 (period III.B) prior to the construction of the poorly preserved building U2/82/83/84 in 11A52 [*Fig. 69*]. There was no connection between U18 and U85, the courtyard of the household to the east, in the excavated phases (III.C and later).

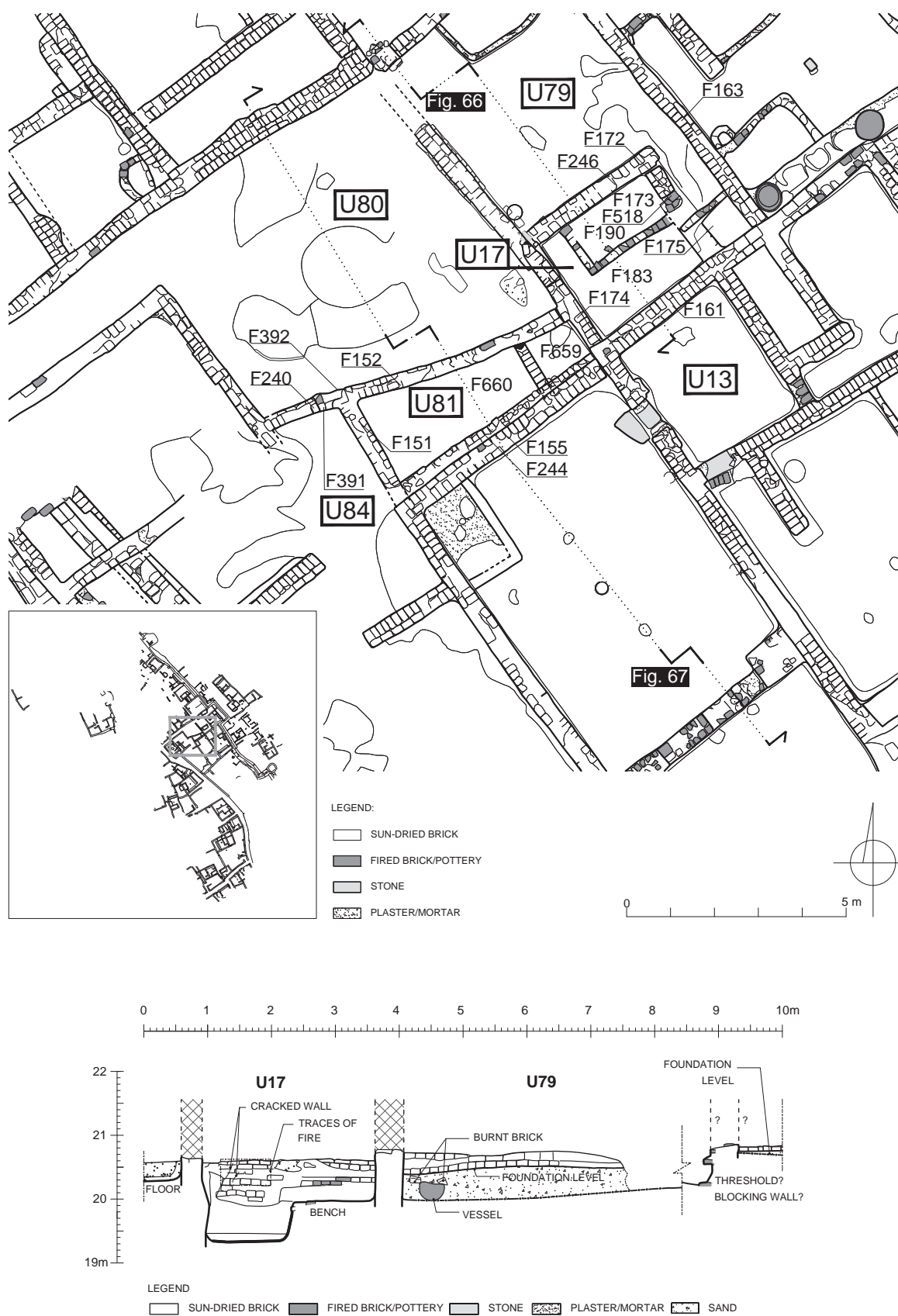


Fig. 66A–B. Structures southeast of U79 and U80, plan (top) and NW–SE section through rooms U17 and U79 looking southeast, showing the difference in occupational levels between phases



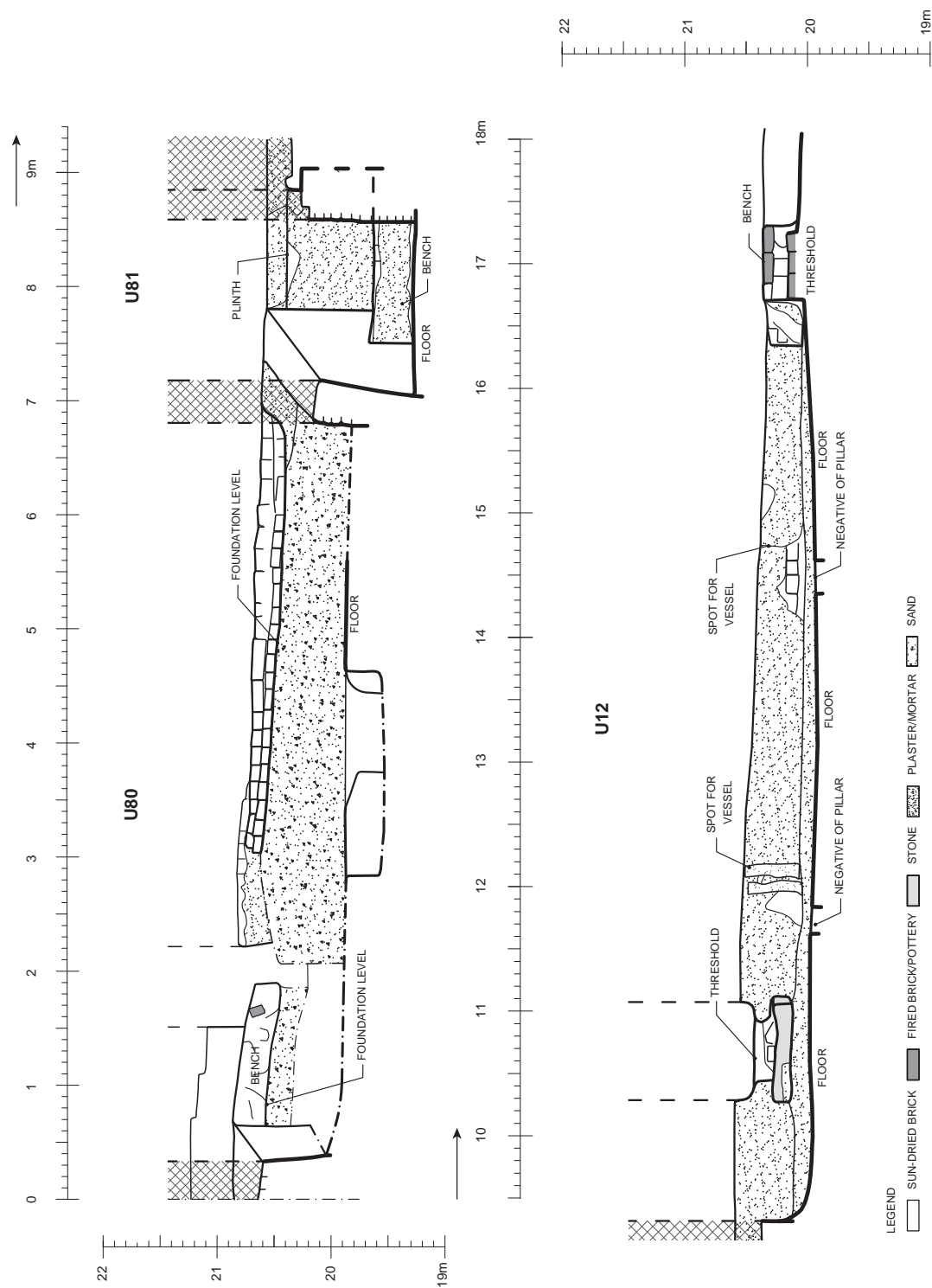


Fig. 67. Courtyard U18, room U81 and room U12, NW-SE section looking northeast showing the difference in occupational levels between phases



Fig. 68. Room U81, view looking northeast



Fig. 69. Threshold and blocking wall F391 and F392



*Room U2: early and middle phases (U2.3 and U2.4)*

U2 is a square room delimited by walls F120, F123, F124, F125 and F150. In its latest preserved phase (periods II.C–III.A, late 17th to early 18th century), of which only low walls and a patch of floor are preserved, it was part of building U2/82/83/84 (see below). Because of its poor state of preservation, it was possible to excavate deeper and to investigate earlier phases of use of the room [Figs 70–72A–B]. A section was cut southwest–northeast through the middle of the room in order to identify its occupational levels [Fig. 73]. U2 reveals a long settlement history and the common practice of the reuse of earlier structures, as well as building new walls on top of old ones. The depth reached shows the complexity of the building sequence and the presence of various phases.

The earliest exposed phase belongs to period V (later 15th century) and at the present stage of research is largely obscure, as the excavation barely touched its upper parts (lowest elevation reached: 17.47 m). It predates the creation of U2. The features assigned to it are F135, F150 and F148 (a fired-brick wall below F120) in the northeast, F123 in the southwest, as well as thin, perpendicular walls, F144 and F145, in between. The nature and function of these two small walls has yet to be established. The unit was probably larger, extending up to F545 to the northwest and up to F122 to the southeast. At some point during period IV (16th century) the space went out of use and its flat roof collapsed, creating deposit 90, a thick and dense layer of straw and reeds mixed with some mud fragments bearing impressions of organic material. This layer was concealed by deposit 88, on the surface of which were some traces of wall collapses and of temporary fires, marking a phase of abandonment and reuse of the area.



Fig. 70. Room U2 at the end of excavation in the 2018–2019 season, view looking southwest

Room U2 (phase U2.4) was created by building two walls, F124 and F125, between the earlier parallel walls to delimit a smaller space (elevation about 17.50 m). Wall F125, a massive structure of sun-dried bricks constituting the northwest wall of U2, was built directly on the abovementioned roof collapse (90), abutting the unit's external walls to the northeast and southwest. At the same time, a square mud-brick structure (F131) was built directly over the roof collapse (90) without any dedicated foundation. The southeast wall of the unit, F124, seems to have the same building history and characteristics as F125. However, given the instability of F131 and also due to the presence of a mat from an earlier collapsed ceiling (FN117)—left *in situ* because of being partially under F131—the possible relationship of F124 with roof collapse deposit 90 was not verified.

The structure F131 was initially thought to be a pillar, but proved to be much too big and massive in relation to the dimensions of room U2 to be interpreted as a support for a roof. It also leaned heavily toward the west. Once completely freed from deposits 81 and 84, it partially collapsed, confirming that it was not self-standing and hence could never have supported the weight of a roof. The faces of F131 are rough and unplastered. The feature appears to have served as a sort of base or support. It was raised at least three times, each time with a slightly different orientation. Even

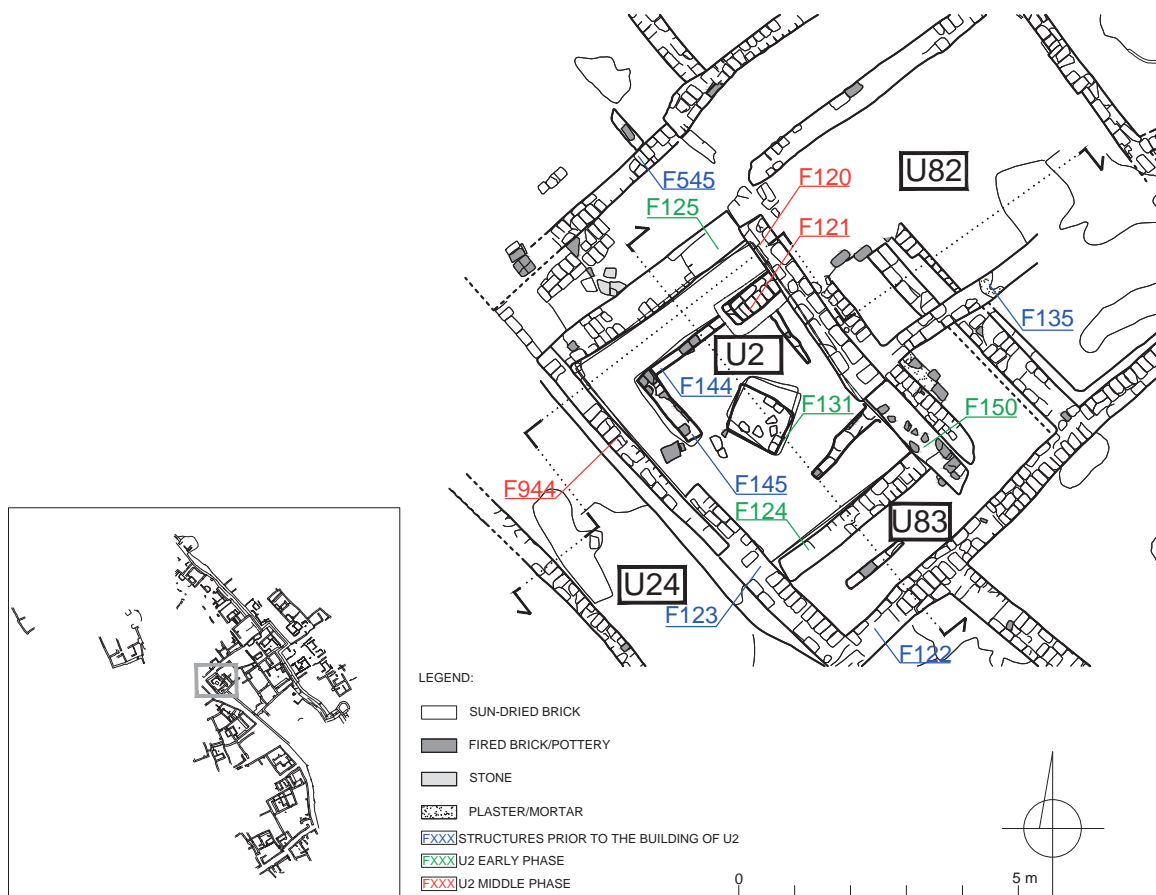
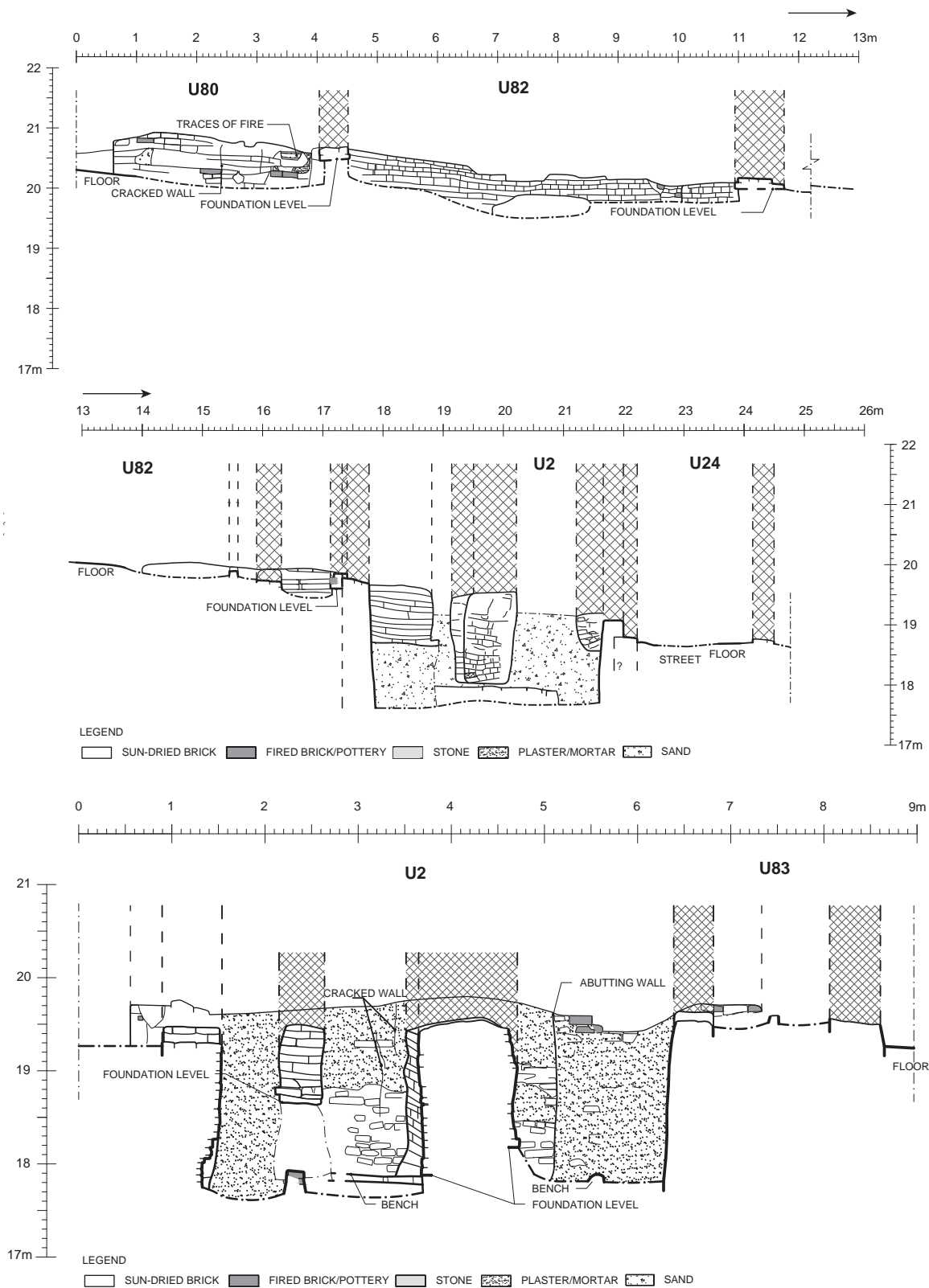


Fig. 71. U2, plan with phases marked in color: structures predating U2 in blue, the early phase of U2 in green, and the middle phase in red





**Fig. 72A-B.** Room U2, sections showing differences in occupational levels in different phases:  
 NE-SW section looking southeast, through U18, U82 and U2 (top);  
 NW-SE section looking northeast through U2 (bottom)



Fig. 73. Section cut across room U2 showing stratigraphy and successive additions to structure F131

though now the structure resembles a pillar, it was never intended to stand free above the walking level but was instead raised gradually, in blocks of five–six courses of sun-dried bricks, as the filling of the room progressed. No floors have been found in the unit. In this occupational phase (U2.1–3, from period IV to period III.B), U2 was clearly a place of non-residential activity resulting in substantial accumulation of sand mixed with organic particles and animal dung (80, 87, 88, 92). The duration of this phase is unclear, but certainly the presence of some hiatus levels and the thickness of the deposits (1.65–1.70 m, depth reached 18.69–18.78 m) suggest that it was long-lived.

Deposit 84 (elevation about 18.70 m), a sandy and organic layer with a small lens of burnt matter (83), seems to represent a hiatus in occupation, followed by a refurbishment of the space, marking a new occupational phase (U2.2, period IV–III.B) [Fig. 74]. It consisted in the construction of walls F944, F120 and F121, and in the raising of base F131. Wall F121 has a single foundation course of sun-dried bricks slightly protruding from its short side, standing directly on top of deposit 84. The original purpose of the wall has yet to be established. Sun-dried-brick wall F120 was built on top of the old fired-brick wall F148. Its first course also starts approximately at the level of the upper surface of deposit 84. Sun-dried-brick wall F944, in turn, was built partially on top of the older wall F123 of the same material. The imperfect alignment of the two walls left a sort of ledge on the external side, while inside the unit the new wall partially rested on the fill (84). This occupational phase of U2 was again followed by substantial accumulation of refuse (period III.C–III.B) consisting primarily of sand mixed with animal dung and organic particles (81), indicating that its function remained unchanged. Lastly, in phase U2.1 during period III.A–II.C, the later floor levels were laid on a thick sand layer (299).



Fig. 74. Deposit 84 in room U2

### Discussion

The structures predating the residential compounds in the southeast and northwest are difficult to place in a broader context, but offer glimpses of the area under investigation prior to the 17th century. The layers which are earlier than the creation of U2 may be dated to the late 15th century (period V) on a stratigraphic basis, but little more can be said about them. Occupation of U2 can be divided into four phases [Table 3]. In the earliest phase, U2.4 (period IV), radiocarbon-dated

Table 3. Correlation of phases in U2 and related features with chronological periods

Date	Period	Phase	Contexts
ca. 1700	II.C	U2.1	299, F133, F141, F142
	III.A	(part of U2/82/83/84) (elev. 20.00–20.30)	
	III.B	U2.2 (late, elev. 19.74)	F120, F121, F944, 81
	III.C		
ca. 1600	III.D		
ca. 1500	IV	U2.3 (elev. 18.80) <a href="#">S407</a>	80, 84, 87, 88, 92
		U2.4 (early, elev. 17.60) <a href="#">S427</a>	F124, F125, F131
ca. 1400	V	Prior to U2 (elev. 17.47)	F123, F135, F144, F145, F148, F150, 90



to the early 16th century (S427), seems to be a household or service space. The middle phase, U2.3 (period IV), also radiocarbon-dated to the 16th century (S407), brought refurbishment and construction of some new walls, but again no features indicate a residential function. Notably, the structures attributable to this phase have foundation levels similar (about 18.80 m) to the earliest levels of collapse reached in U17 (phase U17.3) and to the lime-plaster floor in U81 (about 19.20 m). The occupational levels in the room continued to rise (phase U2.2), and in the latest phase, U2.1 (period III.A–II.C), room U2 received a new floor level and became part of building U2/82/83/84, which formed a compound with building U11/12/13/14/33/34.

U81 is a room in a complex that predates building U11/12/13/14/33/34 (see above). It may have been in use for some time after the compound came into being around the mid-17th century, hence the construction of wall F244 on top of its floor and bench (possibly a facing wall to enable the mounting of ceiling beams). However, as the two neighboring compounds continued to function, U81 was abandoned and filled with rubble. The existence of such unused spaces in the urban layout is important to keep in mind when we think about the density of settlement and the management of space in Funj-period Old Dongola.

Walls exposed while excavating U2 testify to the practice of reusing older walls in new rooms. Walls were built one atop the other, maintaining a similar organization of space, as in the case of F123 and F944. As the walking level rose, not only walls but also other features were successively raised, as has been done with base F131. It is also worth noting that in U2 all deposits from the lowest foundation level of F131 upwards are occupational, with no extended periods of hiatus, testifying to the continuous use and reuse of this space. Base F131, in turn, stands on a collapsed roof (90), which indicates a hiatus, but investigation did not progress below the level of 17.47 m, so it is impossible to say more about the use of this area prior to the construction of U2.

### **Compound U2/11/12/13/14/33/34/82/83/84/85/86** (*Lorenzo de Lellis, Szymon Maślak and Maciej Wyzgoł*)

This large residential compound has a relatively clear plan, the latest phase of which, datable to the early 18th century (period II.C; see Phasing and chronology below, *Table 9*, pp. 234–235), has been uncovered in its entirety [*Fig. 75*]. It occupied at least 445 m<sup>2</sup> in area. The compound consisted of two buildings, well-preserved U11/12/13/14/33/34 and poorly preserved U2/82/83/84, as well as two large courtyards, U85 and U86. It was accessed from street U24 through an entrance leading into courtyard U85. Additionally, a side passage from building U11/12/13/14/33/34 seems to have led out into courtyard U86 to the southeast. However, the relationship of this space to the compound remains uncertain due to the state of preservation of the southeastern walls.

#### *Building U11/12/13/14/33/34*

The building originally (period III) consisted of four rooms, two smaller ones (U13, U14) in the north/northwest, a much larger main room (U11), and a narrow storeroom (U33) in the south/southeastern part. It was entered from the southwest through an entrance 0.75 m wide, which led directly to the small room U13 in the western corner of the house [*Fig. 76*]. Since the surface to the southwest of the house sloped down toward the Nile, it was necessary to add a step in front

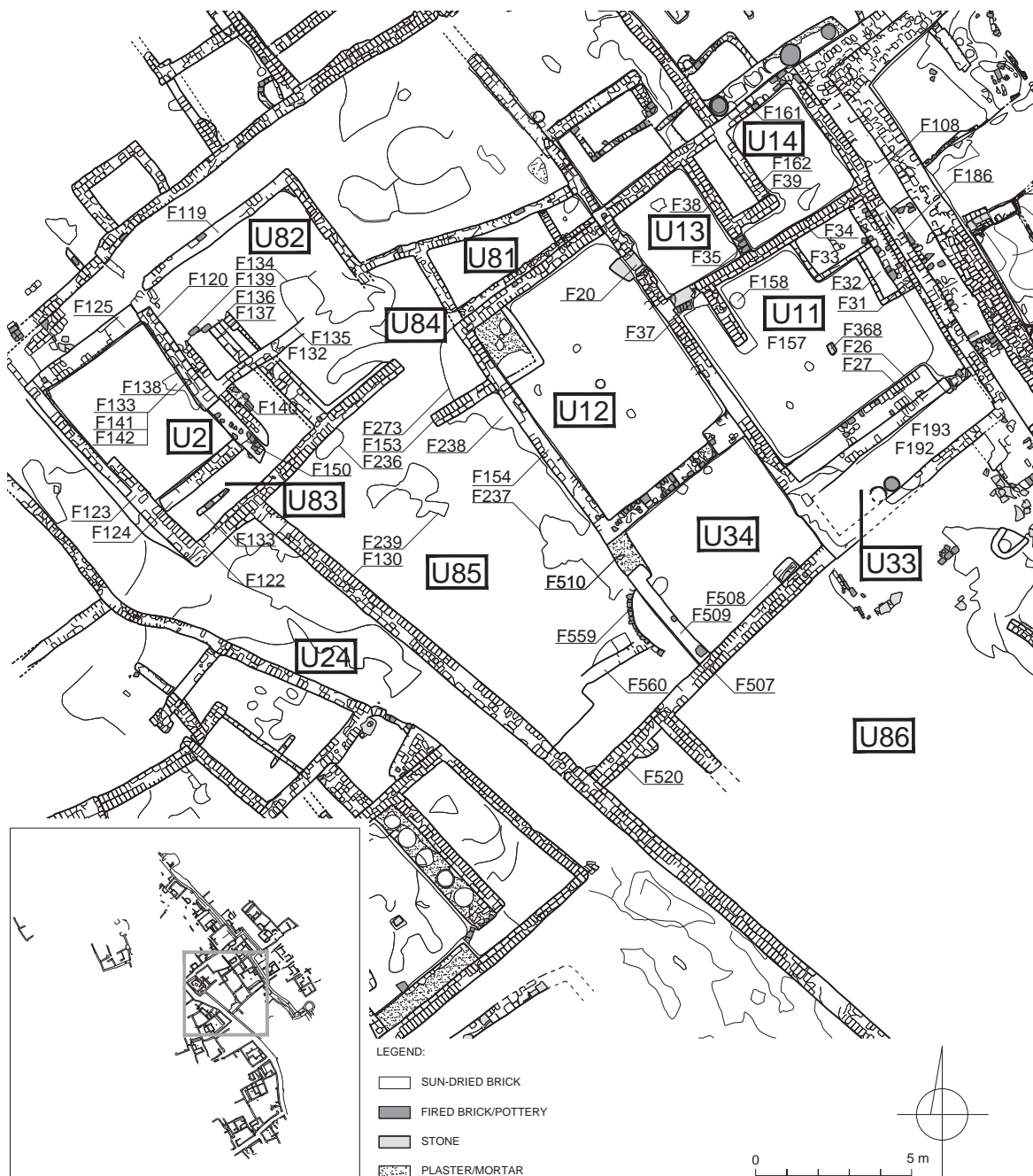


Fig. 75. Compound U2/11/12/13/14/33/34/82/83/84/85, plan

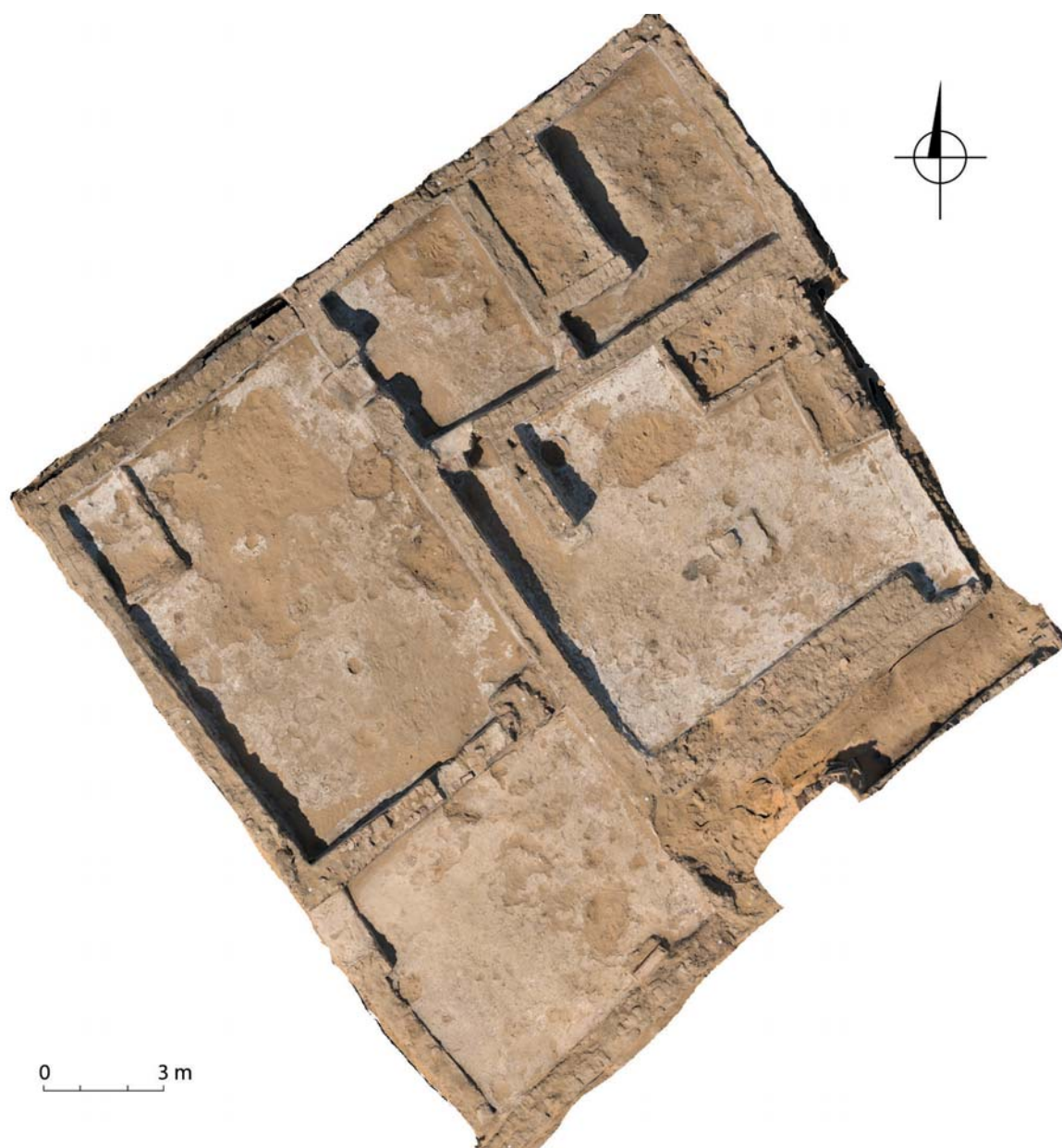


Fig. 76. Building U11/12/13/14/33/34, aerial view

of the entrance to facilitate access (F20) [Fig. 77]. The main entrance was placed in the middle of the southwestern wall of room U13. The room, which measured 3.10 m by 2.65–2.75 m, lacked furnishings. Two doorways, both with relatively high thresholds (F35 and F37), led from this space to the adjacent rooms. The door in the east corner of U13 opened into a narrow corridor (0.65–0.8 m wide), which gave access to a larger room, U14 (4.00 m by 3.90 m), equipped with a bench (F162) placed directly behind the northern stub wall of the corridor (F39).





Fig. 77. Threshold F20



Fig. 78. Bench F26

In the south corner of room U13 was the entrance to the largest room of the house, U11. The room measured 6.60 m by 6.65 m. Here also a narrow (1.0 m wide) corridor led to the room's interior, but no bench had been built behind its short eastern stub wall. Instead, a circular hole (F158, about 55 cm in diameter) was found in the floor against the wall, and imprints of another rounded object, probably a vessel, were found in the northwest corner, suggesting that a vessel had been sunk into the floor and another one had been placed on the still-wet plastering of the floor.



Fig. 79. Benches F32 and F33



Fig. 80. Vessel with lid, sunk into the east corner of bench F33



The benches used in the final occupational phase of the room (periods III.A–II.C) were built in two construction episodes. First, there were only two benches in the room, F31 and F26 (55 cm and 75 cm wide, respectively). Traces on the floor suggest that they formed a continuous, L-shaped bench along the eastern and southern walls [Fig. 78]. In this shape the benches may have blocked the entrance to U33, although a hiatus in its use cannot be proven due to the room's poor state of preservation.

Subsequently, two new benches (F32 and F33), the larger measuring 155 cm by 210 cm, and the smaller 175 cm by 65 cm, were constructed in the northern corner of the room abutting the older one [Figs 79–80]. A small vessel with a lid was sunk into the surface of bench F33 in its east corner. It was found empty, but it may have been intended for storage of small personal objects. Vessels embedded in benches are common on site, but they are usually reused *saqiya* pots (*qawwadis*) and cooking pots. The small size and elaborate decoration of this vessel make it a unique find.

As the new benches were built, changes were made to the older ones. The southern end of the eastern one (F31) and the eastern end of the southern one (F26) were cut, clearing the passage to room U33 in the eastern corner. The room was narrow but long (1.5 m by 6.5 m) [Fig. 82]. As evidenced by remains of two storage vessels and at least two floors (F192 and F193) of tamped earth with plant remains and by a layer of animal dung and household waste (contexts 35 and 36) separating the floors, this space was used as a storeroom (see similar long, apparently unswept spaces in other buildings, such as U26a, U58b).

The building bears scarce evidence for simple flat roofs made of wooden beams, palm-leaf rachides, and mud. Only in the northeast room (U14) a few vestiges that may be interpreted as remains of wooden roofing were found on the floor [Fig. 81].

In room U11, a central post standing on a sandstone ashlar (F368) was placed, apparently to support the roof [Fig. 83]. The distance from the room walls to the post measured 3.45 m at most, and it is obvious that there was no need for beams of substantial length. The walls of the house were built of brownish-grey sun-dried bricks mortared with Nile alluvium. Fired bricks, mostly fragmented, appeared only in minor structures, such as benches and thresholds. Wall faces inside the house were coated with brownish-grey plaster, and after that many times with yellowish and/or pinkish *qurba*, each time whitewashed with *gir*.



Fig. 81. Relics of a collapsed flat ceiling on the floor of room U14





Fig. 82. Room U33, view looking northeast



While the northeastern wall of the house abutted the city wall (F108), making the expansion of the building in this direction impossible, there was no such obstacle on its western side. Here two rooms were added (U12 and U34), likely in more than one phase. The larger of them, U12, measuring 7.50 m by 5.25 m, was located to the northwest [Fig. 84]. It was entered through a door (0.85 m wide) in its southeastern wall, leading from the southeastern room (U34). Room



Fig. 83. Pillar base in room U11



Fig. 84. Room U12, view looking southeast

U34 was initially accessed from the outside only through a wide entrance (F510) in its west corner. Another, later door led to it also from the southeast. This second entrance (F508) is suggested by two steps preserved against the wall (F507), likely ascending to a higher level outside the house, to courtyard U86 in the southeast (see below).

The history of the house in this form may not have been long. Only two floor levels (F157) were recognized below the last plastering in the main room of the house (U11). Room U33 provided evidence for two levels (F192 and F193). Both in the main room (U11) and in room U33 there are sand layers of considerable thickness below these floors. That some walls of the house must have been older than the house itself can be inferred from the northwest wall of the building (F161), which goes down deep and was used by an adjacent house. There are also vestiges of older walls beneath the northeastern wall of the house (F186, F522).



Fig. 85. Circular structure F559



*Courtyard U85*

The principal access to U11/12/13/14/33/34 was through a considerably wider (1.15 m) entrance (F510) in the western corner of U34, leading out into U85, which was probably a large courtyard. This space, delimited by walls F122, F130, F520, F507, F509, F154 and F153, was entered from street U24 through an entrance in its south corner. The space had a floor made of whitewashed mud plaster found in patches throughout its walking surface (F236, F237, F238, F239, F273). In the southeast corner of the courtyard, a wall (F560) and a circular structure (F559) pertaining to an earlier phase were found during cleaning but left unexcavated [Figs 85–86]. In the northwest, the courtyard was also connected to structures located on the other side of wall F122 (see below), suggesting that they possibly belonged to the same compound.



Fig. 86. Wall F560

*Relics of building U2/82/83/84*

The tops of several very poorly preserved walls pertaining to a house unit were found northwest of the large open space U85, immediately below the surface layer. The building was accessed from the east, from the courtyard it shared with building U11/12/13/14/33/34 to the northeast. The latest phases (period III.A–II.C) of the building sequence are clearly identified by a series of floor levels found in the four rooms uncovered in this area. Just below surface level, floors F132, F133, F134 and F140 help to outline the appearance of the final phase of the building.

One room (U82), located in the north corner, was delimited by walls F119, F120, F550, F240 and F135, and paved with floor F134 overlying deposit 85. Due to the presence of the floor level, the layer has not been excavated. To the southeast of it, a second room (U84) was delimited by walls F122, F128, F135 and floor level F132, characterized by the presence of a rounded curb along its southwest side. A third, smaller space (U83) was formed by an L-shaped corridor located between F128, F122, F123, F124, F150, F127, and F135, and probably having F140 as its floor level. Inside these spaces, other walls and structures have been identified (F136, F137, F138, F139, F127, F133), but they seem to belong to earlier phases and their relative sequence and function are impossible to determine without further excavation. Room U2 in its latest phase (U2.1, periods III.A–II.C; for earlier phases, see above) was formed by walls F120, F135, F150, F124, F123 and F125 enclosing an internal space furnished with a floor level (F133) made of mud plaster whitewashed with *gir*. This floor—preserved only in a small portion along the northeastern part of the room—had two other precedent floor levels below it (F141, F142), denoting an extended occupation of the room at least into period II.B [Fig. 87].

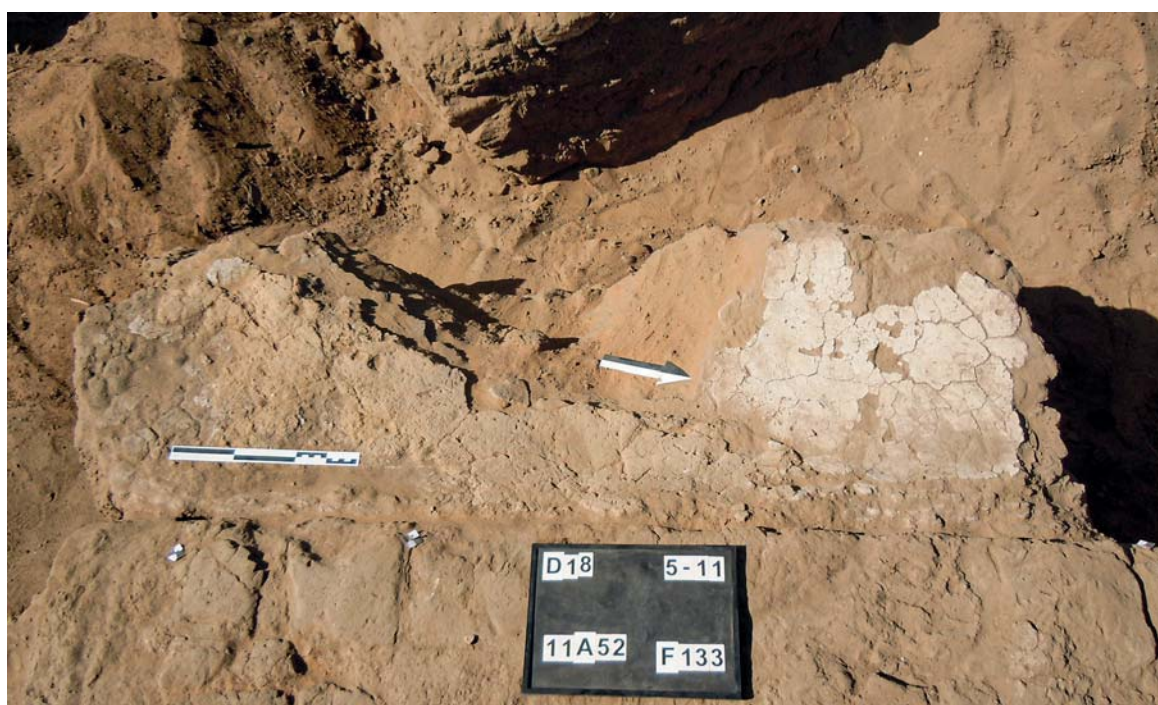


Fig. 87. Room U2. Floor level F133 and below it F141 and F142

*Courtyard U86*

A large courtyard, U86, is located along the inner face of the city wall. It is an open area with four storage bins located by the wall, a hearth, and a quern emplacement [Figs 88–89]. An enclosed space with two storage vessels, U41, was also located within the courtyard. All the features were placed on a mud floor, which extended from the inner face of the city wall. The courtyard is outlined by city wall F332 and wall F330 in the northeast. Its northwestern limit is most probably wall F110, but its relationship to that wall is unclear due to the lack of the floor in this area. That part of the floor, unrecognized in square 11A55, was excavated as part of deposit 141. The level of the courtyard breaks off in the southern part as a result of erosion. All features are preserved to a maximum height of 50 cm.

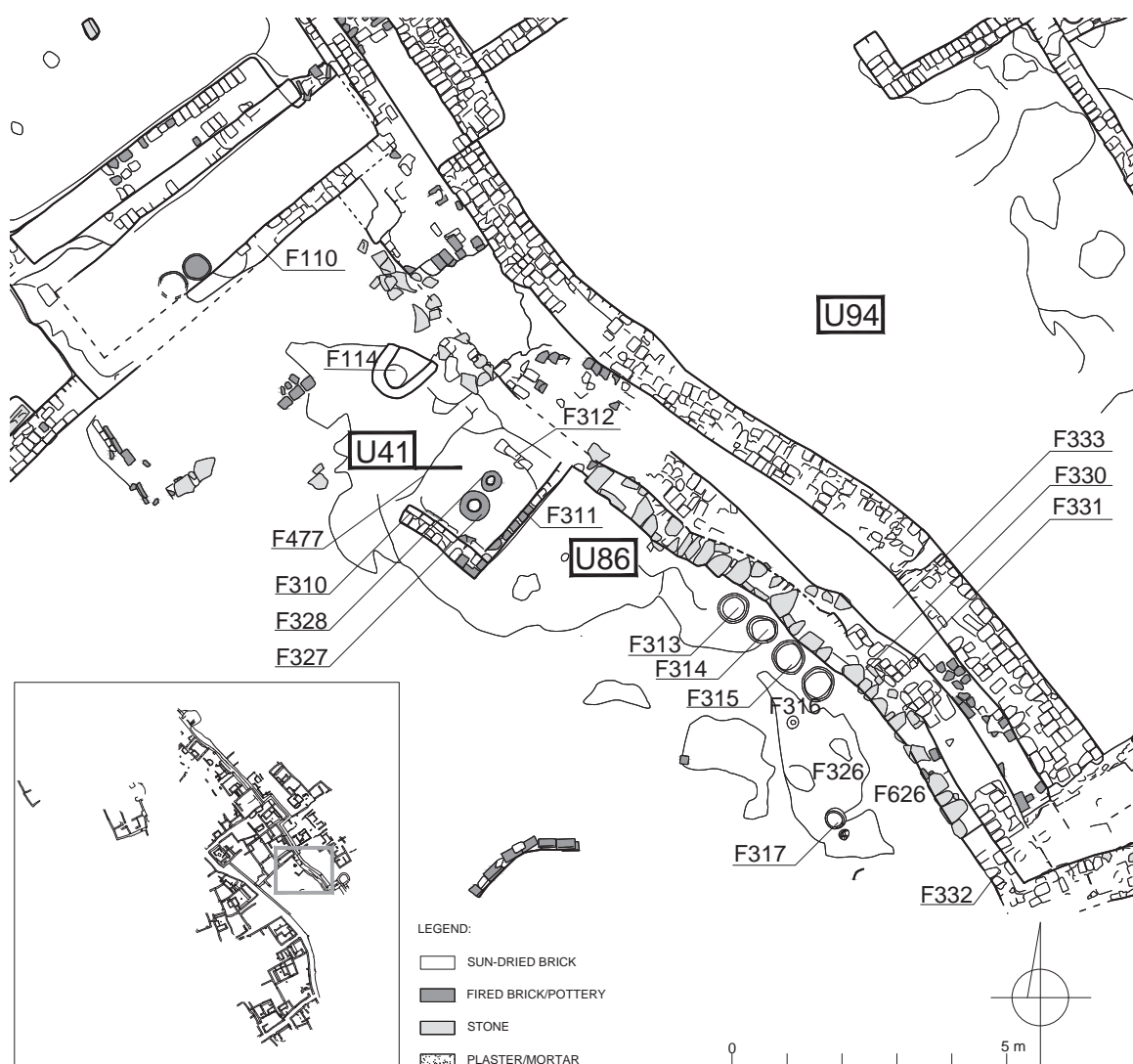


Fig. 88. Courtyard U86, plan





Fig. 89. Courtyard U86



Fig. 90. Space U41



Fig. 91. Storage bins F313–F316



The courtyard was set up against earlier parallel walls, F330, F331, F332 and F333, forming part of the city walls. When it came into being, in period III.D or C, a sloping deposit along wall F330 was cut by a pit (F477) in its northwestern part, and sun-dried-brick walls F310 and F311 were built, forming an enclosed area, U41. Two storage vessels, F327 and F328, were sunk into the ground inside the unit. Stone wall F330 must have been demolished by then, as step F312 allowed one to ascend from the enclosed area (U41) to the top of that wall [Fig. 90]. The step is built on top of a rubble layer (236) deriving from either wall F330, F331 or F333. In the same occupational phase, four storage bins (F313–F316) were placed next to stone wall F330 [Fig. 91]. Another bin, F317, located in the southeastern part of the courtyard, was later used as a hearth, as indicated by soot on the inside of its walls. Burnt seeds of colocynth and acacia suggest that these plants were possibly burned as fuel. In addition to the bins, hearth F626 (filled with 186) was set up in the east corner of the courtyard.

After the features in the courtyard were established, the level of floor F326 gradually rose, with accumulation of several superimposed thin layers of mud abutting the bins and walls. Somewhat later than the other features, F114 was built on top of the floor [Fig. 92]. This structure can be interpreted as a quern emplacement with a fair degree of certainty despite the lack of a quern and bowl. In other excavated areas (e.g., U15 and U36) such mud bases with circular depressions also co-occur with concentrations of grains in botanical samples, storage vessels, and discarded grinding and pounding stones. A similar quern emplacement with a quern *in situ* is also preserved in U30, embedded in mud with an attached bowl [see Fig. 65].



Fig. 92. Quern emplacement F114



The courtyard was most probably used by inhabitants of the house located on its northwest side (entrance to room U34). Its function appears to be connected with the processing of foodstuffs, especially grain, since the archaeobotanical samples contained primarily sorghum grains and spikelets. The storage bins are located in the immediate vicinity of hearth F626. In addition, a quern emplacement is located in this area. Furthermore, the number of almost 40 worn grinding and pounding stones recovered in this space is far above average. In a later phase, the courtyard lost its primary function and served as a place of keeping livestock. Layers of animal dung (178, 179, 184) accumulated on the floor and finally filled up the enclosed area U41 (180).

### *Discussion*

The compound, consisting of two buildings and two large courtyards, and measuring at least 445 m<sup>2</sup> in area, was the largest of the compounds excavated this season. In its final construction phase, the bigger of the buildings comprised six rooms, making it the largest dwelling complex found thus far. On the one hand, the layout and furnishings of the house do not stand out among other contemporary dwellings. Narrow storerooms, spacious multifunctional rooms and courtyards are found in other compounds as well. Benches, stub walls and pottery vessels sunk into the ground are also typical of Funj-period households at Old Dongola. Neither do the small finds stand out in terms of quantity or quality. What is remarkable in this building, however, is the number of rooms, which apparently permitted a diversification of their function as opposed to keeping each space multifunctional. The function of the rooms can be inferred from their features and location in the domestic space. In the earliest investigated part of the house, the building consisted of a vestibule, a bedroom with a sleeping bench, and a spacious multifunctional room with a number of benches used for both housework and rest. This room gave access to a narrow storeroom. Subsequently, two more rooms were added. The smaller one, entered from the front yard U85, served as a vestibule of the house, while the larger one may have been a kind of spacious reception room. In addition, the house most likely opened on another courtyard, U86, to the southeast. Unlike the empty space of U85, this was a service area that featured numerous food-processing installations.

The majority of the excavated layers were too close to the surface to offer material reliable enough for radiocarbon dating, but stratigraphic analysis of neighboring dated compounds suggests that it was occupied from the second half of the 17th century into the 18th century (periods III.B and III.A into II.C). The radiocarbon date of sample S1033, charcoal from deposit 211 in vessel F378 embedded in the floor of room U11, does not exclude a 19th-century date of abandonment (see Phasing and chronology below, *Table 9*, pp. 234–235).

## ZONE 1.2

- 104** Compound U23/87/88/89
- 107** Compound U32/38/39/87/88
  - 109** Building U32/38/39
- 116** Early phase of structures in Zone 1.2: units U32, U38, U52, U63, U65, U90
  - 117** Earlier structures below rooms U32 and U38
  - 117** Room U52
  - 118** Room U63
  - 120** Space U90
  - 122** Space U65



FUNJ-PERIOD RESIDENTIAL QUARTER WITHIN THE CITY WALLS: ZONE 1.2  
(*Lorenzo de Lellis*)

Structures preserved in Zone 1.2, which stretches southwest of street U24 and west of courtyard U56, form compounds belonging to several phases [see *Fig. 8*; see also *Fig. 93*]. Their relative chronology is difficult to establish due to the location of the structures on a slope, which impedes the use of foundation levels in phasing. Based on the relationships of the walls, however, it is possible to assign the excavated compounds to at least two phases datable to periods III.B–II.C (from the second half of the 17th to the early 18th century; see Phasing and chronology below, *Table 9*, pp. 234–235), during which some older units were incorporated into new structures, while others fell out of use and were either filled with refuse or razed. All the compounds described below likely included other units, either no longer preserved or not yet excavated.

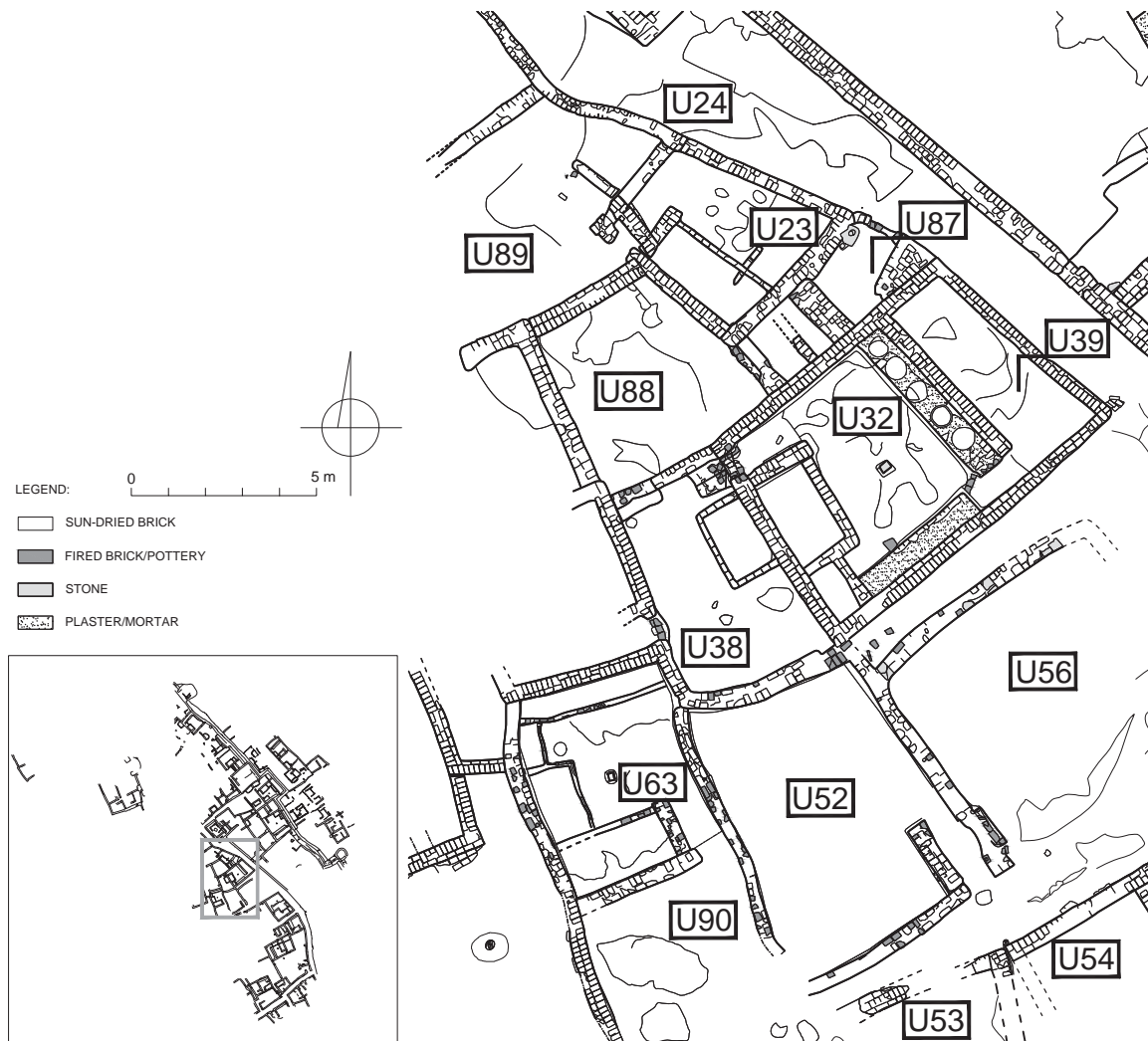


Fig. 93. Zone 1.2, plan



### Compound U23/87/88/89

The compound comprised units U23 and U89, which likely shared a courtyard (U88) accessible from street U24 through corridor U87 [Figs 94–95]. Going down the corridor, one reached U88, delimited in the northeast, southeast and southwest by walls F259, F398 and F261, respectively. In a later phase (period II.C, early 18th century), U23 and U89 went out of use and were closed off from courtyard U88, which together with corridor U87 subsequently became part of one compound with building U32/38/39 (see below).

U23, delimited by walls F257, F258, F259, and F266, and paved with floor F394, was originally (period III.A, late 17th century) furnished with an L-shaped bench—identified thanks to the remains of its walls (F270, F271, F272)—and a stub wall (F269) flanking the entrance located in the room's west corner. Of the other room, U89, located on the northwestern side of wall F266, only a relic of a dividing wall (F393) and a small fragment of floor F395 remain. Over time, the floor of U23 was covered by an occupational layer of sand and organic material (117), followed by collapse 115. In room U89, the floor was concealed by a thick layer of animal dung (275).

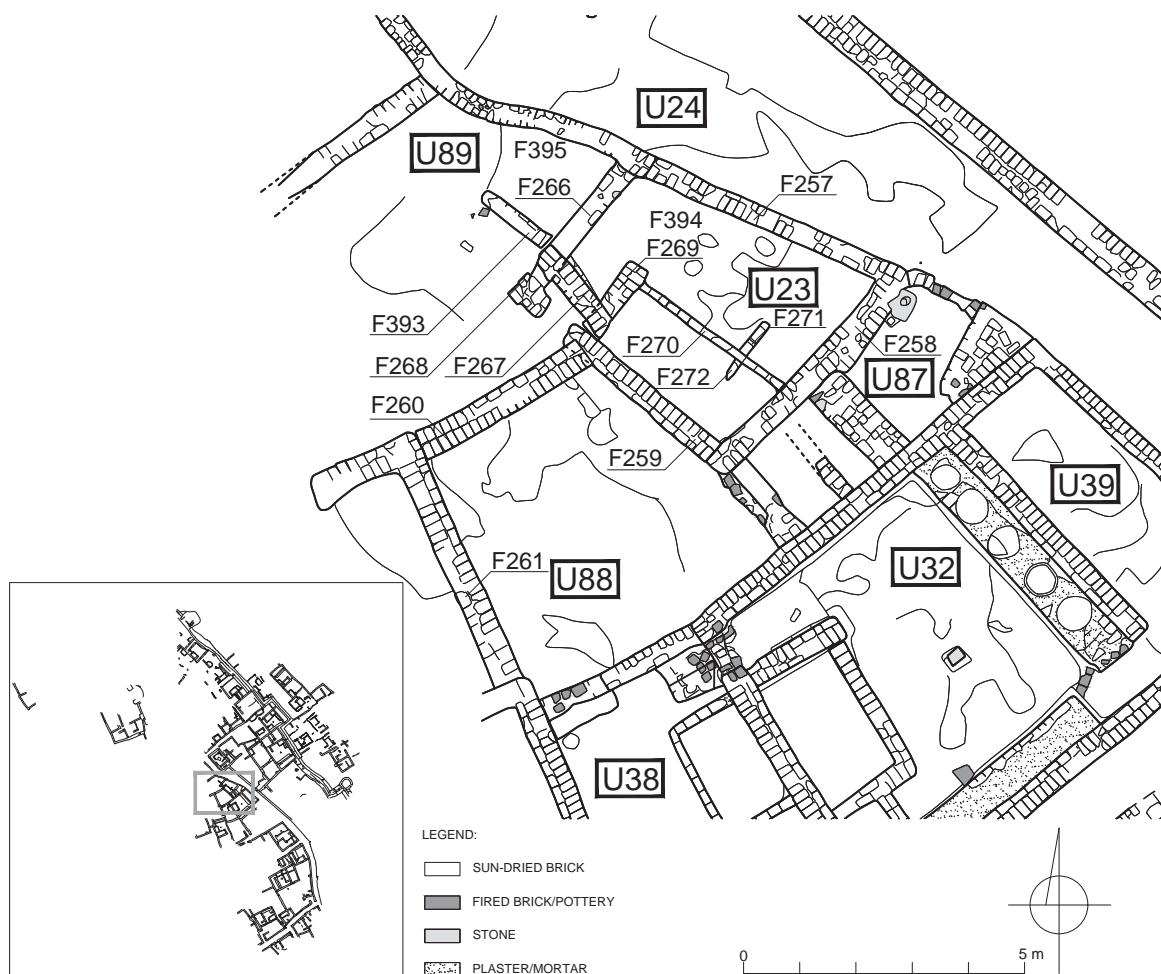


Fig. 94. Compound U23/87/88/89, plan

In a subsequent phase (period II.C, early 18th century), the area of the compound was reorganized. Wall F240 was inserted in the northwest (it abuts both F259 and F261) to close off U88 from U23 and U89, restricting its area. Wall F267 was built across the small corridor leading to U23. The function of F267 is unclear due to its poor state of preservation, but it was built partly on sand and partly above F266 and F269, which must have already been cut to the present height. The feature is composed of just one course of sun-dried bricks, so instead of being a blocking wall, it could be a very late threshold connected with the last occupational phase of this area. In this phase, U23 and U89 were probably no longer accessible from the street. Possibly at this time U87 and U88 became part of compound U32/38/39/87/88 to the south.

### *Discussion*

Little can be said about compound U23/87/88/89, as structures belonging to later phases (period II.C) obscure its features and impede its functional analysis. U23 seems to have been a single-room dwelling accessed from a courtyard, which was a larger version of U88. The total area and number of spaces in this compound are impossible to determine without further excavation to the west. It is also possible that a part of building U32/38/39 (see below), for instance room U38, belonged to the same compound as U23 in an earlier phase.



Fig. 95. Compound U23/87/88/89, aerial view

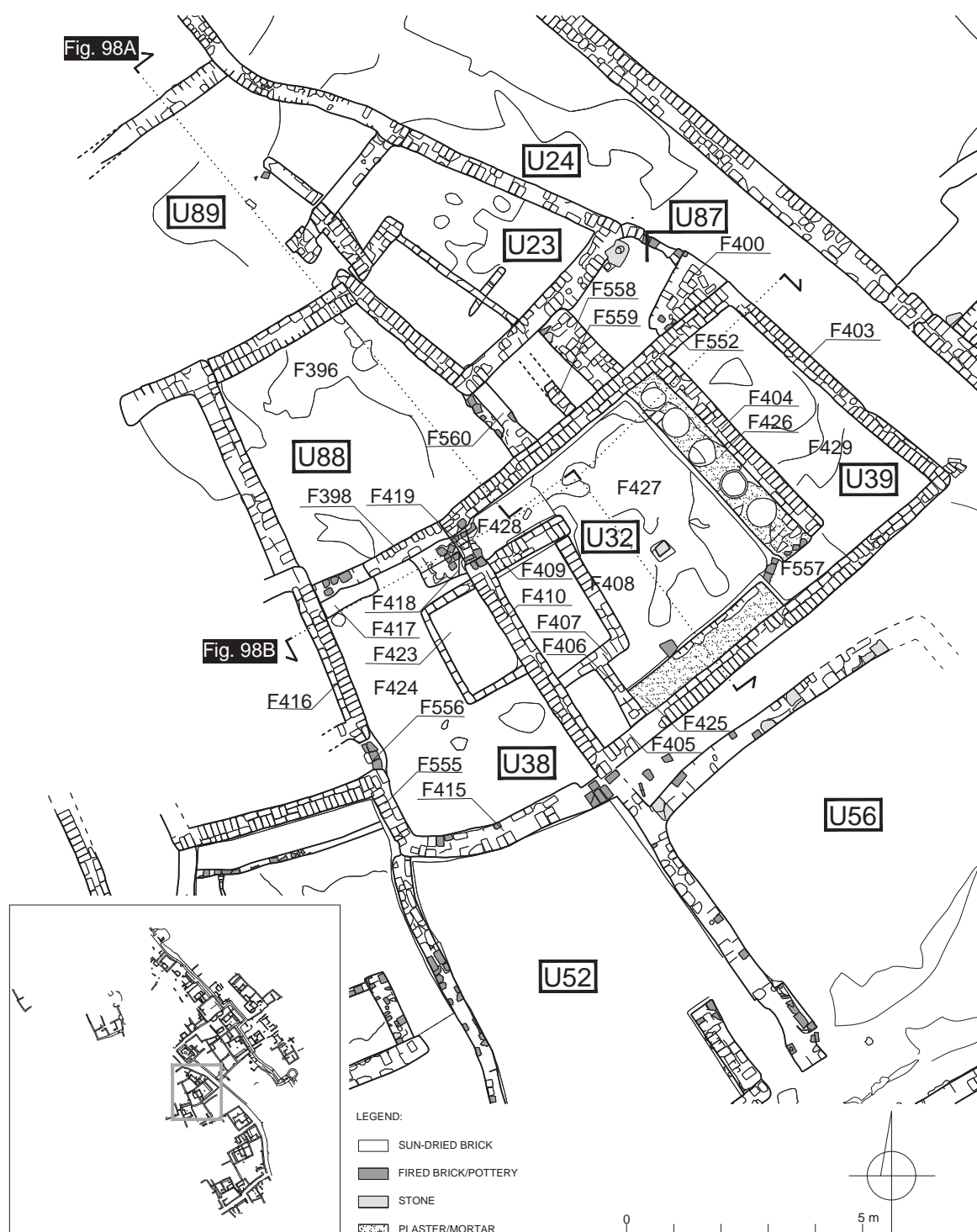


Fig. 96. Compound U32/38/39/87/88, plan



This compound is an example of the reuse of household space in the urban layout of Funj-period Old Dongola. The street access provided by courtyard and corridor U87/88 first served the unit or units to the northwest and subsequently the building to the southeast. After becoming separated from U88, room U23 either went out of use or formed part of a household located further to the west.

### Compound U32/38/39/87/88

In period II.C (early 18th century), the access corridor U87 opening onto the street was furnished with a small bench (F400) and closed with a door mounted on a reused grinding stone [Figs 96–98A–B]. Low walls were built across the main entrance corridor (F558, F559, F560), perhaps forming part of a ramp or flight of steps built to access the compound, located on a lower level than the street. Courtyard U88 in this phase had a floor (F396) but lacked other features. From this space, one accessed building U32/38/39 in the south [Fig. 99]. Two rooms of this complex, U32 and U39, are likely the latest additions in this area, while U38 seems to have been part of an earlier complex (see below).



Fig. 97. Grinding stone reused for mounting a door pivot in the entrance to U87

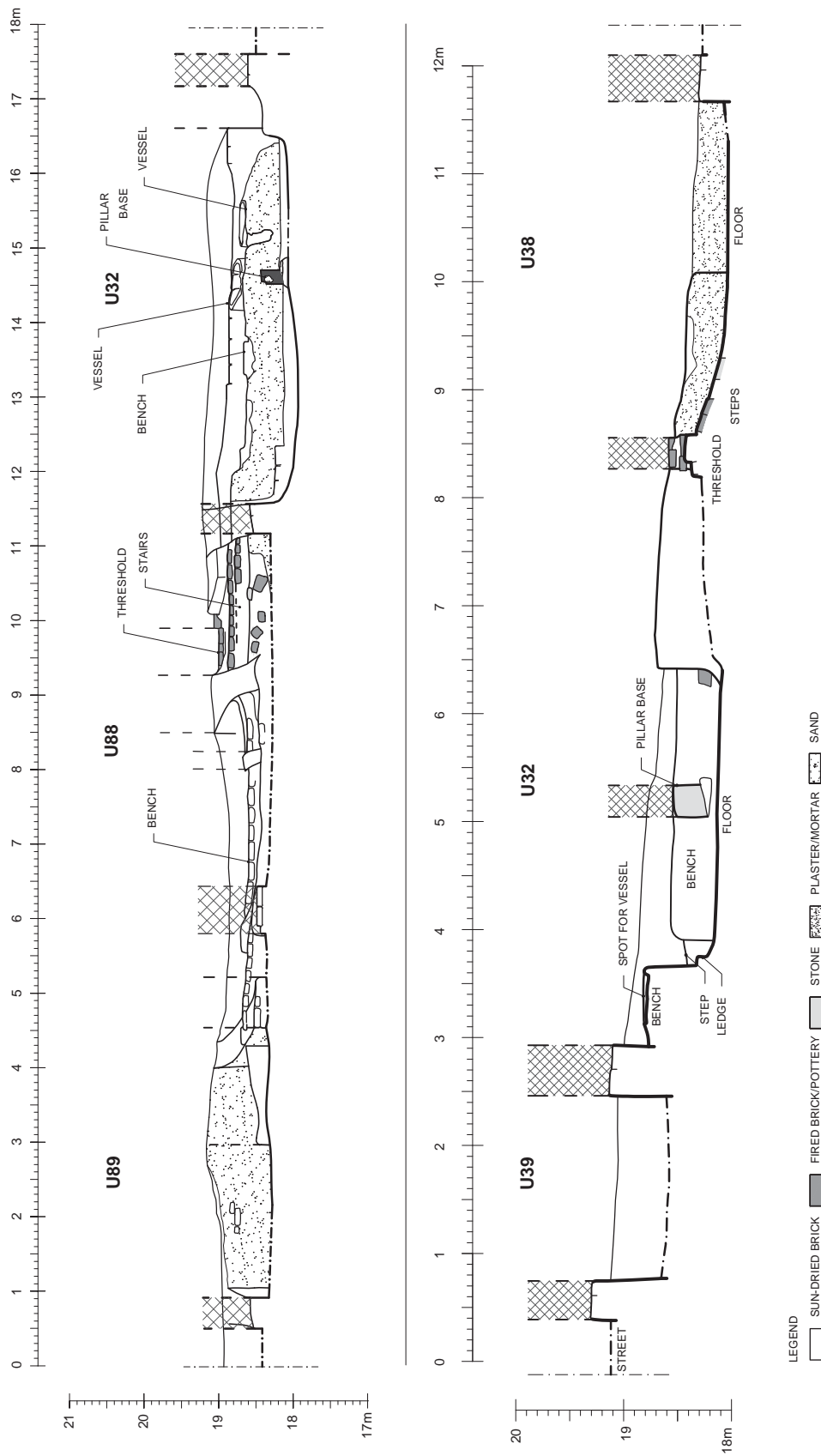


Fig. 98A-B. Compound U32/38/39/87/88: NW-SE section through U32, U88 and U89 looking northeast (top); SW-NE section through U38, U32 and U39 looking southeast (bottom)

*Building U32/38/39*

## Room U38

In the excavated phase (period II.C), room U38 was defined by walls F415, F555, F416, F410 and F398, outlining a rectangular room furnished with bench F423 on its northeastern side [Fig. 100]. It had three doorways: the entrance to the building in the northwest, a narrow passageway to U32 in the north, and a now-blocked doorway to an unexcavated room to the southeast.

Since the floor of U38 was at a slightly lower level (elevation 18.05 m) than in the adjacent spaces, a flight of steps (F418) was built in the passage to U32. The entrance from U88 was furnished with a step (F417). The well-preserved floor level of the room (F424) is later than the last replastering of the walls. At some point, the entrance on the southwest side was closed with a blocking wall (F556). Some traces of burning found directly on the floor might suggest later use of the room and a change in its function (from residential to food production?). The traces of burning might also be related to some other use of fire, for instance for heating.

A layer of yellow sand (295) on top of the floor was deposited probably during the abandonment phase of the unit. As a result of sieving the layer, a bronze coin and a huge number of beads of various colors, shapes and dimensions have been recovered (Then-Obluska forthcoming). On the surface of the sand there were also traces of a small fire (297), perhaps related to a temporary reoccupation of the room during its abandonment phase. The sand was sealed by a massive wall collapse (290) extending over the whole surface of U38 and probably resulting from the destruction of its walls [Fig. 101].



Fig. 99. Building U32/38/39, aerial view



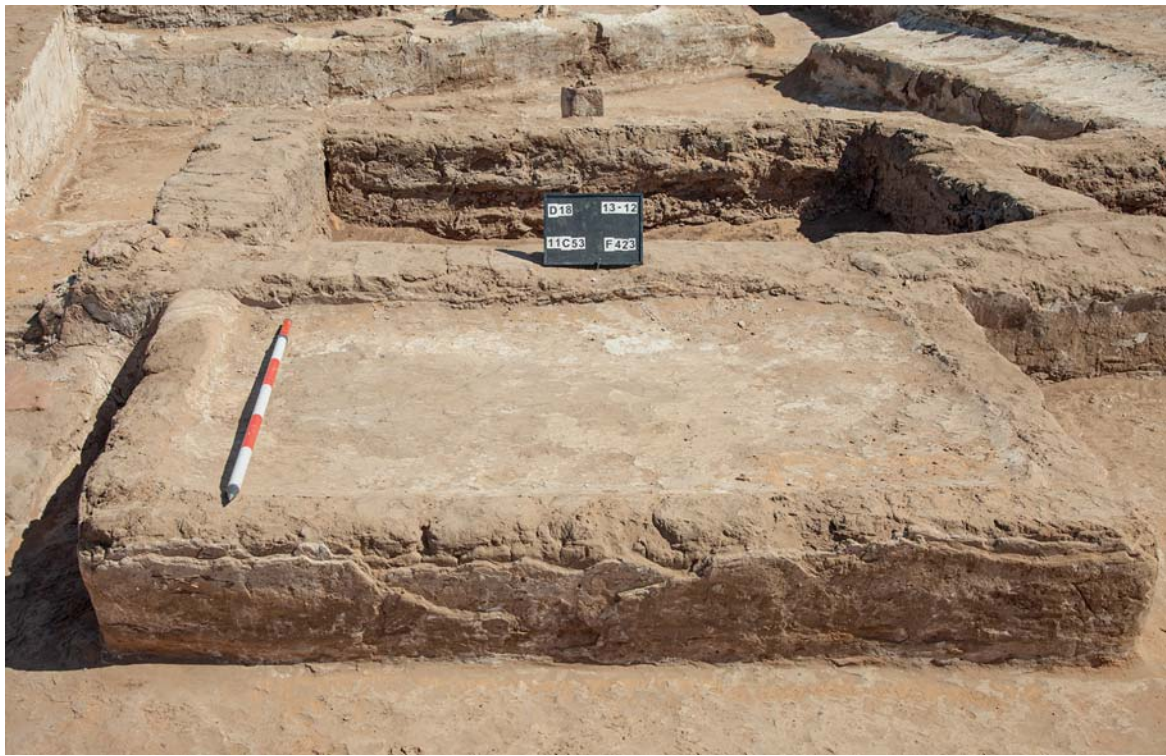


Fig. 100. Bench F423 in room U38

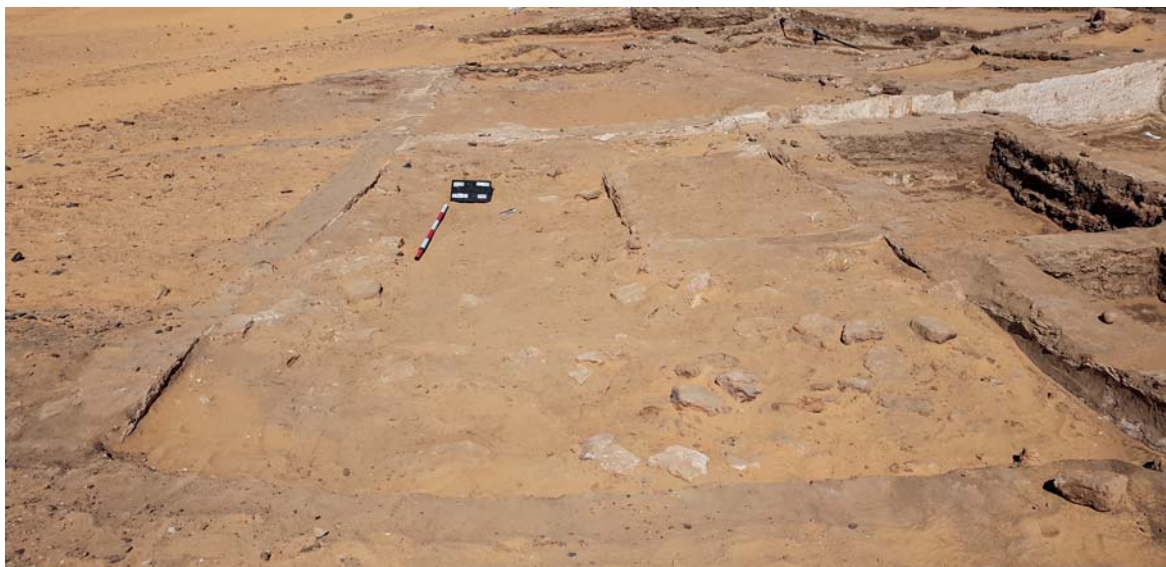


Fig. 101. Wall collapse layer 290 in room U38

### Room U32

U32 is a large, square room formed by walls F552, F404, F405 and F410, and paved with floor F427 [Fig. 103; see Figs 96, 99]. A bench (F426) built along F404 supported six storage bins made of sun-dried clay, fragments of which were recovered from the fill [Fig. 102]. Another long, narrow bench (F425) stood along F405. A base for a post made of a block of sandstone resting on a sun-dried brick stood almost in the center of the room. It suggests that a light, flat roof made of organic materials was constructed over this space. Whitewashed mud plaster covering the walls of the room descends seamlessly to the floor, but in some spots there were traces of earlier layers of plaster, indicating a prolonged use of the room. On the northwest and northeast sides, the floor has a rounded curb, which follows wall F552 and bench F426. Two rectangular structures formed by walls F406, F407, F408 and F409 (a stub wall flanking the entrance) probably constituted two more benches, completing the furnishings of the room on the western side. The structure outlined by F410, F407, F408 and F409 was filled with a layer of sand (289).

A later phase is attested by the remains of a floor level (F428, elevation 18.26 m) found in the southwestern corner of the room, where a narrow corridor (with a threshold [F419] and a step [F418]) led to U38. This floor, made of whitewashed mud plaster, connected the two rooms, sloping down from F419 to the level of the curb running along F552 and F426.



Fig. 102. Collapsed wall of a bin of sun-dried clay with a circular hole near the base found in room U32



Fig. 103. Rooms U32 and U39, view looking southeast



Another floor level (F557, elevation 18.43–18.55 m) connected U32 with U39, where the walking surface (F429, elevation 18.49–18.56 m) lies at a higher elevation than floor F427 (18.13–18.25 m). In this case, a small step was constructed with fired bricks and connected on the eastern side to a sloping surface in the passage between the two rooms. In its current state, F557 ends abruptly, while originally it probably spanned the whole of U39 [Fig. 104].

The occupational phase of the room was represented by a layer of sand mixed with organic material and loam (285) spread evenly all over the surface of floor F427. On the floor, next to the post base in the center of the room, there was also a small layer of ashes and charcoal (287), on top of which a ceramic plate was found still intact and containing a compacted white substance resembling *gir* or ash [Fig. 105]. A thick accumulation of yellow sand (283) on top of the occupational layers formed in the period that elapsed between the abandonment of the room and the collapse of the walls (thick layer 282, sealing the room) [Fig. 106].



Fig. 104. Floor F557 between rooms U32 and U39





Fig. 105. Plate on the floor next to the pillar base in room U32

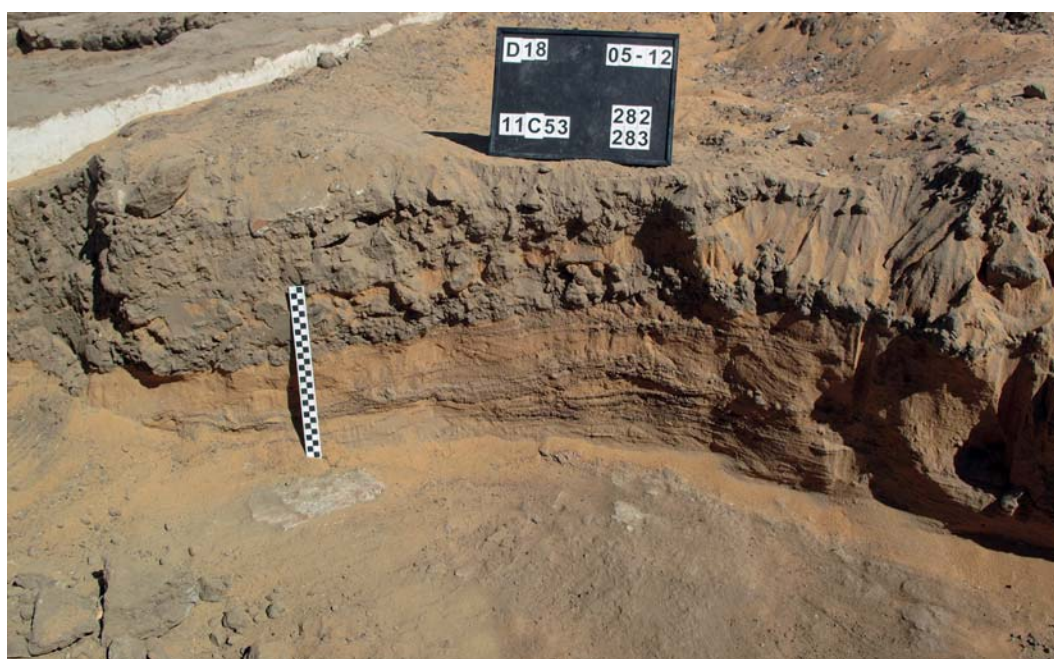


Fig. 106. Wall collapse 282 above sand layer 283 in room U32

### Room U39

Room U39 is a narrow room in the northeast part of the compound. Its walls, F404, F552, F403 and F405, are all bonded together, suggesting that U39 was built in a single construction episode, together with U32. As in U32, the occupation of the room was represented by a compact layer of sand and loam (293) spread on top of the floor level (F429). Traces of a small fire (294) were found on top of 293 and a layer of clean, yellow sand (292) accumulated probably during the first stage of the abandonment of the structure. Collapse layer 284 constituting the fill of room U39 and overlying sand layer 292 revealed the presence of various pots and vessels embedded in the deposit at different elevations. This phase in the formation of the deposit was distinguished as deposit 291.

This narrow unit could have been a storage or utilitarian space, as suggested by the large number (at least 12) of ceramic containers found inside. The fact that all the containers were embedded in what clearly was a collapse layer still needs further clarification; none of them had physical contact with the layer constituting the floor of the room. One explanation could be that the whole house had a phase of reuse after the initial abandonment, and the containers remained in use even during the phase when the occupational level was already covered with a part of the wall collapse. Another possible explanation is that the pots were originally located above floor level, either suspended from the ceiling on cords or straps or set on shelves, and they fell after the collapse of the structure had already begun.

### *Discussion*

The compound featured a corridor leading from the street to a small courtyard, from which one entered a three-room building. Building U32/38/39 is typical in layout, with a spacious multi-functional room, a narrow storeroom and a vestibule. The complex seems to be of fairly modest size (total area of about 100 m<sup>2</sup>), although a doorway from U38 to the southwest may indicate the presence of one or more unexcavated rooms belonging to the same complex.

What sets this compound apart from others is the quality and number of finds. Substantial, intact wall collapses sealed the latest occupational phase of the house, protecting the finds. An assemblage of beads still *in situ* on bench F426 (FN102 = inv. no. 244) consisted of about 224 green, yellow, white, and red glass beads as well as a few fragments of a metal setting and a weathered green glass. Many beads were covered with whitish patina. Some of the beads were still threaded on string fragments in their original arrangement (Then-Obłuska forthcoming). Since the beads were not found in archaeologically diagnostic contexts (e.g., associated with a given part of the human or animal body), it is impossible to assign them to a specific beadwork type or function (e.g., necklace, belt, rosary). Other finds include a ceramic headrest (FN100 = inv. no. 222; for similar objects see Nettleton 2007: 144), many ceramic pots and containers, and a wooden object (FN110 = inv. no. 190), possibly part of a stand or frame (Cervi forthcoming) [Fig. 107A–C].

The abundance of finds in the house is due to a fortuitous stratigraphic situation. Such assemblages may have been present in other houses, but the lack of similarly sealed contexts in most compounds prevented their preservation *in situ*. Therefore, the large number of objects does not necessarily imply a higher material status of the inhabitants, especially given the relatively small size of the house. Nonetheless, the assemblage certainly contributes important information on Funj-period house inventories.

The compound had contemporary floors at different elevations. U39, U32 and U38 were connected by flights of steps and sloping floors, and the three rooms were connected with U88 and U87, which also had walking levels at different elevations. This is partly explained by the presence of earlier structures that were reused inside the new rooms built in the latest phase (see below), but could also be linked to the shape of the terrain on which they were constructed. The floor level at the lowest elevation in this compound is that of the room in the southwest corner (U38), while the highest one is that of U23 in the northeast corner. It therefore appears that the buildings followed the natural slope of the hill, descending from the top of the citadel toward the Nile.





Fig. 107A. Wooden object FN110 (inv. no. 190)



Fig. 107B. Ceramic headrest FN100 (inv. no. 222)

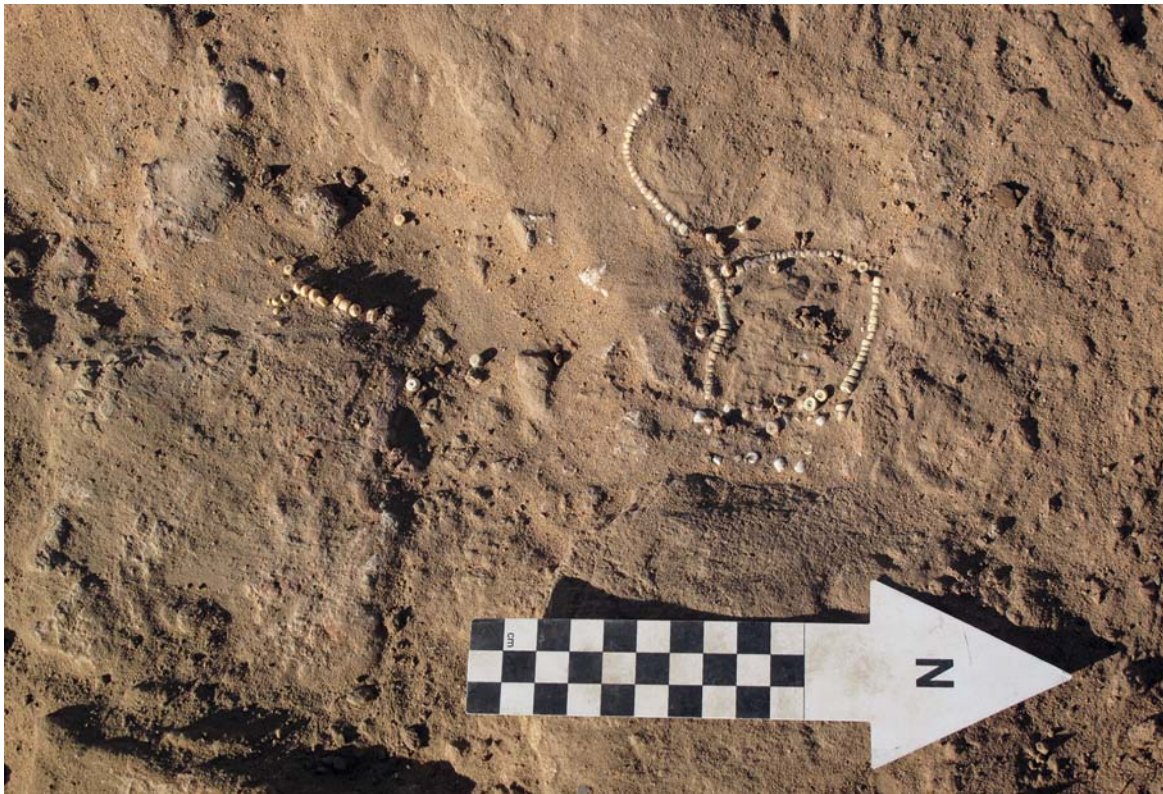
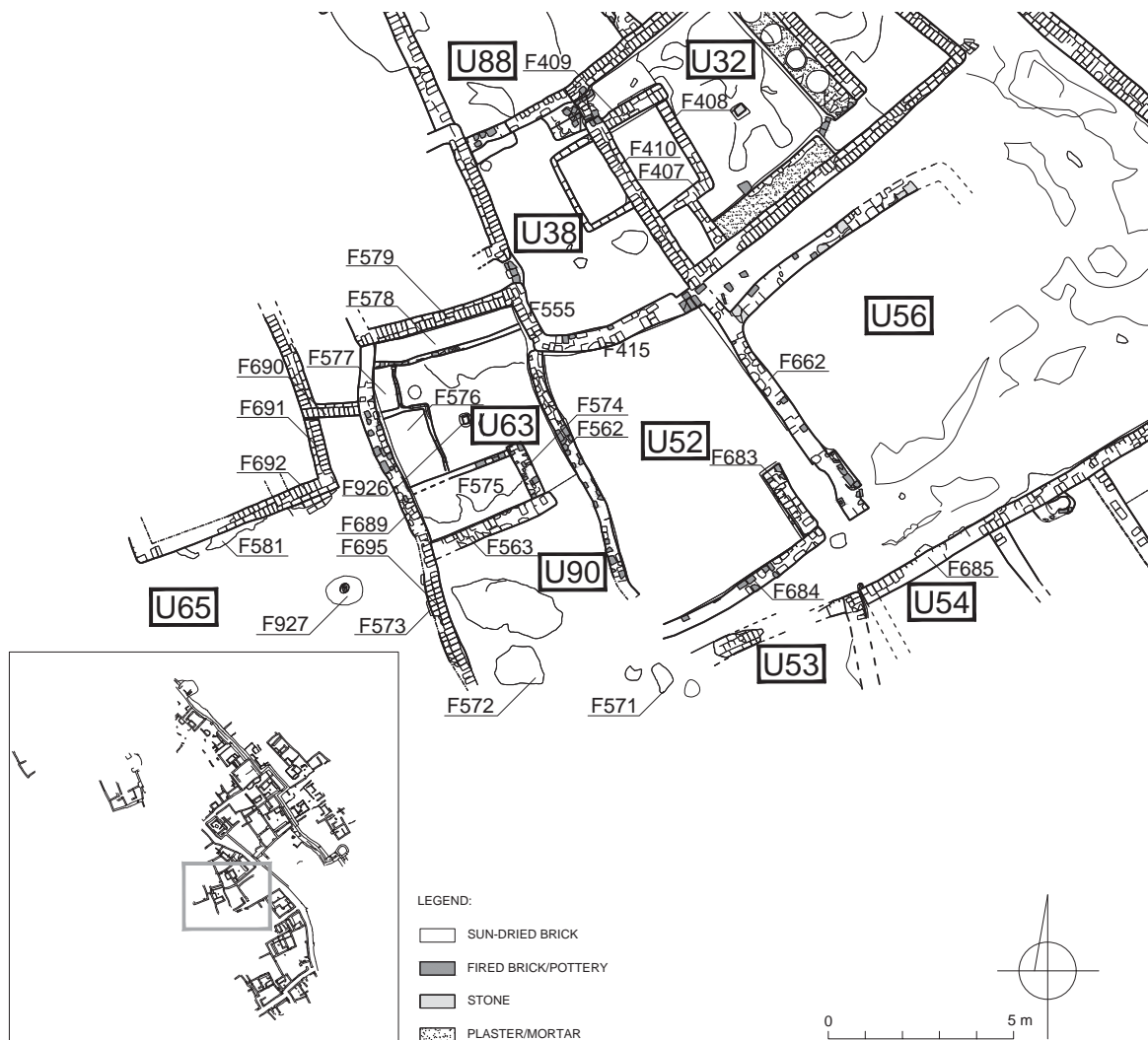


Fig. 107C. Necklace FN102 (inv. no. 244)



**Early phase of structures in Zone 1.2 (periods III.B–III.A): units U32, U38, U52, U63, U65, U90**

Southwest of U38 there was a series of rooms and open-air spaces: U52, U63, U65 and U90 [Fig. 108]. They belonged to an earlier phase (period III.B–III.A, second half of the 17th century) than compound U32/38/39/87/88 (see above) and were contemporary with the earlier structures identified in U32 and U38. At a certain point (period III.B), the rooms must have been damaged by fire, the traces of which are still recognizable on their walls. Following this event, the walls were replastered (period III.A), but after some time the rooms were abandoned. The remaining structures were filled with sand and dumped ashes, creating a new, higher walking level (approximate elevation 18.00 m), roughly corresponding in elevation to the floor level of compound U32/38/39/87/88.



**Fig. 108.** U52, U63, U65 and U90 and the early walls of U32 and U38, plan

*Earlier structures below rooms U32 and U38*

U38, a part of building U32/38/39 (see above), included features belonging to an earlier construction phase (period III.B–III.A, second half of the 17th century). Walls F415 and F555, bonded to form the southern corner of the room, are abutted by the other walls and appear to belong to an earlier structure, razed before U32/38/39 came into being. Older walls were also visible in U32, inside the bench delimited by F407, F408, F409 and F410. The wall separating U32 from U38 (F410) stands on an older, slightly wider wall (F553) coated with whitewashed plaster. Stub wall F409 in U32 also stands on an older wall (F554), indicating the existence of structures predating U32 in this location.

*Room U52*

Room U52 was entered from an alley departing from the southern corner of courtyard U56. The entrance to this space lacked a threshold, but a wooden post (FN364) possibly associated with a doorway was found next to wall F685 opposite the entrance to U52. The room was formed by walls F662, F684, F562 and F415. The entrance was located in the east corner of the room. It was closed with a door mounted on a socket (a fired brick with a circular depression) in F662, the room's northeast wall separating U52 from courtyard U56. The inner face of this wall was covered with whitewashed plaster, but under it the sun-dried bricks bore traces of burning and exposure to high temperatures, suggesting that the wall was replastered after a fire.

Beyond the door, wall F662 formed an access corridor to U52 together with stub wall F683, also made of a mix of sun-dried and fired bricks, and bearing traces of burning underneath the latest replastering on its northeastern face. On its southwestern side, the wall had two small, triangular niches [Fig. 109]. They were an original element of the wall, made by setting pairs of bricks diagonally on edge to create triangular recesses. Their purpose is unclear, but they may have held lamps



Fig. 109. Wall F683 with triangular niches



Fig. 110. Wall with triangular niches in the Abandoned Village

or had a purely decorative function. In the so-called Abandoned Village one can observe several such niches, testifying to the long-lived tradition of using this architectural solution [Fig. 110].

F684, the southeast wall of the room, is not bonded with stub wall F683, but they were most likely constructed at the same time, since they do not differ in structure. The former also shows traces of burning on the surface of the bricks, but in this case no relics of successive plastering are preserved.

Two thick layers were excavated inside U52: sand mixed with ashes and some white lumps, probably *gir* (328), and dark-yellow, loamy sand (329). The corridor space between F662 and F683 was filled by a layer of compacted ashes (337) sloping from south to north. The elevation reached was about 18.10 m and no floor levels were recognized.

### *Room U63*

Room U63 was enclosed within walls F562, F555, F579, F689 and F563 [Fig. 111]. F555 and F579 in the northeast and northwest, made of sun-dried bricks and bonded together, are the earliest walls of the unit (they may even predate it). They both bear traces of burning on the surface of the bricks but not on the latest layer of plaster. Traces of fire and refurbishment are also found on the southeast wall, F563. Clearly, at a certain point there was a fire after which the room was replastered. Wall F562 has more than one layer of successive replastering, only a fragment of which remains, characterized by the presence of mud plaster rich in organic temper, while the rest of the wall has the usual whitewashed mud plaster partially darkened by ashes dumped inside the room [Fig. 112]. In its northern part, the wall ends in a recess and abuts wall F555. Wall F579 is, in turn, abutted by F689, the southwest wall, made of sun-dried and fired bricks together with some blocks of sandstone, having a linear but irregular plan. It seems, therefore, that U63 was created by adding two longitudinal walls, F562 and F689, to older structures.





Fig. 111. Room U63, aerial view



Fig. 112. Wall F562 with traces of burning

The entrance to the room was located in the southeast corner. Stub wall F574 separated the entrance corridor leading to the room from bench F575. Wall F563, in which the entrance is located, has traces of darkening due to fire on the surface of the bricks, as do F562 and F579, and its mortar is rich in charcoal.

U63 is furnished with four benches built along the northwestern, southwestern and southeastern walls. The northern (F578) and the southern (F575) were the biggest ones, serving as the main rest areas of the room. On the southwestern side there is a smaller bench (F576), followed by an even smaller structure (F577) constituting a row of fired bricks connecting F578 and F576. In its inner part there were no traces of mortar and—because of its small dimensions—this structure could have been used as a shelf or a food-preparation area rather than as a place for sitting. In the central part of the room was the housing (F926) for a pole supporting the roof, made by filling a circular hole with mud mortar. The outline of the place for mounting the pole is square [*Fig. 113*].

Deposit 306, a thin layer of loam with some sand and organic matter, covered the entire surface of floor F925 [*Fig. 114*]. It was compact and uniform, suggesting its formation during the occupation of the room and its extended use as a walking surface. On top of deposit 306 lay 351, composed mainly of sand, ashes, charcoals and some organic matter. It filled the entire space of the room, except for the benches along the walls. Given that it respects the architectural features of the room and extends uniformly over the floor area, this layer could be the latest phase of use of the house as a residential building (period III.A, late 17th century).

In the post-abandonment phase (period II.C and later, 18th century), the central and southern part of the unit was filled by a layer of sand mixed with rubble from fired and sun-dried brick and ashes (301), deriving probably from the destruction of the unit itself [*Fig. 115*]. Subsequently, the room filled with three layers of ashes with some sand and organic matter, most probably dumped intentionally on the spot, sloping from the tops of the walls toward the center of the room (341–342–343). They were followed by layers of windblown sand with varying admixtures of ash and organic particles (334–339–340).

### *Space U90*

U90, the space to the southeast of U63, delimited by walls F695, F563 and F562, was only partially excavated. The recovered archaeological evidence is attributable to period III.A (late 17th century). Wall F695, made of very fragile sun-dried bricks, was partially built on top of the destruction surfaces of walls F563 and F689, and it therefore seems to postdate the abandonment of U63.

A layer composed of compacted ashes and sand (303) filled the narrow entrance corridor to room U63 and was partially excavated during the work inside U63. Its section in the doorway shows the formation of the deposit through progressive accumulation. It extends into U90, where it partly overlies deposit 304, a layer of dark-yellow sand mixed with some organic matter. The layer has not been excavated, but should represent the abandonment phase of the space and appears to be the result of a natural accumulation process. On top of 304, east of wall F695, were the remains of two floors, F571 and F572. The former (elevation 17.88 m) was a floor level made of mud mortar with pebbles as inclusions. The latter (elevation 17.71 m) was essentially a deposit of mud with impressed straw and some animal hair, as well as many animal and human footprints. Because of its crude nature, also F572 indicates an open space or service area additionally used for keeping animals.





Fig. 113. Pillar housing F926



Fig. 114. Deposit 306



Fig. 115. Layer 301



*Space U65*

To the west of U63, a series of walls outlined the northeast and northwest limits of U65 and the southeastern corner of another room. The area delimited by walls F692 and F695 is U65. Traces of F692 continued outside the excavated area, and in the southwest there are also traces of a small wall made of reeds, *qurba* and mud mortar, not excavated but similar to those found outside the city walls (Wyźgoł and Deptuła 2020; see also below). In the northern part of U65, walls F691 and F692 form the southeast corner of an unexplored unit, the walls of which are clearly visible on the surface. F690, a short east–west-oriented wall, abuts F689 blocking a sort of narrow corridor delimited to the west by F691 and to the east by F689, separating U65 from the unexcavated space to the north.

The latest phases (period II.C, early 18th century) of this room are represented by some traces of floor levels. The best-preserved floor is F581 (upper elevation 17.37 m), made of whitewashed mud mortar and abutting wall F692. Given its current state of preservation, it is not possible to estimate the original extent of the floor, but it seems likely that it covered a broader area. In its western part there was a series of small, circular holes that may be imprints left by some kind of furniture. On the eastern side of the unit were the remains of a similar floor level (F573), also made of whitewashed mud mortar (upper elevation 17.62 m). At the meeting point with wall F695, the floor forms a rounded curb similar to the ones found in U32 (see above).

Away from the walls, the floors were not preserved, and U65 was completely filled by layer 305, composed mainly of ashes and some sand. It has not been completely excavated due to the presence of the later walking levels. In its central part was a circular pit (F927) with the remains of a wooden post (FN368) [Fig. 116], related to a later phase of use of the area and probably connected with the latest floor levels (F573, F581) abutting the walls. Along wall F692, ash layer 305 was covered by 308, a layer of loam and organic matter covered by floor level F581. Given its even upper surface and its position directly below F581, 308 seems to be a preparation layer for this floor.



Fig. 116. Pit F927 filled by 307 with post FN368

*Discussion*

At least four phases of use and organization of space can be distinguished in the excavated rooms. The earliest phase (period III.B, second half of the 17th century) is that of a residential compound which comprised U63 and U90, and possibly also U65 and U52. Given its stratigraphic position, this dwelling was certainly earlier than building U32/38/39, but is very similar in layout, building material and technique to the later houses, so the time difference may have been small. After a conflagration, the units continued to be in use, as traces of fire found on the bricks were covered by a new layer of plaster (period III.A, late 17th century). Earlier walls in U32 and U38 could be the remains of a compound or compounds from the same phase as U52, U63 and U90, but they may also be earlier, as the walls forming U63 and U52 abut them.

The units were eventually abandoned and backfilled in a successive phase (period II.C, early 18th century), when a general reorganization of the area took place. Substantial deposits of ashes and organic content found in U63, U65 and U90 were intentional deposits meant to fill the structures and level the area. The new level corresponded to the level of the floors in building U32/38/39, suggesting a possible correlation between the building of this house and the filling of the units to the south.

The latest phase (period II.C and possibly later) is represented by the remains of floors in U65, together with an apparent lack of structures in U63. Given the few remains of floors and walls, little more can be said about this phase.

Following abandonment, the units were covered by windblown sand and collapses of the latest structures. The fact that no collapse layer was found below the surface layer could be explained by erosion, position on the slope or reuse of material for the construction of new buildings. It is also possible that protruding walls were razed and removed during the leveling of the area.

## ZONE 1.3

- 126** Compound U53/54/64/67/68/69/91/92
  - 126** Corridor U69
  - 128** Building U53/54/67/68?
  - 131** Building U64
  - 131** Courtyard U91 (southern extension of U92?)
  
- 133** Compound U44/45/48/55/59/60/71
  - 136** Courtyard U71
  - 136** Building U45
  - 137** Building U44/48/55
  - 141** Building U59/60
  
- 147** Compound U43/46/51
  
- 152** Space U50





### FUNJ-PERIOD RESIDENTIAL QUARTER WITHIN THE CITY WALLS: ZONE 1.3

(*Agata Deptuła and Szymon Maślak*)

Zone 1.3, stretching between courtyard U56, street U49 and street U62, was covered with a relatively thin layer of windblown sand with some organic matter and a substantial amount of grey soil and debris, which concealed some structures, while others remained visible on the surface [see *Fig. 8*]. Its southwestern part marks the end of the investigated occupational level, where a very thick layer of windblown sand was only partly excavated to reveal features from a much earlier occupational phase [*Fig. 117*].



Fig. 117. Zones 1.3 and 1.4, aerial view

This poorly preserved and preliminarily investigated compound most likely consisted of two or more buildings opening onto courtyard U92, which in turn was reached from the street by a narrow entrance corridor, U69 [Fig. 118]. The compound requires closer investigation both in the identified rooms and in the adjacent areas in order to further elucidate the layout, the total area occupied by the house (or houses), as well as the access routes from the urban street grid.

U69 was a corridor 1.30–1.75 m wide, running from northeast to southwest. It separated building U67/68 from buildings U59/60 and U64. It most likely led from the northwest–southeast street U62 to courtyard U92 of the compound. Its southwest end has not been identified. It eroded away down the slope at the edge of the currently investigated occupational level. The entrance to the corridor from street U62 featured a carelessly constructed threshold of large stones (F803), which marked the difference in levels between the street and the corridor [Fig. 119]. At some point, U69 was refurbished. Its eroded walls were strengthened by adding thin buttresses (F804, F801) as well as other additions (wooden post F802, fill of the corner F809).

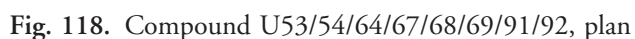






Fig. 119. Threshold F803



*Building U53/54/67/68?*

The units to the southeast of courtyard U56 and southwest of street U62 are a series of rooms built one next to the other. Their northwestern wall, F685, extends about 14 m northeast–southwest. The units were only preliminarily recognized. In the northeastern part, only surface layers (347 and 399) were removed, thus leaving U68 unexcavated.

The best-recognized southeastern room of the building, U67, is very similar in layout to other late dwelling spaces in the neighborhood. Its floor (elevation 18.26 m) and other structures were found directly beneath the surface layer, and after the removal of the uppermost deposit several features came to light. A low step (F894) made of fired bricks in the west corner of the unit suggests the location of the main entrance to the room in this place, but the severely eroded state of the southwestern wall (F896) hinders precise identification [*Fig. 120*]. In the northern corner, outlines of a large bench (?) (F808) with a stove (?) (F893) were recognized but not excavated. In the east corner of the room, another bench (F806, 176–182 cm by 124–135 cm) was found. In the south corner of the unit, four rounded depressions (F895), obviously left by pots sunk into the floor, were found [*Fig. 121*].

Further toward the southwest, walls F685 and F686 delimit room U54, which appears to be a part of the same complex. U54 was filled by 332, a layer of dark-yellow subsurface sand. There, the southwestern end of wall F685 is abutted by wall F686, which separates U54 from U53, but the building sequence is not an indication of a chronological difference between the two structures and represents merely the order of their construction. Also, F686 is abutted on its southwestern face by a floor level (F694, elevation 18.06 m) connected with the plaster of the wall and laid above layer 331. Both the wall plaster and the floor are very rich in *qurba* and lack traces of whitewashing, but the latter may be due to their poor state of preservation.

U53, still further to the southwest of U54, was filled by 331, a subsurface layer of yellow sand. This space may or may not be part of the same compound. Traces of walls constituting the north-west limit of the unit are represented by the poorly preserved F687 and F693, two walls made of very fragile sun-dried bricks preserved only in the first course. Due to the similarities in materials and construction, and because of their alignment along the same axis, it is highly probable that F687 and F693 were part of the same wall, now heavily damaged. They stand directly on sand, at a higher level than the other walls in this area (elevation 18.11/18.12 m), and the fragile bricks they are made of are very similar to bricks in some other later walls (F267 and possibly F260) discovered in the adjacent buildings. Besides, as F693 abuts F686 over its plaster, it is certainly a later addition to the architectural configuration of U53.

To the south of the remains of the poorly preserved wall F687 separating U53 from the alley to the north were traces of a hearth. It consisted of a circular pit (F688) filled with compact ashes (335) underlying an upper layer of ashes and burnt matter (330). A fired brick found in deposit 330 could have been used as a support for pots inside the hearth [*Fig. 122*].



Fig. 120. Step F894



Fig. 121. Four depressions left by pots, F895





Fig. 122. Hearth exposed after removal of layer 330: pit F688 filled by deposit 335



Fig. 123. Floor F889 and walls F796 and F795



*Building U64*

The small, single-unit building U64 measured only 3.85 m by 4.35 m (not including the thicknesses of walls shared with adjacent buildings). It was constructed in a corner formed by house U44/48/55 to the south and house U59/60 to the northeast. To the northwest it was delimited by corridor U69. To the southwest, the ground sloped abruptly, but the few patches of tamped surfaces preserved here may be the evidence of the existence of an outer courtyard, U91, leading up to the entrance to house U64. However, nothing suggests that the building itself extended in this direction.

Inside the unit, only the last occupation phase was recognized. No clearly tamped surfaces were preserved with the exception of a small patch of floor made of brownish-grey mud whitewashed on top (F789, elevation 18.53 m). However, it did not come from the last occupation phase, since it was topped by scanty remains of two later benches (F787 and F788) built one after the other in the eastern part of the unit.

The entrance to the unit was located in its southwest corner. After passing the threshold (F792), one entered a narrow corridor (0.75 m by 1.45 m), which led into the unit's interior. Behind the short northern stub wall of the corridor (F791) there was a large bench (F790) measuring 2.25 m by 1.40 m. Across from it and in the east corner of the unit the two just-mentioned benches (F787 and F788) were built. A medium-sized vessel (F798) was sunk into the northern corner of the later one (F788).

Walls and benches of the unit were discovered just below the surface layer in this area (context 228). The interior of the unit appeared to have been very small (about 12.5 m<sup>2</sup>). There was no need to introduce a vertical post to support the roof, since the room's shorter dimension (only 3.4 m from northwest to southeast) was small enough to cover it easily with a simple roof of wooden beams.

*Courtyard U91 (southern extension of U92?)*

In courtyard U91, the largest fragment of tamped surface (F889, elevation 18.15 m) preserved along the outer face of the southwestern wall of unit U64 served as a base for the foundations of the northwestern (F796) and southwestern (F795) walls of the building, which were constructed directly on top of it [Fig. 123]. Floor F889 was made of packed yellow sand and animal manure, and it clearly sloped down toward the north. It was the last floor in a sequence of similar tamped surfaces discernable in a section of the steep slope in this area. In the middle of the floor was a circular hearth (F797) with edges modeled in *gir* [Fig. 124].

While floor F889 was definitely older than building U64, another floor (F794, elevation 18.27 m) just above it, made of tamped brownish-grey Nile alluvium, was contemporary with the entrance to the unit and its threshold (F792). At some point, the difference in levels (amounting to 13–16 cm) between threshold F792 and floor F794 was resolved by introducing an intermediate step (F793) [Fig. 125].



Fig. 124. Fireplace F797



Fig. 125. From left to right: threshold F792, step F793, and floor F794



### Discussion

The compound is poorly preserved and its western part has been destroyed by erosion, therefore its layout and size are impossible to determine. Furthermore, some of its rooms were only preliminarily investigated and other spaces remain unexcavated. However, the compound clearly comprised a large courtyard and at least two buildings. Its total area must have exceeded 200 m<sup>2</sup>.

The courtyard was not entered directly from the street but was accessed by means of a corridor (U69). Such a solution is also attested in other compounds uncovered this season. For instance, corridors U1, U87 (see above), and most likely space U50 (see below) were of a similar nature. They helped maximize the use of urban space located further away from streets.

Only preliminary conclusions can be offered concerning the organization of space in the compound. The one-room building U64, with its stub wall and two benches, appears to have played the role of a dwelling in its latest phase of use. The larger building requires further investigation to determine the functions of its rooms. None of the spaces uncovered thus far could be readily interpreted as storerooms or food-preparation areas. Functional identification is further impeded by the superficial nature of most of the excavated layers, which could not be considered sources of reliable material.

### Compound U44/45/48/55/59/60/71 (*Szymon Maślak and Agata Deptuła*)

Another dwelling complex of comparable size (about 220 m<sup>2</sup>) was located southeast of compound U53/54/64/67/68/69/91/92. It was separated from compound U43/46/51 to the southwest by a narrow passage later transformed into a storage space (U50; see below). The compound was delimited from the east and southeast by streets U49 and U62. It consisted of a large courtyard, one detached room, and two buildings consisting of two–three units [*Figs 126–127*]. Only the latest occupational phase was exposed this season. It can be tentatively dated to periods III.B–III.A (the second half of the 17th century; see Phasing and chronology below, *Table 9*, pp. 234–235).



Fig. 126. Courtyard U71, building U44/48/55 in the foreground and U45 in the background, view looking south



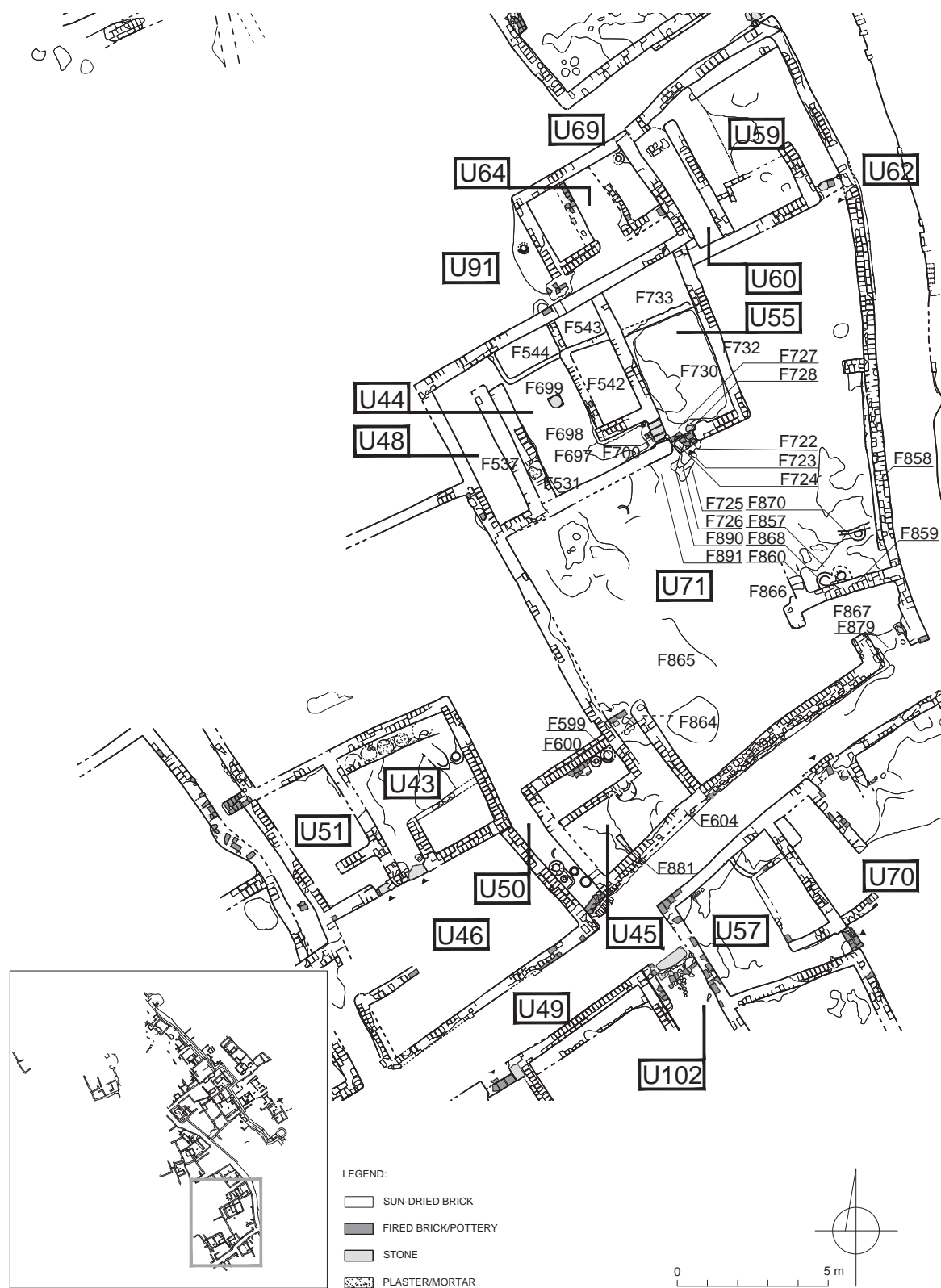


Fig. 127. Compound U44/45/48/55/59/60/71, plan



Fig. 128. Rectangular feature F857 in courtyard U71



Fig. 129. Quern emplacement F868

*Courtyard U71*

In the investigated phase (periods III.B–III.A, second half of the 17th century), the vast courtyard U71 formed one open space with an uneven surface that gently slopes from east to west. It was covered with a floor (F865), but relics of walls F860, F866 and floor F864 indicate earlier divisions [see *Fig. 127*]. The main entrance to the compound was located in its southeast corner. It had an L-shaped vestibule with a threshold of sun-dried brick (F879) and a mud floor (F867). Behind wall F859, which delimited the vestibule area in the north was a rectangular feature (F857) measuring 300 cm by 150 cm, with the surface covered with good-quality mud plaster [*Fig. 128*]. Its level (elevation 18.08–18.12 m) is approximately the same as the level of the floor covering the courtyard in the vicinity (elevation 18.18 m), but it is very likely that it had been a bench before the floor level of the space around it rose to match the level of its upper surface. It was equipped with a quern emplacement (F868) [*Fig. 129*] and another structure of unclear purpose (F870). The southeast corner was covered with an accumulation of compact ashes (layer 472) indicating the existence of a hearth.

An oval depression in the floor level next to wall F856 constitutes an interesting discovery. It was filled with layer 473, composed of dung of various animals (sheep, camel, etc.) mixed with chaff, twigs and reeds; it was most likely prepared for use as fuel in the hearth.

*Building U45*

U45 was a single-room building located in the southwest part of the compound and accessed from the courtyard through an entrance in the northern corner. It was a small room (3.50 m by 4.00 m) furnished with a large bench built against its northwestern wall, with two storage vessels (F599 and F600) embedded in the surface [*Fig. 130*]. The first one was filled with lumpy loam mixed with sand with a high concentration of organic inclusions, among which was a whole fruit resembling a pumpkin or melon (taken as organic sample S256). Within this deposition layer, a unique painted vessel made of sun-dried clay was discovered (inv. no. 1412, a bottle, K. Danys, personal communication, 18 June 2020). A quern emplacement built as part of the bench formed an extension of the facing wall. Another, smaller bench (F881) was installed against the southwestern wall. The last element of equipment was another quern emplacement installed against wall F604. It must have been a space dedicated to food preparation.





Fig. 130. Bench in room U45

### *Building U44/48/55*

The building constituting the main part of the household measured 6.40 m by 10.15 m. It was divided into three rooms designated (from west to east) as U48, U44, and U55 [Figs 131–132]. The building was entered from courtyard U71 located to the southeast of it. The entrance was in the south corner of the easternmost room of the building (U55). The difference of levels (about 30 cm) between the courtyard and the floor of U55 (F730) suggests that the house was used for a relatively long period. On the side of the courtyard, a sequence of tamped surfaces, some of them whitewashed (F725, F726, F890, F891, elevation 17.99–18.19 m), corresponded to the original threshold, F724, and one (F723, elevation 18.20–18.29 m) matched threshold F722 installed later. The entrance was about 0.7 m wide and 0.45 m deep (dimensions of threshold F724) [Fig. 133].

Inside U55 (5.5 m long and 2.5 m wide) there was a door socket (F728) placed in the north-east corner of the threshold, made of stone with a hollowed depression for a pivot (9.5 cm in diameter). At some point, a step (F727) of fired brick was added against the northwestern face of the threshold to facilitate entry into the unit. The floor (F730) inside U55 survived only in patches, the largest of which is located along the southwestern wall. The unit lacked furnishings with the exception of a large bench (F733), measuring 180–190 cm by 260 cm and raised about 65–70 cm above the floor level. The bench occupied the whole width of the northern section of the unit.



Fig. 131. Building U44/48/55, aerial view



Fig. 132. Building U44/48/55, view looking southeast





Fig. 133. Sequence of floors in front of the main entrance to building U44/48/55



To the left of the main entrance to the building was another doorway leading from U55 into an inner room of the house (U44). The threshold (F700, 65–75 cm wide and 50 cm deep) was made of three squared stone blocks (each about 46–47 cm by 20–21 cm by over 6 cm), and its upper surface was 15–25 cm above the floor level (F730, elevation 17.91 m) in U55. The western face of this threshold was abutted by a step, likely built in the same phase as the construction of the threshold itself [*Fig. 134*].



Fig. 134. Threshold F700 in the doorway between U55 and U44, looking northeast



Fig. 135. Post base F699 in room U44

Through a narrow corridor (0.95 m by 1.6 m), one entered U44, the largest room of the building. Together with the corridor it measured 5.25 m by 4.3 m and was equipped with four benches. Against the southwestern wall of the room was a bench approximately 0.55 m wide (F531), which served as a stand for at least six bins made of sun-dried clay. The three other benches in the room, F542, F543 and F544, were built against its northwestern and northeastern walls. Roughly in the middle of the western half of the room, a stone base (F699, originally a capital?) for a vertical wooden post supporting the roof was sunk into the ground [*Fig. 135*].

The last room of the building (U48) was entered through a narrow passage in the west corner of U44. Room U48 was 6.25 m long and 0.85–1.00 m wide. No equipment was preserved in it.

The building seems to have been renovated rather rarely, or it was used for only a short period, but sufficiently long for the walking levels inside the building to become different from those of courtyard U71 (see above). Only one floor level (F697) was recognized below the last plaster layer (F698) in U44, and also one (or possibly two) in U55 (F730). Both were laid on dark-brown, ashy layers with some inclusions. Likely the whole building was erected on this deposit.

The process of dismantling the building walls is difficult to reconstruct. As we can infer from the layers of pure, yellow sand accumulated inside the units of the building (context 391 in U55 and context 219 in U44), it was thoroughly cleaned before abandonment. It is difficult to say whether the layers of sand accumulated before or after the deconstruction of the building walls. However, in each case they were topped by layers of crushed sun-dried bricks (context 218 in U44, contexts 234 and 392 inside and outside U55) suggesting dismantlement after the accumulation of some sand inside the units. Dismantling in stages (even more than two) must also be taken into consideration. Surprisingly, some walls of the building (F537, F732) were disassembled almost to the foundations, and the trenches left behind after their removal soon filled with sand.

### *Building U59/60*

Another house measuring roughly 6 m by 6 m was entered from courtyard U71 [*Figs 136–137*]. Only the walls in the northern and eastern parts of building U59/60 were extant, while the whole western corner of the building was dismantled to some depth and the negatives of the walls were filled with blown-in yellow sand (393). The situation was similar also in adjacent buildings (e.g., context 394 in trench F773 above wall F540).

Six building phases were recognized. Apparently, the oldest wall of the complex was the northwestern wall of U60 (F776), which may have originated from an earlier building. It is roughly cut at the southeastern end, and on its slightly sloping northeastern face there are numerous traces of burning, while no such traces were found on the floor (F783) next to it. F776 was abutted on the southeastern end by wall F775, which was bonded with most of the walls of the building (F774, F777, F778, likely also with F786) [*Fig. 138*]. The northwestern wall (F799) is also one of the older walls of the building (though not contemporary with F776), abutted by the east wall, F786. The youngest in the complex was certainly wall F887 (founded at elevation 18.20 m, phase U60.2), added at the western end of F799. Its purpose and relationship with F799 remain uncertain. No other foundations were reached and the lowest exposed elevation of the walls is 17.74 m for F775 and F777.

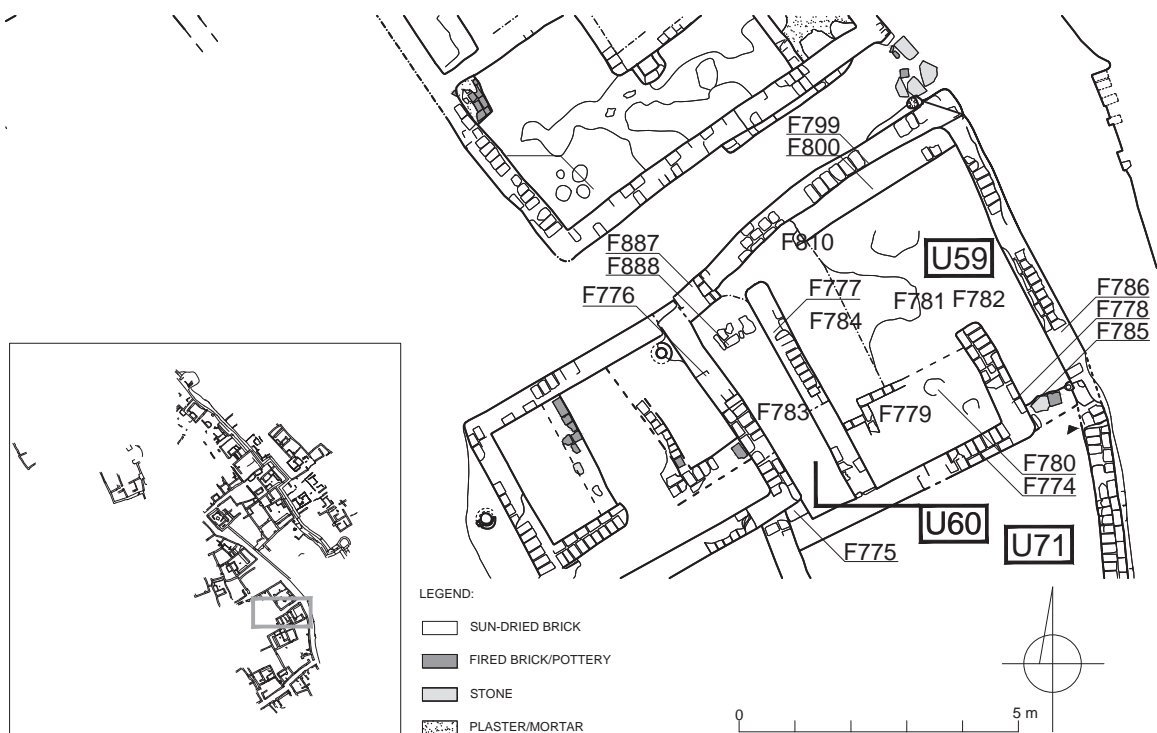


Fig. 136. Building U59/60, plan



Fig. 137. Building U59/60, aerial view





Fig. 138. Joint between walls F775 (left) and F776 (right)



The entrance was located in the east corner of the building, right next to the wall (F786) that separated the house from street U62 running roughly from northwest to southeast along the eastern sides of building U59/60 and courtyard U71. The entrance featured a threshold about 0.25 m high (F785) made of random building materials (dimensions 97 cm by 28–41 cm) with a door socket of fragmented fired brick placed in its northeast corner [Fig. 139].

Through the entrance one accessed a short and narrow corridor (1.90 m by 0.75–0.80 m) leading to the main room of the building (U59), measuring 5.40 m by 4.10 m. At least three phases of occupation were recognized in this space.

The earliest examined floor of this room (F784, upper elevation 18.69 m) was of tamped earth, now severely burnt. It extended from the remains of an earlier bench (F779) in the southwest corner of the unit to the remains of another bench (F810) against the northwestern wall of the unit [Fig. 140]. It was concealed under a conflagration layer (context 397, elevation 18.59–18.80 m) characterized by burnt plant remains (pieces of wood, fragments of mats, etc.) and fragmented sun-dried brick fired red and orange by the fire. This layer also yielded pieces of a blue-glazed vessel (inv. no. P4356). The layer on top of 357 (context 395, elevation 18.72–18.96 m) showed mixed contents including dark-brown earth, large amounts of sheep dung, and some lenses of ashes. These ashy deposits were preserved in the entire western half of the unit.



Fig. 139. Threshold F785



Above these layers was a floor (or two floors?), F781 (elevation about 18.90 m), made of tamped yellowish *qurba*. Immediately above was another floor (or floors?), made of tamped brownish-grey mud (F782, elevation about 18.92 m). It was the last floor surface in the room, and it abutted all the features, including the threshold (F785) in the main entrance. The top surfaces of both the mud (top) and *qurba* (bottom) floors were whitewashed with *gir*. These two (or four?) floors formed the two last occupational levels inside U60. They abutted the narrow bench (F800, about 40–45 cm wide) built against the northwestern wall of the unit (F799) [Fig. 141], and a larger bench (F780, 175 cm by more than 150 cm) against the southeastern wall. Of the latter, only the western part rising slightly higher than the floor level survived, but originally it must have filled the whole southern part of the unit. Both the floors (F781 and F782) and the bench (F780) were severely damaged in their western parts, since the ground sloped here substantially.

The last phase of the room (context 400, elevation 18.86–19.06 m) was represented by a rubbish layer consisting mostly of tamped animal manure with a few lenses of grey ashes. It covered the whole eastern half of the room, abutting the surrounding walls. Due to the sloping of the ground further to the west, it was not preserved in the western half of the room. The layer serves as clear evidence of the use of this space for keeping livestock (as indicated by donkey and sheep/goat dung) after abandonment (phase U59.1).



Fig. 140. Remains of bench F779 and floor F784 in the background, on the left





Fig. 141. Wall F799 and bench F800

A narrow (0.6–0.75 m) passage at the northwestern end of wall F777 led to U60, the rear room of the building. It was an elongated space about 4.5 m long and 0.9–1.1 m wide. As with the western part of U59, no floor has been preserved due to the erosion of the slope in this area. The top layer (context 396, elevation 18.20–18.75 m) consisted of loose dark, brown-black and ashy earth with lenses of black and greyish-red ashes. It corresponds roughly with context 397 from the adjacent unit, and certainly serves as evidence of the same conflagration that damaged U59. No floor level was found below the deposits constituting context 396. The roughly tamped top of the underlying layer (context 398, upper elevation 18.33 m) may have been treated as a surface corresponding to floor F784 from U59. At the bottom of a rubbish layer (398) there was a floor of tamped earth (F783, sloping from elevation 17.92 m to 17.74 m), slightly elevated in the northern part (F888, a kind of threshold?). This floor, however, is too low to correspond with any level known from adjacent U59.

### *Discussion*

The compound in its latest phase (period III.A?, late 17th century) has a completely recognized plan, which permits some general conclusions. The complex, measuring about 226 m<sup>2</sup> in area, comprised a large courtyard and three buildings. Two of them were typical residential modules, each consisting of a large, multifunctional room with benches and a narrow storeroom. Additionally, building U44/48/55 included a vestibule. The latter complex may have been intended to house more people, if such information can be inferred from the number of benches. Building U44/48/55 in its final stage featured four wide, rectangular benches potentially suited for sleeping, while U59/60 had only one. U45, the single-room building located at a distance from the others, played the role of a kitchen. Thus, the compound comprised a set of spaces that catered to all household activities. In terms of size and layout, it may be considered a typical medium-sized Funj-period house of Old Dongola.

### **Compound U43/46/51** (*Agata Deptuła*)

A small dwelling with a fully preserved layout was located in the southernmost part of Zone 1.3 [Figs 142–143]. It consisted of a courtyard (U46) and two rooms (U43 and U51). The compound has an irregular, nearly rectangular plan and is delimited in the northwest by wall F618, in the northeast by F606 and F603, in the southeast by F616, and in the southwest by F619. The area in which this dwelling complex is situated now forms a slope descending toward the Nile, with highly eroded architectural remains in the western part. The height difference between the uppermost preserved levels in the western and eastern parts amounts to over 1 m (maximum elevation in the eastern part is 18.07 m, and in the western 16.48 m). Therefore, the structures uncovered by removal of the surface layers are related to several occupational phases. At the present stage of research, it is possible to distinguish at least three phases, all within period III (17th century; see Phasing and chronology below, *Table 9*, pp. 234–235).



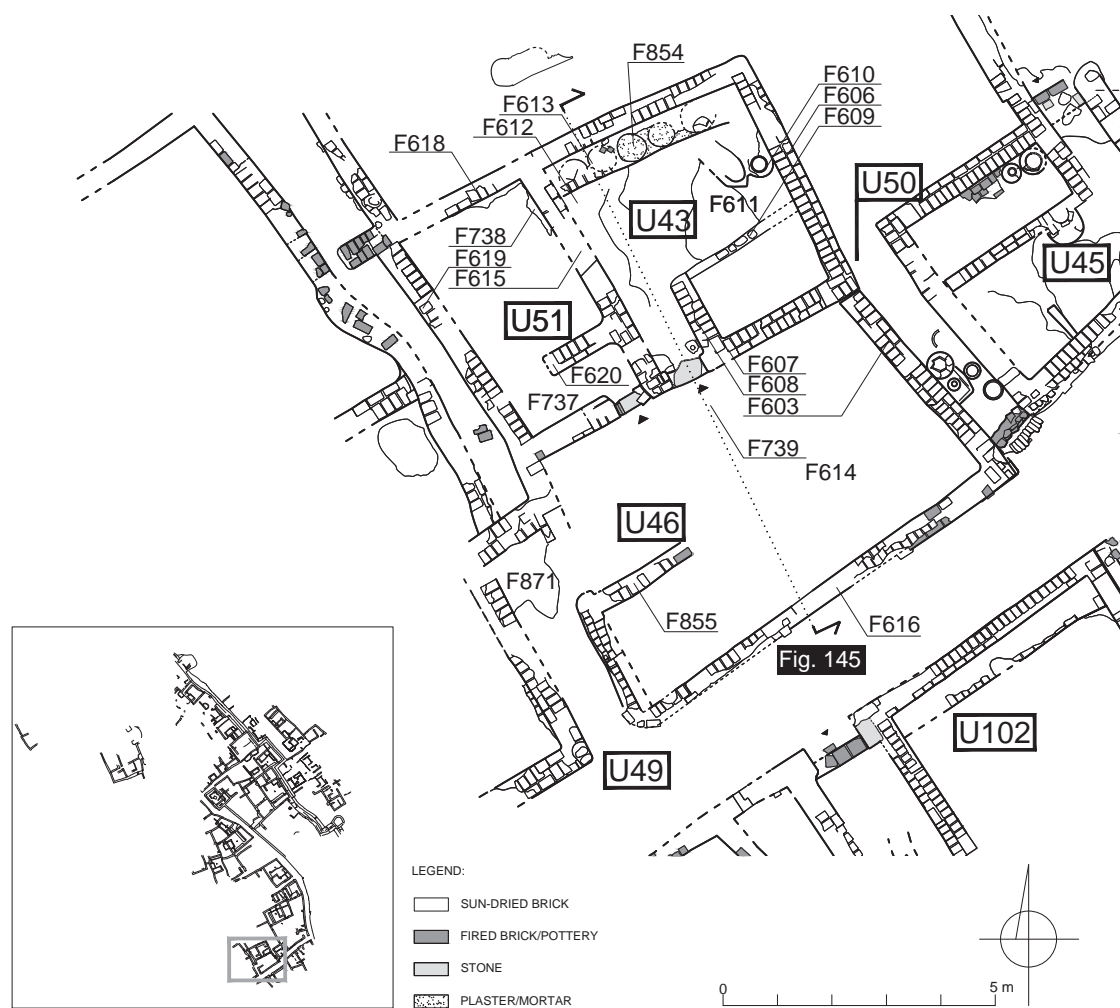


Fig. 142. Compound U43/46/51, plan



Fig. 143. Compound U43/46/51, aerial view looking northeast



*Phase I (period III.D, early 17th century)*

The earliest phase is recognized only in the southwestern part of the complex, where the main entrance to the compound was located. The entrance was a narrow passage leading from street U49, which was fully covered with a subsurface layer of sand with a high admixture of organic matter (layer 378). There is no trace of a threshold or gate, and it is hard to establish whether such features existed at all. The vestibule area was paved with floor F871 made of tamped mud mixed with animal dung (elevation 16.68 m). It is the only part in which the foundation level of the walls has been reached (elevation 16.49–16.57 m), indicating the original occupational phase of the house.

*Phase II (period III.C–III.B, mid-17th century)*

The vestibule area forms part of a courtyard (U46), which is covered with a series of floors (F614, elevation 16.95–17.30 m) corresponding to the second occupational phase. There is no sign of any equipment in the courtyard at this stage, only the northeast–southwest-oriented wall F855 isolated a part of the space which might have had a specific purpose, like an enclosure for live-stock or storage. From the courtyard one could access two rooms referred to as U51 and U43.

U51 was a small, rectangular room measuring 4.40 m by 2.20 m, with the entrance located in the east corner and furnished with a stone threshold. The threshold was contemporary to the floor of the courtyard, but the level of the floor covering the interior of the room was approximately 20 cm lower. Relics of floors inside the room, F737 and F738, were most probably connected with the second phase, but it cannot be excluded that F738 was originally the upper surface of an earlier bench, since the location and form of wall F620 indicate that it was a stub wall screening off the entrance. The interior was very badly preserved, and it is impossible to draw conclusions concerning its intended use, but one cannot exclude a residential purpose. Among notable finds from this room is a green-glazed pipe (FN267, inv. no. 1422) imported from the Balkans and datable to the 17th century (Bikić 2012: 3 and Figs 4:1 and 4:7; see Danys and Wyżgoł forthcoming).

U43, located northeast of U51, is trapezoidal in shape and slightly larger, measuring 4.00 m northwest–southeast and 3.80–4.00 m northeast–southwest. It is the only space where a clear distinction is visible between the second and third occupational phases, although the earliest one has not been reached [*Figs 144–145*]. As in the case of U51, the entrance from the courtyard leads down through a doorway furnished with a stone threshold. Elements of a doorjamb preserved next to the threshold indicate that the passage was closed with a door. During the second phase, the space was covered with a floor comprising three consecutive layers lying one atop the other. The earliest one (F969, elevation 17.24 m), made of whitewashed *qurba*, is visible only in the northwest corner and is contemporary with the first layer of coating on bench F613. The second one, F886, 4 cm thick, was made of mud (elevation 17.28 m). Lastly, the floor was covered with a 6 cm thick layer of tamped mud and animal dung (F612, elevation 17.34 m). The space was furnished with two benches: long and narrow F613, located along the northwestern wall of the space (F618), with traces of five storage bins made of *gir* embedded in its surface (a relic of only one, F854, is preserved) and a second one (F609) between walls F608 (stub wall), F607 and F606. Bench F609 is covered with a later floor, F611 (see below, Phase III). All walls connected with this phase were coated with plaster sloping to the walking level and comprising three layers: grey mud, yellowish *qurba* and *gir* whitewash.



Fig. 144. U43, view looking south with indication of phases II and III

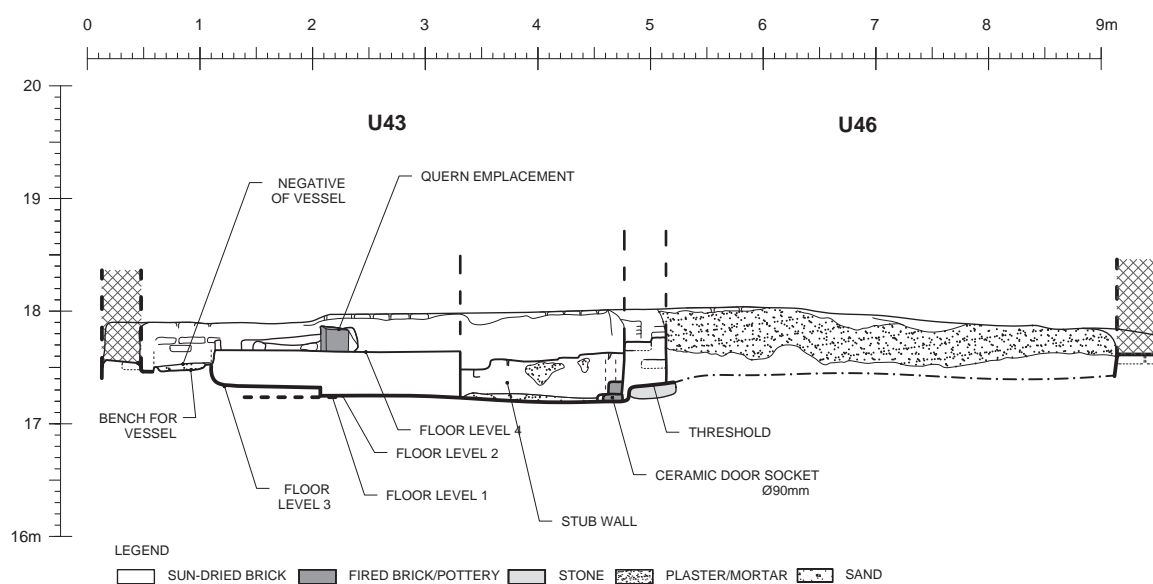


Fig. 145. U43 and U46, NW–SE section looking northeast

*Phase III (period III.B–III.A, second half of 17th century)*

In room U43, a new floor (F611) was laid about 30 cm above the earlier one, on the same level as the upper surface of bench F609 (elevation 17.67 m). The space between the floor levels was filled with sand with a high organic admixture (layer 389). Floor F611 was a thick layer of mud white-washed with *gir*. Another feature belonging to this phase in U43 was a double quern emplacement (F610) embedded in the floor next to wall F606 [Fig. 146]. It is very likely that the bins on bench F613 were in use also in the third phase, as there are no traces of a floor above them and the layer of surface sand descends to the top of the bench. Internal walls were covered with another layer of mud plaster, a relic of which is preserved in the corner formed by walls F607 and F608. Within layer 371 of subsurface sand mixed with organic matter filling the top of the unit, five grinding stones were recorded, most of them near the quern.

In this phase, the walking level in courtyard U46 was equal to that inside room U43 (elevation 17.64 m), as is indicated by the relic of a feature (F739) made of tamped debris and fired bricks preserved in the entrance, the purpose of which is unknown. Additionally, in the courtyard the existence of a walking level connected with the third occupational phase is implied by the presence of a tamped layer of debris along wall F616 (surface elevation 17.63 m) and a matching level of the lower edge of plaster coating on the southwestern face of wall F603 (elevation 17.68 m). Later on, the courtyard was used as a rubbish dump, as layer 366 filling most of the space comprised mainly waste, like organic matter mixed with dung and burnt matter, and the material recovered from it included large quantities of pottery, bones, basketry and textiles.

U43 and U51 were separated by a severely damaged wall, F615 (maximum upper elevation 17.46 m). It is very likely that at some point the wall was dismantled to the level of floors, and the two rooms were joined to create one vast space. Both units were covered with the same layer of sand mixed with organic matter (367).



Fig. 146. U43, double quern emplacement F610 from phase III



*Discussion*

Despite its poor state of preservation and location on a slope, the compound is complete. It consists of two rooms entered from a small courtyard that, in turn, opened onto the street. With an area of 66 m<sup>2</sup>, it is the smallest of the complete compounds excavated this season. Its two rooms seem to be multifunctional. The complex lacks the narrow storage room found in most compounds excavated within the city walls this season. A kitchen has also not been found, but a food-preparation area might have been located in the courtyard, for instance in the place screened off by a wall near the entrance. The compound is contemporary with and later than the deposit in U50 (see below), which was radiocarbon-dated to the end of the 16th or the early 17th century (period IV.A/III.D). A 17th-century date of the compound also finds support in a smoking pipe dated to this period, which was excavated in room U51.

*Space U50 (Agata Deptula)*

U50 was a long and narrow room between two compounds. The upper, subsurface layer consisted of sand with organic inclusions (369), and the proper fill (371) was brown soil with a high admixture of organic matter including chaff, dung, shredded fragments of basketry, various seeds (stowed for archaeobotanical analysis) and ashes. After the removal of the two layers, an intact deposit of storage containers and household utensils was discovered [*Figs 147–150*]. It included the



Fig. 147. Deposit of pantry equipment in U50, view looking south



Fig. 148. Deposit of pantry equipment in U50, orthophoto



Fig. 149A–B. Deposit of pantry equipment in U50, details: bowl FN270 on pot FN271 (left); basketry lid inside pot FN277 (right)





Fig. 150A–B. Deposit of pantry equipment in U50, details: rectangular basket FN588 and cup FN587 (top); fragments of mats (bottom)



following: two completely preserved rectangular baskets (FN589 and FN588), four large, complete pottery storage vessels (FN272, FN271, FN583, FN273), one small vessel (FN590), and remains of two more containers (FN268 and FN270). All pots were found standing on mats woven of plant fiber (e.g., FN586). Additionally, some of them were covered with basketry lids/plates (FN583). In the case of two pots, FN271 and FN273, the presence of lids made of reused handmade bowls was noted. With these two pots were also connected two round basketry plates (FN591 and FN585), one found beside the first pot and the second inside the other one. Possibly they were also used as covers. The storage inventory was completed by three wooden elements: a cup (FN587, inv. no. 1389) and two fragments of a door bolt (FN261 and FN262, inv. no. 1065). The containers and utensils were found in the order in which they had been left by the person who had used them, one standing next to the other and in some cases one atop the other. One pot was placed on each basket: FN590 on FN589 and FN268 on FN588. The unearthened pots were handmade, adorned with some basic incised and impressed decoration. They belong to a repertoire of wares typical of the late 16th and early 17th centuries (period III.A/III.D; see Phasing and chronology below, *Table 9*, pp. 234–235), as indicated by parallels from current excavations and past research at Old Dongola (Wodzińska 2015; Danys forthcoming).

The completely preserved rectangular baskets are a unique discovery at Old Dongola (Warowna forthcoming). Both artifacts were very similar in shape and size. They had a rectangular base measuring 42 cm by 28 cm, with the side walls 26 cm high, tapering in the upper part. From the outside, they were covered with a thin leather coating. Their fill layers were also similar, containing predominantly shredded fragments of basketry and mouse droppings. Besides loose soil, FN588 was empty, while in FN589 further artifacts were discovered: a pottery cup covered with a basketry lid (FN594), a wooden key (FN593, inv. no. 1377), a grinding stone (FN594), and two spindle whorls. The contents of the majority of the discovered pots were excavated, and only two, FN584 and FN273, were left for the next season. They mostly contained sand/soil mixed with organic matter, but it was also possible to identify seeds, burnt matter, fragments of eggshells, and relics of artifacts, for instance a fragment of a decorated wooden cup (FN598) found within layer 481 filling pot FN590. In order to establish a dating, samples were taken for radiocarbon analyses. The returned date (S260) falls at the end of the 16th or in the early 17th century (see Phasing and chronology below, *Tables 4, 5*, and page 230).

### *Discussion*

Originally U50 was a small alley perpendicular to one of the main streets of the area (U49) and connecting it with the inner courtyard of a household (not yet investigated). In the period probably corresponding to the second phase recorded in U43 and U46 of compound U43/46/51 (see above), it was cut off from the street by a blocking wall made of fired bricks (F617, lower elevation 17.32 m) and thus transformed into a long and narrow room. The deposit of pantry equipment found within is one of the most important discoveries of the season, giving a rare opportunity to investigate food storage systems in the Funj-period city. It requires further in-depth analysis after all elements are excavated and processed.

## ZONE 1.4

157 Compound U57/70

160 Passageway U102

161 Relics in square 11H54



Zone 1.4 is a relatively small area comprising compounds U57/U70, U102 and relics preserved in square 11H54, located to the southeast of street U49 [see *Fig. 8*]. Units in this zone were only partly investigated, and the compounds they belong to stretch further to the southeast, as can be seen on the geophysical survey maps.

### Compound U57/70

Based on the results of the magnetic survey, it was possible to establish that this compound was built on a rectangular plan measuring 11.5 m from northeast to southwest and 14 m from northwest to southeast (the outline of the eastern corner is unclear). The complex is delimited by street U49 in the north, and it adjoins other dwellings in the southeast and southwest. It consisted of a large courtyard, U70, situated in the northeastern part, a row of two or three rooms along the western side, and possibly another separate space at the southeastern end [*Fig. 151*]. From the magnetic map it is not clear whether in the southwestern corner there is another unit connected with the compound or whether it is a part of a courtyard belonging to another unexcavated complex.

Of these spaces, only a part constituting approximately a quarter of the whole complex was excavated (area within square 11G55). Excavation work was conducted in the northwestern part of U70 and in a room located in the northwestern corner of the compound (U57) [*Figs 152–153*]. The exploration of surface (362) and subsurface layers (367, 382, 388, distinguished due to differences in the amount of organic inclusions) was conducted to the level of the preserved floors and revealed only the latest occupational phase of the building (second half of period III; see Phasing and chronology below, *Table 9*, pp. 234–235).

U70, which functioned as a courtyard, did not constitute a single open space but was subdivided into smaller areas of unclear function. The main dividing feature was most probably the partially preserved wall F764 splitting the courtyard into two uneven parts, possibly in order to restrict access to a part of it. The more accessible part was reached from street U49 through a doorway furnished with a threshold of sun-dried bricks (F769). The area was paved with a mud floor (F766, F873, elevation 17.84 m) with traces of whitewashing along the walls. The only other feature unearthed in that part is an oval silo with a facing of reused fired brick on its internal walls (F872). To the right of the main entrance, the smaller part of the courtyard was separated and probably covered, as indicated by the presence of a roof support (F767). This more restricted part of the courtyard was not investigated this season. The only feature recorded was hearth F765, but it might be a later addition. Remains of a mud floor (F763, elevation 17.66 m) are too scarce to determine if the whole area had a plastered walking surface. This part of the courtyard was undoubtedly connected with domestic spaces, such as U57.

Room U57, trapezoidal in shape, represented a layout typical of a domestic space of the Funj period. The doorway, located in the southeast corner and furnished with a threshold of fired brick (F757, upper elevation 17.70 m), leads to an interior paved with a mud floor (elevation 17.48–17.53 m). The main space was accessed through a narrow corridor (0.8 m wide) flanked by stub



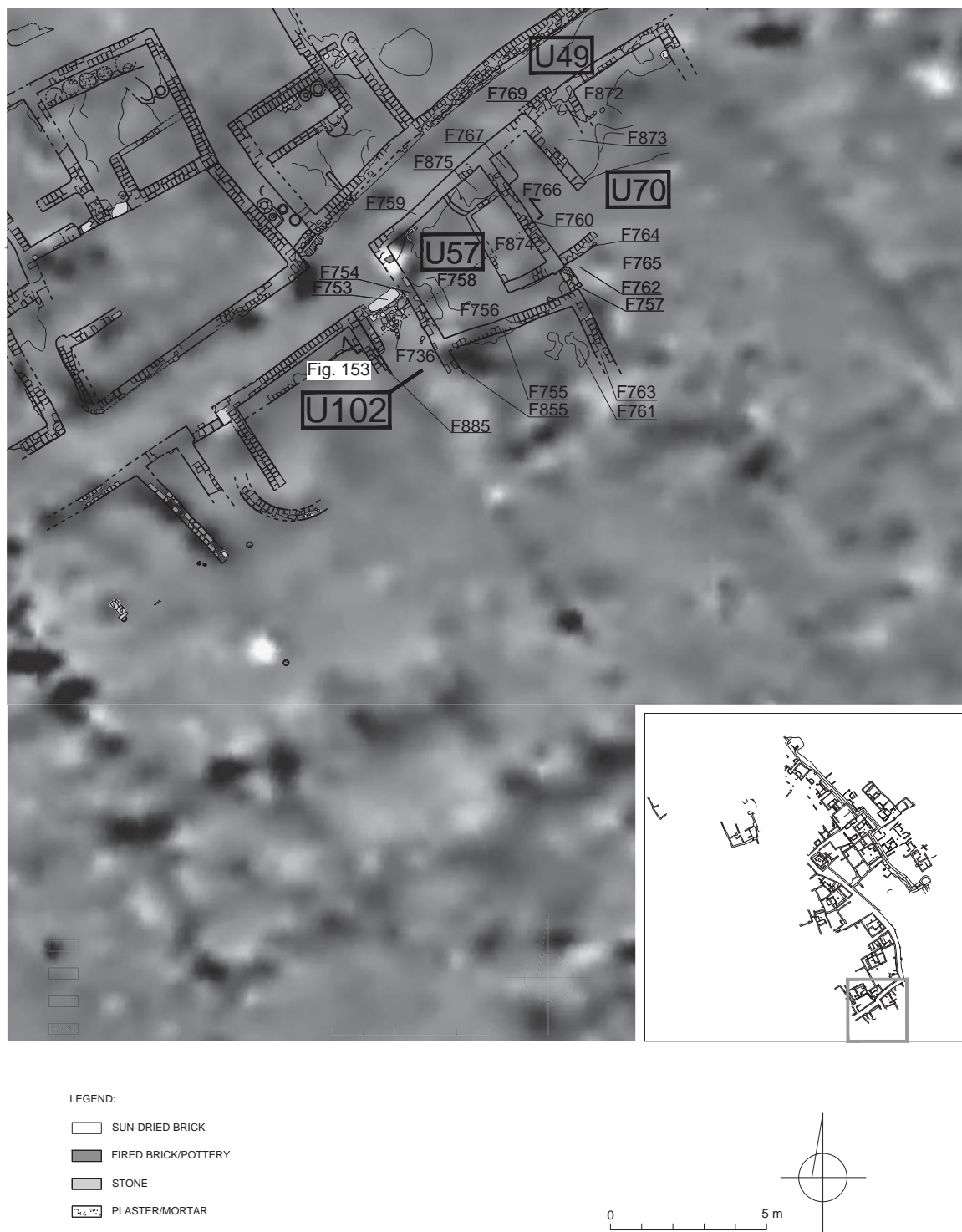


Fig. 151. Geophysical map of the area of compound U57/70 and relics to the southwest with the plan of excavated spaces superimposed



Fig. 152. Compound U57/70, view looking southeast

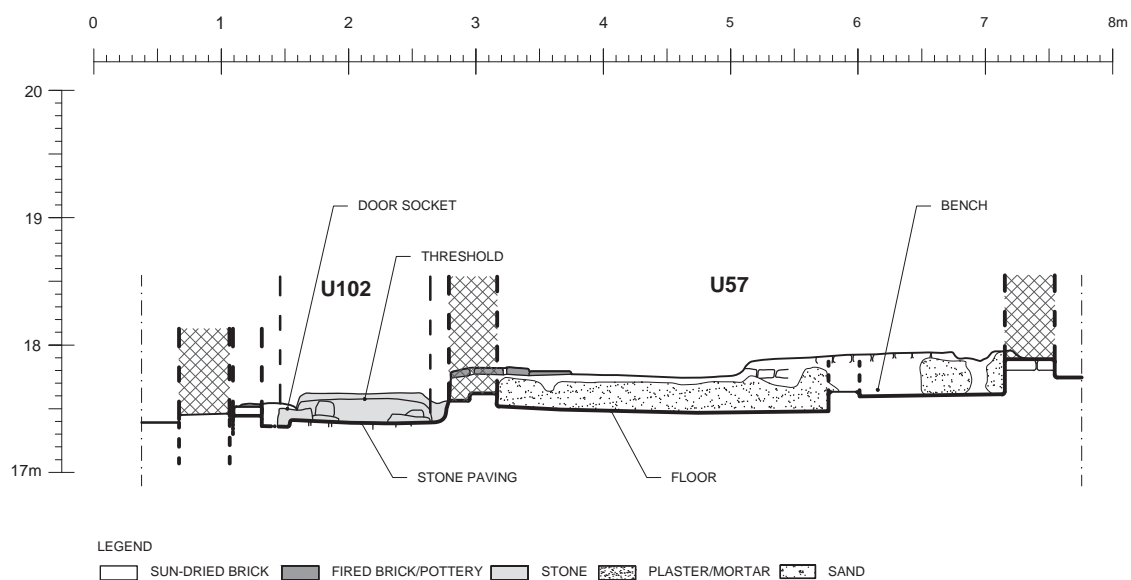


Fig. 153. Passageway U102 and U57, NE-SW section looking northwest

wall F756. Directly behind this wall was a large bench (F874), 2.5 m long and 1.5 m wide. A second, smaller bench (F875) was added to the first one in the north. Initially the room also had a quern emplacement (F876), but at some point, this feature was covered with a mud coating, apparently indicating a change of function. The whole space, including the benches, was filled with a layer of compact sand (388), which subsequently might have been used as a walking level.

### Passageway U102

An object of investigation was also a narrow passageway, U102, most probably being part of a compound located outside the area selected for excavation this season. The passage was connected with street U49 and situated nearly opposite U50. It was unearthed only partially and the whole layout has yet to be recognized. All features in this space were covered only with a surface layer of windblown sand (362). It was most probably a roofed, relatively wide (about 1.8 m) vestibule or corridor leading from the street to another, unexcavated domestic complex. U102 was located between walls F754 and F885. The doorway had a threshold (F753) in the form of a massive stone slab (100 cm by 37 cm by 20 cm) abutted to the southeast by a step of smaller stones, with an oval socket for a door pivot, which indicates that the space was closed with a door [Fig. 154]. The whole surface was paved with fragments of reused fired bricks and cobbles. A supplementary short wall (a pilaster?) was added along wall F885, probably serving as an element of the door-frame or as a roof support.



Fig. 154. Entrance to passageway U102



### Relics in square 11H54

Buildings in square 11H54 were severely damaged by erosion due to their location on a slope of deposits accumulated inside the citadel [Figs 155–157A–B]. As a result, only short sections of walls survived, and no coherent house plans can be reconstructed. However, as the deposits sloped down from northeast to southwest, the oldest layers and structures were exposed just below the surface in the southwestern corner of the square. In this area, the edge of the investigated late occupational level of Old Dongola was reached.

Context 232 (elevation 16.10–16.44 m), a soil layer with organic remains and animal dung, seems to underlie all other layers and features in this area. It continues both to the north (under context 231, elevation 16.49–16.69 m) and to the east (under context 230, elevation 16.44–16.71 m). In the southern half of the square only fragments of floors survived.

The oldest walls in the square were F717 and F718, built of fragmented fired bricks and tiles. They were abutted on the western and southern sides by a floor of more or less tamped earth (F719, elevation 16.49 m) directly underlying rubbish layer 231. On the northeastern side, wall F717 was abutted by another floor of tamped earth (F708, elevation 16.64 m), which survived in patches [Fig. 158]. There are at least two vertical wooden posts preserved in this floor, separated

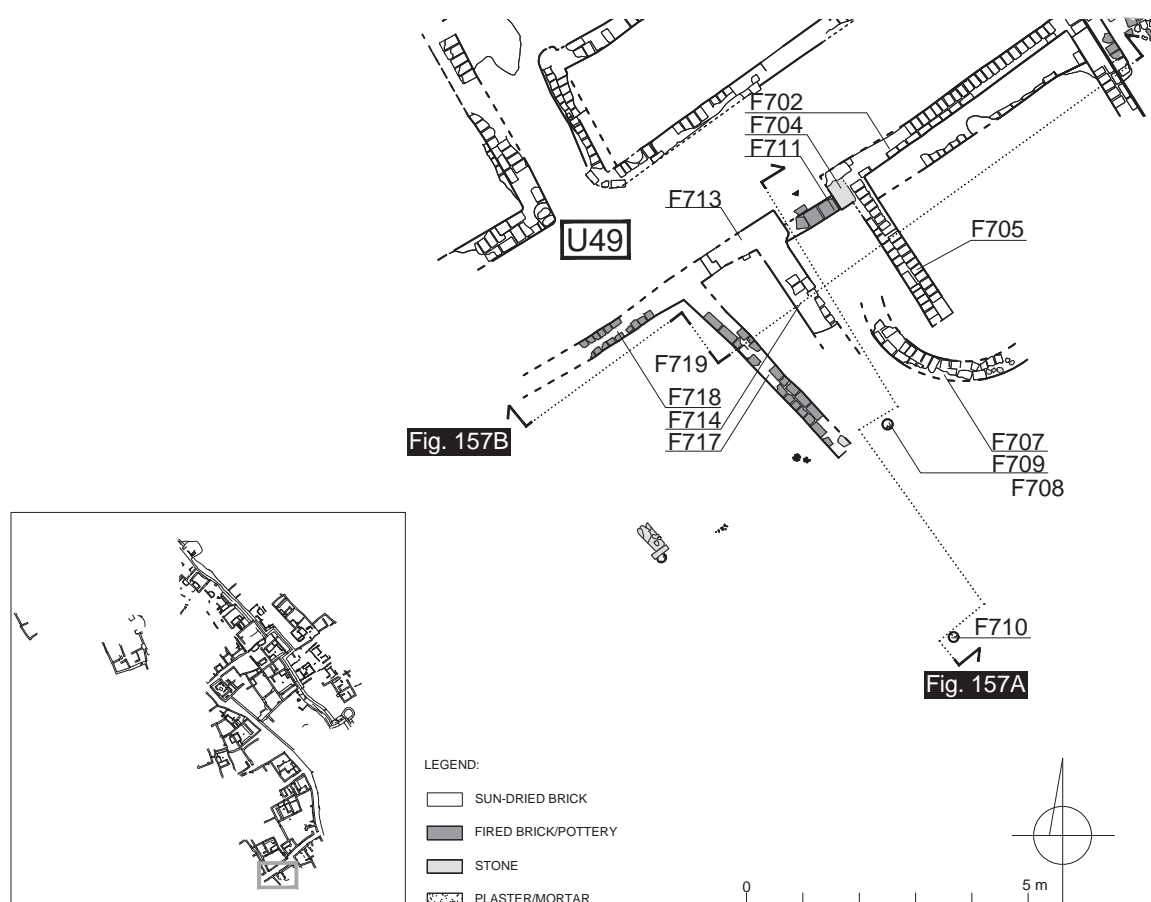


Fig. 155. Square 11H54, plan



Fig. 156. Structures in square 11H54 looking southeast

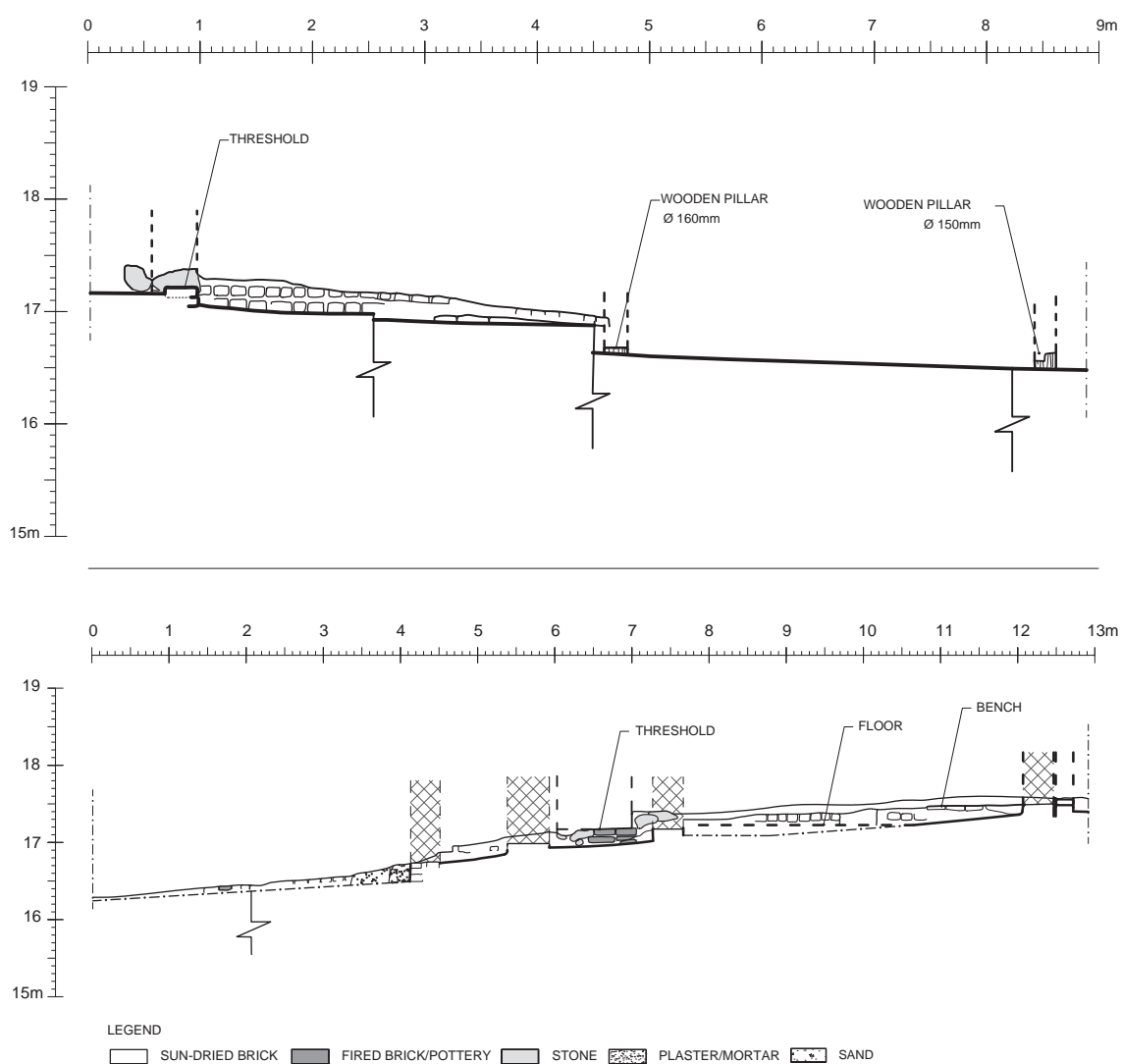


Fig. 157A–B. Square 11H54, NW–SE cross section looking northeast (top);  
SW–NE cross section looking northwest (bottom)



Fig. 158. Wall F717 (in the background) and floor F719



Fig. 159. Wooden post F709 in floor F708



by a distance of about 4 m (F709, F710). They were certainly earlier than the floor itself. Their tops were burnt [Fig. 159]. Floor F708 was covered by rubbish layer 230. On top of it, in the northeastern quarter of the square, a fragment of a circular structure (F707, lower elevation 16.82 m) of sun-dried bricks came to light [Fig. 160].

F707 was certainly razed before the construction of the latest walls in this area (walls F714, F713, F705, F704, F702, and threshold F711, elevation about 16.80 m). Like the earlier wall F718, their orientation followed street U49, which ran from northeast to southwest in the northern part of the square.

### Discussion

The investigation of Zone 1.4 is at a preliminary stage. The preservation of the features stretching along the edge of the excavated occupational level is poor. Structures from different phases are exposed side by side at different levels due to their location on a slope. Therefore, few observations can be made about the layout and function of spaces in this zone. It may be concluded on the basis of the number and location of the preserved thresholds along the street, however, that three compounds occupied this side of U49. The exposed features of the partly investigated compound U57/70 seem consistent with those of completely excavated complexes further to the north. The outlines of walls visible on the geophysical survey map indicate that the compounds in this zone were average-sized (about 200 m<sup>2</sup> in area).



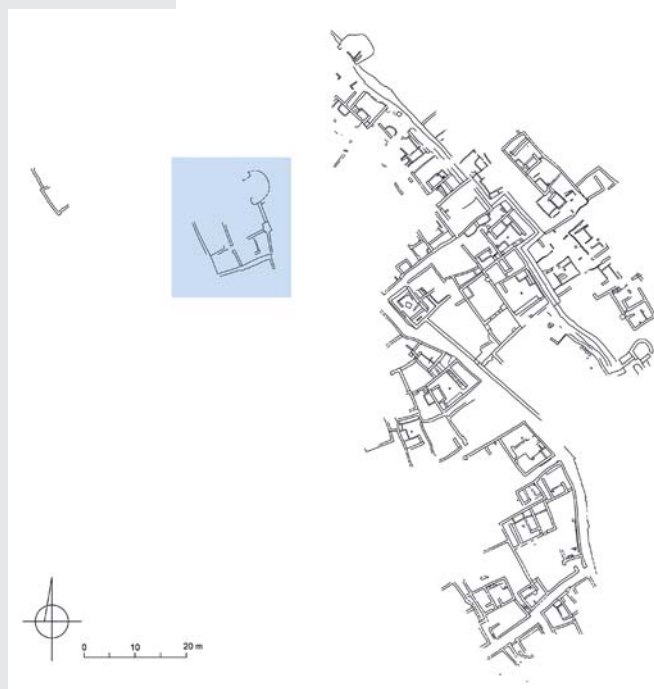
Fig. 160. Wall F707



## ZONE 1.5

170 Building U97/98/99/101

173 Building U100





## STRUCTURES IN THE CENTRAL PART OF THE CITADEL: ZONE 1.5

(Lorenzo de Lellis and Maciej Wyżgoł)

The area within squares 10Y48–49 and 10Z48–49 [Figs 8; 161] was chosen for excavation on the basis of the magnetic survey, which showed a large rectangular structure. The surface was uniformly covered with sand with some fired bricks, pottery and bones, but lacked visible features. Archaeological verification of the geophysical imagery confirmed the survey results. Only the latest layers pertaining to the abandonment phase were removed, and exploration of deposits relative to the collapse of the structures began. In spite of not reaching an occupational level, it was possible to outline the shape of a large building made of fired bricks and several internal walls subdividing the large space.

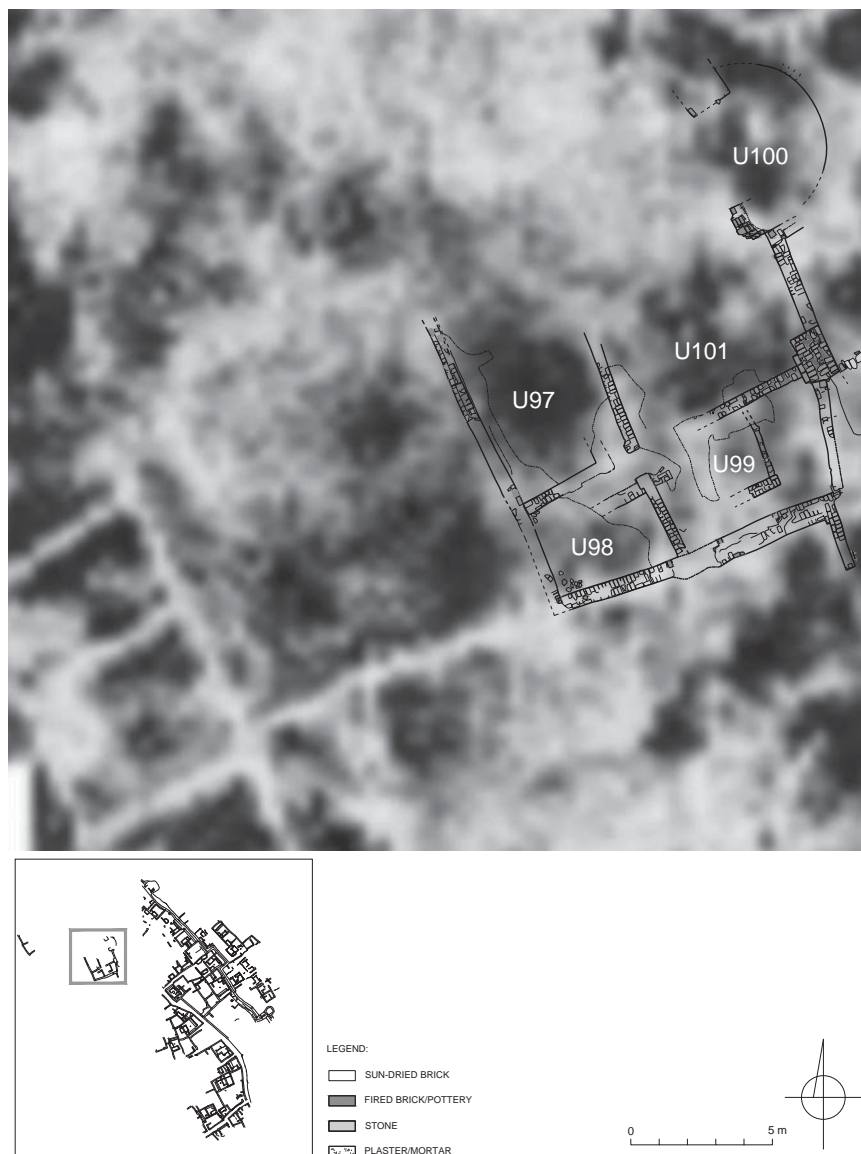


Fig. 161. Georadar imagery of the area with a plan of the uncovered structures in squares 10Y48–49 and 10Z48–49 superimposed

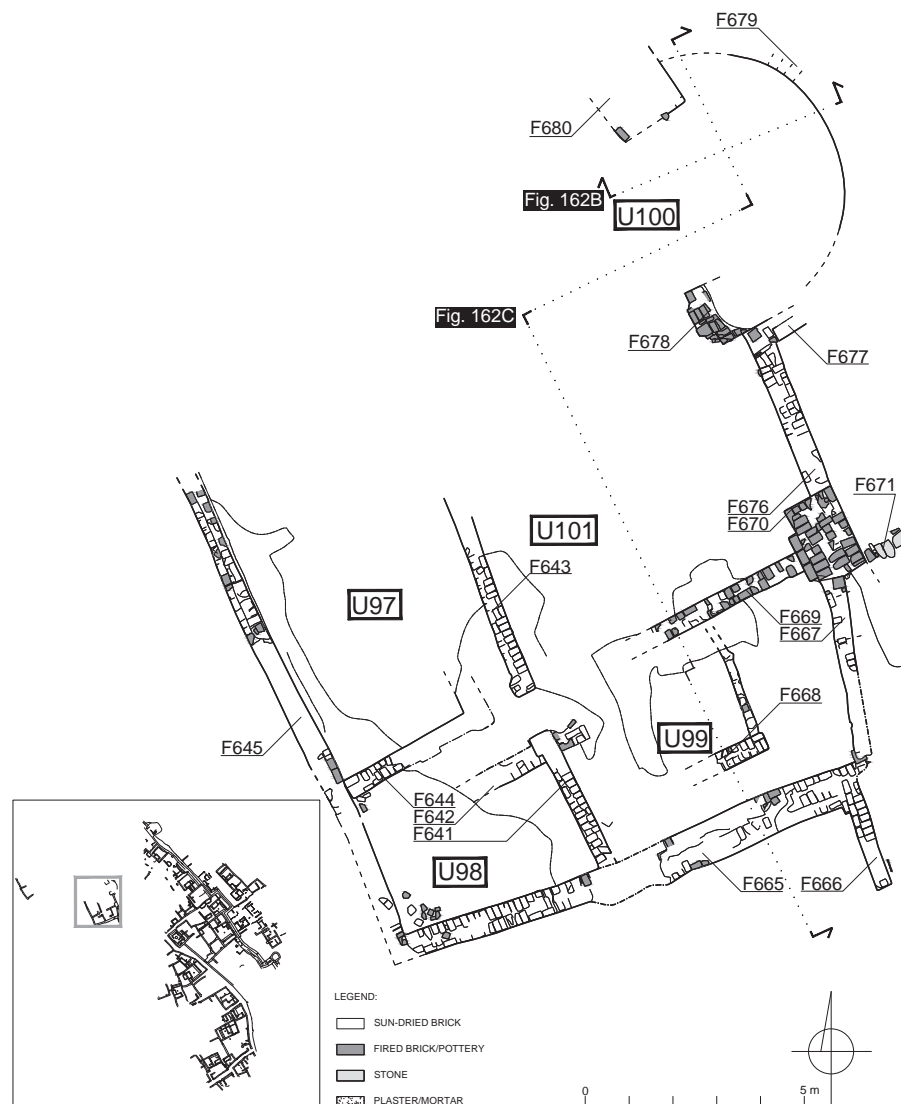


Fig. 162A. Superimposed buildings U97/98/99/101 and U100, plan

The building sequence of the structures found in this area can be divided into two main phases: a late phase (period III.B; see Phasing and chronology below, *Table 9*, pp. 234–235) related to a residential building made of sun-dried bricks and dated to the Funj period, and an earlier building made of fired bricks, reused as the foundation for the later house [Fig. 162A, B, C]. Works in this area were stopped when it became clear that one of the older structures is an apse of a church. Fragments of painted plaster discovered in the fill indicated the risk of finding wall paintings *in situ*, therefore excavation had to be halted until a plan for their protection and conservation is prepared.

The area was covered with a very thick layer of windblown sand (surface 321 and subsurface 322). Below the subsurface layer there were layers (323, 325) of sand mixed with sun-dried-brick debris and some fragments of thick, sandy lime plaster [Fig. 163], resulting from the decay of the structures below. These deposits lay on top of more yellow sand (324).

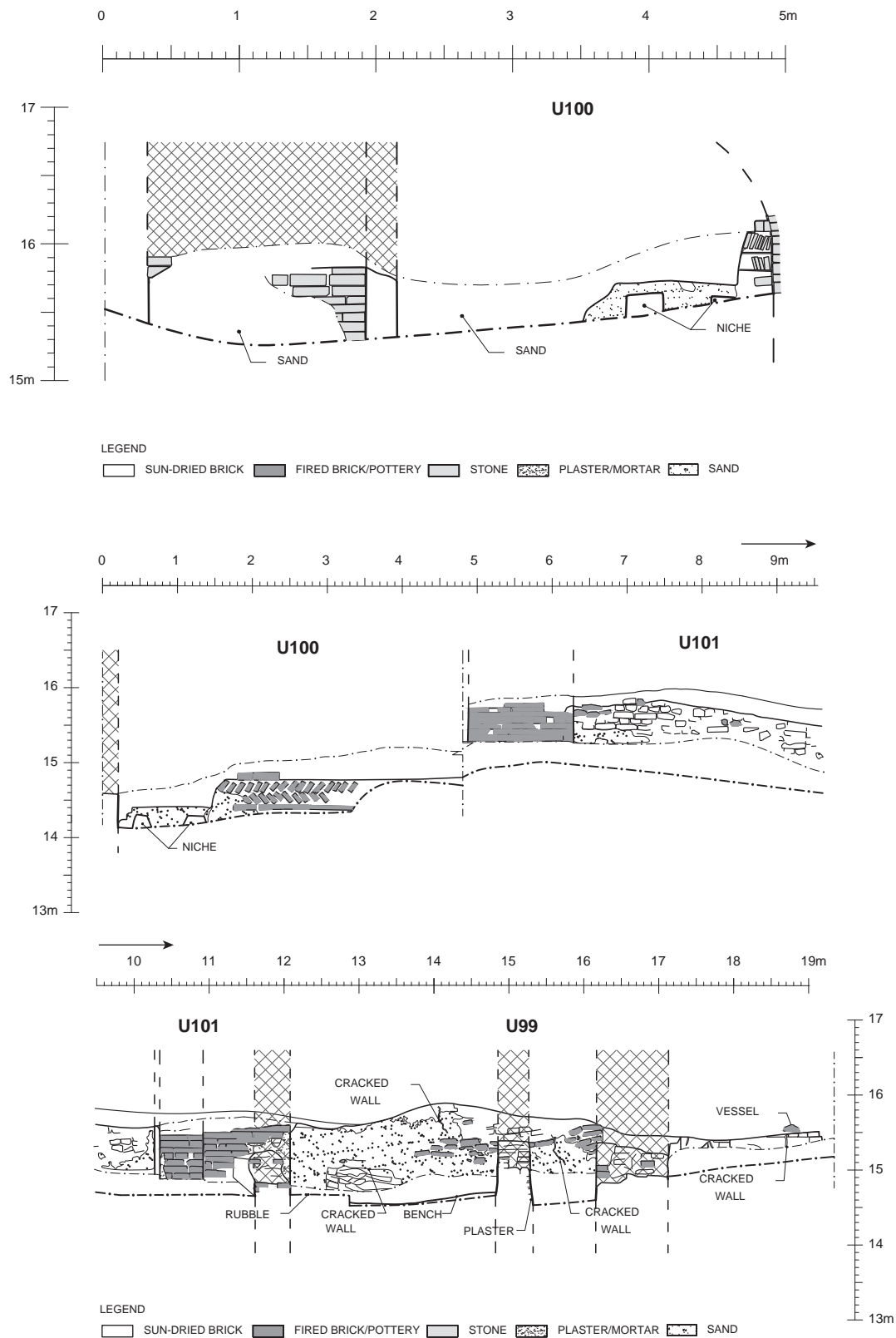


Fig. 162B–C. U99, U100 and U101: SW–NE section through U100 looking northwest (top); NW–SE section looking northeast (bottom)



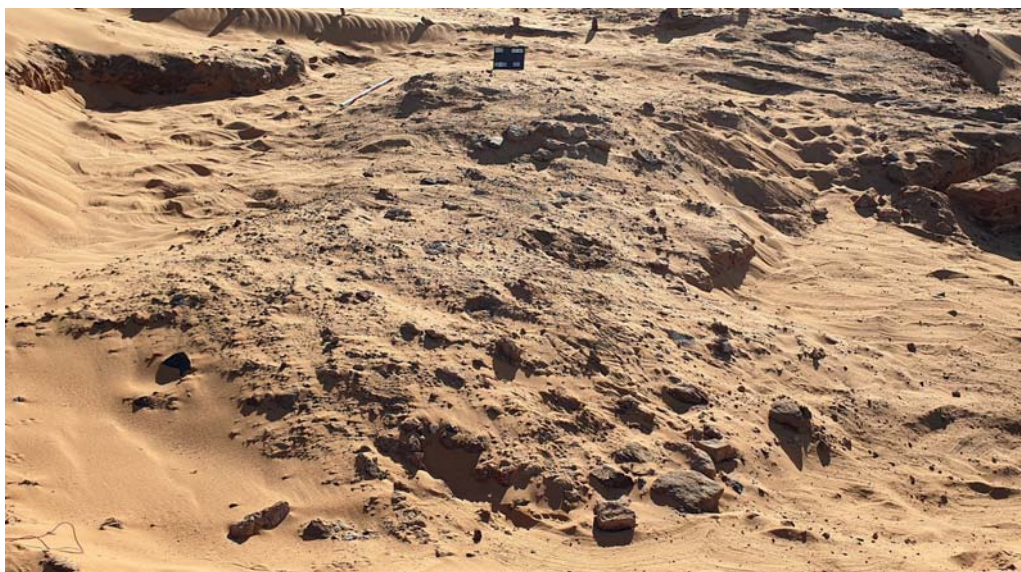


Fig. 163. Layer 323



Fig. 164. Deposit 315 with FN352

Almost immediately under the surface, there was an organic layer with traces of burnt matter (315) sloping toward the west [Fig. 164]. The layer continues eastward beyond the edge of square 10Z49.

### Building U97/98/99/101

The space of the late residential building was delimited in the south by an unusually wide wall (F665, up to 1 m in width), which together with F667 in the east and F645 in the west enclosed a wide area internally subdivided by other structures. To the south, in the area delimited in the north and east by F665 and F666, there was a space filled by a layer of sand mixed with loam and some organic matter, but it has not been excavated.



In the southwest corner, walls F669, F667 and F665 delimited the space of room U99 accessible from the space to the north (U101) through a narrow corridor delimited by a stub wall (F668), which screened off a bench inside the room [Fig. 166]. The space contained a layer of ashes mixed with sand and some organic material (317) lying above a natural accumulation of more yellow sand (318). Layer 317 was probably the result of a temporary reoccupation or reuse of the area during the abandonment phase [Fig. 165]. Below 318 there was a layer of sun-dried-brick rubble and debris (319), resulting from the collapse of the surrounding structures.

Two more rectangular rooms to the west were uncovered to the level of their destruction layers (431, 432, 433). Room U98 was delimited by walls F641, F644, F645 and F665. A stub wall (F642) screened off an entrance located in the eastern wall (F641). The second, larger room (U97) was delimited by walls F643, F644 and F645, but its northern limit has yet to be excavated. It was entered from U98 in the southeast through an entrance flanked with a stub wall.

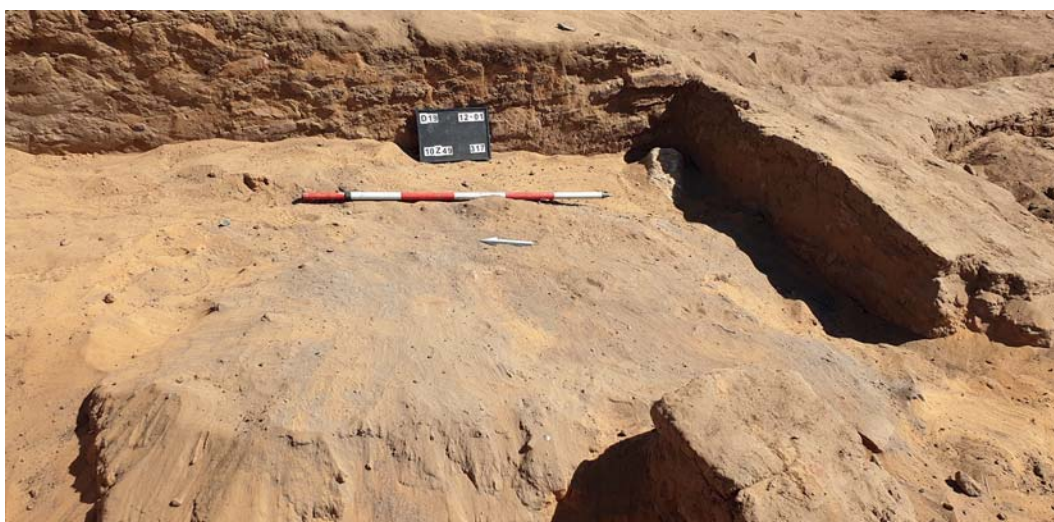


Fig. 165. Deposit 317



Fig. 166. Room U99, wall F665 on top of F672 and, in the foreground, stub wall F668



Fig. 167. Grooves on wall F643

The earlier and the later walls of the dwelling were plastered together with a new coating of whitewashed mud plaster to conceal the difference in the construction materials and give the new building a uniform appearance. The plastered surface of wall F643 bore a series of intentionally made vertical grooves [Fig. 167].

### *Discussion*

The building is a dwelling (as clearly shown by the presence of the bench and stub walls screening off the entrances) similar to other Funj-period houses excavated on the site. The house was built by subdividing the space of the earlier building, whose side walls were reused as foundations for the main walls of the house. The level of the uncovered upper surface of the bench suggests that the floor of the house in its last occupational phase should be located not too far below the level reached. The vertical grooves on wall F643 [see Fig. 167] may indicate that at some point the space was considered part of a sacral complex. Such markings were also found on the white plaster covering Christian wall paintings in the Old Dongola mosque building (Calaforra-Rzepka, Sosnowska, and Moryto-Naumiuk 2015: 39, Fig. 3.2; see also below).



### Building U100

The Funj-period residential building (period III.B) was constructed on top of an earlier structure [Fig. 169]. The two walls, F665 and F667, stood atop the remains of the earlier walls, F672 and F673, made of fired bricks, reused as foundations for the walls of U99. When the sun-dried-brick structures were built, the fired brick ones had probably already been abandoned for some time, as their tops appear to slope toward the west, following the natural inclination of the hill and suggesting that erosion may have been on-going for some time before their reuse. The features that formed part of the early building include the curved wall of the apse and three fired-brick pillars.

The curved wall F679 is made of fired bricks bonded in alternating courses of stretchers and headers [Fig. 170] with a strong lime mortar applied in thick layers. In its uppermost courses, the wall presents a fishbone pattern carried out with bricks of greater thickness and shorter length than the ones used below. They are laid in an alternating, oblique pattern with an abundant use of lime mortar to fill the spaces. On top of the fishbone course there are traces of at least one more course of fired bricks in stretcher bond [Fig. 168].

In the southern part of the wall's inner face there were traces of painted lime plaster still *in situ*. The northern part of the inner face of the wall presents, instead, some traces of whitewashed mud plaster. This part of the inner face of the wall also features a sequence of deep, vertical grooves (15 in total) cut in the surface of the plaster/mortar and reaching deep into the bricks [see Fig. 168 and above, Fig. 165]. They all have the same height and are close together. Similar grooves are attested on other Christian sites (Żurawski 2012: 378–379; Kötting 1950).

In the northern part of the wall there are also two parallel cavities. They could be some sort of small slit windows or niches, but without further excavation their nature is impossible to establish. The external face of the wall has not been excavated.



Fig. 168. Detail of F679: fishbone pattern of brickwork and vertical scratches on the plaster





Fig. 169. Presumed church in Zone 1.5



Fig. 170. Curved wall F679



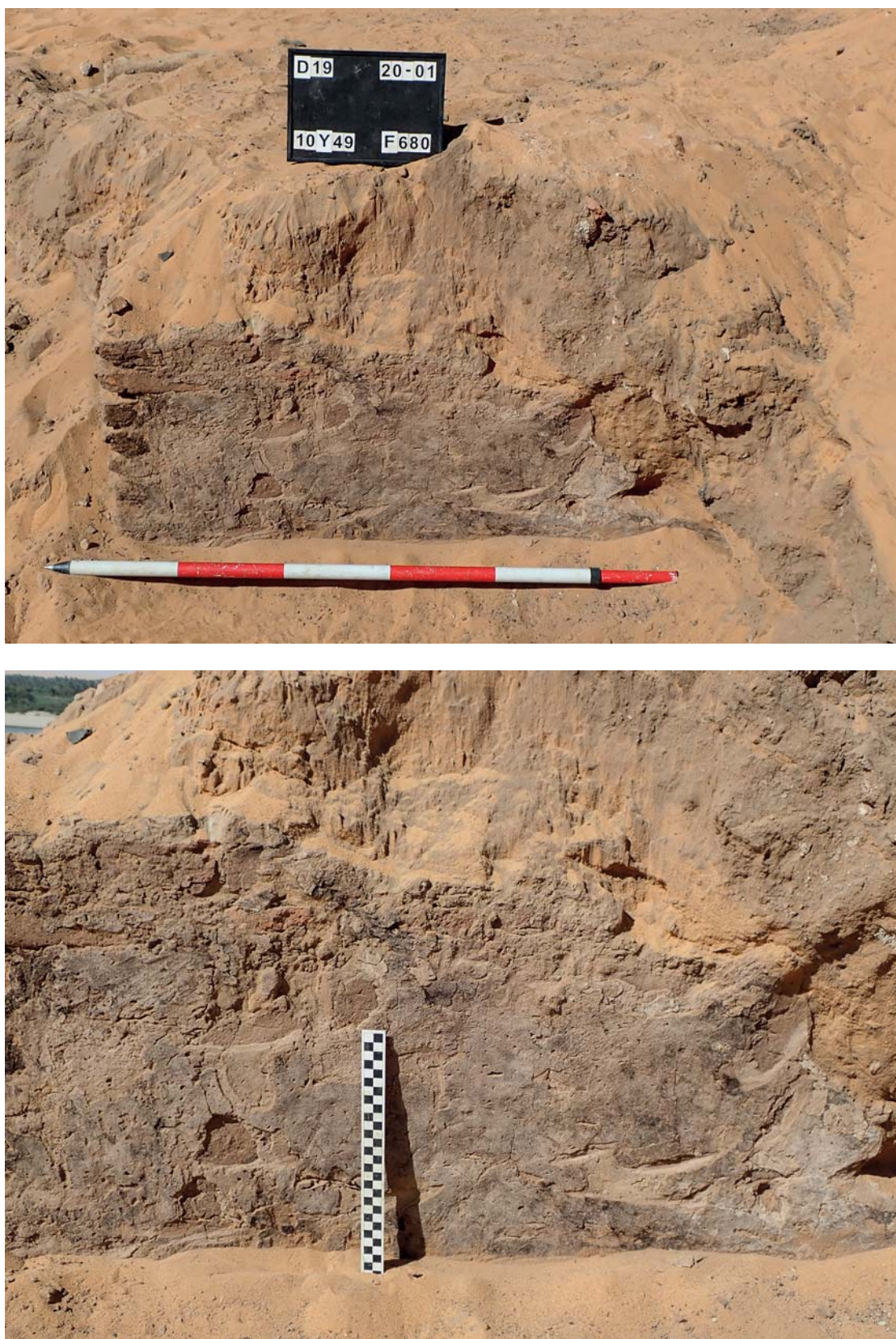


Fig. 171. Pillar F680 and a detail of the plaster on it



The fired-brick wall F677 has not been completely excavated, so its stratigraphic relationship with the other structures remains uncertain. Due to the presence of some fragments of painted plaster on its northern face it is very likely that this wall is part of F679—where other painted plaster remains have been found—and that it constitutes the southern end of the apse.

Pillar F680 stood at the northern end of the curved wall (F679). This pillar was also made of fired bricks [Fig. 171]. The structure has not been completely excavated and appears to be partially damaged on its northern and western sides, but seems rectangular in shape. On its eastern side there are remains of plaster consisting of three layers. The first is mud plaster, on which a layer of white plaster (lime?) was laid, followed by a third, thin layer of *qurba* and a final coat of whitewash. This latest layer bears traces of burning on its surface and in various spots there is evidence of a later re-plastering carried out with a thin layer of white plaster. The later plaster covering the traces of burning could be related to a restoration of the building after a destructive event, maybe a fire.

F678 is another squared pillar made of fired bricks laid in headers and stretchers and bonded with mud mortar. The structure is poorly preserved and has not been completely excavated but appears to be similar to the southeastern pillar (F670), with which it is aligned. On its northern face the feature bears some traces of whitewashed mud plaster.

Connected to those earlier walls is also structure F670, a squared pillar made entirely of fired bricks. Its shape is almost rectangular, but it has a small protrusion on the western side. The pillar is abutted by the later wall F669, which has some fired bricks in its structure, probably recycled from the earlier building.



Fig. 172. Lime plaster F674 on pillar F670



Fig. 173. Wall F676 between pillars F670 and F677/F678

The northern side of the pillar presents some traces of what could be its original plaster (F674), made of a thick layer of lime mixed with sand [Fig. 172]. On the northeast side of the pillar, there are traces of what was probably a wall (F671) made of white sandstone blocks, of which now four remain *in situ*, arranged in a row.

F676 was a wall made of sun-dried bricks with some fired bricks, bearing traces of whitewashed mud plaster. It was constructed between two pillars of fired bricks, the abovementioned F670 in the southeast and F677/F678 in the northwest [Fig. 173]. Its stratigraphic relationship with F677/F678 remains unclear, but it seems fairly certain that F676 was a later addition to the large building made of fired bricks, closing the space between the two pillars.

### *Discussion*

The large building of fired brick identified within squares 10Z49 and 10Y49 had massive walls, a series of pillars and an apse on its eastern side decorated with painted plaster. The three squared pillars are similar in dimensions and aligned along the short axis of the building. Based on the results of the geophysical prospection conducted on the site, it is reasonable to suppose the presence of a fourth pillar along the same axis to the north, as well as that of a side wall closing the perimeter of the building. The resulting plan would be that of a large building with five naves, and a central apse in the east. The situation behind the wall of the apse (F679) has yet to be elucidated by further excavation work, but one should expect a passageway behind the apse and two *pastophoria* on the sides. No hypothesis can be advanced about the floor level of the building.

The most probable dating of the structure is the Makurian period. This is implied by the type and dimensions of the fired bricks and the use of lime mortar, as well as lime plaster with painted decoration. As shown above, the Funj-period house was built on the earlier building when the latter was already partially ruined and probably no longer in use. The apse, over 6 m in diameter, the largest of the apses of Makurian churches known thus far (Gartkiewicz 1990; Godlewski 2006), indicates a structure of monumental dimensions. The location of the church in the heart of the citadel implies that it was a building of considerable rank, possibly even the episcopal church of Old Dongola.



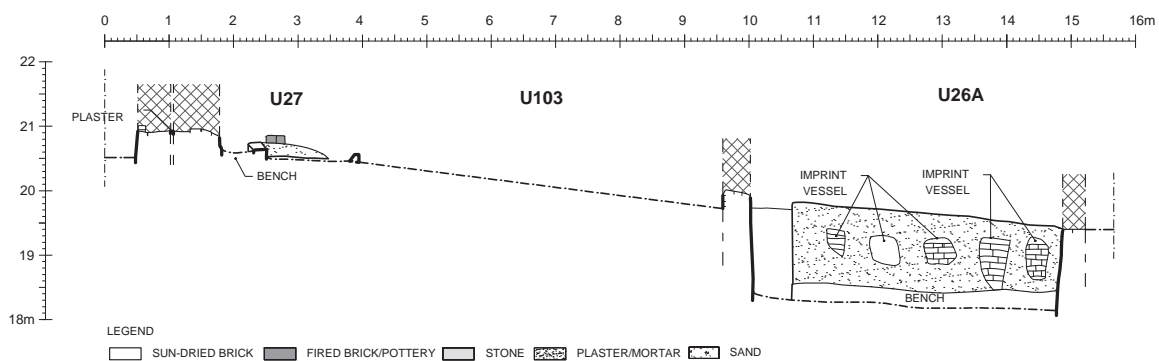


## ZONE 1.6

- 183 Northern cluster of units
  - 183 Building U36
  - 183 Building U20a/20b
  - 186 Room U27
  
- 187 Compound U15/26a/26b
  - 187 Building U26a/26b
  - 192 Semi-open space U15
  
- 193 Compound U15/37/40
  - 193 Room U15
  - 194 Room U37
  - 196 Courtyard U40
  
- 197 Compound U21a/21b/28a/28b/29/47a/47b/96
  - 197 Building U21a/21b
  - 203 Building U28a/28b
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  - 208 Courtyard U96
  
- 209 Compound U9/10/94
  - 209 Building U9/10
  - 214 Courtyard U94



Several buildings and dwelling compounds were excavated along the northeastern face of the city walls [see *Fig. 8*]. Erosion of the slope and location on loose layers of sand were detrimental to their state of preservation. The resulting damage, on the one hand, hindered the reconstruction of the spatial organization of some buildings and compounds, and, on the other, enabled the investigation of deeper strata, especially in squares 10W54–55 and 10Y54–55 [*Fig. 174*]. It was possible to distinguish four areas of interrelated dwellings. Each underwent changes in arrangement marked by the construction of new units or the refurbishment of structures already in existence. Compounds uncovered in this residential quarter date mostly from the 17th century (periods III.D–III.A), but stand at least in part on structures datable to the 16th century (period IV; U15/26a/26b; see Phasing and chronology below, *Table 9*, pp. 234–235).



**Fig. 174.** U27, U103, and U26a: NE–SW section showing the difference in elevation between excavated dwellings outside the city walls

A new type of architecture, not recognized before in the area of Old Dongola, was recorded especially within squares 10Z55–56. The employed construction method is a variety of the wattle-and-daub technique (Wyżgoł and Deptuła 2020). The main characteristic features of this type of architecture are walls made of a variety of twigs, branches or reeds placed vertically in two or three fairly even rows [*Fig. 175*]. Vertical elements are interlaced with horizontal twigs and tied together with palm leaves. Horizontal elements are about 10–15 cm apart. This framework is covered with mud mortar, coated on both sides with smoothed *qurba* and whitewashed with *gir*. The average thickness of such a wall is about 10–12 cm at the top, but mortar slopes to the floor making the walls thicker by 8–10 cm at the base. Some of the walls are built on a footing made of assorted stones connected with poor-quality mud mortar. Though the walls seem weak, they were able to support roofing, as they included vertical wooden posts; wattle-and-daub houses also usually adhered to earlier structures, such as the city walls or houses made of sun-dried brick, or they had at least one external wall made of brick.



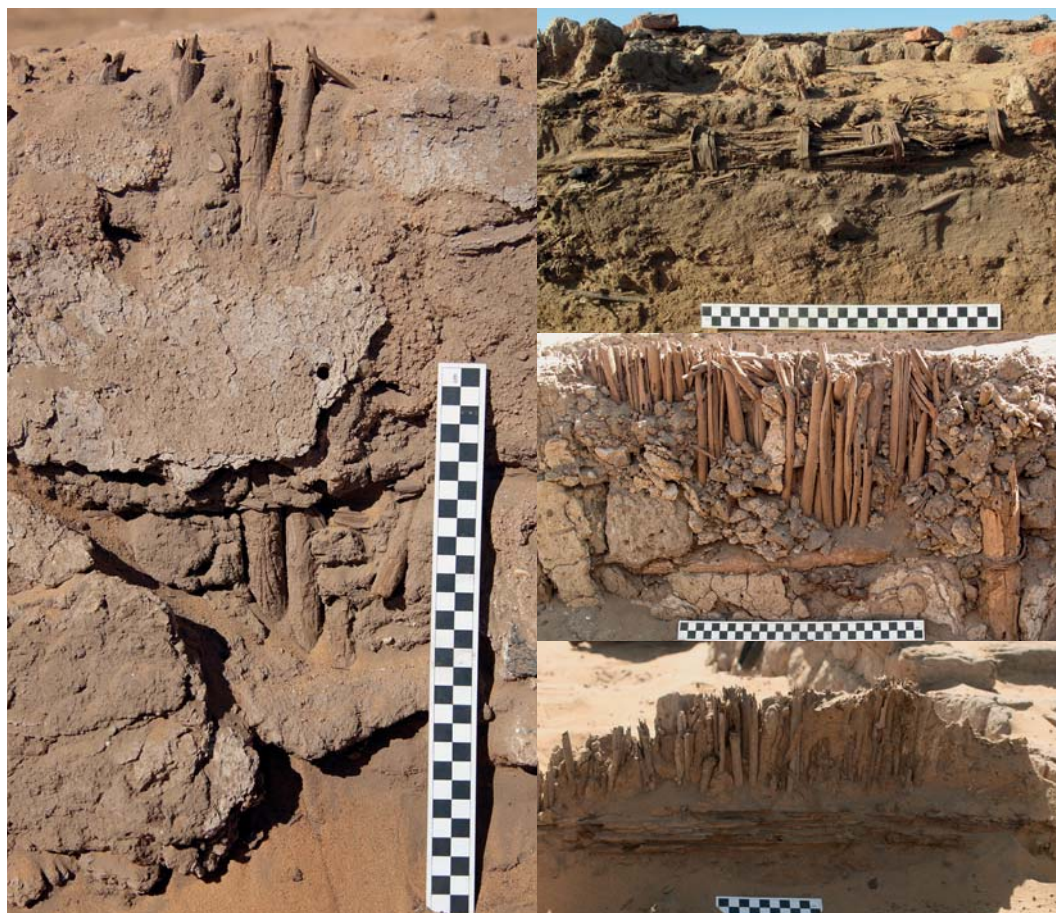


Fig. 175. Examples of the wattle-and-daub building technique in houses outside the city walls



Fig. 176. Building U36

### Northern cluster of units (*Maciej Wyżgoł*)

The northernmost part of the investigated area of the zone outside the city walls featured three buildings: U36, U20a/20b and U27 [*Fig. 177*]. Their relationship to one another is uncertain. U27 and U36 may have belonged to the same phase but need not have been part of the same compound. U20a/20b, in turn, was earlier than U27 and U36 and possibly contemporary with (though not part of) compound U15/37/40 (see below). In the vicinity, traces of open spaces U93 and U103 were discovered.

#### *Building U36*

U36 is a square, one-room building abutting the city wall, with a mud floor and walls made of reeds covered with mud [*Fig. 176*]. It comprises a hearth, a storage vessel sunk into the floor, and a quern emplacement or bin. In the southwest it is delimited by the wall of the citadel, F79, in the northwest by sun-dried-brick wall F490, and in the southeast by wall F291, made of reeds covered with mud. The northeastern part of the unit was destroyed by erosion.

Before U36 was constructed in period III.B, the area was very likely occupied by a courtyard or another room, the floor of which (F630, elevation 20.25 m) abutted the earlier walls, F79 and F490. The unit came into being when wall F291 was built to abut wall F79, and bin F489 was constructed against wall F490. Mud floor F488 was laid with several gradually superimposed thin layers of mud, starting at the elevation of 20.33 m. At that time, a hearth with burnt layer 248 was also set up by wall F490. A poorly preserved structure, F487, presumably a container or quern emplacement, was built on floor F488. In the last phase of use, livestock was kept in this area, as is attested by layers of animal dung (245, 120, lower elevation 20.39 m) covering the space northeast of wall F79.

The original function of this unit is difficult to determine. The presumable quern emplacement and hearth suggest that at some point the space was associated with food processing. In the last phase, the whole area was used for keeping livestock.

#### *Building U20a/20b*

U20a is a square room abutting the city wall, with a mud floor and walls made of reeds covered with mud. Its furnishings included a sun-dried-brick bench located by the entrance in the north-eastern wall and a hearth located in the middle of the room. In the southwest, U20a is delimited by the stone wall of the city (F301), and in the northwest, northeast and southeast, respectively, by walls F300, F297 and F307 made of reeds covered with mud mortar. Threshold F305, located in the northwestern part of wall F297, marks the entrance to the room. The unit was connected with a now-lost room (delimited by wall F496 and a continuation of wall F300) located northeast of it and probably equipped with bench F299.

The room was constructed in period III.C when three walls (F297, F300, F307) were built to abut the already existing city wall (F301), which was replastered at the time (F321) [*Fig. 178*]. Contemporaneously, floor F306 (elevation 20.00 m) and bench F298 were constructed. In the southern part of the unit, a hearth was set up, leaving burnt layer 255 as evidence. The room was also associated with the space to the northeast, as wall F300 continued northeast of the unit (now destroyed by erosion).



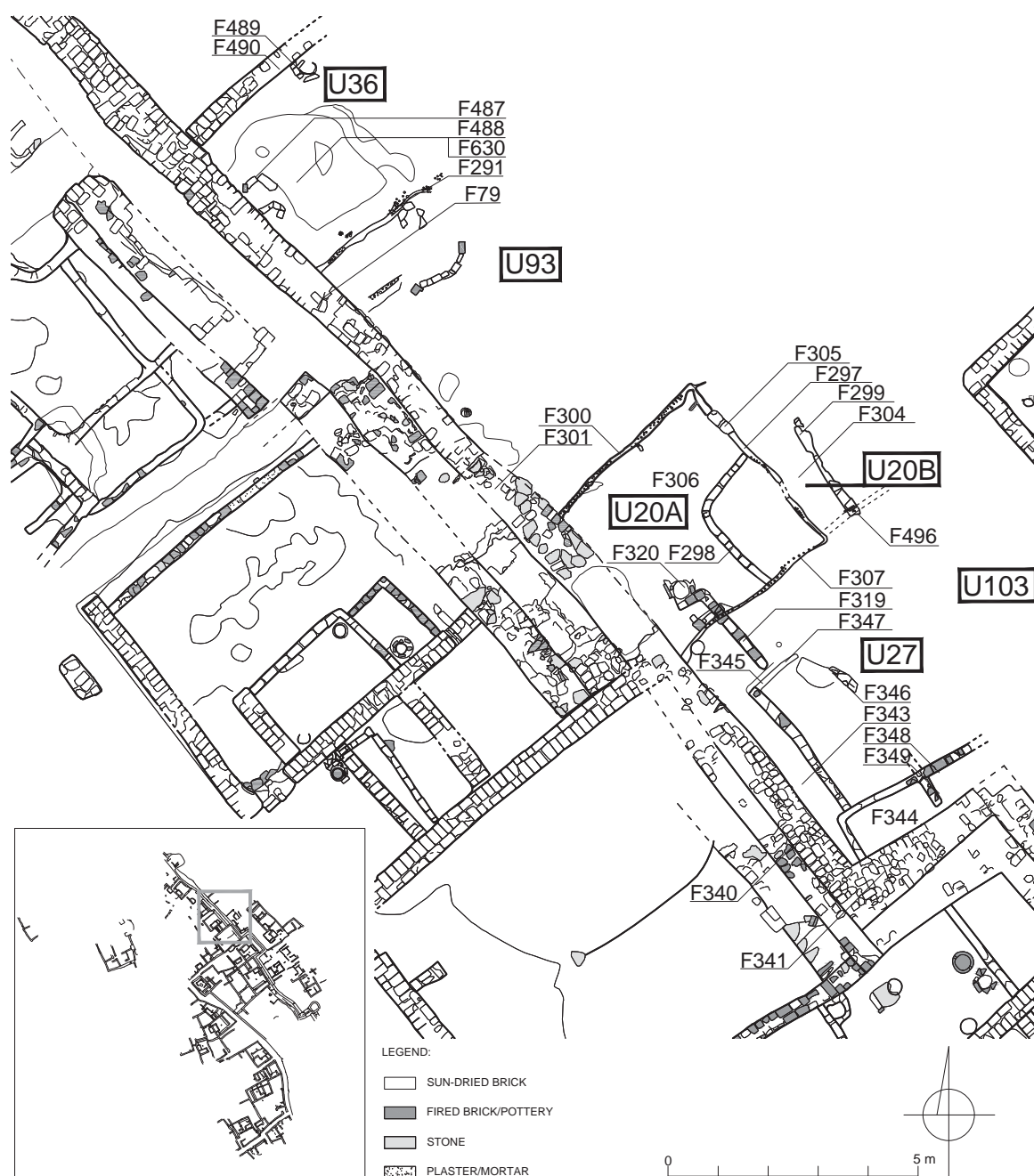


Fig. 177. Buildings U36, U20a/20b and U27, plan





Fig. 178. Room U20a, aerial view

The remaining northeastern part of the building, U20b, consisted of wall F496, floor F304 and bench F299. It was constructed at the same time as room U20a. Courtyard U93 located northwest of U20a, with hearth layers 169 and 168, was most probably associated with the room as well. However, during occupation, when layer 173 accumulated, the entrance was more likely located in the east, leading out to courtyard U103. Subsequently in period III.B, a layer of refuse and animal dung (171) accumulated in U20a from the level of 20.08 m [Fig. 179].

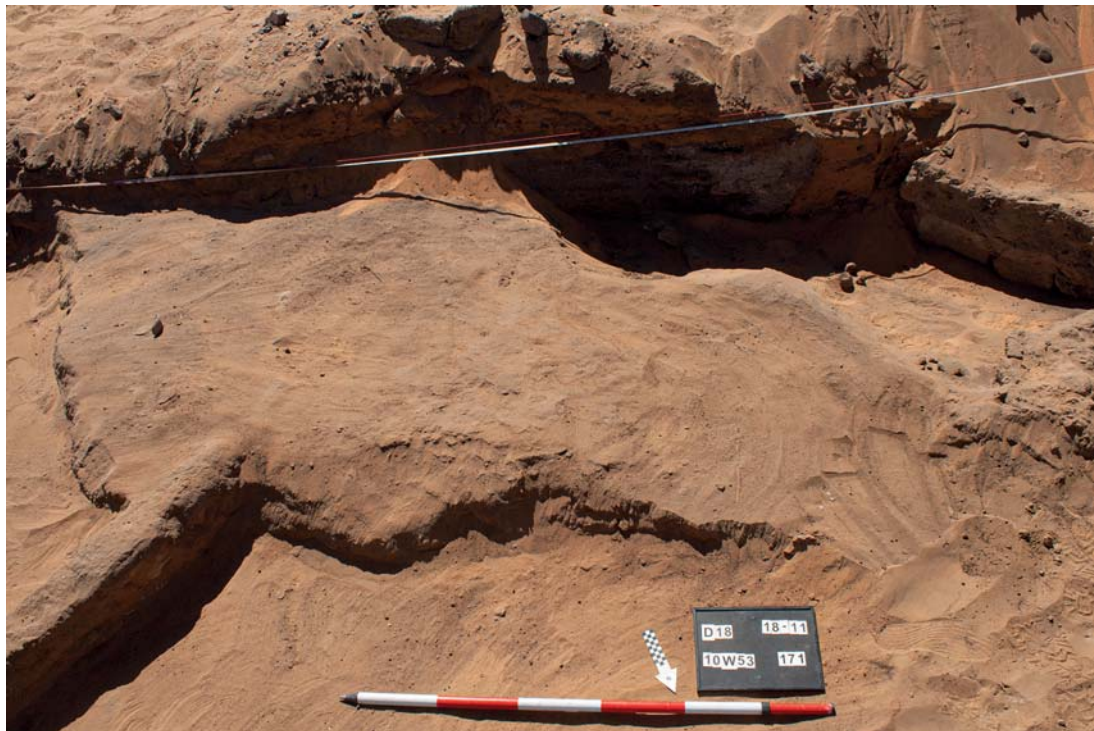


Fig. 179. Deposit 171 in room U20a

Finally, the outer walls of U20a collapsed on the level of about 20.15 m (deposits 164, 172, 175). Later on, a house featuring a bench with a stove (F319, F320) was constructed on the rubble of U20a and U27 at an elevation of 20.61 m.

The original function of the room is difficult to determine. The presence of a hearth suggests that at some point the room and its vicinity might have been associated with food processing. The poor state of preservation of the northeastern part of the building hinders the identification of this space.

#### *Room U27*

U27 stood against the city walls (F340, F341) to the southeast of U20a/20b [Fig. 180]. Its features are preserved to a height of 60 cm. The room was constructed in period III.B when a wall made of reeds covered with mud (F345) was built abutting city wall F340, contemporarily with the construction of wall F346 and the laying of floor F347 (elevation 20.47 m). At the same time, bench F344 and a bench comprising walls F349 and F348 were built to abut city wall F341. Walls F341 and F340 were also given a new layer of plaster (F342). Subsequently, bench F343 was built abutting bench F344. In the corner formed by the two benches, a hearth with burnt layer 238 was set up.



Fig. 180. Room U27, aerial view

It is very likely that U27 existed simultaneously with U36. The function of the room is difficult to determine because its remains were covered only with windblown sand, and no occupational layers were present. Fire-related activity traced near the benches could be related to food processing.

The end of use of the room is associated with the collapse of wall F345 (layer 194). Finally, another house, equipped with bench F319/F320, was built. This house was constructed on the remains of U20a/20b and U27 and is unrelated to these earlier structures (no unit number was assigned due to its very poor state of preservation).

### *Discussion*

The relationship of the fragmentarily preserved units uncovered in this area is difficult to determine. The units did not all function simultaneously, but were interrelated in different phases of their existence (see Phasing and chronology below, *Table 9*, pp. 234–235). The identification of the function of U20a/20b is impossible due to insufficient data. The dwelling is equipped with a bench but lacks a stub wall, and its entrance has not been found, hindering its placement in the broader context of its surroundings. U27, with three benches and a hearth, was likely a dwelling. U36 is a fragmentarily preserved space possibly used for food processing. U36 and U27 are likely contemporary, although they do not seem to be part of the same compound. Their construction followed the abandonment of dwelling U20a/20b, but a late hearth and a midden found in U20a/20b may have been associated with activities in U36 and U27.

### **Compound U15/26a/26b** (*Maciej Wyzgoł*)

In squares 10W54–55 and 10Y54–55, two consecutive compounds developed in different periods [*Fig. 181*]. The early compound consisted of rooms U26a, U26b and U15 [*Figs 182A–B, 183*]. Its relations with the surrounding spaces (streets, courtyards, other rooms) are unknown, as no other units have been excavated to the same low level. The later compound comprised rooms U15, U37 and courtyard U40. This compound was also connected with house U20a/20b functioning in the same period.

### *Building U26a/26b*

The earliest structure in this area is building U26a/26b constructed in the second half of the 16th century (see Phasing and chronology below, *Table 9*, pp. 234–235). It is a square building divided into two unequal parts, U26a and U26b, by wall F336. It was delimited by white-washed sun-dried-brick walls: in the southeast by F323, in the southwest by F335, in the northwest by F338, and in the northeast by F337. Its features are preserved to a maximum height of 200 cm.

The entrance to U26a was located in the eastern corner and screened off by the perpendicular stub wall F334. The room was equipped with four benches, three of which abutted one another and were located behind the stub wall. A fourth bench (F483) was built against the northwest wall and bore imprints of storage vessels [*Fig. 184A–B*]. The room had a mud floor with traces of hearths.



Benches F480–F483 (elevation 18.10 m) were most probably the original furnishings of this unit, although bench F481 abutted F480 and F482 abutted F481. Their function has yet to be established (though they were very likely multifunctional).

The northwestern room (U26b) is much smaller than the southeastern one. Its storage function is indicated by three storage vessels (F633, F632 and FN314) [Fig. 185], a quern and a large, shallow stone vessel with two handles, deposited upside down, possibly on purpose (both the stone vessel and the quern were found bottom-up on the same occupational level as the storage vessels). The vessel, a unique find at Old Dongola, is similar in shape to Islamic-period steatite vessels made in the Eastern Desert (Harrell and Brown 2008: 53; see also Edwards 2018: 655 for a parallel from Attiri) [Fig. 186]. The thick occupational layers in U26b suggest that this space was not swept. They yielded a dozen stone tools, as well as spindle-whorls and basketry lids, which

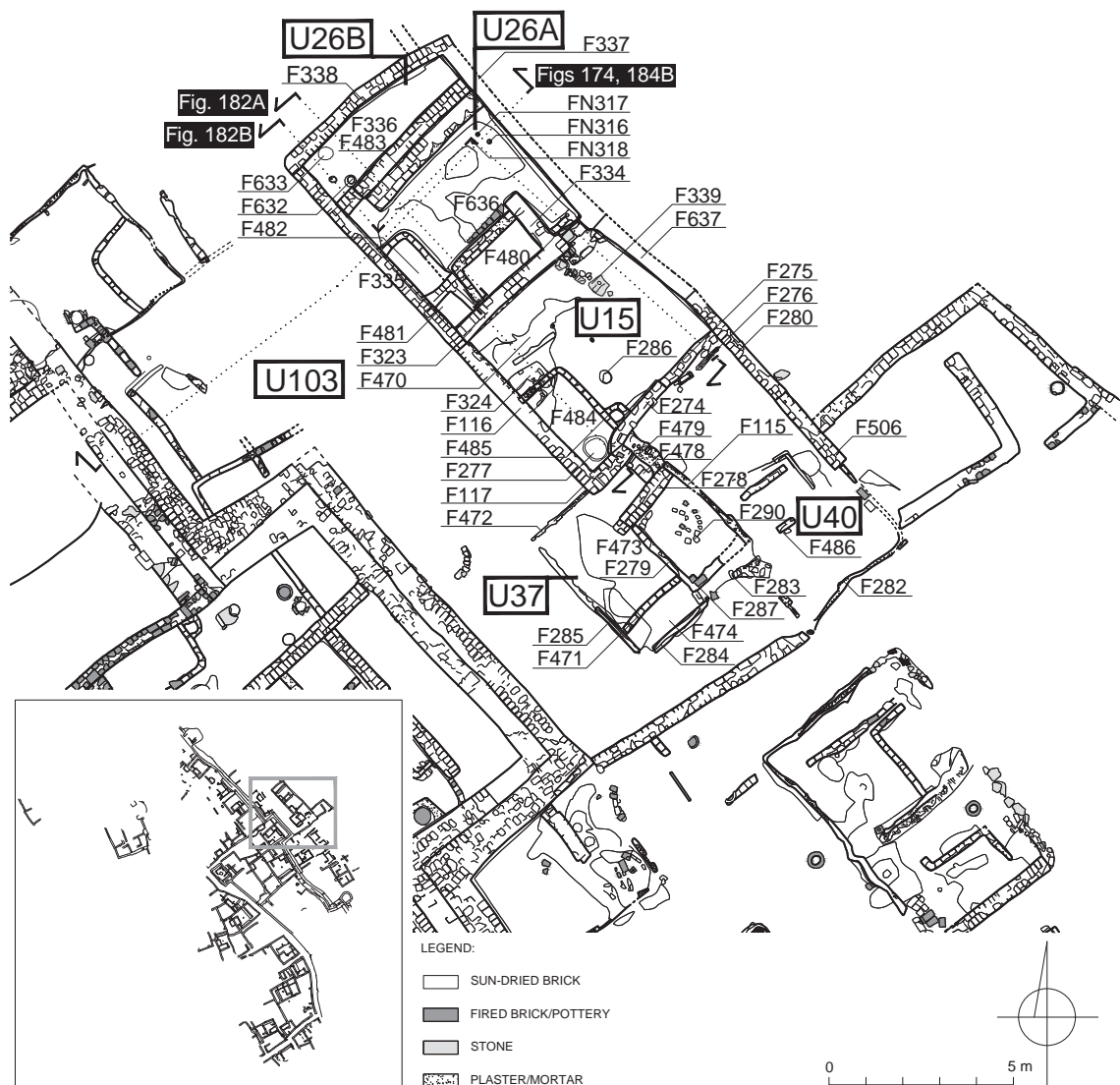


Fig. 181. Compounds U15/26a/26b and U15/37/40, plan

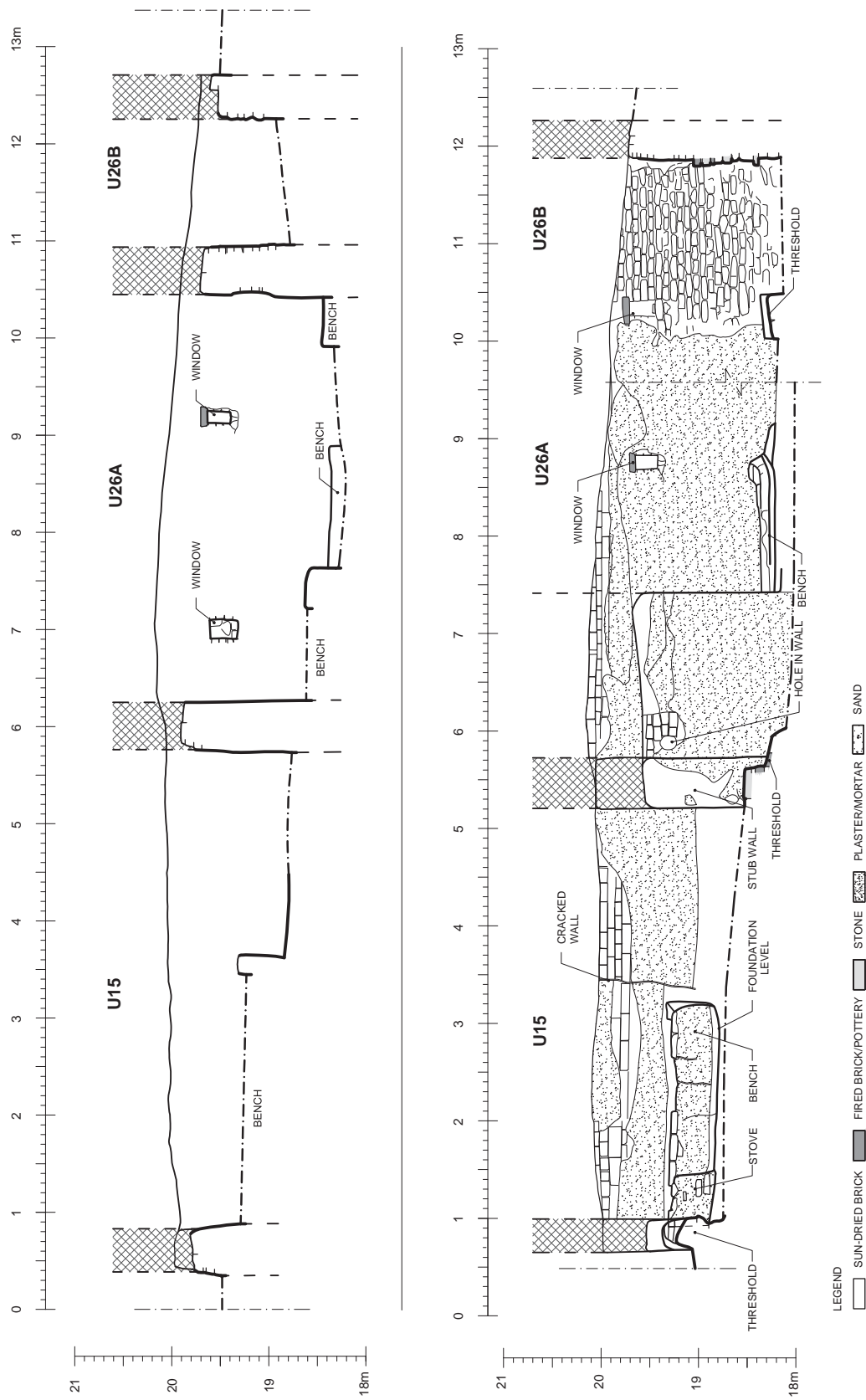


Fig. 182A-B. Compound U15/26a/26b, NW-SE sections, looking southwest



Fig. 183. Compound U15/26a/26b, aerial view looking north

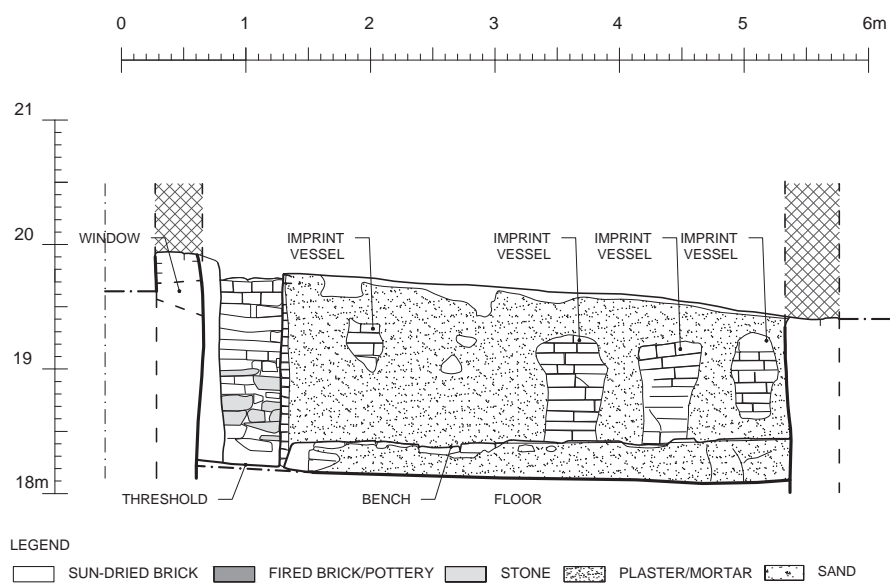


Fig. 184A–B. Bench F483 in room U26a, view (top); section of room U26a showing bench F483 (bottom)





Fig. 185. Storage jars in room U26b



Fig. 186. Stone vessel found in room U26b

clearly corroborate the room's storage function. Numerous finds of pieces of worked wood, metal fragments and evenly spaced out holes in the western wall may also indicate the occurrence of wooden shelves or pegs attached to wall F338.

### *Semi-open space U15*

The second occupational phase of compound U15/26a/26b occurring in the late 16th century (see Phasing and chronology below, *Table 9*, pp. 234–235) is connected with the construction of room U15. All traces of household activities recorded within the compound are most probably connected with this phase. U15, coated with plaster layer F498 and equipped with a bench-with-stove F484/F485 built on the level of 18.74 m, was most probably a semi-open space used for food processing.

### *Discussion*

A reconstruction of the function of the spaces in this compound is possible thanks to the abundance of original equipment sealed by the collapsed roof (259, 260, 261). In the earliest phase of use, room U26a most probably opened directly onto the outside because walls (F116, F637) of room U15 abut the first layer of its outer plaster (F323). Some household activities might have been transferred to the area predating U15 and subsequently to the semi-open space of U15 (see below).

In U26a, a hearth (burnt layer 265) with three firedogs, FN316, FN317 and FN318, was in use at this time [*Fig. 187*]. Together with the benches, they indicate that U26a most probably



Fig. 187. Hearth in room U26a



combined a residential function with storage and food processing. In room U26b, two sub-phases were recorded. The first one is associated with occupational layer 271 (elevation 17.63–18.17 m), the deposition of which began immediately after the construction of the room. The second one is connected with the installation of storage jars F633, F632 and FN314 (elevation 18.50 m), the use of the shallow stone vessel FN315, and accumulation of deposit 262.

In a subsequent phase of occupation (U15.3), sand (257) accumulated, and a higher threshold (F497, elevation 18.83 m) was added in the entrance to U26a. The room also received a new plaster coating, F499. Finally, the roof of rooms U26a and U26b collapsed (243, 259) on the level of 18.36–18.67 m, and the interiors filled with sand and were used as a place of disposal of ash (239) (or possibly for charcoal burning). In this phase (U15.2), room U15 was most probably abandoned, and its interior was used only sporadically, as deposit 155 accumulated. The room was ultimately cut off from the outside by blocking wall F275.

### Compound U15/37/40 (*Maciej Wyzgoł*)

#### *Room U15*

After the abandonment of house U15/26a/26b and the accumulation of sand to the level of 19.30–19.70 m, in the 17th century (period III.C; see Phasing and chronology below, *Table 9*, pp. 234–235) the space of U15 was adopted as a house workspace by the inhabitants of newly constructed U37 with courtyard U40 established on the level of 19.29 m [*Fig. 188*]. The unit



Fig. 188. Compound U15/37/40, aerial view looking northeast



was delimited by a plastered mud-brick wall (F637) in the northeast, by wall F323 in the northwest, and by abutting walls F116 and F117 in the southwest and southeast. The southeastern wall consists of walls F117, F274 and blocking wall F275. Traces of wear on the top of blocking wall F275 suggest that the previously blocked entrance to U15 was used again for accessing the unit. Floor F470 was constructed on the sand deposit (155).

In this phase (U15.1), the room was equipped with a quern emplacement, F324, built next to the southwestern wall F116, a hearth set up in the corner of the room and filled with burnt layer 152, and a storage bin located in the middle of the room. The quern was later removed and used to create stub wall F339, additionally screening U15 from U26a [*Fig. 189*].

In phase U15.1 associated with the functioning of compound U15/37/40, room U15 was most likely connected with food processing, as attested by the quern emplacement, as well as the hearth layer (152). Also a storage function is attested for U15 through storage bin F286.

### *Room U37*

U37 is a square room built abutting the walls of U15 in the south. The room is delimited by a plastered mud-brick wall (F117), by wall F472 made of reeds covered with mud in the northwest, and in the northeast, southeast and southwest by walls F115, F283, F284 and F285, all made of reeds covered with mud. Its features are preserved to a maximum height of 30 cm. U37 has a stub wall that screens off the entrance located in the northeastern wall (F115).



Fig. 189. Room U15, aerial view with a visible quern emplacement in the southern part



Fig. 190. U37 and U40, aerial view looking northwest

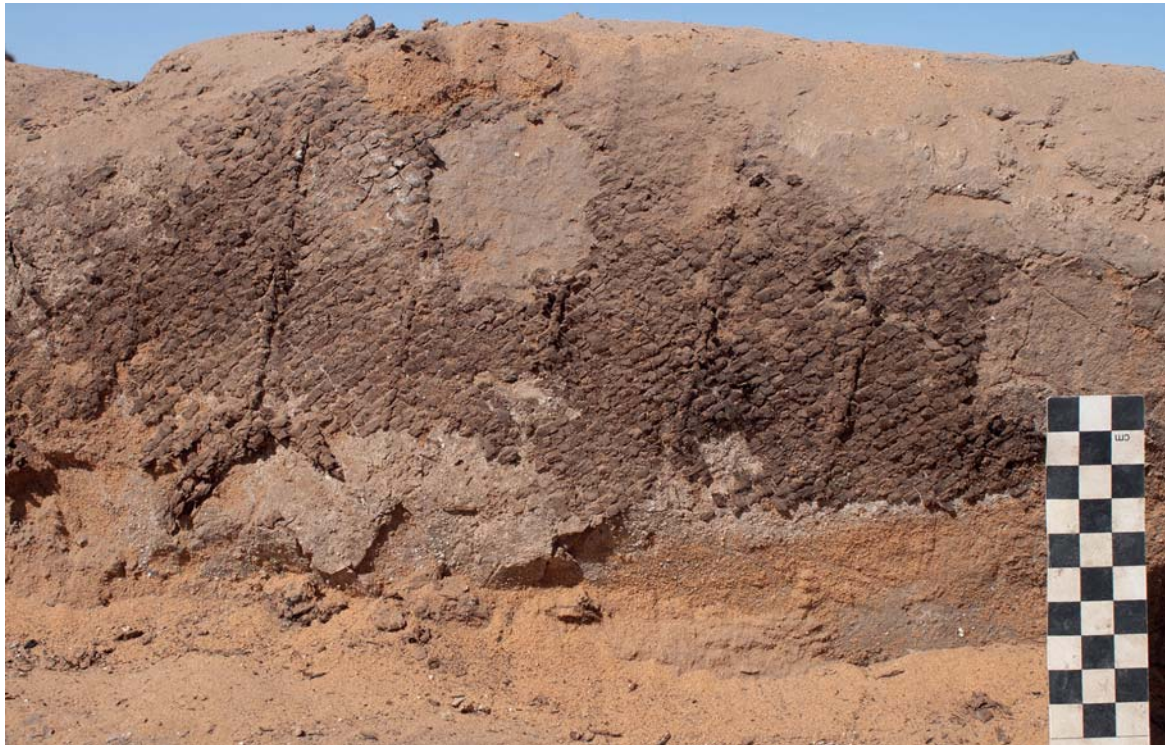


Fig. 191. Mat imprint on the southeast face of F486, a side wall of a bench in U40



U37 was established by reusing the earlier wall F117 as an outer wall and by turning F278 into a stub wall screening off the entrance. Walls made of reeds covered with mud were built to abut the already existing structures. At the same time, a carelessly made mud floor F473 comprising several superimposed strata was laid (elevation 19.49–19.75 m). In the northern part, the floor covered the top of the older wall F478, bonded with wall F117. The room is equipped with two abutting sun-dried-brick benches located behind the stub wall. The first one (F279, F287, 249, F290) abuts the stub wall, and the second (F471, F474) is located along the southeastern wall of the room.

Room U37 had the common form of a square room equipped with two abutting benches and a stub wall screening off the entrance. Evidence of activities performed inside is scant and restricted to the phase after abandonment, when it was used for keeping livestock. The damaged and slightly burned surface of the floor is evidence of fire-related activity, but traces of food processing are lacking.

### *Courtyard U40*

U40 is an L-shaped courtyard accessible from U15 and U37 [*Fig. 190*]. It was created when room U37 was built on the southern side of U15, creating a space between these units in the east. It is delimited in the northeast by the sun-dried-brick, plastered wall F280 and by abutting wall F506, in the northwest by walls F274 and F275, in the southwest by F115, a wall made of reeds covered with mud, and the southeastern part was most probably left open, as the identified occupational level was deposited above the collapse of wall F282 (252). The entrance from U40 to U37 led through a doorway with threshold F479 in wall F115, and U15 was accessed from it through a passage with threshold F276. The features are preserved to a maximum height of 30 cm. U40 was a courtyard where livestock was kept, as attested by a large amount of animal dung in deposit 250 that filled this space.

In the last phase of occupation, a mud bin (F277) was installed over hearth F629 on the level of 19.88 m in U15, and a wooden threshold (F276) was added above the accumulated sand (250) in courtyard U40, on the level of 19.65 m. In this phase, room U37 was filled with deposits 154 and 156 to the level of 19.90 m. Subsequently, the compound was abandoned and its outer walls collapsed (242, 247).

Some structures pertaining to an earlier, unexcavated phase belonging to period III.D are also visible in U40. Notably, a low wall F486, probably a relic of a bench, bears the imprint of a mat [*Fig. 191*].

### *Discussion*

Compound U15/37/40 was built on top of an uninvestigated structure that seems contemporary with the earliest phase of the compound investigated to the south occurring in period III.D (see below). It was also contemporary with U20a/20b and earlier than U27 to the north (see above). The dwelling consists of two units, a room with two benches (U37) and a semi-open, domestic workspace (U15). Both were accessed from a common courtyard, U40, but had separate entrances and were not interconnected. Despite the small size of the compound (77 m<sup>2</sup>), the privacy of the dwelling in U37 was achieved by bending the axis of the compound. Access to the household was most likely from the south, from open space U103 stretching between the compound and the



perimeter wall. To reach U40 one had to first walk down a passageway 3.84 m long and about 1.70 m wide and turn left. While the domestic workspace was easily accessed from the courtyard, the dwelling was off to the side, and its interior was additionally shielded from view by a stub wall.

**Compound U21a/21b/28a/28b/29/47a/47b/96** (*Agata Deptuła*)

In squares 10Z55–56, 11A55–56, and 11B56, the space investigated outside the city walls was delimited in the northwest by wall F72, built of reused bricks of different types and of stones laid without a regular bond [*Figs 193, 194A–B, 195*]. The wall most probably served as a fence as well as wind barrier for dwelling U21 situated southeast of it. In the southwest, the area was bordered by the city walls and tower U42 (see above). The whole area was filled with windblown sand (layers 52, 53, 62, 68, 683, 390), in some points reaching a thickness of 80 cm and covering most structures, with the exception of zones stretching along city walls F112 and F523 above U28 and U29, where several anthropogenic layers indicating intense human activity were found (cf. Harris matrix). The compound excavated in this area consisted of four buildings clustered around a centrally located courtyard [*Fig. 192*].

*Building U21a/21b*

Building U21a/21b was built on a layer of sand and, since the whole area was on a slope, the surface under its northeastern part was raised to level with a foundation footing made of assorted stones bonded with poor-quality mud mortar (F217) [*Fig. 197*].



**Fig. 192.** Compound U21a/21b/28a/28b/29/47a/47b/96, general view with indicated unit numbers, looking north



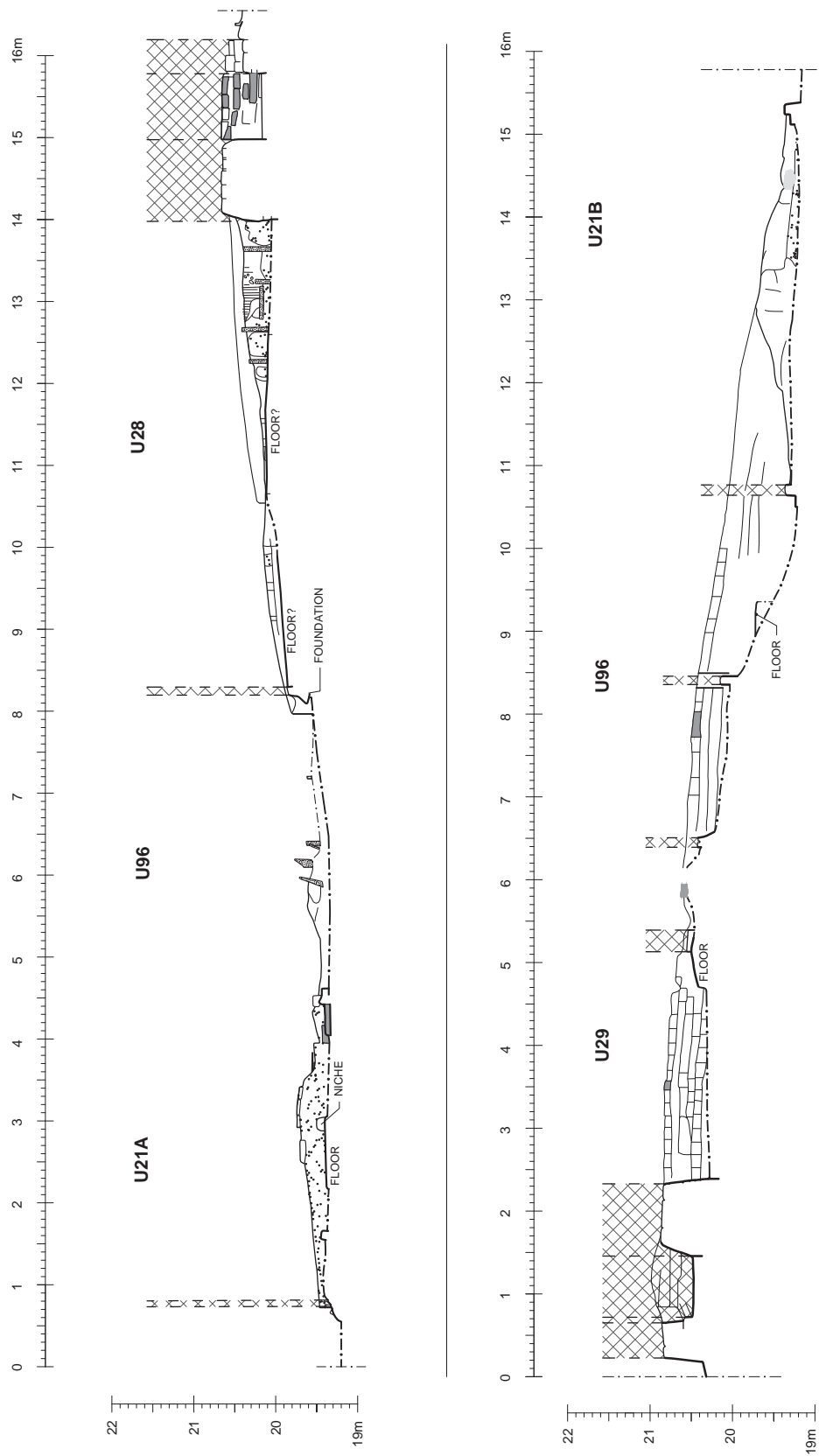


Fig. 194A–B. Sections of compound U21a/21b/28a/28b/29/47a/47b/96: SW–NE section looking southeast through U28a, U28b, U96 and U21a (top); SW–NE section looking northwest through U29, U96 and U21b (bottom)



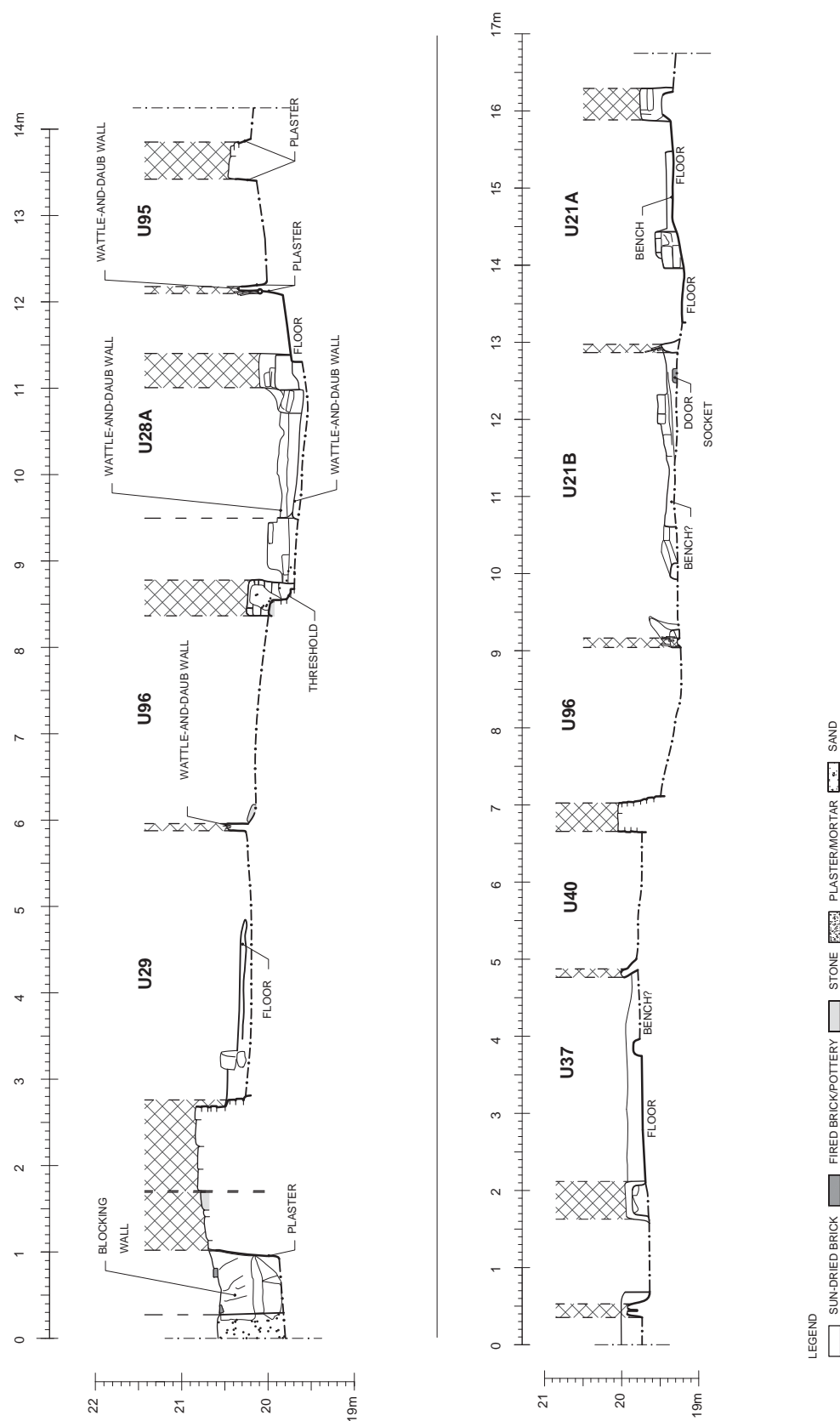




Fig. 195. Compound U21a/21b/28a/28b/29/47a/47b/96, aerial view



Fig. 196. Building U21a/21b, aerial view



The building was a rectangular structure measuring 7.5 m by 5 m [*Fig. 196*]. Only one wall (F77), delimiting it in the southeast, was made of sun-dried brick. The others (F217, F57, F206 and F208, an extension of F77) were built using the wattle-and-daub method described above, with twigs and reeds used as vertical elements. They do, however, differ in some details, for example F217 stands on a stone foundation, and only a small relic of its wooden framework has been preserved.

Though the walls of the building are insubstantial, they might have been able to support a roof. Some traces (e.g., an impression on the inner face of F57) indicate that horizontal beams could

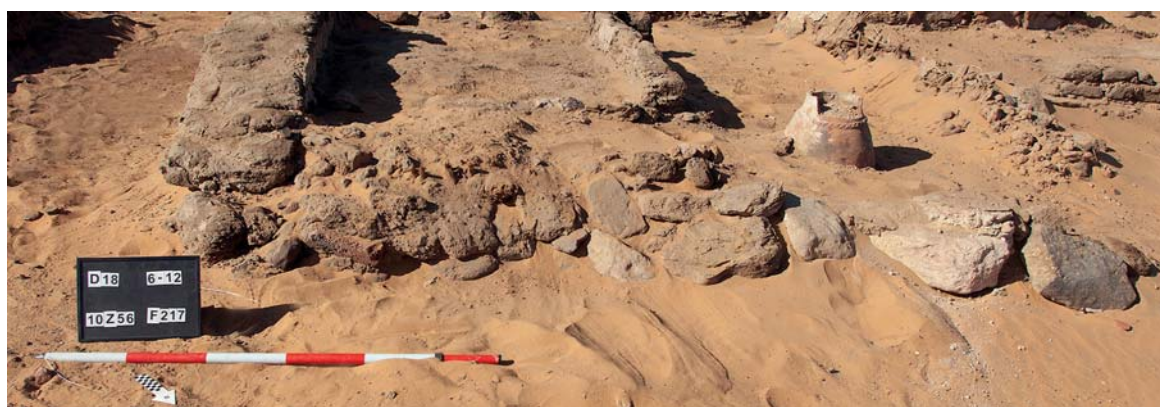


Fig. 197. Stone footing of wall F217 in building U21a/U21b



Fig. 198. Cooking area in courtyard U96



also have been placed on them. The main entrance, equipped with a threshold (F204) made of fired brick, was situated in the south corner. An oval concavity served as housing for a door pivot. The building was divided into two spaces, U21a in the southeast and U21b in the northwest, separated from each other by a partition wall made of twigs and mortar (F199). The two rooms had mud floors (F196 and F210) and were furnished with benches: L-shaped F78 with an embedded storage vessel in U21a, and F205 and F209 located in U21b. The latter bench, standing on floor F210, was a later addition. No traces of structural changes or renovations are present. Both floors feature circular burnt spots more likely left by a censer or lamp than by a hearth. The two spaces were connected with a doorway furnished with a semi-circular threshold (F439) located in the southwestern part of the partition wall.

It seems that the house had only one occupational phase (periods III.D and III.C) and after abandonment most of the screen walls collapsed, forming compact layers of debris (77, 679, 75). Subsequently, the whole interior was covered by windblown sand with some minor admixtures (layers 64, 65, 70) and an accumulation of loose ash in the northwest corner (layer 73).

The house undoubtedly served as a dwelling space. There is no trace of an area connected with food preparation within, except a relatively small vessel embedded in a bench inside U21a and some sorghum remains above floor level, which might suggest that food was kept or processed in the house. The main kitchen area must have been situated outside, possibly in the courtyard (U96) [Fig. 198] located west of the building and forming a space that was apparently shared with other houses in the vicinity (see below).

#### *Building U28a/28b*

The most representative building of the area was U28a/28b, adjacent to the fortification wall, F112 [Figs 199–200]. The house was rectangular and measured 5.70 m northeast–southwest and 4.10 m southeast–northwest. In the southeast, the house was delimited by a twig-and-mortar wall, F232, preserved up to a height of 75 cm [Fig. 201]. This is the best-preserved wall of this type. The vertical supports of F232 were made of branches about 4–6 cm thick, located 40–60 cm apart and interlaced with horizontal elements. The space between the timbers was filled with vertically placed reeds and twigs. On the northwestern face, mortar and plaster were smoothed over the protruding posts and the recessed infill between them, forming a pattern of concave depressions. The same layer of plaster continues on the northeastern face of wall F112. The feature was coated with mud mortar, and both faces were smoothed with *qurba* and whitewashed with *gir*. Wall F207, constituting the northeast wall of the house, stands on a stone footing. The northwestern wall comprised two elements: a short wall of sun-dried bricks (F432), and a wall of twigs attached to it (F594).

The house consisted of two spaces separated by wall F597, made of twigs and mortar: U28a in the southwestern part was a narrow vestibule accessed through the main entrance, furnished with a threshold of stone slabs in the northwest corner. From the vestibule a further doorway, located at the southeast end of the partition wall, opened onto the main living space, U28b. The layout of the main room was typical of Funj-period housing. The doorway opened onto a short, narrow entrance corridor separated by a sun-dried-brick stub wall (F456) from a large bench (F458), now mostly destroyed by a later looters' pit (F467). Subsequently, a smaller bench (F463) was added

along the northwestern wall. The walking surface was covered with a mud floor (F462) overlapping a centrally located, round stone base for a pillar (F468), which was part of the construction supporting the roof. An accumulation of ashes (layer 356) along bench F463 may point to the existence of a hearth inside. The hearth likely belonged to a later occupational phase, when the room was no longer used for sleeping but for food preparation.



Fig. 199. Building U28a/28b, aerial view

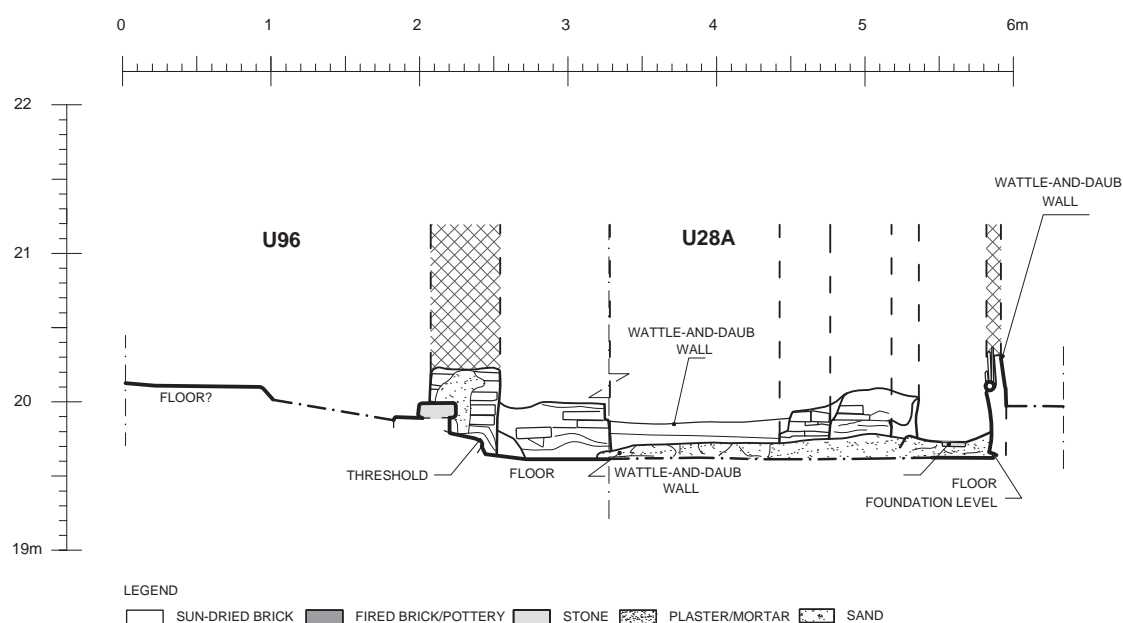


Fig. 200. Building U28a/28b, NW–SE section, looking northeast



Fig. 201. Wall F232 of building U28a/28b

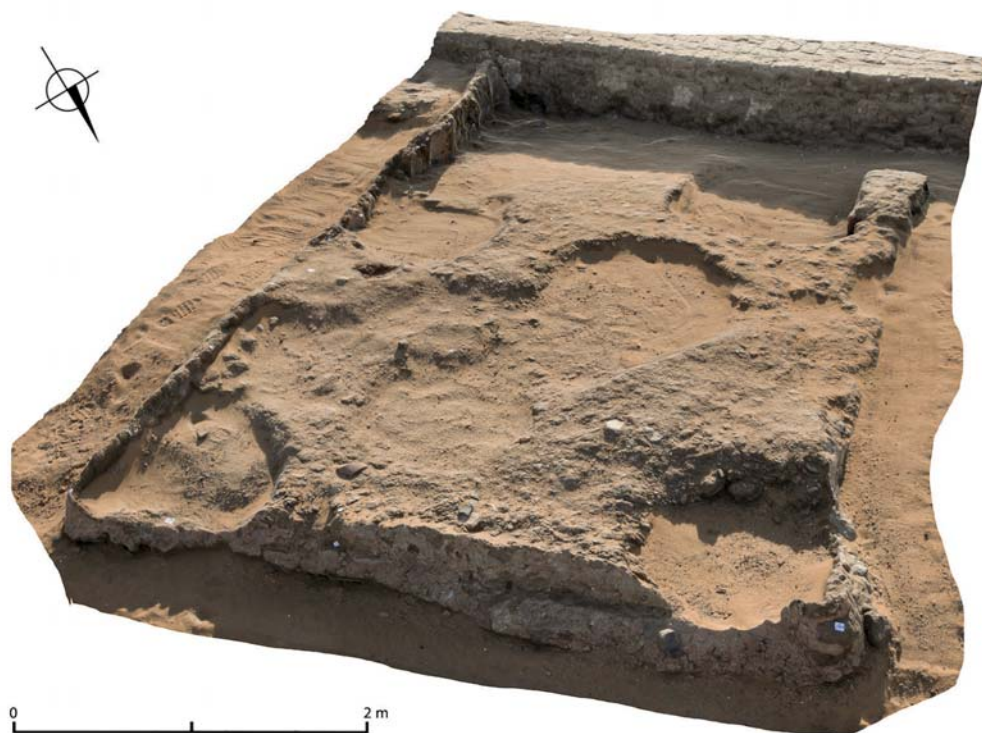


Fig. 202. Layer 702 in building U28a/U28b, aerial view



This household had at least two occupational phases. It was constructed in period III.D with significant reconstructions carried out in period III.C, as indicated by a relic of a second floor (F459, elevation 19.78 m) preserved in vestibule U28a, laid 10 cm above the first one (F592, elevation 19.68 m). Two phases are also visible in the space in front of the house, where two walking levels were recorded: an earlier one of mud (F743, elevation 19.71 m), and a later one of tamped refuse (F744, elevation 20.11 m). Contemporary with the latter walking level is a layer of plaster (F741) covering the face of wall F112 within this space.

The uppermost layer of debris filling building U28a/28b (702, upper elevation 20.02–19.93 m) was 10–20 cm thick and partially covered its side walls. The layer comprised fragments of mud mortar with some pieces covered with white plaster, possibly elements of walls and roofing. The entire layer was flattened and tamped, which suggests that it might have constituted a level connected with a late occupational phase (period III.B). In its surface there were at least eight oval cuts of varying dimensions, probably looters' pits [Fig. 202].

### *Building U29*

Building U29, located northwest of U28a/28b, was contemporary with its second phase (period III.C). It was located against the city wall, in the corner formed by walls F112 and F360 [Fig. 203]. It was also rectangular in shape and measured 3.30 m southeast–northwest and 4.00 m northeast–southwest.

Walls delimiting U29 in the northeast and southeast (F214 and F230, respectively) were made of reeds, mortar and *qurba*, with no traces of whitewashing. The building comprised only one

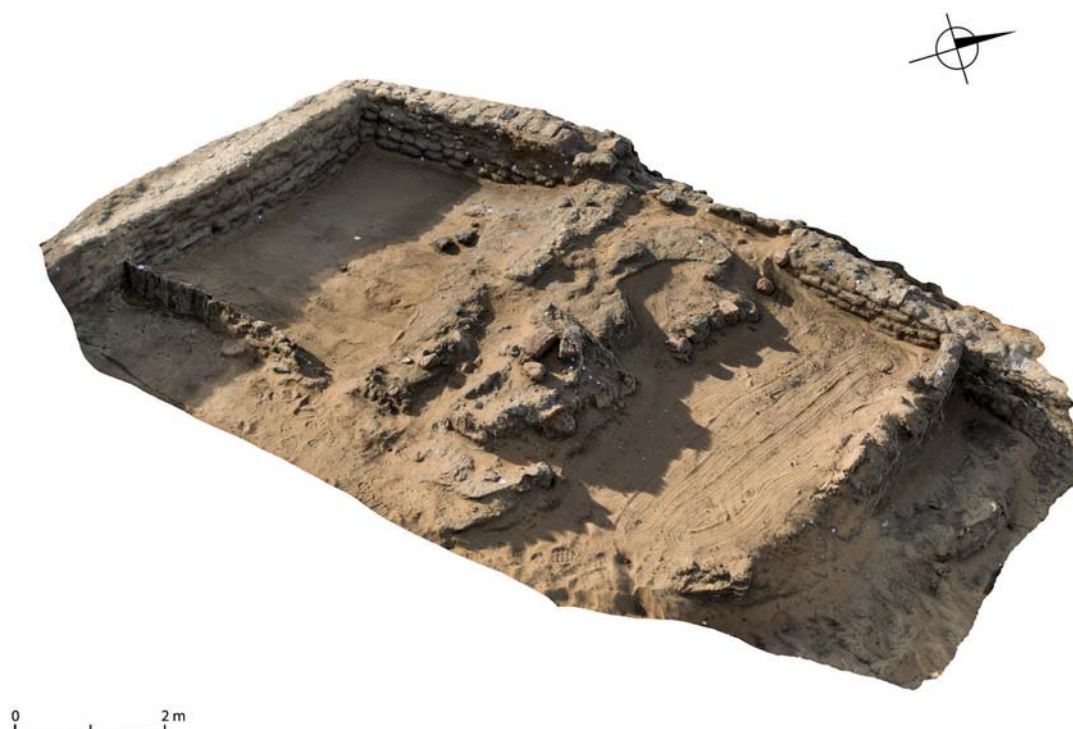


Fig. 203. Building U29, aerial view

space and lacked furnishings. The northwest part of the space against wall F360 was covered with a thick layer of ashes (layer 25) abutted by a concentration of compacted ash (layer 353). The short wall F212 was not an original element of this space but a later addition built to enclose these ashes. In the eastern part of the space, there are consecutive layers of flooring made of tamped refuse (F466, F436, F437, F211). The lowest one, F466 (elevation 20.38 m), contemporary with layer 353, also had a substantial admixture of ashes. On floor F437 (elevation 20.57 m) abutting the short wall F212 there were oval impressions probably left by pots placed on this surface, which suggests that the space was connected with food processing. It is not clear where the original entrance to the building was located, but in the latest phase (period III.B) the thin wall F74 overlying F523 might have served as a threshold.

One cannot exclude the existence of an earlier structure in this corner. An indication of this might be wall F73 extended with F438 (lower elevation 20.07 m), which may have been a north-eastern boundary of such an earlier building [Fig. 204]. Clarification of this issue calls for further exploration requiring the dismantlement of the remains of U29.

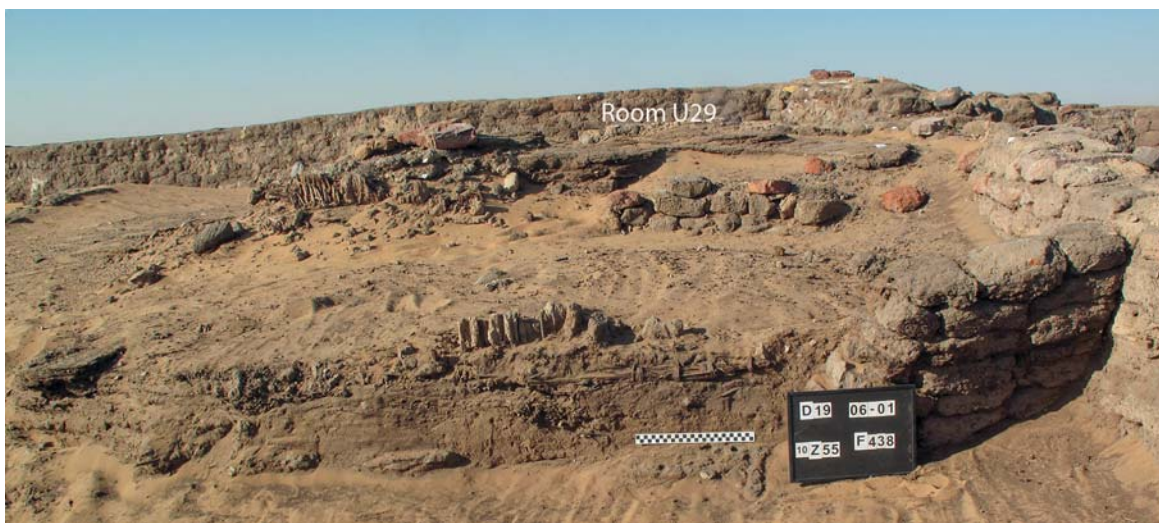


Fig. 204. Wall F73 and its extension F438 probably belonging to an earlier phase of U29

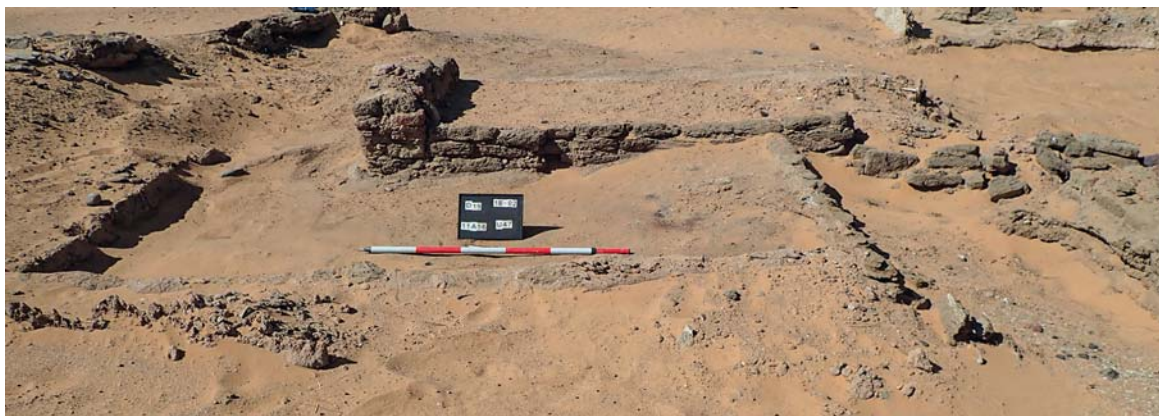


Fig. 205. Building U47a/47b

*Building U47a/47b*

Another structure of the same type is the small building U47a/47b [Fig. 205] located southeast of U21a/21b and most probably contemporary with it (periods III.D and III.C). The two buildings were separated by a narrow passage later closed in the southwest by a semi-circular wall (F430) made of sun-dried bricks and containing some accumulations of ash. The passage, oriented north-east–southwest, may have been related to cooking and storage. No doorway to the building is preserved, but it is very likely that it was entered from courtyard U96, the space giving access to buildings U21a/U21b, U28 and U29, and was therefore part of the same compound.

Features constituting the dwelling are severely damaged, making the whole layout unclear. It was certainly a rectangular building measuring approximately 6.3 m by 5 m, comprising one room (U47a) furnished with a bench, and possibly a second room (U47b), of which only a floor of tamped refuse (F878) and one wall of twigs (F203) are preserved. The level of room U47b was raised 20 cm above the level of U47a (elevation 19.61 m and 19.43 m, respectively). Especially interesting are several large postholes visible in the construction of walls F201 and F76, indicating that the walls could potentially support a roof.

*Courtyard U96*

All the buildings of compound U21a/21b/28a/28b/29/47a/47b/96 were accessible from a common, centrally located courtyard (U96). After abandonment, most of this space was exposed to the wind; as a result, occupational layers survived only in a small area between buildings U28a/28b and U29 and against screen walls. The central part was filled with a massive layer of windblown sand (68) reaching a thickness of more than 1 m. Elements preserved in the central part of U96 are contemporary with the first phase of buildings U21a/21b, U47a/47b and U28a/28b (periods III.D and III.C). These consist of a fired clay vessel set in the surface (F455) and accumulations of ashes marking spaces connected with food preparation. The first one, used in period III.D, was situated in the narrow passageway between buildings U21a/21b and U47a/47b. It is indicated by the presence of ashes and burnt matter (layers 484 and 485, both unexcavated) accumulated on the surface. It was screened off in the east by a curved wall of sun-dried bricks (F430), but no other structures were associated with it. Another cooking area, most probably later than the one described above and connected with period III.C, was located north of building U21a/21b. It featured a fragment of a cooking pot (FN154) discovered *in situ* in a hearth deposit (72) rich in organic particles (including wheat grains, both *triticum* and *durum*). It was screened off in the southeast by a curved wall (F216).

Later rearrangements in the courtyard are visible only in the space between buildings U28a/28b and U29, where the walking level was raised (F744, elevation 20.17 m; the earlier one being F743, elevation 19.75 m) and the wall delimiting the space in the southwest was covered with the first layer of plaster (F741).

There are no preserved structures indicating the activities that took place in this area after the abandonment of the wattle-and-daub buildings. It can be assumed that in periods III.A and II the area was still a place of sporadic human activity, as indicated by the accumulated anthropogenic



deposits (layers 59, 76) interspersed with hearths (58, 697, 698, 145) or accumulations of ashes (60, 61, 144), as well as small finds, among which especially worthy of mention is a magical ostrakon inscribed on both sides in Arabic (inv. no. 44).

### *Discussion*

The compound functioned for a relatively long time (period III). It predated the other structures recorded outside the city walls and continued to function parallel to the other compounds discussed above. It was separated from the area to the northwest by a wall, in the southwest it abutted the curtain wall of the city, and its southeastern and northeastern boundaries remain unidentified. Access to the compound from a street or other publicly accessible space must have been from the east, through passages to the northwest and southeast of U21a/21b. The area of the compound was over 190 m<sup>2</sup>.

Three of the wattle-and-daub houses in this compound were contemporary, built in period III.D (U21a/21b, U28a/28b and U47a/47b), and one (U29) was added in period III.C. U28a/28b and U47a/47b were similar in plan, featuring a vestibule and a main dwelling with benches and an entrance screened off with a stub wall. U21a/21b also consisted of two rooms, but both were furnished with benches and neither had a stub wall.

The house interiors bear no evidence of food processing or storage except for a small vessel embedded in a bench in U21a and sorghum in archaeobotanical samples from floor levels. The majority of activities must have been performed in the courtyard shared by the three buildings. Food-processing areas belonging to the earlier phase were found to the northwest and south of U21a/21b, and a vessel of baked clay intended for storing grain was located in the central part of U96.

During period III.C, cooking might have been done inside U28b, as well as between U28a/28b and U29, as indicated by the presence of hearths in these spaces. However, the main cooking space in this phase was U29, where substantial deposits of ash formed over time. During periods III.B and III.A the other spaces of the compound were no longer in use. In this phase, U29 may have been connected to compound U15/37/40 to the north.

### **Compound U9/10/94** (*Agata Deptuła*)

#### *Building U9/10*

The last building located in the southeastern part of the area under consideration (squares 11A56–57, 11B56–57) differs in structure and plan from the abovementioned buildings and, since it was erected on a layer of sand overlying building U47a/47b, it seems to be a later construction, possibly the latest one in this zone (period III.A; *Fig. 206*). It was covered only with a layer of surface sand (layer 62). It is a rectangular structure measuring 5.50 m northeast–southwest and 7.60 m northwest–southeast, delimited by sun-dried brick walls (F58, F59, F450, F68) and severely eroded in the northeast part [*Figs 206–209*]. The foundation level of the building in the northern part (elevation 19.87 m) is significantly higher than at its southern end (elevation 19.57 m).

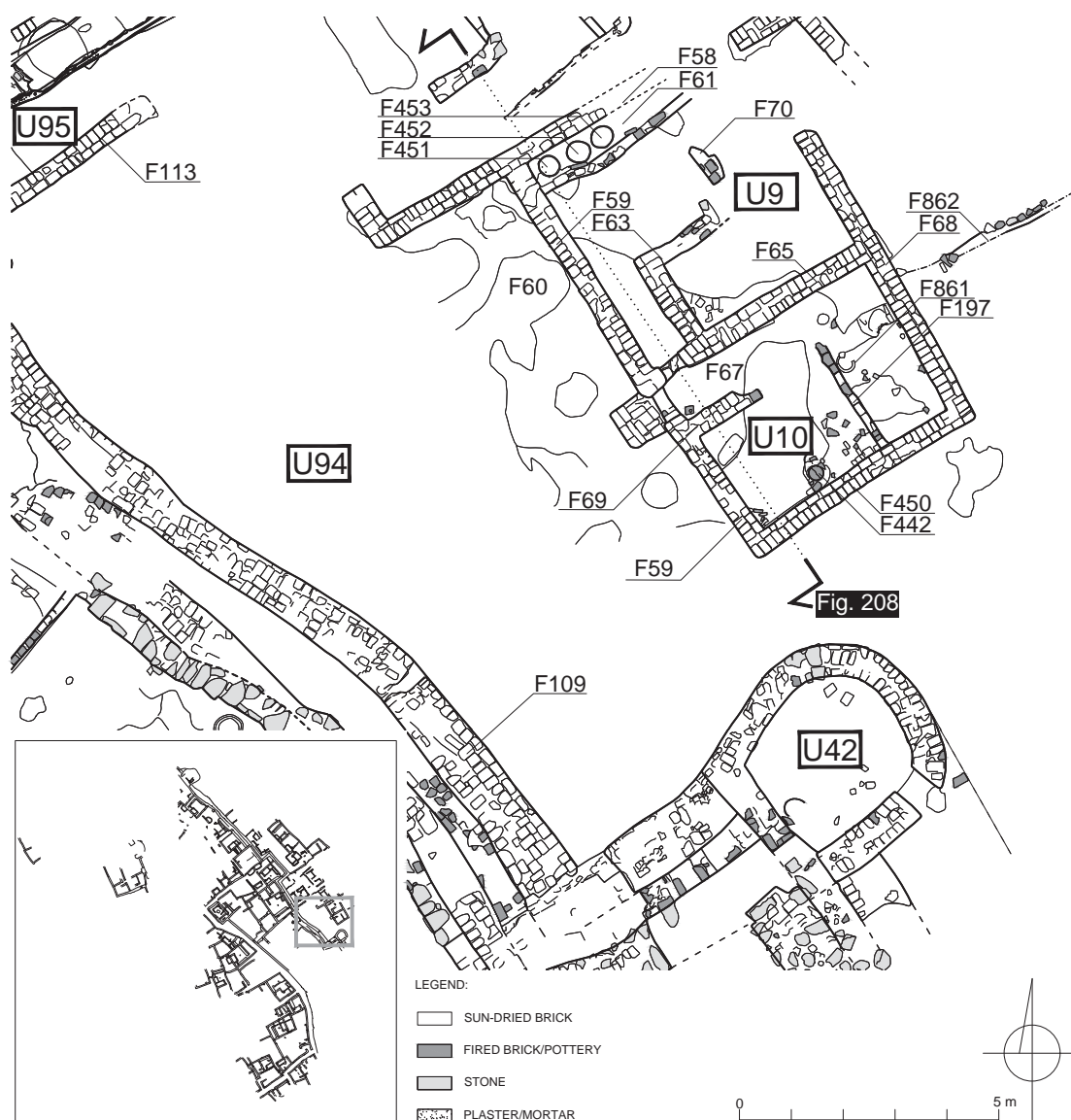


Fig. 206. Building U9/10 and courtyard U94, plan

The building comprises two rooms labeled as U9 and U10, separated by wall F56 [Figs 210–211]. Access to the building was from a large courtyard (U94) located to the southeast, between the building and the city wall. The entrance leading to room U10 from U94 was located in wall F59 and was furnished with a sun-dried-brick threshold. On the right there was another doorway connecting the two spaces. U9 had a square plan with each side measuring about 4.60 m. Along walls F58, F68 and F65 there was a U-shaped bench (F61 + F63 + F70) with a thick facing wall made of fired brick (the only preserved relic of the structure). The width of the bench ranges from 80 cm to 170 cm. In the part located against wall F58, three storage vessels of sun-dried clay (F451, F452 and F453) were installed. In U10, the floor, coated with a layer of smoothed mud, was burnt in the eastern part. In its southwestern part, a large hearth was installed (burnt layer 57)

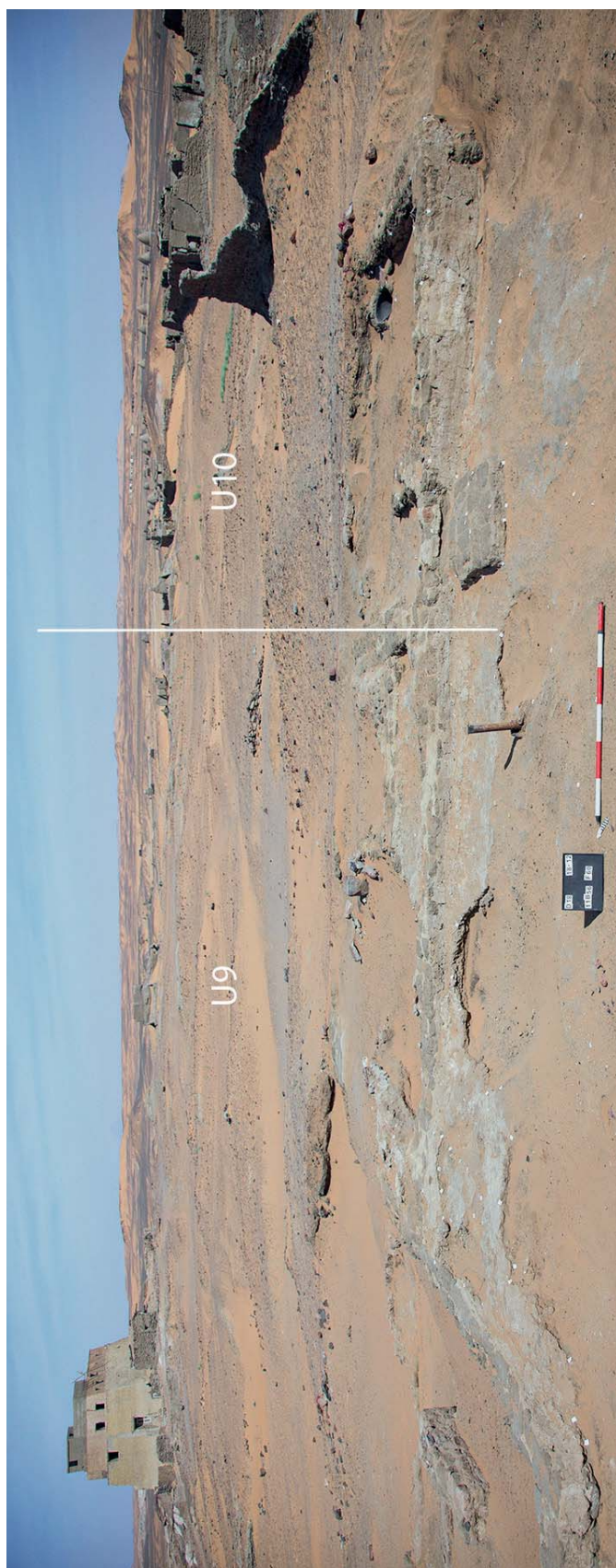


Fig. 207. Building U9/10 and floor of courtyard U94 in front, view looking northeast



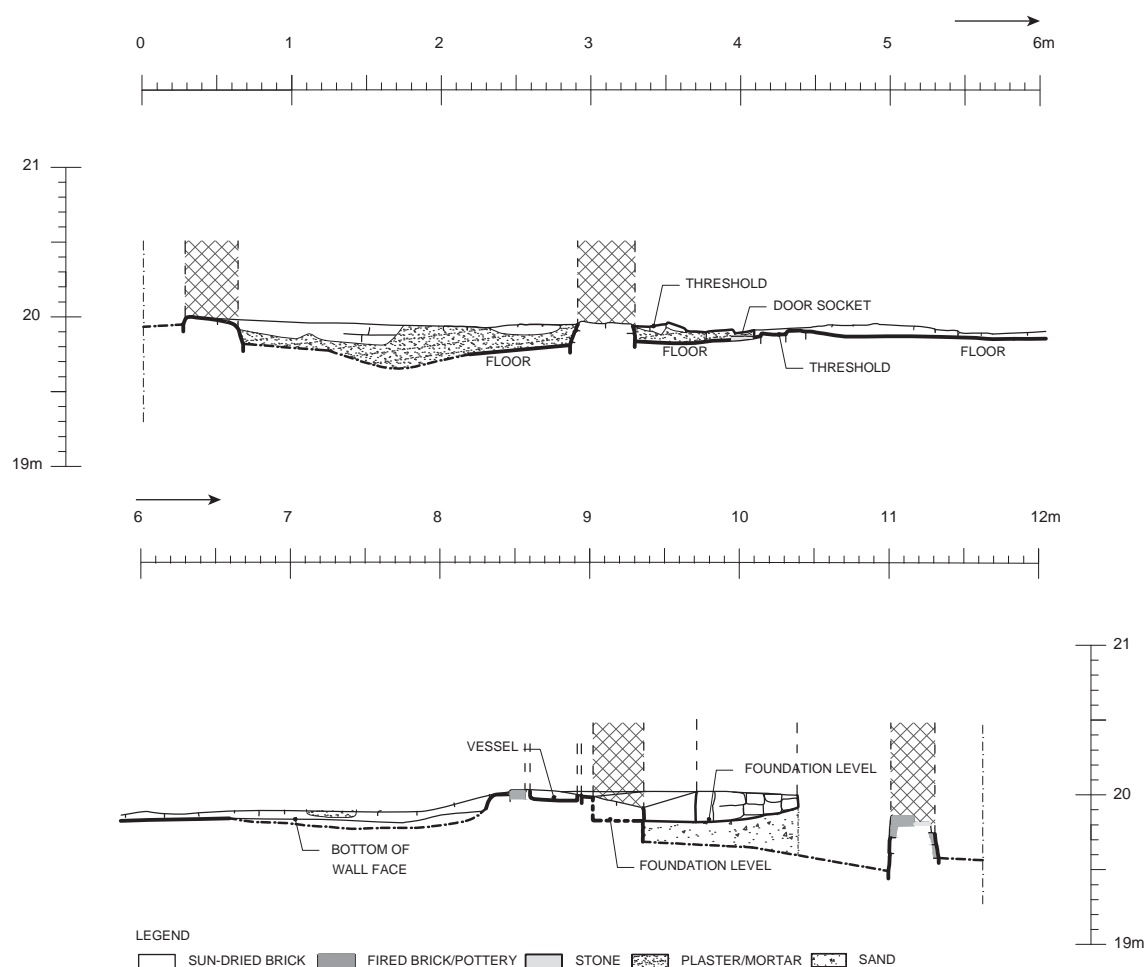


Fig. 208. Building U9/10 and courtyard U94, NW–SE section looking southwest



Fig. 209. Building U9/10 and courtyard U94 during excavation, aerial view





Fig. 210. Room U9



Fig. 211. Room U10



screened off from the entrance by wall F69. The features in the room included a low dividing wall of fired brick (F197) with vessel F861 attached to it. Both the walls and the hearth lay on top of floor F76, which covered the whole surface, indicating that these features were not original furnishings of the unit. Against wall F450 and aligned with it was a ceramic bowl embedded in the floor surface, covered with an inverted pot and coated with mud mortar (F442) [Fig. 212].

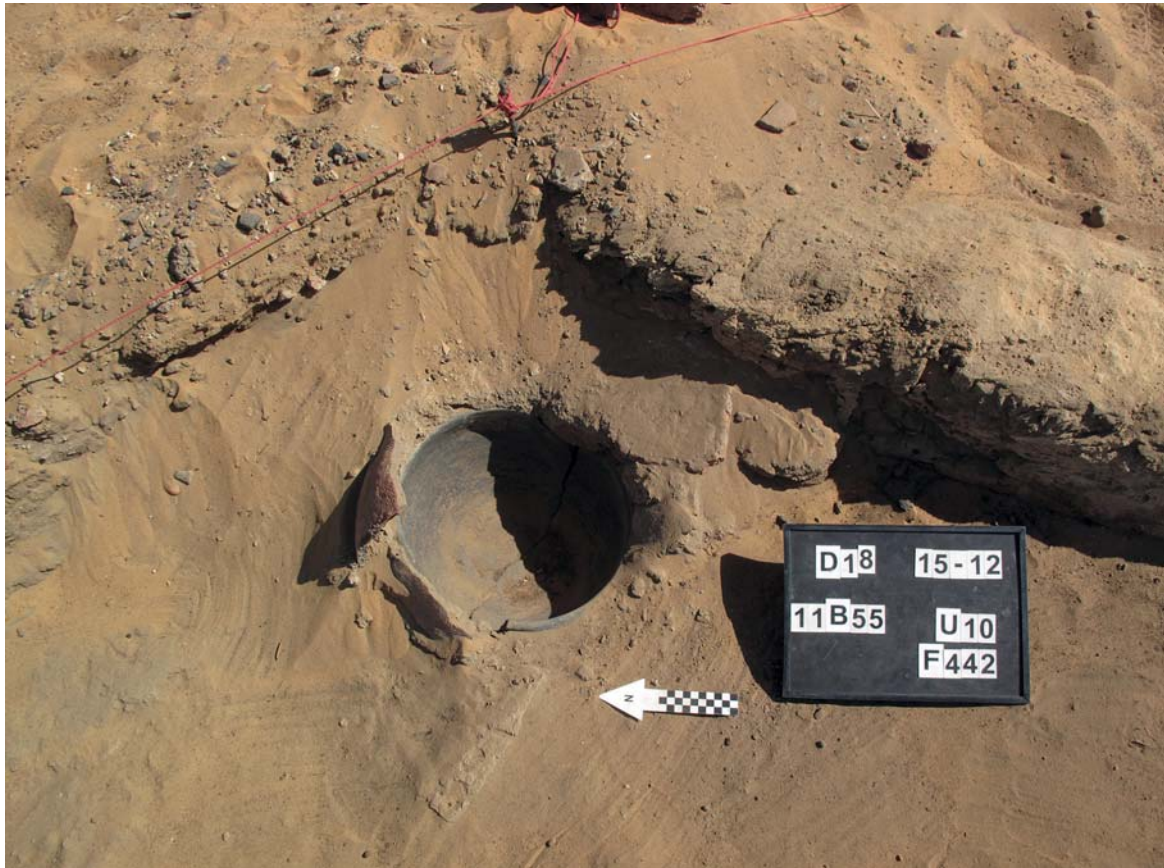


Fig. 212. Pot F442 in U10

#### *Courtyard U94*

Courtyard U94 in front of building U9/10 was delimited by the city walls (wall F109 and tower F42) and wall F113 [see Fig. 207]. Its surface was paved with a mud floor (F60), covered with a subsurface layer of sand (683) after the area was abandoned. Later human activity in this area is indicated by small hearths (burnt layers 706, 707 and 709) located in the corner of walls F109 and F113 and on top of subsurface sand (layer 708).

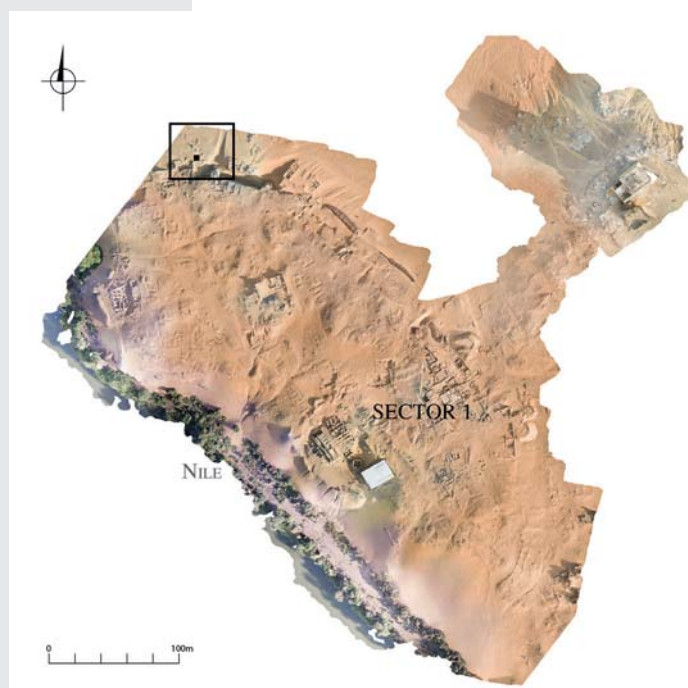


*Discussion*

Compound U9/10/94 with features built of sun-dried brick was the latest of the compounds excavated outside the citadel walls this season (period III.A). According to the available data, it measured over 120 m<sup>2</sup> in area and comprised only one building. It consisted of two multifunctional rooms featuring stub walls and benches. The entrance to the building led to U10, from which one could access U9. In this room, a long bench supported several storage containers. U10, in turn, bore evidence for food-processing activity. Little more can be said about this compound due to its poor state of preservation.

## BURIAL FN362 NORTH OF THE CITADEL WALLS

### 217 Burial location and context



## BURIAL FN362 NORTH OF THE CITADEL WALLS (*Robert J. Stark*)

In the 2018–2019 season, scattered fragments of a human skull were spotted in square 10G33, north of the citadel walls. The burial had originally been uncovered by Włodzimierz Godlewski on 7 December 2013 during the removal of surface sand in spatial unit B.H.121.1. Immediately above the body were two cattle horns, ADd.13.2.125, and a “cooking pot”, ADd.13.2.126, which were collected by the excavator (Godlewski 2015b: 183–213, esp. 207). The skeleton, left *in situ* by Godlewski, became exposed as a result of wind action and surface erosion, and it was necessary to excavate it to prevent its further degradation.

The burial was excavated on 21 January 2019 by Robert Stark. The context was assigned deposit number 326, and the human remains received field object number FN362. Five samples were taken: one rib, three teeth, and hair for potential future use in radiocarbon and other chemical analyses (e.g., diet, mobility, genetics).

In the 2019 season, the objects originally found with the human remains were also re-examined. The horns (ADd.13.2.125) were identified by Salima Ikram on the basis of photographic documentation as those of long-horned cattle. It was also noted that the horns had been burnt. The ceramic vessel (ADd.13.2.126), in fact its bottom part, was identified by Katarzyna Danys as a storage jar with rouletted decoration.

### Burial location and context

The remains were deposited directly against the exposed portion of a low sun-dried-brick wall outside the defensive wall of the citadel. The burial was identified based on exposure of highly fragmented human skeletal remains resulting from aeolian dispersal of sand over time [*Fig. 213*].



Fig. 213. Original location of burial identification





Fig. 214. Position of burial in the landscape



Fig. 215. Burial position

The burial was initially believed to be located at the eastern intersection (corner) of the north–south and east–west sun-dried-brick walls demarcating the eastern and northern edges of this context, where surface fragments of skeletal remains were present.

This area was cleaned, and surface materials were collected. Surface finds included fragments of human skeletal remains, fragments of faunal remains, and various small and large ceramic finds. Upon further cleaning of the area to expose the rest of the human remains, it became evident that the skeletal remains extended further west than initially believed. Aside from the previously indicated fragmentation of the skull and upper left arm, the remains of this individual were well preserved, including a portion of head hair. The *in situ* remains of this burial measured 168 cm east–west.

### Burial orientation

The body was interred lying on its back (supine) with the head of the individual to the east [Figs 214–215]. The hands were crossed over the pelvis, and the feet were positioned side by side [Figs 216–217]. The position of the face could not be confidently ascertained as a sun-dried brick from the wall against which this individual is interred evidently fell onto the face area of this individual, severely damaging the skull and part of the upper left arm. As such, the position of the face during excavation (turned to the south) does not necessarily reflect the original orientation.



Fig. 216. Position of the hands crossed over the pelvis



Fig. 217. Position of the feet, side by side



### Estimated age, sex, and stature

The estimated age, sex, and stature are: 18–24 years old, female,  $158.3 \pm 2.517$  cm. Ageing and sexing were completed following standard osteometric methods presented in Buikstra and Ubelaker (1994), Schaefer, Black, and Scheuer (2009), and Nikita (2017).

### *Sexing methods*

In terms of sexing, greater sciatic notch morphology, ventral arc, subpubic concavity, ischiopubic ramus, pre-auricular sulcus and femoral head diameter were utilized. Cranial traits could not be assessed due to the poor preservation of the skull.

**Greater sciatic notch:** 2 (strongly female)

**Ventral arc:** present

**Subpubic concavity:** present

**Ischiopubic ramus ridge:** 2/3 (indicative of a female)

**Pre-auricular sulcus:** present

**Femoral head diameter (L/R):** 41.37 mm/40.29 mm (female)

### *Ageing methods*

Age estimation was completed utilizing pubic symphysis and auricular surface morphology in conjunction with epiphyseal fusion.

**Pubic symphysis morphology:** The individual in question fell into category 1 (mean =  $19.4 \pm 2.6$  years; 95% range = 15–24) of the Suchey-Brooks scoring system (Brooks and Suchey 1990) and between categories 1 and 2 (18–21 years) of the phases presented by Todd (1920).

**Auricular surface morphology:** This individual fell into category 1 (20–24 years) of the phases presented by Lovejoy et al. (1985).

A number of locations in the process of epiphyseal fusion provided further clarification of the approximate age of this individual.

**Iliac crest:** Fusion was approximately 90% complete. Fusion estimates provided by Coqueugniot and Weaver (2007) note partial fusion between ages 17 and 26 and complete fusion at  $\geq 22$  years; at age 20 Webb and Suchey (1985) documented partial fusion in 25% of the individuals they examined and full fusion in 75%.

**Ischial tuberosity:** Fusion was approximately 90% complete. Fusion estimates provided by Coqueugniot and Weaver (2007) note partial fusion between ages 14 and 26 and complete fusion at  $\geq 20$  years; Cardoso (2008) notes that by age 19 partial fusion was present in 66% of the individuals examined, with complete fusion in individuals at  $\geq 20$  years of age.

**Inferior angle of the scapula:** The inferior angles of the scapulae were not in the process of fusion. Estimates provided by Schaefer (2008) and McKern and Stewart (1957) indicate this epiphysis as open in individuals  $\leq 21$ , with partial fusion observed in individuals between ages 17 and 22.

**Medial border of the scapula:** The medial borders of the scapulae were not in the process of fusion. Estimates provided by Schaefer (2008) and McKern and Stewart (1957) indicate this



epiphysis as open in individuals  $\leq 20$ –21, with partial fusion observed in individuals between ages 18 and 22.

**Medial clavicle:** The medial clavicle epiphyses of this individual were unfused. Studies on fusion rates of the medial epiphysis of the clavicle indicate this epiphysis as open/unfused in individuals  $\leq 20$ –24, with fusion of this epiphysis identified in individuals between ages 17 and 33 (Jit and Kulkarni 1976; Webb and Suchey 1985; Coqueugniot and Weaver 2007).

**Ribs:** The ribs display partial fusion at the heads with so-called epiphyseal flakes. The process of rib head and epiphysis fusion takes place between ages 17 and 25 (Schaefer, Black, and Scheuer 2009).

**Sternum:** Sternebrae 3–4 are fused in this individual, a process which is indicated by Jit and Kaur (1989) as being 100% complete in individuals aged about 15–17. Sternebrae 1–2 are fused in this individual but still retain evidence of the fusion process, suggesting recent fusion. The presence of such evidence of fusion was observed by Jit and Kaur (1989) in individuals aged about 15–30.

Taking these additional ageing qualifiers into consideration, an estimated age at death of 18–24 years is a reasonable assessment of the individual in question.

### *Stature*

Stature was estimated for this individual following the equation for females presented in Raxter et al. (2008). This formula utilizes anatomical reconstruction to estimate stature for ancient Egyptian populations and was chosen because it provides estimates for groups from a proximate region (i.e., the Nile Valley) and as such was taken as the closest approximation for reconstructing stature from ancient Nubia. Use of this formula resulted in a stature estimation of  $158.3 \pm 2.517$  cm. Comparison of this estimate with the formula presented by Trotter and Gleser (1952) resulted in a stature estimate of  $158.4 \pm 3.41$  cm.

### **Paleopathology**

Generally speaking, the individual in question does not present significant evidence of overall pathology. There is an absence of osteoarthritic (OA) changes and no trauma was documented. The absence of OA is not surprising given the relatively young age of this individual.

Dental health of this individual appears to have been good, though dental preservation in general was poor due to the depositional context and post-depositional alteration to the skull area. The only teeth preserved for assessment comprised the upper-right first molar (RM<sup>1</sup>), upper-right first premolar (RP<sup>1</sup>), upper-right second premolar (RP<sup>2</sup>), upper-left first molar (LM<sup>1</sup>), lower-right first to third molars (RM<sub>1–3</sub>), and lower-right first and second premolars (RP<sub>1–2</sub>). In these teeth, there was no evidence of carious lesions, accumulated calculus, abscess, or periodontal disease.

The only observed instances of pathological note were located in the pelvis. Both left and right os coxae exhibit pronounced bony spicules in the area covered by the iliac tuberosity and extending toward the area of the posterior superior iliac spine [*Fig. 218*]. The bony spicules have an



**Fig. 218.** Bony spicules in the left os coxae and alteration of the inferior aspect of the left auricular surface



**Fig. 219.** Possible cleft of the S3 sacral neural arch

undulating appearance and are generally oriented toward the anterior. The iliac tuberosity is an attachment site for sacroiliac ligaments. The inferior edge of both left and right auricular surfaces also shows abnormal extension and evident degeneration. This is most marked in the left innominate. The ischial spine in both the left and right os coxae shows an abnormally pointed projection-like appearance with apparent bone remodeling. The ischial spine is the location of attachment for the sacrospinous ligament. The nature of these pathological alterations in the os coxae appears to be related in some way to the complex of sacrospinal and sacroiliac ligament attachments. Associated alteration of the auricular surface of the sacroiliac joint in the sacrum is not apparent. A clear cause of such alteration, however, is not known at this time.

What appears to be a non-pathological cleft of the S3 sacral vertebral arch was also documented [*Fig. 219*]. Cleft vertebral arches, though akin in general appearance to the more severe neural tube defect of spina bifida occulta, reflect a non-pathological failure of osseous fusion of the two sides of the affected neural arch (see Willis 1929; Barnes 2012).

Two other non-pathological skeletal features of note were also observed. Firstly, the soleal (popliteal) line area of the tibiae and the mirror area along the interosseous crests of the fibulae are robust, reflecting alteration from soft-tissue connection and use-related stress in the interosseous areas. Secondly, the right femur exhibits a much more significant anterior bowing of the shaft in comparison to the left femur. The nature of such bowing is unclear, as it does not suggest a specific pathological condition but rather seems potentially biomechanical in origin.

The initial assessment conducted did not identify any further evidence of pathology or skeletal anomaly. Future study through the use of radiography or thin section, among other potential methodologies, may bring to light conditions not clearly evident at the macroscopic level of assessment.

### Samples taken

Five samples were collected for potential future use in radiocarbon dating and isotopic analyses, among other possibilities. The samples taken comprise: 1) a right rib, 2) the lower-right second molar (RM<sub>2</sub>), 3) the lower-right first premolar (RP<sub>1</sub>), 4) the lower-right second premolar (RP<sub>2</sub>), and 5) scalp hair.

### <sup>14</sup>C analysis results

Two samples, S519 (bone) and S520 (scalp hair), were subjected to AMS radiocarbon dating at the Poznań Radiocarbon Laboratory (for the method, see Goslar, Czernik, and Goslar 2004). The calibrated dates provided are as follows:

#### S519: R\_Date(190,30)

68.2% probability

1664 AD (13.3%) 1681 AD

1738 AD (10.5%) 1755 AD

1762 AD (29.7%) 1803 AD

1937 AD (14.7%) ...

95.4% probability

1648 AD (21.7%) 1694 AD

1727 AD (52.7%) 1813 AD

1918 AD (21.0%) ...

#### S520: R\_Date(95,30)

68.2% probability

1695 AD (20.0%) 1726 AD

1814 AD (15.2%) 1838 AD

1843 AD (5.0%) 1852 AD

1868 AD (28.1%) 1918 AD

95.4% probability

1682 AD (26.9%) 1735 AD

1805 AD (68.5%) 1931 AD

Date ranges common for both samples [*Fig. 220*] are: the late 17th century (1682–1694 calAD); the first half of the 18th century (1727–1735 calAD); the early 19th century (1805–1813 calAD); or the early 20th century (1918–1931 calAD). The highest confidence intervals were given for the early 19th century (52.7% for S519 and 68.5% for S520).



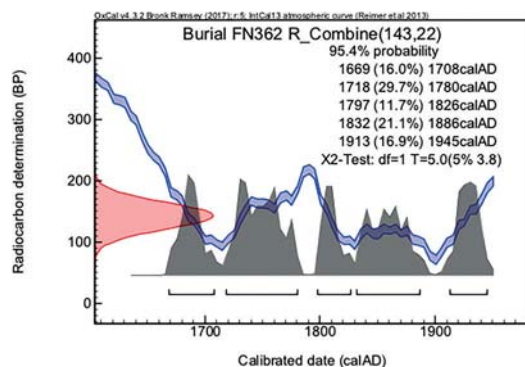


Fig. 220. Statistical model generated using OxCal software (ver. 4.3.2, Bronk Ramsey 2017, IntCal13 atmospheric curve, Reimer et al. 2013) calibrating radiocarbon dates with phasing information for samples collected from the burial

## Discussion

The burial was extended on the back (supine), oriented east–west, with the head in the east. The hands were crossed over the pelvis and feet were side by side. Neither evidence of a burial shaft nor any demarcation of the burial area was identified. The body belonged to a female, age 18–24, about  $158.3 \pm 2.517$  cm in stature. The identified female appears to have been generally healthy, with only minor alterations in the pelvis in the form of bony spicules in the os coxae and an alteration of the inferior margins of the left and right auricular surfaces. What appears to be a non-pathological cleft in the sacral neural arch (S3) was also documented (see Willis 1929; Barnes 2012).

The excavated burial is unique in many aspects. No direct ethnic match has been attempted at this preliminary stage, and more detailed research and parallels are needed before such a conclusion can be reached. As for religious identity, the orientation of the burial with the head to the east indicates adherence to a rite that was neither Islamic nor Christian. Given the overall uncertainty of the returned radiocarbon dates, more samples should be analyzed in order to verify the dating of the burial. In conjunction with the returned radiocarbon dates, excavation of B.H.121 could provide a *terminus post quem*.

## PHASING AND CHRONOLOGY

Dorota DZIERZBICKA

In order to construct a precise chronological sequence of the excavated parts of the settlement, further fieldwork, as well as in-depth ceramological studies and more radiocarbon analyses are required. However, at this stage of the project some preliminary conclusions can be offered on the basis of radiocarbon datings of 20 samples taken from the excavated domestic contexts [*Tables 4, 5, 7; Figs 221–222*]. The samples were subjected to radiocarbon dating using the AMS method at the Poznań Radiocarbon Laboratory (Goslar, Czernik, and Goslar 2004).

The earliest levels reached in sondages (U26, elevation 17.63 m; U2, elevation 17.60 m) both within and outside the city walls appear to date from the late 15th and the 16th centuries, respectively (S388, S407, S427). The dating of the latest secure layers (S16, S1033) and the pottery indicate that occupation continued into the 18th century. The combined phasing and chronological sequence of the excavated structures is presented in [*Table 9*] at the end of this section.

### DATING OF THE DOMESTIC CONTEXTS WITHIN THE CITY WALLS

In the citadel, in Zone 1.1 located north of street U24, the relative sequence of structures in combination with radiocarbon dates indicates that the exposed compounds were occupied in the 17th and into the 18th century [*Table 6*]. The earlier relics discovered in U17 and U81 (elevation about 19.20 m) could, given their stratigraphic location, be from the beginning of the 17th century, while the deepest strata in U2 may be as early as the first half of the 16th century (elevation about 17.60 m).

The established dates point to the 17th century as the time of accumulation of the levels of courtyard U73 (S54) in the east (elevation about 19.85–19.98 m), as well as the construction and functioning of U6/8/58 (S481, S425, S511). Compounds U5/25/72 (elevation 19.98–20.70 m) and U1/16/17/18/30/35 (elevation 19.50–19.70 m) were constructed in the same period and remained in operation into the 18th century. The second half of the 17th century was the time of construction of the largest compound in this zone, U2/11/12/13/14/33/34/82/83/84 (elevation 19.70–20.40 m), which also continued to be in use in the early 18th century and possibly somewhat later (S1033). Courtyard U86 in the west functioned parallel to it (S484, elevation 20.33–20.81 m).

The 18th century brought the construction of one of the latest structures in this zone, U7/75 (S16, elevation about 20.35 m). This period also seems to be the time of occupation of compound U1/17/30/79/80 (elevation 20.20–20.50 m), building U76/77 (elevation about 20.50 m), which followed U7/75, as well as the latest phases of building U5/25/72 (elevation about 20.50 m), followed by post-abandonment layers in U74 (elevation about 20.80 m). In Zone 1.2, the investigated compound U32/38/39/87/88 seems to be of an 18th-century date, while underlying structures functioned in the second half of the 17th century.

**Table 4.** Radiocarbon dates of all samples from contexts excavated in the 2018–2019 season provided by the Poznań Radiocarbon Laboratory. Given are intervals of calendar age, true ages with the probability of 68.2% and 95.4%. The calibration was made using OxCal software (ver. 4.2.3, Bronk Ramsey 2013); r:5 IntCal13 atmospheric curve (Reimer et al. 2013)

Lab ID	Sample no.	<sup>14</sup> C age BP	CalAD 68.2%		CalAD 95.4%		Remarks
Poz-115086	S16	130 ± 30 yr	1682AD (12.6%) 1719AD (9.0%) 1804AD (7.9%) 1833AD (27.2%) 1914AD (11.5%)	1707AD 1737AD 1820AD 1883AD 1936AD	1675AD (38.0%) 1778AD 1799AD (42.4%) 1894AD 1905AD (14.9%) 1942AD	1778AD 1894AD 1942AD	Warning! Date may extend out of range 130 ± 30BP Warning! Date probably out of range 130 ± 30BP
Poz-115054	S54	350 ± 30 yr	1481AD (29.4%) 1572AD (38.8%)	1523AD 1630AD	1458AD (41.3%) 1539AD (54.1%)	1531AD 1635AD	
Poz-114988	S110	360 ± 30 yr	1466AD (37.4%) 1575AD (30.8%)	1522AD 1625AD	1450AD (47.7%) 1540AD (47.7%)	1530AD 1635AD	
Poz-115096	S195	230 ± 30 yr	1645AD (37.3%) 1781AD (26.8%) 1945AD (4.1%)	1669AD 1799AD 1950AD	1530AD (0.9%) 1635AD (44.7%) 1736AD (39.2%) 1935AD (10.6%)	1539AD 1684AD 1805AD ...	Warning! Date may extend out of range 230 ± 30BP
Poz-115053	S196	375 ± 30 yr	1453AD (51.3%) 1597AD (16.9%)	1516AD 1618AD	1446AD (58.2%) 1556AD (37.2%)	1526AD 1633AD	Charcoal
Poz-114984	S206	315 ± 30 yr	1521AD (52.8%) 1620AD (15.4%)	1592AD 1641AD	1484AD (95.4%)	1648AD	
Poz-114986	S260	415 ± 30 yr	1440AD (68.2%)	1483AD	1429AD (85.7%) 1594AD (9.7%)	1518AD 1619AD	
Poz-115085	S315	275 ± 30 yr	1524AD (32.1%) 1631AD (36.1%)	1559AD 1662AD	1514AD (49.0%) 1616AD (42.4%) 1782AD (4.0%)	1600AD 1668AD 1798AD	Warning! Date may extend out of range 275 ± 30BP
Poz-115097	S354	260 ± 30 yr	1530AD (9.0%) 1635AD (50.4%) 1785AD (8.8%)	1541AD 1666AD 1795AD	1520AD (28.3%) 1619AD (53.1%) 1780AD (12.3%) 1943AD (1.6%)	1593AD 1670AD 1800AD ...	Warning! Date may extend out of range 260 ± 30BP
Poz-115043	S361	330 ± 30 yr	1495AD (19.0%) 1540AD (37.4%) 1616AD (11.8%)	1530AD 1601AD 1635AD	1477AD (95.4%)	1643AD	
Poz-115099	S388	380 ± 30 yr	1451AD (53.8%) 1600AD (14.4%)	1514AD 1617AD	1445AD (61.6%) 1558AD (33.8%)	1524AD 1632AD	
Poz-115089	S407	315 ± 30 yr	1521AD (52.8%) 1620AD (15.4%)	1592AD 1641AD	1484AD (95.4%)	1648AD	



Table 4. Continued

Lab ID	Sample no.	$^{14}\text{C}$ age BP	CalAD 68.2%	CalAD 95.4%	Remarks
Poz-115100	S425	$195 \pm 30$ yr	1662AD (15.4%) 1681AD 1739AD (7.0%) 1750AD 1763AD (31.0%) 1802AD 1938AD (14.9%) ...	1648AD (23.1%) 1691AD 1728AD (52.3%) 1810AD 1925AD (20.0%) ...	Warning! Date may extend out of range $195 \pm 30$ BP Warning! Date probably out of range $195 \pm 30$ BP
Poz-115087	S427	$320 \pm 30$ yr	1518AD (53.5%) 1594AD 1619AD (14.7%) 1640AD	1483AD (95.4%) 1646AD	5%C, 0.15mgC
Poz-114987	S444	$350 \pm 30$ yr	1481AD (29.4%) 1523AD 1572AD (38.8%) 1630AD	1458AD (41.3%) 1531AD 1539AD (54.1%) 1635AD	
Poz-115101	S481	$355 \pm 30$ yr	1473AD (34.5%) 1522AD 1575AD (33.7%) 1625AD	1453AD (44.5%) 1530AD 1539AD (50.9%) 1635AD	
Poz-114989	S482	$255 \pm 30$ yr	1531AD (4.4%) 1538AD 1636AD (50.1%) 1667AD 1783AD (13.7%) 1797AD	1521AD (21.5%) 1592AD 1620AD (54.9%) 1675AD 1777AD (16.2%) 1800AD 1941AD (2.7%) ...	Warning! Date may extend out of range $255 \pm 30$ BP
Poz-115102	S484	$305 \pm 30$ yr	1521AD (45.9%) 1578AD 1583AD (5.0%) 1591AD 1621AD (17.3%) 1644AD	1489AD (71.3%) 1604AD 1610AD (24.1%) 1651AD	
Poz-115103	S511	$260 \pm 30$ yr	1530AD (9.0%) 1541AD 1635AD (50.4%) 1666AD 1785AD (8.8%) 1795AD	1520AD (28.3%) 1593AD 1619AD (53.1%) 1670AD 1780AD (12.3%) 1800AD 1943AD (1.6%) ...	Warning! Date may extend out of range $260 \pm 30$ BP
Poz-114542	S519	$190 \pm 30$ yr	1664AD (13.3%) 1681AD 1738AD (10.5%) 1755AD 1762AD (29.7%) 1803AD 1937AD (14.7%) ...	1648AD (21.7%) 1694AD 1727AD (52.7%) 1813AD 1918AD (21.0%) ...	4.9%N 10.3%C, 2.1%coll; Warning! Date may extend out of range $190 \pm 30$ BP Warning! Date probably out of range $190 \pm 30$ BP
Poz-114990	S520	$95 \pm 30$ yr	1695AD (20.0%) 1726AD 1814AD (15.2%) 1838AD 1843AD (5.0%) 1852AD 1868AD (28.1%) 1918AD	1682AD (26.9%) 1735AD 1805AD (68.5%) 1931AD	Warning! Date probably out of range $190 \pm 30$ BP
Poz-126209	S1033	$85 \pm 30$ yr	1696AD (21.6%) 1724AD 1812AD (19.7%) 1838AD 1878AD (26.9%) 1915AD	1688AD (26.1%) 1730AD 1807AD (69.3%) 1924AD	Warning! Date probably out of range $85 \pm 30$ BP

**Table 5.** Samples from excavated domestic contexts within the city walls  
(context, sample type and radiocarbon dates)

Sample	Context	<sup>14</sup> C age BP	CalAD 68.2%	CalAD 95.4%	Description
S427	86, U2	320 ± 30 yr	1518–1594 (53.5%) 1619–1640 (14.7%)	1483–1646 (95.4%)	Charcoal from an ash deposit from an early phase of use of U2; stratigraphically earlier than S407
S407	84, U2	315 ± 30 yr	1521–1592 (52.8%) 1620–1641 (15.4%)	1484–1648 (95.4%)	Fragment of a reed from a middle phase of U2; stratigraphically later than S427
S484	F318, U86	305 ± 30 yr	1521–1578 (45.9%) 1583–1591 (5.0%) 1621–1644 (17.3%)	1489–1604 (71.3%) 1610–1651 (24.1%)	Fragment of a wooden pole standing in courtyard U86 (last phase of use of U86 but the wood may be old/reused)
S481	462, U58b	355 ± 30 yr	1473–1522 (34.5%) 1575–1625 (33.7%)	1453–1530 (44.5%) 1539–1635 (50.9%)	Wood from the original occupational layer in U58b, the lowest carbon-dated level excavated inside the city walls; the sample may come from the original furnishings of the room; the dating should be similar to S425 and S511
S54	51, east of U5	350 ± 30 yr	1481–1523 (29.4%) 1572–1630 (38.8%)	1458–1531 (41.3%) 1539–1635 (54.1%)	Courtyard U73 east of U5, wood sample from between the two oldest occupational levels (F50 and F54); elevation similar to S484: 19.85–19.98 m
S425	130, U6	195 ± 30 yr	1662–1681 (15.4%) 1739–1750 (7.0%) 1763–1802 (31.0%) 1938–... (14.9%)	1648–1691 (23.1%) 1728–1810 (52.3%) 1925–... (20.0%)	Charcoal sample from an occupational layer in U6; the dating should be similar to S388 and S511
S511	136, U8	260 ± 30 yr	1530–1541 (9.0%) 1635–1666 (50.4%) 1785–1795 (8.8%)	1520–1593 (28.3%) 1619–1670 (53.1%) 1780–1800 (12.3%) 1943–... (1.6%)	Wood sample from an occupational layer of U8; contemporary with or slightly later than S388 and contemporary with S425
S16	15, U7	130 ± 30 yr	1682–1707 (12.6%) 1719–1737 (9.0%) 1804–1820 (7.9%) 1833–1883 (27.2%) 1914–1936 (11.5%)	1675–1778 (38.0%) 1799–1894 (42.4%) 1905–1942 (14.9%)	Charcoal from a hearth in U7, a dwelling compound built on top of a midden; later than S484, S388, S425, S511; part of the stratigraphically latest group of contexts in this zone
S260	371, U50	415 ± 30 yr	1440–1483 (68.2%)	1429–1518 (85.7%) 1594–1619 (9.7%)	Wood; floor level, below basket FN588
S1033	211, U11	85 ± 30 yr	1696–1724 (21.6%) 1812–1838 (19.7%) 1878–1915 (26.9%)	1688–1730 (26.1%) 1807–1924 (69.3%)	Charcoal; fireplace from the latest phase of use of the compound prior to abandonment

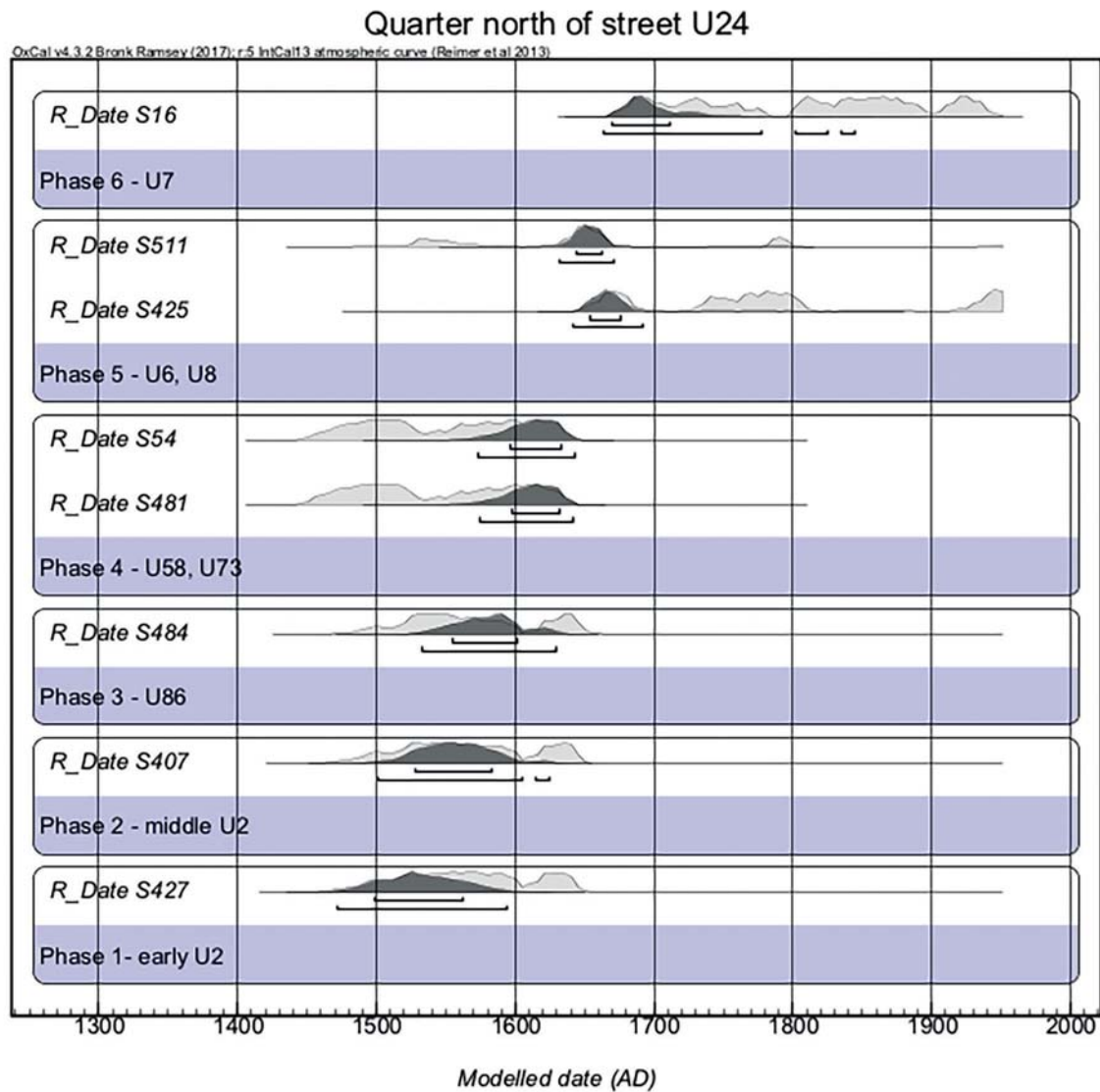


Fig. 221. Statistical model generated using OxCal software (ver. 4.3.2, Bronk Ramsey 2017, IntCal13 atmospheric curve, Reimer et al. 2013) calibrating radiocarbon dates with phasing information for samples collected in the Zone 1.1, located north of street U24



In Zone 1.3, located between courtyard U56, street U49 and street U62, a date at the beginning of the 17th century (S260) can be proposed for occupational layer 371 in U50, the corridor-turned-storeroom. The compounds on the latest occupational level in this zone may be placed in the 17th century, while remains of an earlier phase emerging southwest of compound U43/46/51 could be of a late 16th-century date.

Investigation of structures uncovered in Zones 1.4 and 1.5 is at a preliminary stage, but a dating in the 17th century is most likely in both cases. The church (U100) identified in Zone 1.5 below Funj-period strata is of the Makurian period.

**Table 6.** Relative stratigraphy and dating of structures in Zone 1.1, located north of street U24 (blue: 18th century; green: 17th century; yellow: 16th century)

Elev. (m)	Unit / compound (elevation)	
21.00		
	U74 (20.80)	U86 (20.33–20.81)
	U5/25/72 (ca. 19.98–20.70)	U76/77 (ca. 20.50)
		U1/17/18/30/79 (20.20–20.50)
		U7/75 (ca. 20.35)
		U11/12/13/14/33/34 (19.70–20.40)
		U2/82/83/84 (20.00–20.30)
20.00	U6/8/58 (ca. 19.80–20.00)	U1/16/17/18/30/35 (19.50–19.70)
		U2 late (19.74)
		U17, U81 (19.20)
19.00		Street U24 (19.10)
		U2 mid. (18.80)
		U2 early (17.60)
18.00		
17.00		

## DATING OF THE DOMESTIC CONTEXTS OUTSIDE THE CITY WALLS

A series of dates were also acquired from Zone 1.6 outside the walls. The earliest compound identified in this area, U15/26a/26b, functioned in the second half of the 16th century (S388). Construction phases of the wattle-and-daub compounds are attributable to the 17th century (see *Tables 7–9* and *Figs 222–223*). Phase I, marked by the construction of U21, U28 and U47, seems to fall in the early 17th century, period III.D (S206, S444). The occupation of these units continued into phase II, which brought the construction of U29, U20, and compound U15/37/40 in the first half of the 17th century, period III.C (S196, S110, S361, S315, S482). Phase III, which can be dated to the mid-17th century, period III.B (S195), brought the construction of U27 and U36, as well as enduring occupation of U29 and U28. The latest radiocarbon-dated structures in this area (S354) are from the late 17th century, period III.A. The latest compound (U9/10/94) at the southeastern end of the investigated area in this zone, can be attributed to the same period.

**Table 7.** Results of radiocarbon analyses of samples from excavated domestic contexts outside the city walls (context, sample type and radiocarbon dates)

Sample	Context	<sup>14</sup> C age BP	CalAD 68.2%	CalAD 95.4%	Description
S388	271, U26b	380 ± 30 yr	1451–1514 (53.8%) 1600–1617 (14.4%)	1445–1524 (61.6%) 1558–1632 (33.8%)	Wood, possibly an element of furnishing, from the original occupational layer in U26b; it may come from the original furnishings of the unit; stratigraphically earlier than S110
S206	F199	315 ± 30 yr	1521–1592 (52.8%) 1620–1641 (15.4%)	1484–1648 (95.4%)	Fragment of a wall of twigs in U21; construction phase of unit (phase I)
S444	F457	350 ± 30 yr	1481–1523 (29.4%) 1572–1630 (38.8%)	1458–1531 (41.3%) 1539–1635 (54.1%)	Fragment of a wall of twigs, U28; construction phase of unit (phase I)
S196	72	375 ± 30 yr	1453–1516 (51.3%) 1597–1618 (16.9%)	1446–1526 (58.2%) 1556–1633 (37.2%)	Fragment of a branch from a hearth associated with U21 or U29; assigned to phase II (U21 or U29), but its attribution to phase I is also possible
S110	F283	360 ± 30 yr	1466–1522 (37.4%) 1575–1625 (30.8%)	1450–1530 (47.7%) 1540–1635 (47.7%)	Fragment of wood from a wall of U37; construction phase of U37 and of house U15/37/40 (phase II); the wood may have been reused; the sample is stratigraphically younger than S481 and contemporary with S361
S361	F351	330 ± 30 yr	1495–1530 (19.0%) 1540–1601 (37.4%) 1616–1635 (11.8%)	1477–1643 (95.4%)	A wooden pole from the phase of reuse of U15 in house and construction of house U15/U37/U40 (phase II) outside the city walls; the wood may have been reused; the sample is likely contemporary with S110
S315	700 (F230), U29	275 ± 30 yr	1524–1559 (32.1%) 1631–1662 (36.1%)	1514–1600 (49.0%) 1616–1668 (42.4%) 1782–1798 (4.0%)	Fragment of a wall of twigs in U29, construction phase of unit (phase II)
S482	F307, U20	255 ± 30 yr	1531–1538 (4.4%) 1636–1667 (50.1%) 1783–1797 (13.7%)	1521–1592 (21.5%) 1620–1675 (54.9%) 1777–1800 (16.2%) 1941–... (2.7%)	Fragment of reed from wall of U20, construction phase of the unit (phase II); the sample is stratigraphically earlier than S195
S195	F291, U36	230 ± 30 yr	1645–1669 (37.3%) 1781–1799 (26.8%) 1945–1950 (4.1%)	1530–1539 (0.9%) 1635–1684 (44.7%) 1736–1805 (39.2%) 1935–... (10.6%)	Fragment of reed from wall of U36, construction phase of the unit (phase II); the sample is stratigraphically earlier than S354
S354	F292	260 ± 30 yr	1530–1541 (9.0%) 1635–1666 (50.4%) 1785–1795 (8.8%)	1520–1593 (28.3%) 1619–1670 (53.1%) 1780–1800 (12.3%) 1943–... (1.6%)	Fragment of reed from a fence/wall; the last phase of use of the space north of wall F79; above U36; youngest structure outside the walls

**Table 8.** Relative stratigraphy and dating of structures uncovered outside the city walls  
(green: 17th century; yellow: 16th century)

Elev. (m)	Unit / compound (elevation)	
21.00		
20.00	F292 (20.65)	F319, F320 (20.61)
	U36 (20.06–20.41)	U27 (20.46–20.53)
19.00	U20a/b (19.93–20.06)	U29 (20.18–20.57)
	U15.2 (19.30–19.88)	U37 (19.45–19.90)
18.00	U40 (19.29–19.65)	U28a/28b (19.45–19.93)
	U21a/21b (19.15–19.26)	U47a/b (19.20–19.61)
17.00	U96 (19.20–19.75)	U9/10/94 (19.57–19.87)
	U15.1 (18.74)	U26a/b (17.63–18.50)



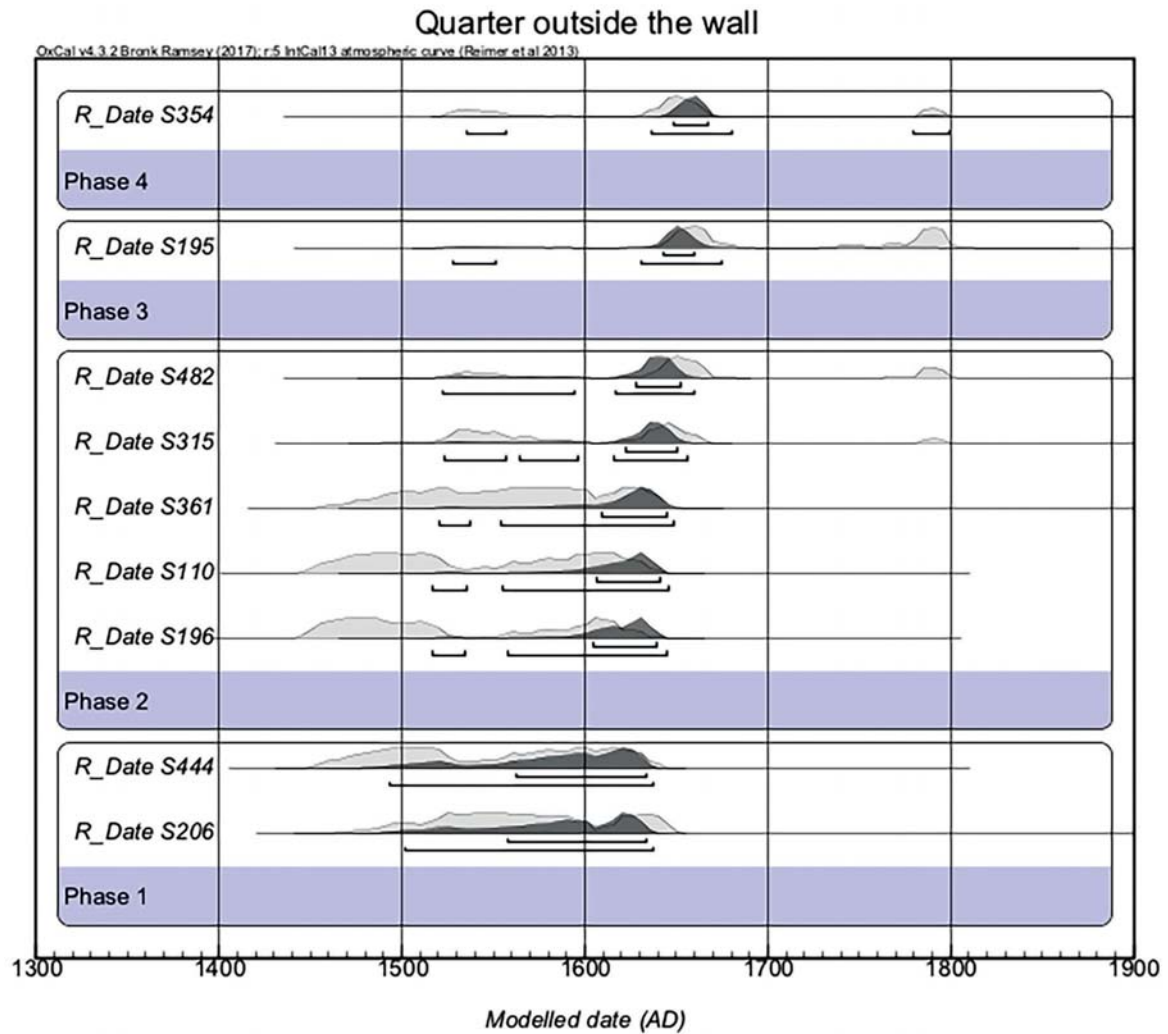


Fig. 222. Statistical model generated using OxCal software (ver. 4.3.2, Bronk Ramsey 2017, IntCal13 atmospheric curve, Reimer et al. 2013) calibrating radiocarbon dates with phasing information for samples collected from wattle-and-daub houses in Zone 1.6 outside the city walls



Unit / compound (elevation)						Period	Date
Zone 1.4	Street grid	Zone 1.5	Zone 1.6			I	ca. 1800
						II.A	
						II.B	
						II.C	ca. 1700
						III.A	
						III.B	
						III.C	
						III.D	ca. 1600
						IV	ca. 1500
						V	ca. 1400
						VI...	Makuria



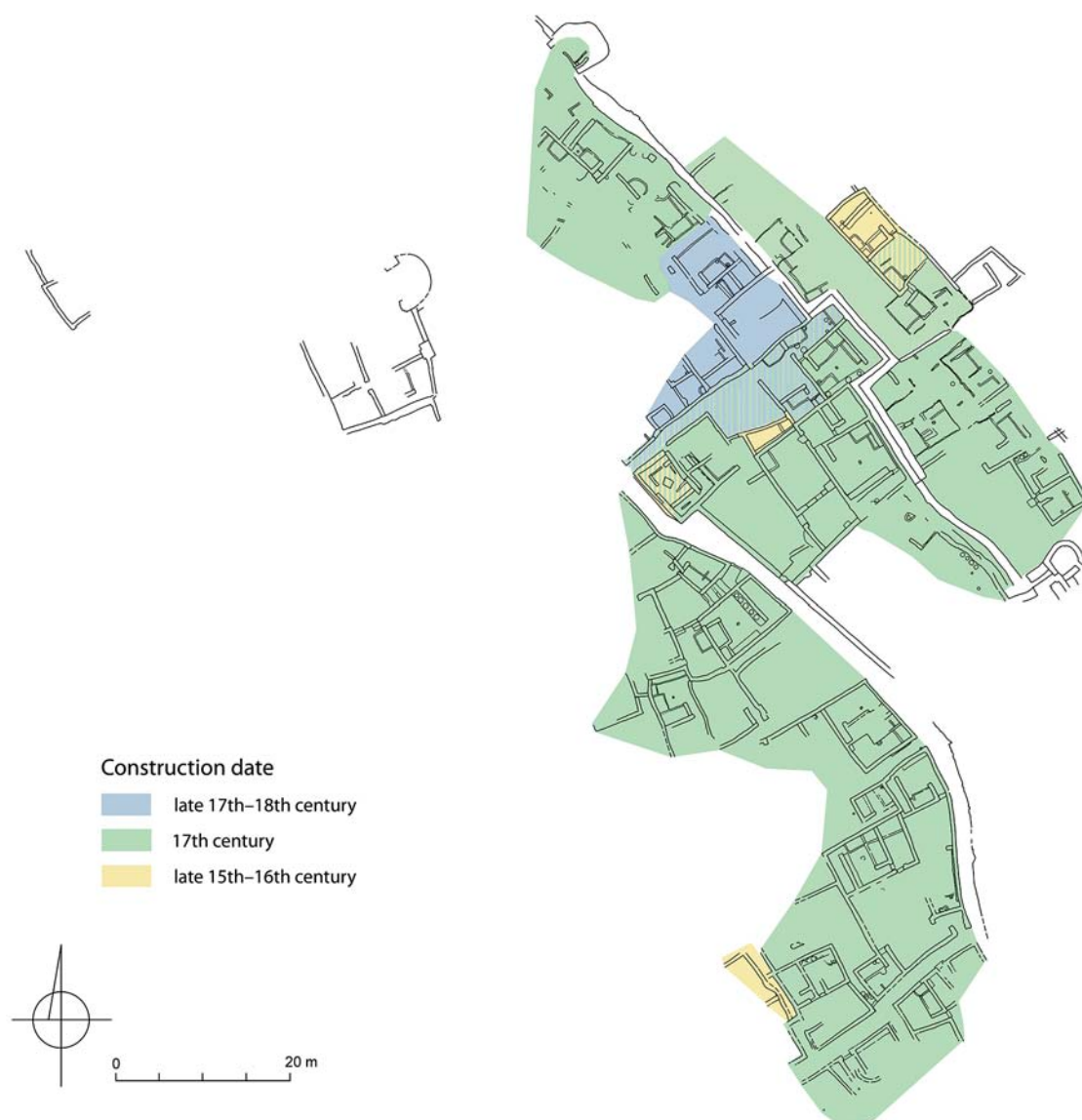


Fig. 223. Map of the excavated area with color indications of dating

## CONCLUSIONS

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The UMMA project at Old Dongola is one of the few excavation projects systematically conducted on an urban site spanning the entire Funj period. Among other notable sites are Ottoman-period Qasr Ibrim (Alexander and Adams 2018) and el-Khandaq (Elzein 2009). However, the Ottoman fortress at Qasr Ibrim is not a typical settlement site, and el-Khandaq remains largely unpublished. The main challenge is, therefore, the scarcity of comparative material. Some useful parallels are provided by ethnographic research and studies on vernacular architecture in Sudan (e.g., Kleinitz and Näser 2012). However, most of these pursuits focus on the Nubian-type house and on modern-day architecture, which can be used as comparative material only to a limited extent. Some parallels may be found at the sites of Lower Nubia, for instance at Qasr Ibrim (Alexander and Adams 2018), Meinarti (Adams 2001; 2002), Attiri, Ginetti (Adams 1987: 337), Gergetti Island (Vila 1977b: 32–37), and Jebel Kadamusa (Osman and Edwards 2012: 187–194). The closest parallels to the excavated structures and compounds are, naturally, found on the site itself (see, e.g., Maślak 2015; Godlewski 2015a; 2015b; 2018; Obłuski 2014). Nonetheless, some findings from the first season of the project had no parallels even at Old Dongola (Wyżgoł and Deptuła 2020; Wyżgoł 2021).

Another challenge is identifying the function of space on the basis of objects found within. The consideration of context formation processes is crucial. Excavated rooms appear to have been regularly swept clean, and occupational layers rarely accumulated inside them during use. Upon abandonment, few possessions of any value were left behind. In addition, abandoned buildings or rooms were often used by neighboring households as areas of rubbish disposal and animal pens. Therefore, finds from such abandoned rooms provide scarce information about their original inhabitants. Moreover, small finds from destruction layers, such as beads or small fragments of glass, pottery and metal, may have come from disintegrated sun-dried bricks and mud mortar, with which they had been mixed by accident. However, some data can be recovered from the material at hand. Intentional rubbish fills tell us about the neighbors of the abandoned houses in a later period. They also provide information on activities performed in the vicinity, though not about the space patterning of those activities. Finally, some activity patterns can be observed in occupational layers accumulated in courtyards and storage spaces, which appear to have been rarely swept clean.

### VERNACULAR ARCHITECTURE IN FUNJ-PERIOD OLD DONGOLA

#### Materials

The essential building material in houses of the Funj period at Old Dongola was sun-dried brick. Most bricks measure 25–27 cm by 14–15 cm by 6–7 cm, but a larger module is also attested (32–37 cm by 18–25 cm by 7–8 cm). The bricks, mortar and plaster were usually made of gray

Nile alluvium with or without vegetal filler. The raw material occasionally contained ash, animal bones and finely crushed Makurian pottery, suggesting that it was obtained from older structures of the citadel rather than directly from the riverbank. In addition to the Nile alluvium, walls, floors and other features were commonly plastered with local yellowish or pinkish clay called *qurba*. Another kind of local clay in widespread use was a kaolinite (*gir*) that served as whitewash.

Baked bricks were used infrequently. Certainly, most of them were of Makurian origin and were merely reused in structures from the Funj period. Sandstone ashlar and other architectural elements (e.g., column bases and capitals), judging from the method of their dressing, were also reclaimed from older Makurian structures. By contrast, ceramic vessels built into stoves and large containers placed atop narrow benches seem to have been made in the Funj period. Wooden architectural elements rarely survived.

### Structures in domestic complexes

#### *Walls*

Walls dated to the Funj period unearthed so far at Old Dongola fall into two structural types: walls of brick masonry (either of sun-dried or fired brick, sometimes with some stone) and walls built in the wattle-and-daub technique. External and internal brick walls of houses had the same thickness of about 0.45–0.5 m. Despite the presence of several relatively well-preserved walls, no indication of tapering of the outer walls was found (see Maślak 2015: 216). In places where the plaster was missing, the wall faces usually displayed alternately laid courses of headers and stretchers separated by mortar joints a few centimeters thick.

Wattle-and-daub walls were found mostly to the east of the citadel, in Zone 1.6, outside the city walls. They consisted of regularly distributed vertical wooden elements with spaces between them filled with screens of twigs, branches and reeds interwoven and fastened together. All the elements were covered with mud plaster and subsequently coated with local clay (*qurba*) and whitewash. Wattle-and-daub walls were about 10 cm thick.

A noteworthy feature of the excavated buildings were stub walls, usually up to about 1.5–2 m long (and very rarely much shorter). They were built inside rooms, flanking the entrance on one side (rarely on both sides; compare Godlewski 2015b: 196–197, Figs 14-20 and 14-23 in the background). Though in most cases only their bottom courses survived, they must have originally been no higher than approximately 2 m, like their much better-preserved later counterparts in houses of the so-called Abandoned Village at Old Dongola [*Fig. 224*].

#### *Floors*

Floors were laid either on windblown sand or on ashes mixed with earth. Such deposits were covered with a layer of tamped mud a few centimeters thick and sometimes plastered with a thin layer of yellowish *qurba* coated with whitewash. During the renovation of domestic space, the original floors may have been covered with new, thin, whitewashed layers of *qurba*. Such coatings of floors usually corresponded to layers of plaster found on the surrounding walls.





Fig. 224. Stub wall in one of the houses in the Abandoned Village

### *Roofing*

Only scarce remains of wooden elements, mats and palm leaves found on some floors survived of the roofing. Single stone blocks (or other architectural elements, such as column bases or capitals) sunk into floors served as bases for vertical wooden posts that supported ceiling beams. To judge from the sizes of rooms, such beams were likely up to about 3.8 m long. The closest analogies for such roofs are still preserved in houses of the so-called Abandoned Village [*Fig. 225*]. Sometimes the vertical posts were supported by much larger brick masonry bases, rounded or rectangular in plan (possibly F131, see *Fig. 73*; see also Godlewski 2015a: *Fig. 16-16*).

### **Houses**

The vernacular houses were single-story, with a flat, thatched roof made of palm leaves usually supported by a pillar placed in the middle of the room. A typical Funj-period house at Old Dongola consists of a large front chamber and a very narrow room partitioned off at the back (e.g., U59/60, [see *Figs 136–137*]). The late William Adams suggests this type of housing was present from Batn al-Hajjar southward (Adams 1987: 343). It was a basic housing unit that played the role of a multifunctional dwelling with an attached storeroom for belongings. The large room was furnished with benches of various sizes. The wider benches were probably used for sleeping, while the narrower ones were intended primarily as bases for storage containers. A vessel sunk in the floor or bench could have been used for lighting a small fire. The narrow room found in the back of the house served as a pantry, and its furnishings consisted of storage vessels, which were sunk in the floor (as in U33), placed on shelves (U26b) or suspended from the ceiling or walls (U39).

Typically, one or more houses formed part of a household, which also included space for food processing (e.g., U45) and an open courtyard. In some compounds, we find rooms serving as vestibules for the house proper (e.g., U30 in building U16/30/35, or U38 in building U32/38/39). Other compounds include single-room dwellings detached from the house and entered from the courtyard (e.g., U17 or U64). Their function seems residential, but their role in the household space is obscure. The vast courtyards accessed from the city's narrow streets seem to have been the main living spaces of the inhabitants—hubs of daily activity and social life. In some compounds, the courtyard was connected with the street by a narrow corridor (U1, U87, U69), which, on the one hand, ensured more privacy by restricting access, and, on the other hand, optimized the use of urban space located further away from streets.

It seems likely that compounds with more than one residential building were inhabited by extended families (Barclay 1964: 143; Boddy 1989: 27; El-Hakim 1999: 12; Kurcz 2007: 70). The relatively modest-sized houses combined residential and storage functions and served as spaces for the processing of food. Spaces equipped with benches and screened off with stub walls placed across sight lines were used as multifunctional dwellings (e.g., U16, U59, U58a), while semi-open spaces (U8, U15) and detached single-room buildings (U45) served as kitchens. It seems that in such larger households the individual nuclear families had a set of functional spaces for their personal use and were able to keep their property in the narrow storerooms of their houses, while the spaces shared with the extended family were the courtyard and the cooking space. This was the case of U45, a room dedicated to food processing, which was part of a compound shared by two houses, U44/48/55 and U59/60.





Fig. 225. Wooden posts supporting a roof in one of the houses of the Abandoned Village



No gender divisions are attested in the compounds. Most compounds have a single courtyard without recognizable internal divisions, and only one entrance led to it from the street. The only identified gendered activity, cooking, was done in the common area of the compound, either in the courtyard or in a kitchen accessed from the courtyard. Inside the houses, food processing was done in the main multifunctional room, which, often being the only dwelling space in the compound, does not seem to have been a gendered space either (for cooking as a gendered activity, see Burckhardt 1819; Murdock and Provost 1973; Spaulding 1974; Martin and Voorhies 1975; Lowell 1991; Spain 1992).

The excavated compounds varied in size. The smallest complete compound measured 66 m<sup>2</sup> and the largest was at least 445 m<sup>2</sup> in area. However, the average size of a household was about 200–250 m<sup>2</sup>. The larger the house, the greater was the functional differentiation of its rooms. In the smallest compound, U43/46/51, a courtyard gave access to only two multifunctional domestic spaces. Even a narrow storeroom typical of the Funj-period house in Old Dongola was lacking. In the largest compound, in turn, consisting of two large courtyards and two buildings, the main house comprised as many as six rooms [see *Figs 75–76*]. It included the basic house module (storeroom + living room) preceded by a vestibule, as well as a bedroom, a spacious reception room, and an entrance lodge. Despite the differences in size, the uncovered houses have remarkably similar furnishings, construction materials and repertoire of finds, indicating a fairly egalitarian society.

Research on Funj-period architecture is very limited. Similar houses are recorded in the area downstream from the Fourth Cataract of the Nile at least as far as Meinarti, but this type of housing could have been more popular and widespread. The known examples of similar housing structures come from Attiri, Ginetti (Adams 1987: 337), Gergetti Island (Vila 1977b: 32–37), Diffinarti/Abumulgum (Edwards 2018: Fig. 1) and Jebel Kadamusa (Osman and Edwards 2012: 187–194) [*Fig. 226*]. In some cases there were no entrances to the storage rooms on ground level, which suggests they were accessed through an opening in the roof. The family houses at Qasr Ibrim, more elaborate than those at Old Dongola, were built of stone. They were entered by two doorways; a main entrance would have been used chiefly by men, and a rear door was likely intended for women. Inside, a series of separate units were clustered around one or more courtyards. The most elaborate houses had an entrance lodge. Beyond it was the largest chamber, a reception room with recessed cupboards and well-made floors. A door led from the courtyard into the private, family rooms and a kitchen area (Alexander and Adams 2018: 48).

The Funj-period house is different from the medieval Nubian house, yet it can be seen as a developmental stage of domestic architecture that evolved from earlier household models. The Classic Christian houses at, for instance, Meinarti were rectangular or square in plan (Adams 2001; 2002). They were accessed by a single entryway, and their interiors were furnished with benches built against the longer walls. One or more smaller rooms at the back were used for storage or food preparation. In addition, each house featured a toilet (corridor 491). The Late Nubian house type, which started to appear in the second half of the 12th century, was similar (corridor 514). The Funj-period house seems to be a simplified version of the earlier Nubian houses. The number of rooms was limited to a bare minimum: a living/sleeping room and a store-room. Spaces used for sanitary purposes ceased to exist or were moved outside the house, since no rooms readily identifiable as toilets were found at Old Dongola.



Fig. 226. House at Attiri (After Osman and Edwards 2012: Fig. 7.19)

The construction of the earliest houses featuring the characteristic combination of a main room and a storeroom in Old Dongola can be placed in the 16th century (U26a/26b, radiocarbon-dated by sample S388; see above). In the first two centuries or so after the abandonment of the capital by the royal court, the remaining community may have occupied the existing medieval buildings, adapting them for their purposes (Obłuski 2014). Only when the quickly accumulating debris hindered their use, the new-style housing was built in the area enclosed by the walls. The dating of such houses at Old Dongola corresponds to the radiocarbon dates obtained for similar structures identified during the Mahas survey at Jebel Kadamusa (late 15th through 17th centuries; Hamilton 2012).

In the 17th century, two different building traditions can be observed in Old Dongola. The dwellings within the city walls are houses made of sun-dried bricks, flat-roofed, mud-plastered and always whitewashed (at least inside). The houses north of the city walls (U36, U20a/20b, U27, U15/37/40) include wattle-and-daub structures made of reeds covered with mud mortar and plaster. The individual units were most probably part of larger compounds. In all cases, the reed houses abutted earlier structures built of sun-dried bricks. Despite the structural differences between the mud-brick and wattle-and-daub houses, some of their features are very similar: U37 is built with a stub wall and equipped with benches, as are U20 and U27. In the same area outside the walls, the 16th-century compound U15/26a/26b was excavated [see *Figs 181–182*]. The house, constructed of sun-dried bricks, mud-plastered and whitewashed, differs from the later wattle-and-daub houses and closely resembles the houses from within the city walls.

It therefore seems that in the 17th century the city walls separated two districts, which are clearly different in terms of the architectural form of domestic buildings, with predominantly sun-dried-brick architecture inside and mostly wattle-and-daub structures outside the walls. Wattle-and-daub walls also occurred inside the citadel, for instance below the level of mud-brick architecture in square 11H54, or on the border of squares 11B54 and 55 (identified but uninvestigated). However, at this state of research it was impossible to determine if they were part of domestic buildings or other structures, such as fences or animal pens. It may suggest that these two parts were inhabited by social groups that differed in terms of wealth or group identity. Notably, the typical module of the house featuring a main room and narrow storeroom is unattested in the excavated 17th-century dwellings outside the walls. The wattle-and-daub houses did not feature narrow storerooms, but instead consisted of a main room and a vestibule (U21a/21b, U28a/28b), or of two multifunctional rooms (U47a/47b) [see *Fig. 193*]. This may have to do with differences in building tradition, but more likely with the size of the compound. In the case of compound U21a/21b/28a/28b/29/47a/47b/96, which included three separate households accessed from one courtyard, the entire area of the household measured over 190 m<sup>2</sup>, and the area of individual modules did not exceed 30 m<sup>2</sup> [see *Figs 192–195*]. Like the smallest compound within the citadel walls, U43/46/51, the dwellings outside the walls favored multifunctional spaces over rooms dedicated to a single function, such as storage.

Remarkably, no examples of so-called *kourfa* (*diffi*) houses were identified at Old Dongola. These fortified structures consisted of a dwelling, an adjoining courtyard, and a stout-walled tower in one corner of the courtyard. They are most numerous in the area south of the Batn el-Hajar (Adams 1987: 338) in Dar Sikoot between Dal and Nilwatti (Vila 1976a: 90–94; 1976b: 24–26, 71–72; 1977a: 87–88; 1977c: 59–60; 1978: 81–85, 104–107; 1979: 71–120) and in the Mahas region. The dating of *kourfa* houses is problematic, but on the basis of genealogies it may be placed in the early 19th century (Adams 1987: 338). The late William Y. Adams suggested that they originated in the Western Sahel (Adams 1987: 338). The lack of *kourfa* houses may, therefore, support the date of abandonment of the citadel in the late 18th or early 19th century.

## URBAN LAYOUT

Excavations in the 2018–2019 season revealed that the so-called citadel at Old Dongola was densely filled with domestic compounds from the 16th to the 18th century. The results of the GPR and magnetic surveys show an almost complete layout of the latest city [see *Fig. 3*]. The settlement consisted mostly of simple houses, always located around courtyards and sometimes enlarged by adding one or more rooms to the basic two-room module. The spatial layout of the Funj-period residential quarter of Old Dongola seems to have been long-lived, as can be inferred from some investigated rooms, where spaces within the same walls were used on different occupational levels from the 16th to the 18th century (U2, U15). New walls were sometimes built on top of old ones, preserving the old organization of space. We also find evidence of reuse of household space in new compounds. Examples are courtyard U18, divided into room U79 and the smaller open space U80, or corridor and courtyard U87 and U88, which first served U23 to the north and subsequently, after a rearrangement of space, gave access to building U32/38/39 to the south.



There is a paucity of data for comparative analyses of settlement layouts from the Funj period available from Nubia. The urban layout of Qasr Ibrim during the Ottoman period is characterized by tight clusters of four to eight houses separated by narrow streets and a few small squares [Fig. 227]. Kulubnarti, by contrast, was a collection of scattered *kourfa* houses completely different from the dense urban layout of housing at Old Dongola [Fig. 228]. As at Old Dongola, some urban features could not be identified. The lack of a market, artisan shops and caravanserai at Qasr Ibrim was noted by a 17th-century visitor and confirmed by excavations (Alexander 1997: 18). Mosques were frequently absent from the urban landscape of Sudanese cities. For example, not a single mosque has been found at Shendi (Crawford 1951: 61). Castles, in turn, are distinctive features of the settlements at Wad Nimeiri (Crawford 1951: 32; Elzein 2010: 91) and el-Khandaq (Elzein 2004: 32). Also at Shendi the *mek* reportedly lived in a river castle (Crawford 1951: 61). At Old Dongola a castle has yet to be identified. Its presence in the investigated period is indicated by the mention of a large castle (*château*) in the center of the city in the account of Charles Poncet from 1698 (Poncet 1819: 243–246). However, it is also possible that by “château” Poncet simply meant the so-called citadel. The whole passage is worth quoting, as the appearance of the city, with its sand-filled streets and walls of inconsiderable size, agrees with the results of archaeological investigation: “La ville de Dongola est située au bord oriental du Nil, sur le penchant d’une colline sèche et sablonneuse; les maisons sont très-mal bâties, et les rues à moitié désertes, et remplies de monceaux de sable, que les ravines y entraînent de la montagne. Le château est au centre de la ville; il est grand et spacieux, mais les fortifications sont peu de chose”.

### Perimeter wall

In the last phase of occupation, the citadel was still surrounded by a perimeter wall, although dwellings were also present outside it [see Fig. 17]. The late antique and medieval wall seems to have been out of use for a long time by then. In the Funj period, the perimeter wall was made of sun-dried bricks. Its exposed stretch measured up to 2.10 m in thickness (in the case of F79) and was built against and most likely on top of older structures. Similarly to the earlier fortifications, it was reinforced with towers (U42, U66). We have not been able to locate any gate to the Funj-period city of Dongola this season. The date of construction of the late line of fortifications consisting of the curtain wall and two towers has yet to be determined, as their foundations have not been reached. It may be assumed, however, that it came into being prior to the 17th century, since it must have been earlier than the building of the 17th-century houses on both sides of the wall. The construction of the late ramparts was unquestionably a major logistical operation, which suggests it was a project carried out by the authorities. By the 17th and 18th centuries, the fortifications are no longer in use, as indicated by the deposits filling towers U66 and U42. However, the wall continues to function as a division of urban space or possibly an edge of a terrace.

### Street grid

The narrow streets of the quarter excavated within the city walls ran parallel to the late line of fortifications, forming a kind of ring road. The absence of paved surfaces indicates that they were suited for the traffic of animals and people rather than for wheeled vehicles. Their sandy, tamped

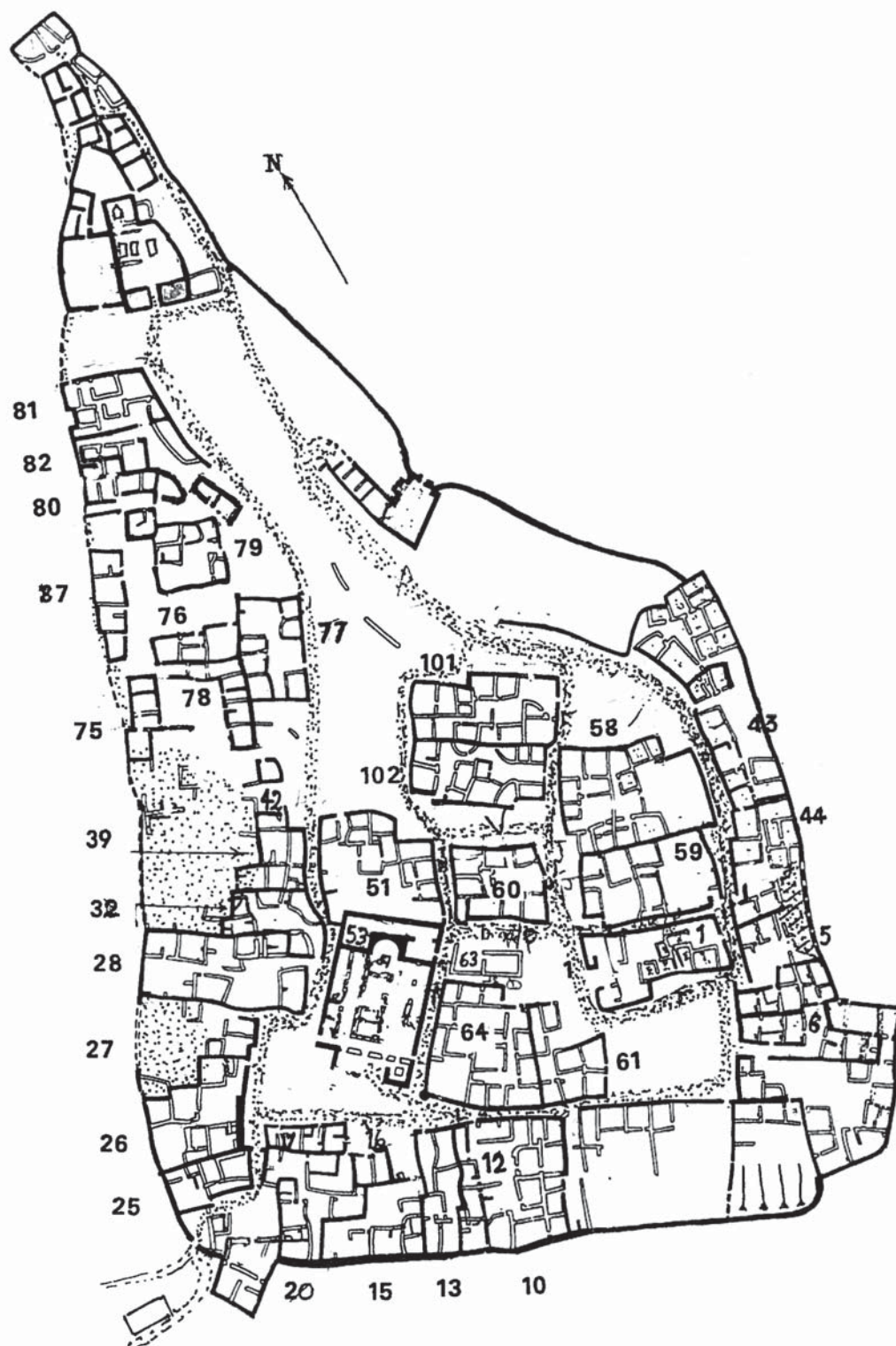


Fig. 227. Plan of Ottoman Qasr Ibrim (After Alexander and Adams 2018: Fig. 9)

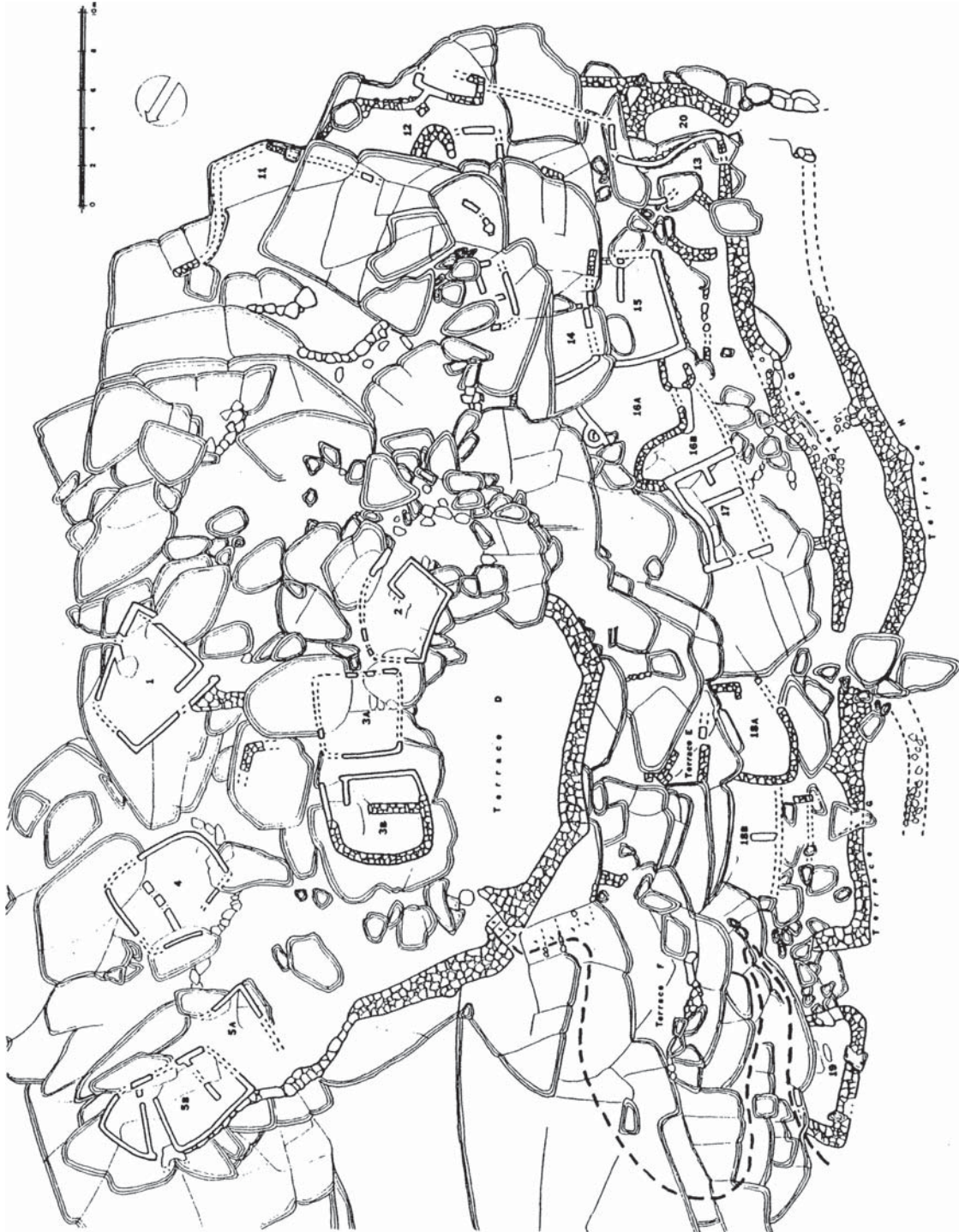


Fig. 228. Plan of Kulubnarti (After Adams 1994: map 5.4)



but unpaved surfaces were generally free of occupational debris. While this may be seen as evidence for maintenance of public spaces or overall cleanliness, the lack of occupational refuse most likely seems to point to a different pattern of rubbish disposal in the city. Indeed, in the excavated urban space refuse layers rich in ash and organic remains usually filled abandoned rooms (see, e.g., U74).

The partially excavated network of streets is also clearly visible in GPR and magnetic survey maps [Fig. 229]. The imagery shows two ring roads, one that seems to run outside the city walls and the other inside. The street outside the wall, about 3–4 m wide, is much broader than the internal one, which measures only about 2 m on average. The inner ring road follows the northern and eastern parts of the perimeter wall, then it encircles a large building at the so-called site A.1 (Jakobielski 1991: 69–70) and heads south, straight toward the urban quarter SWN.B.I.E built above and near the medieval buildings B.I, B.III and B.V, where a small stretch of it was exposed in the past (Godlewski 2015a: Figs 16-1, 16-2). Although the ring road in this part was not covered by the geophysical survey and therefore does not appear on the survey maps, the street must have continued southward and joined the southern network, closing the circle around the inner part of the citadel. The survey also indicated the presence of at least one street running northeast–southwest across the citadel. Therefore, the street grid visible on the GPR images implies the presence of neighborhoods enclosed by streets on all sides. The layout of these neighborhoods is not regular or symmetrical in any way, testifying to the absence of a predefined street grid in which the housing had to fit. This, in turn, suggests the lack of central planning in the city. The street grid visible on GPR imagery close to the surface seems consistent with time-slices showing the earlier urban layout to a depth of about 2 m. This means that the organization of space on the citadel hill of Old Dongola endured with relatively minor changes from about the 16th century to the end of occupation in this part of the site.

In general, the streets and the square seem to have served for communication purposes rather than for public gatherings. The streets are narrow, lacking evidence of shops and stalls, and public squares are very few. The life of the inhabitants of Old Dongola must have concentrated in the courtyards of their houses, where most of the daily activities were performed in the company of members of the extended family. Vast courtyards, like U71 measuring over 120 m<sup>2</sup> in area, could probably also accommodate larger groups of guests when the need arose, for instance on special occasions. However, along the street there are some empty spaces (e.g., U56) forming city or neighborhood squares that may have been places of assembly of larger groups. Taking into consideration that no mosques have been identified in this part of Old Dongola so far, such spaces may have also been used for religious purposes as places of prayer. There was, however, a mosque in Old Dongola, east of the citadel. It was originally a throne hall or, more likely, a church converted into a mosque as early as the 14th century (Obłuski et al. 2013). The small dimensions of this place of worship exclude the possibility that all Muslims attended services held here at the same time. It could not have accommodated more than 40 people at once, and it might have been used rather as a symbol of conversion than a mosque for regular prayers. The general lack of architectural expression of Islam in Sudan was highlighted by Crawford (Crawford 1951: 61). This phenomenon needs further and deeper investigation. Yet we can put forward a hypothesis. The small number, or even lack, of mosques may have been caused by the slow diffusion of Islam among the Nubians. The religion initially had a non-institutional character, completely opposite to Christianity and its Church. Islamic education was practically non-existent, and when it started

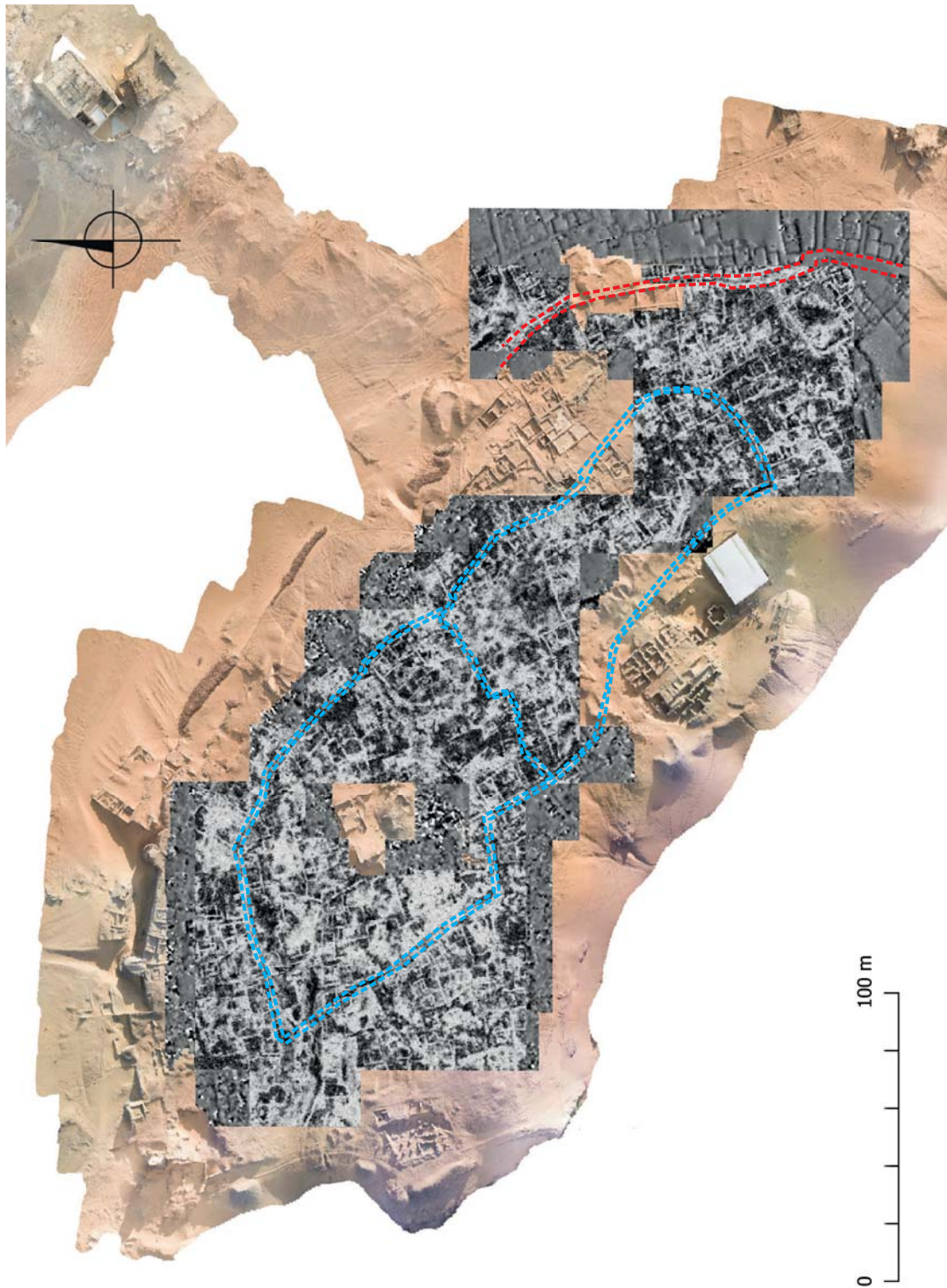


Fig. 229. Street layout identified on the basis of the geophysical survey map

it was introduced by Sufi missionaries, who may have had a more spiritual than material attitude to Islam. An important argument is the very late introduction of Islamic judiciary in Sudan. It took place during the reign of Rubat (from 1614 to 1642/1643), and the first *qadi* of Old Dongola was appointed as late as 1684 (see p. 6). Overall, the urban layout does not seem to be imposed by an authority but apparently reflects the needs of the community.

Many questions about the life in the city remain unanswered. One question concerns the water supply, as no wells, cisterns or water pipes have been found, so one should assume that all the water was transported up from the Nile with a considerable individual effort of the city dwellers. Large vessels of baked clay, such as those found partially sunk into the floor in U41, could have played the role of water jars. No spaces have been identified as sanitary complexes or latrines. There is also a lack of communal urban features, such as granaries or market areas. In general, no non-residential compounds of any kind (administrative, religious, industrial, service, etc.) have been found in this part of the Funj-period city. The excavated material, therefore, offers us a picture of daily life on an exclusively domestic level.

In future seasons, excavations will continue down to 14th-century strata in a selected part of the area investigated in the 2018–2019 season in order to get a glimpse of a full stratigraphic sequence of post-Makurian date. Works will also be launched in the northern part of the citadel hill to gain information on the Funj-period city in that area and to trace the changes it underwent. The so-called building A.1 (Jakobielski 1991: 69–70), formerly referred to as the “palace of the *mek*” (Godlewski 2013: 140), will be excavated with the aim of revealing its layout and function and to learn more about the material culture of the urban elite. Excavation of its environs, also planned for the next season, should clarify its relationship with the surrounding buildings and expand our knowledge of the urban street grid. In addition, investigation of religious change will be extended beyond household archaeology. The vicinity of the “Tower Church” (Godlewski 1995: 93–94; 2013: 74) will be investigated to place this building in the context of the Funj-period city and to determine when it ceased to be used for religious purposes. Excavations will also be launched in the vicinity of the Old Dongola mosque to determine the function and date of structures in that area. Lastly, results of the geophysical and geological surveys conducted in the 2018–2019 season along the edges of the citadel will be used to find investigation areas that could offer more data on fortifications of the Funj-period city.

As one might have expected, the first season of the UMMA project did not bring us answers to the key research questions about the social and religious transition at Old Dongola. The main reason for this lies in the character of archaeological fieldwork at complex, deeply stratified urban sites. Structures excavated during the 2018–2019 season were later than the period of transition we seek to understand. However, the fieldwork brought us closer to reaching the goals of the project and to finding answers to the research questions outlined in the introduction. A major achievement was the identification of the urban plan of Funj-period Old Dongola. The new urban layout on the citadel hill seems to have been created in the 16th century, after the old spatial organization had been abandoned. Another important achievement was the establishment of chronological frameworks for some categories of artifacts, which will be presented in the coming volume on material studies. The immense volume of data collected during this season lays a solid foundation not only for research on Old Dongola in the 17th and 18th centuries, but also for comparative studies on other urban sites in Africa.



APPENDIX

HARRIS MATRICES OF EXCAVATED UNITS

Legend to matrices:



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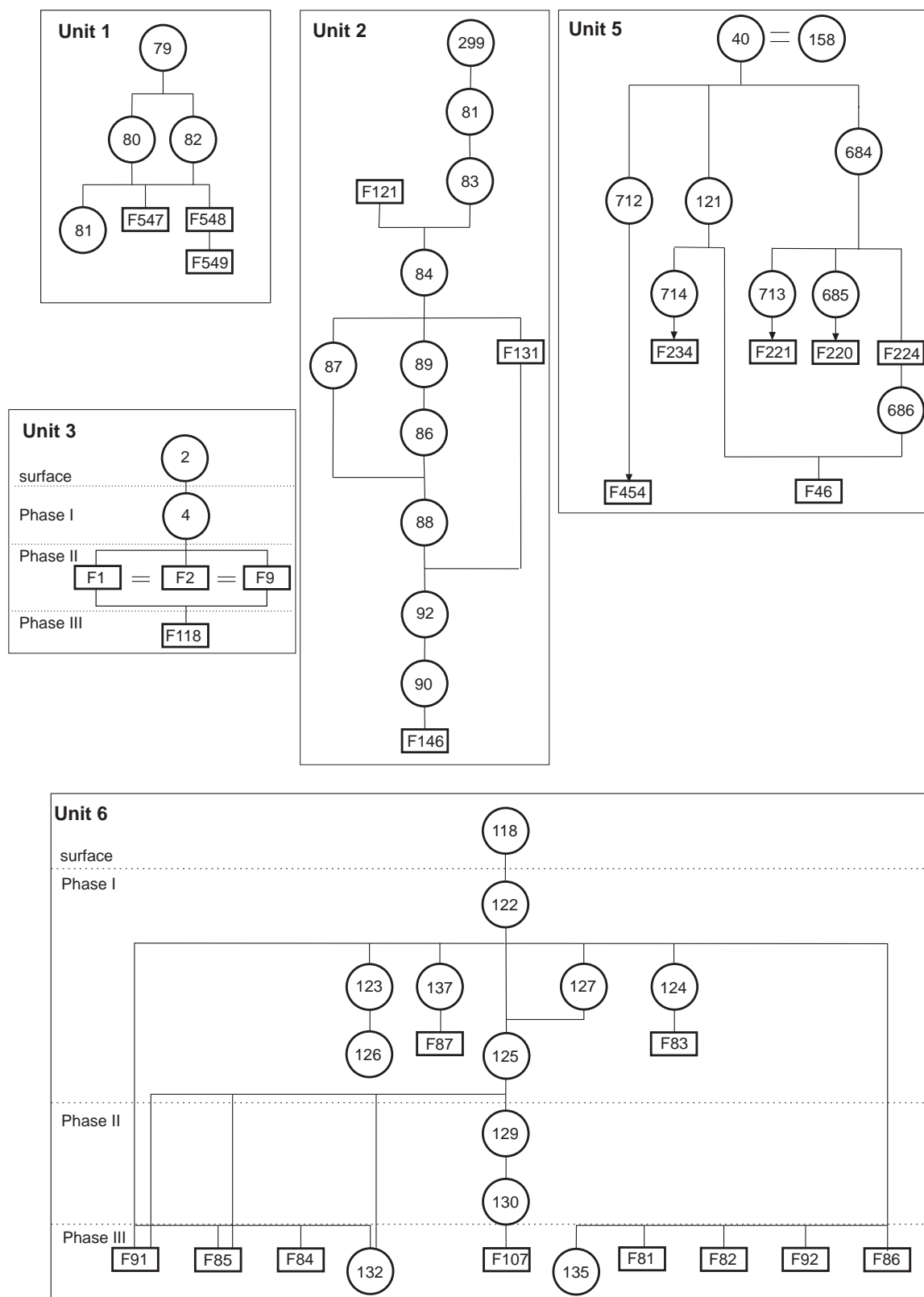
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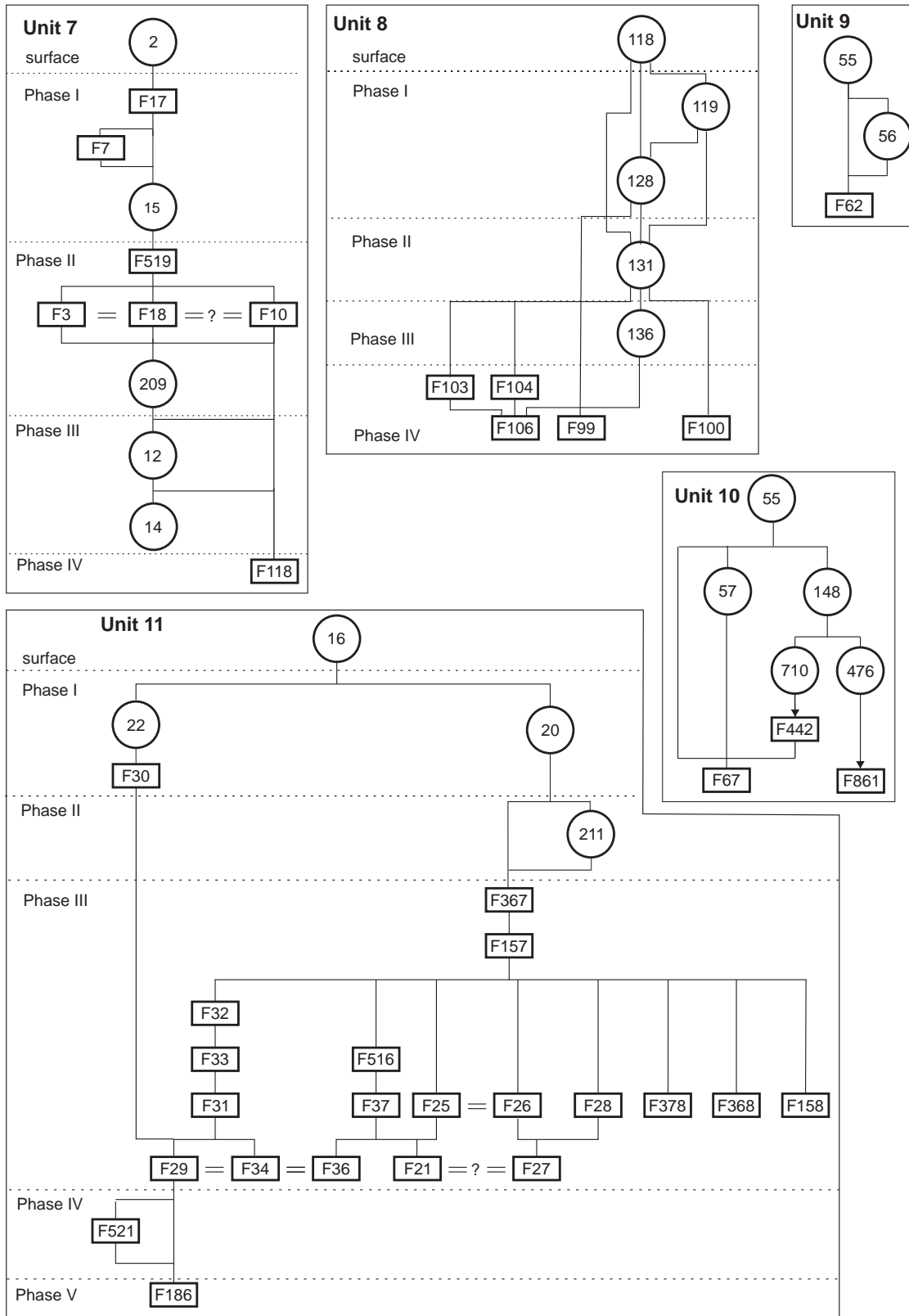


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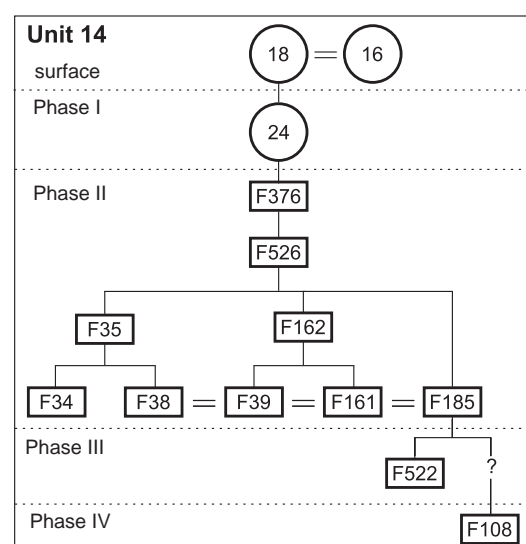
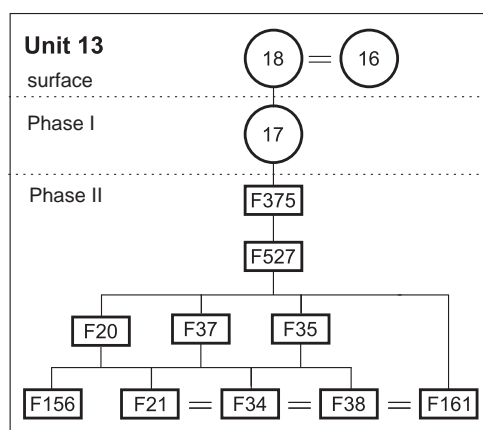
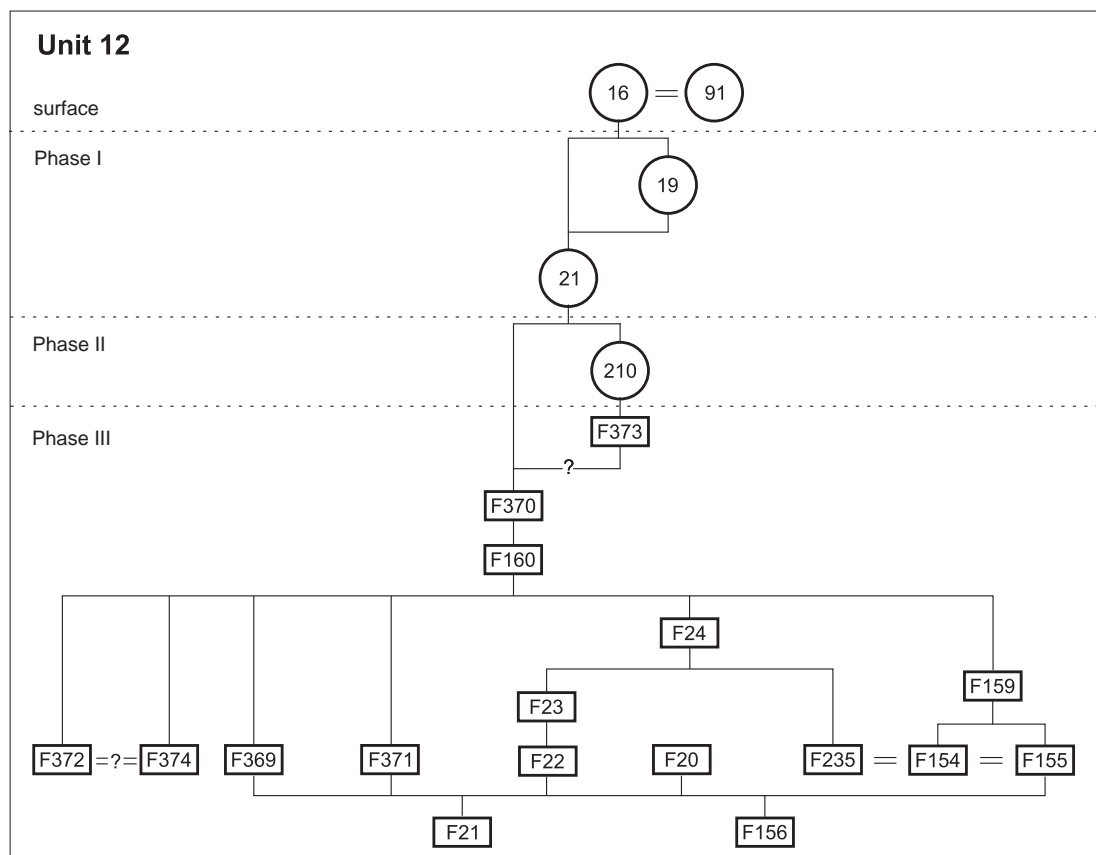


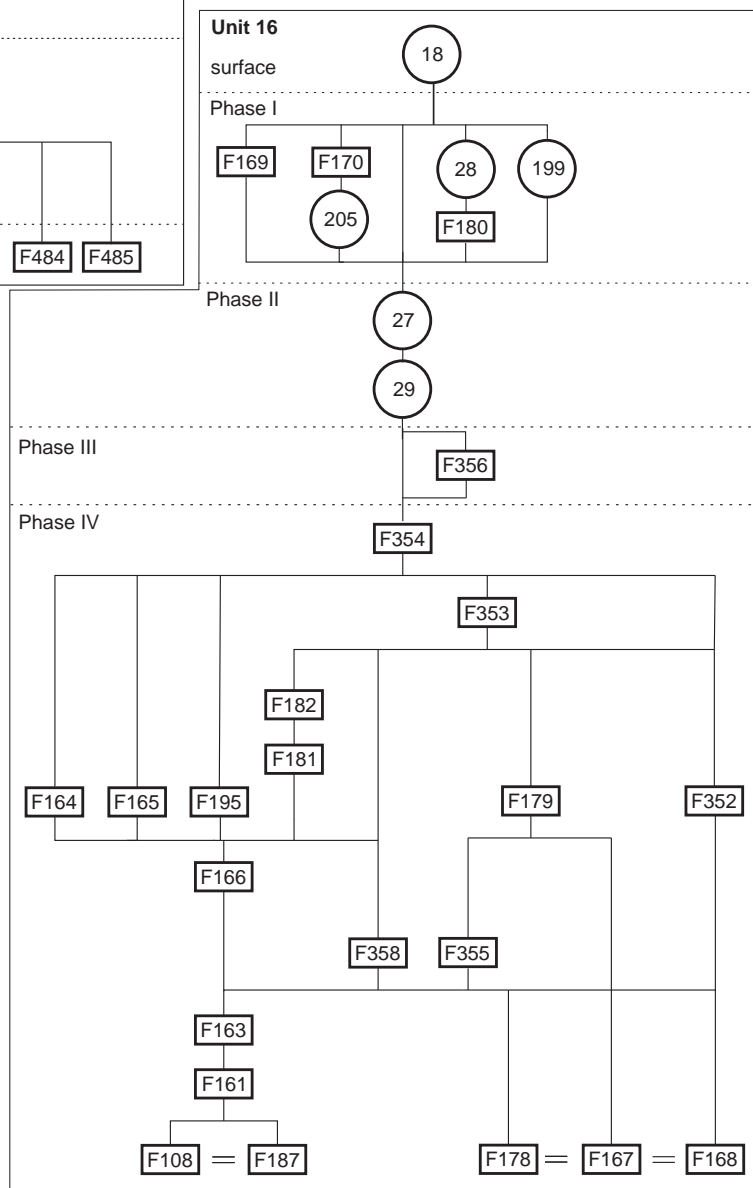
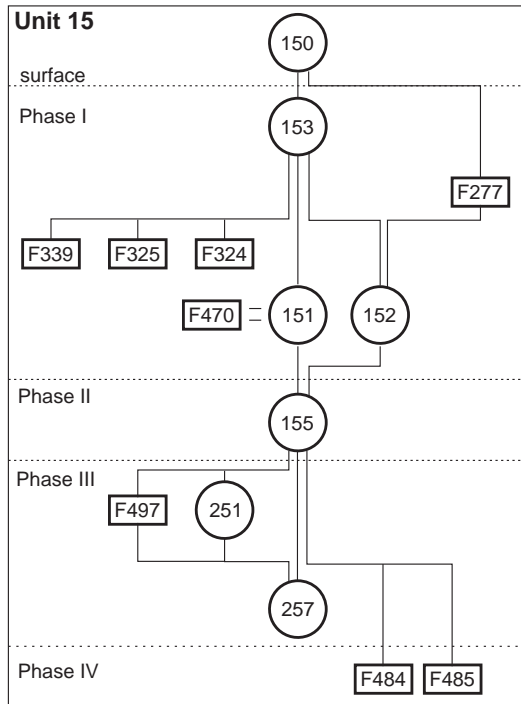
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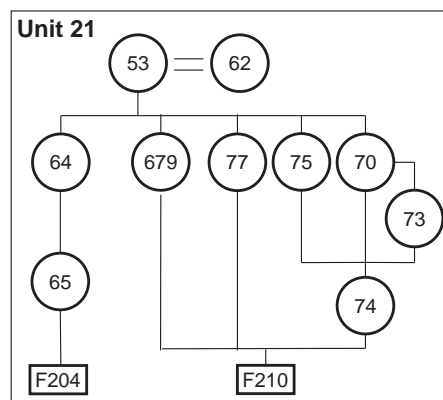
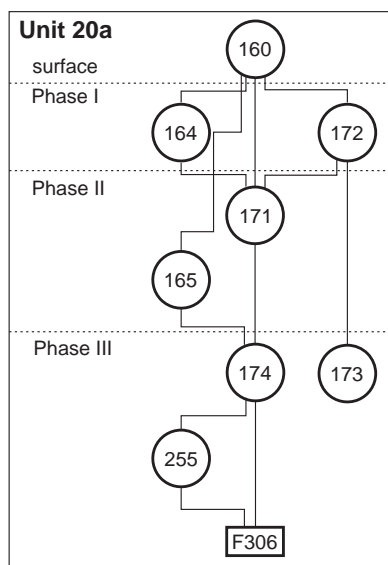
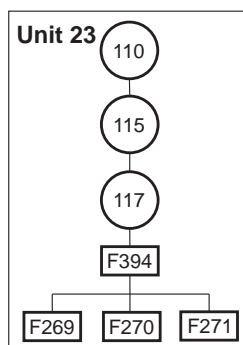
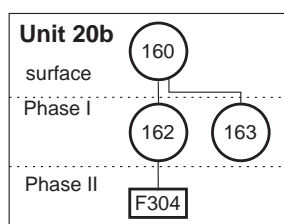
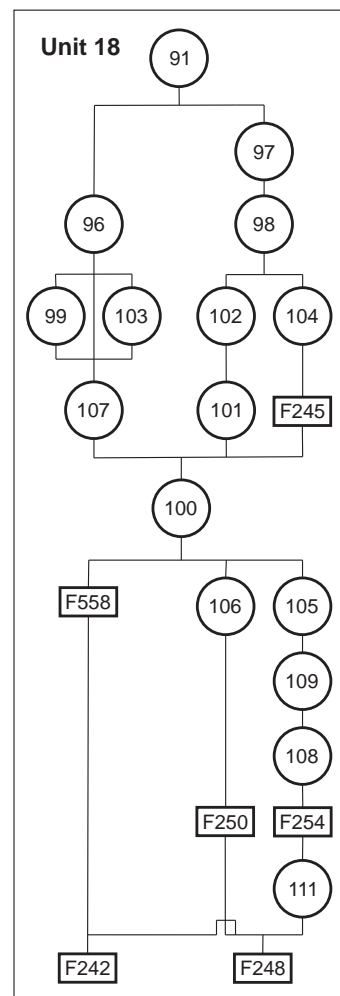
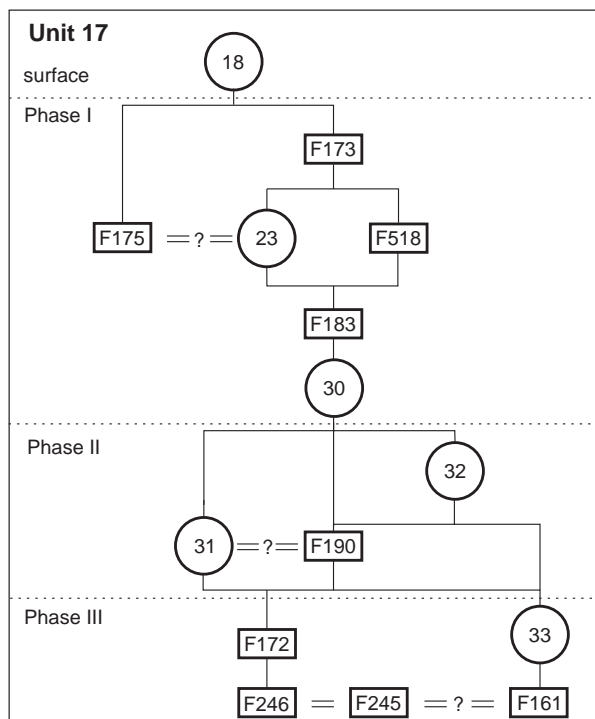




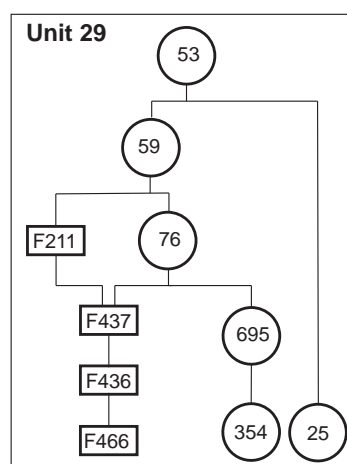
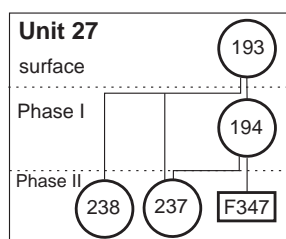
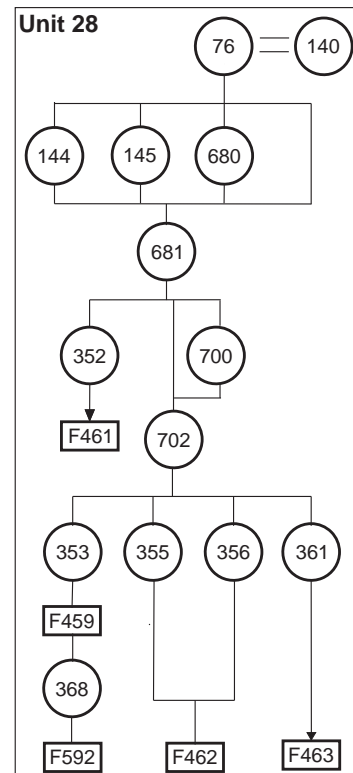
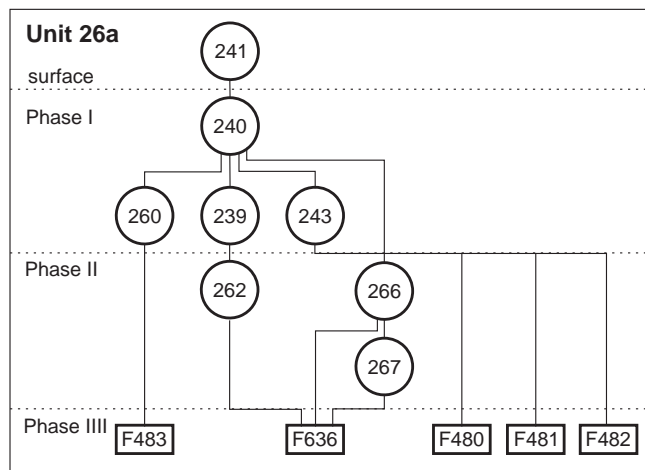
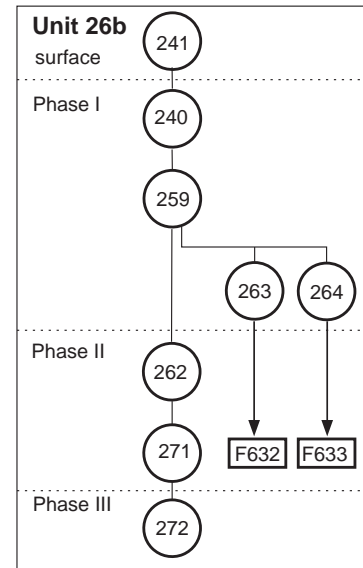
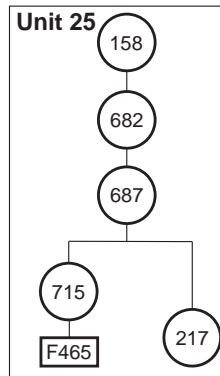
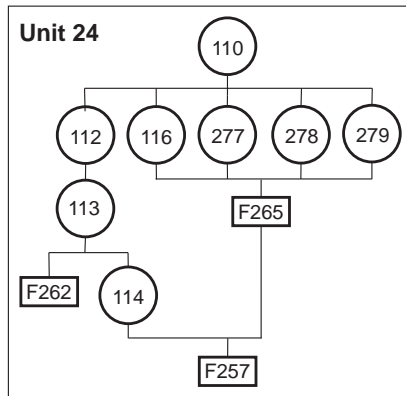


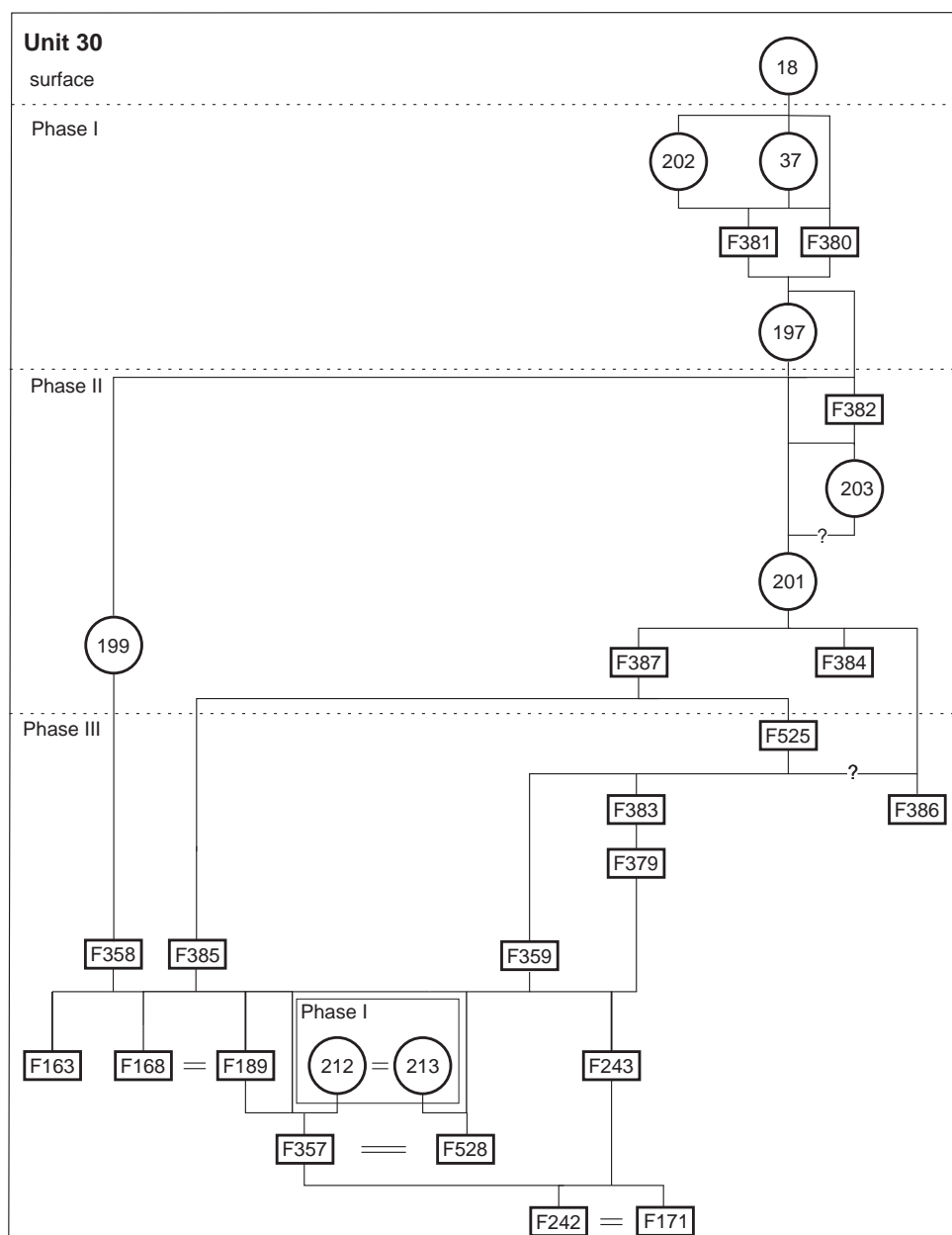


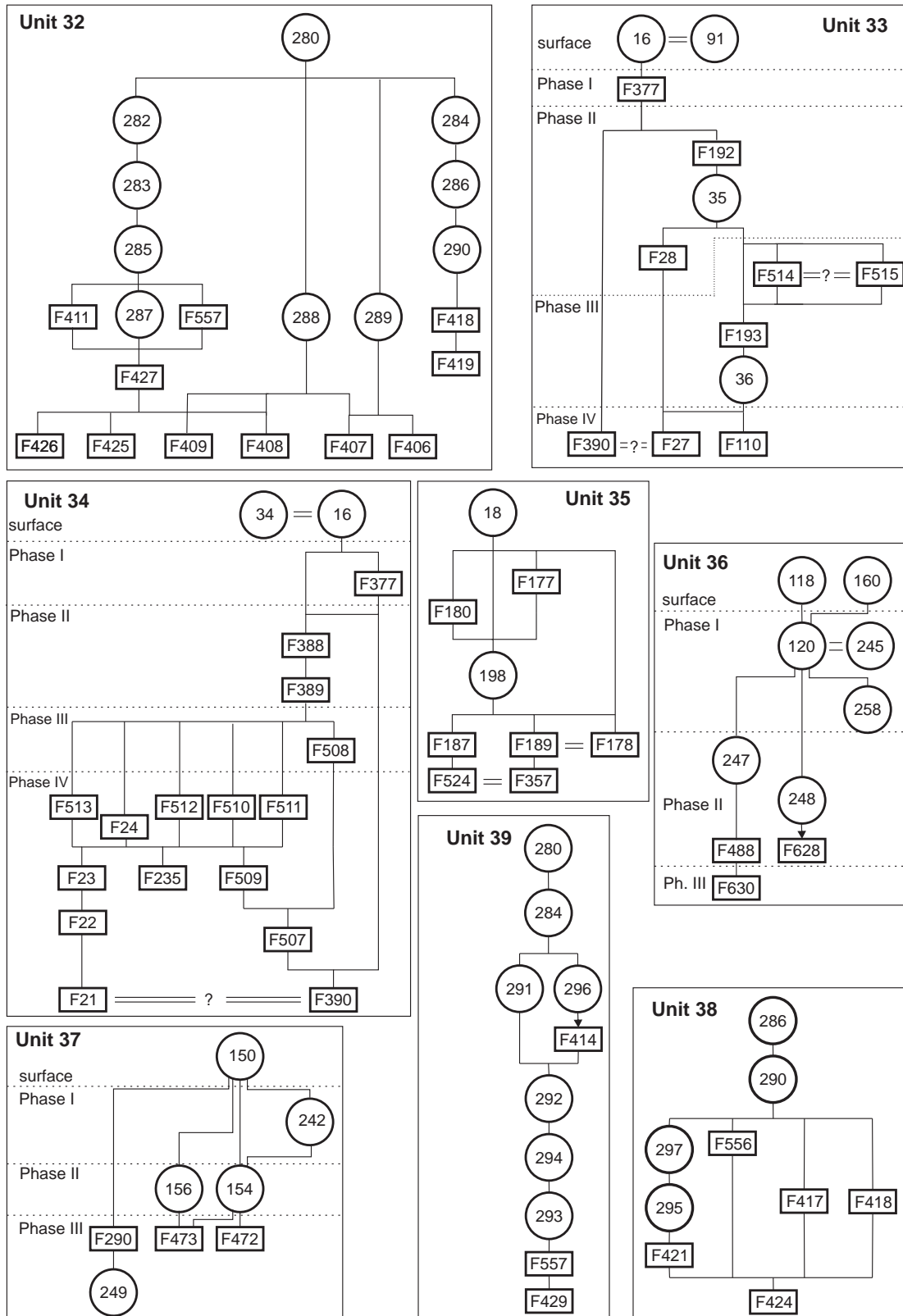




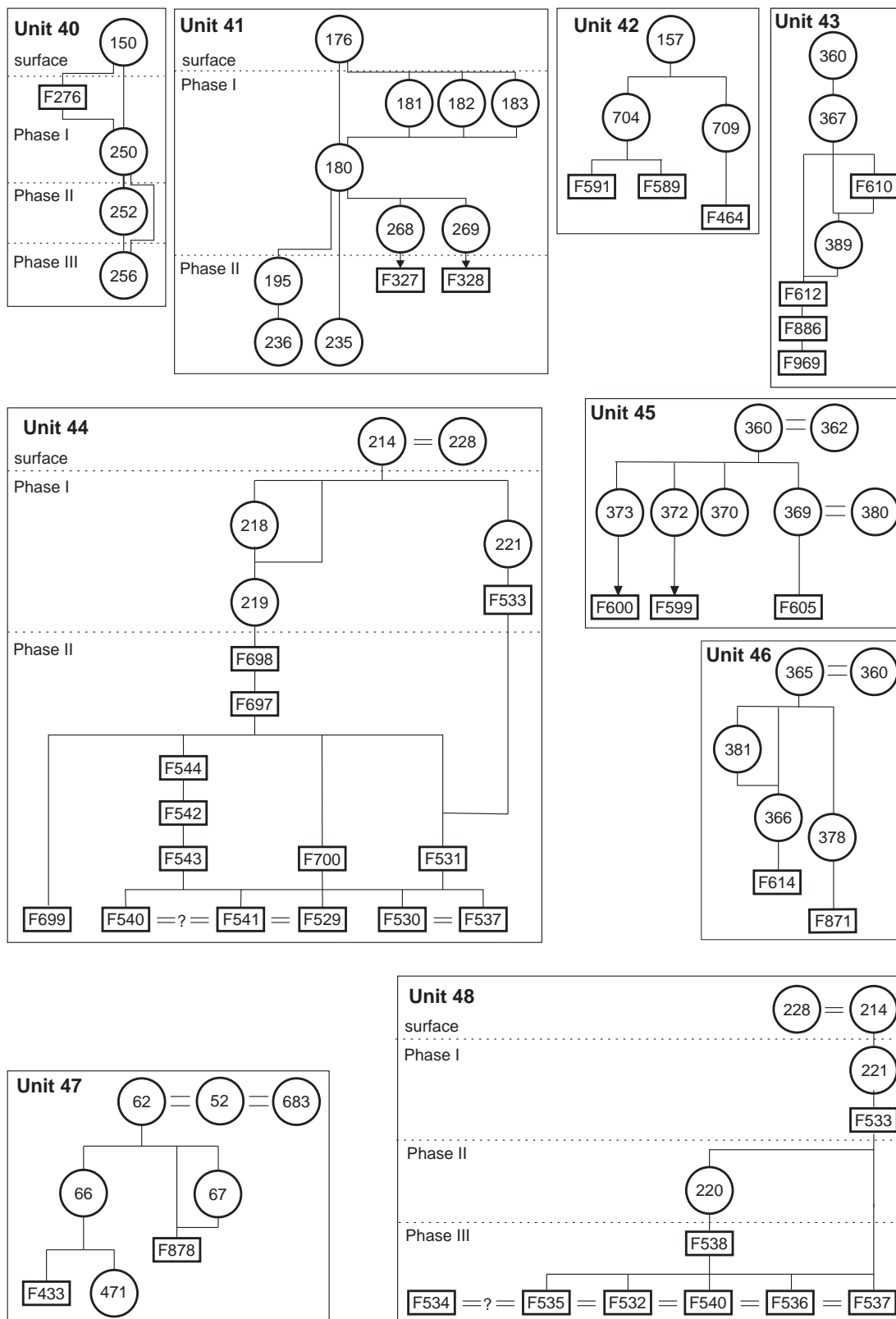


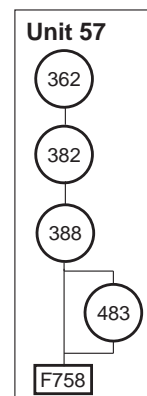
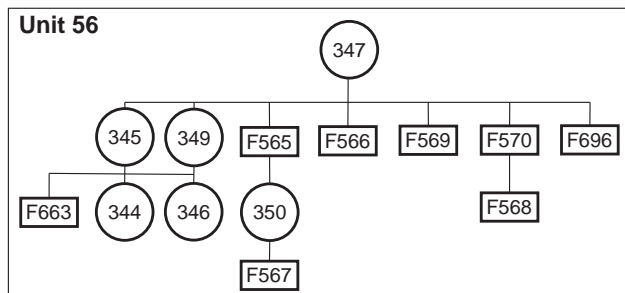
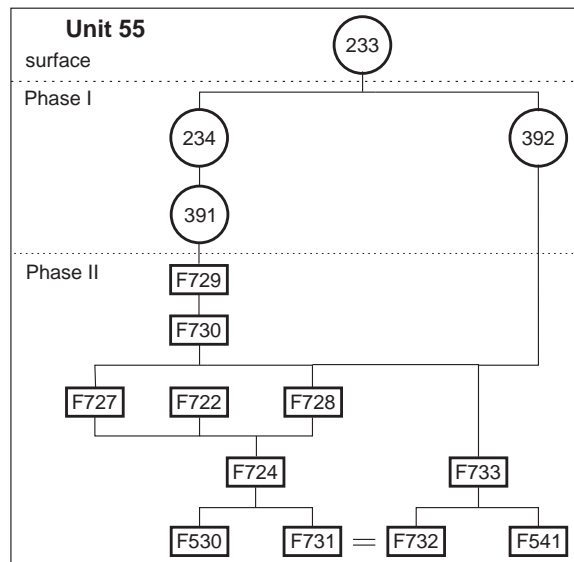
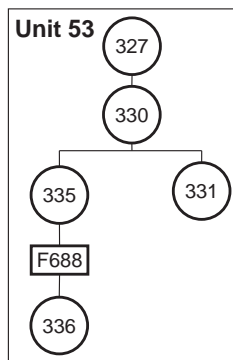
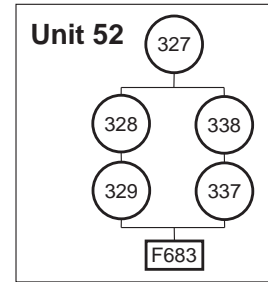
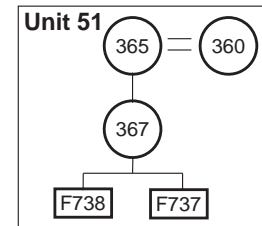
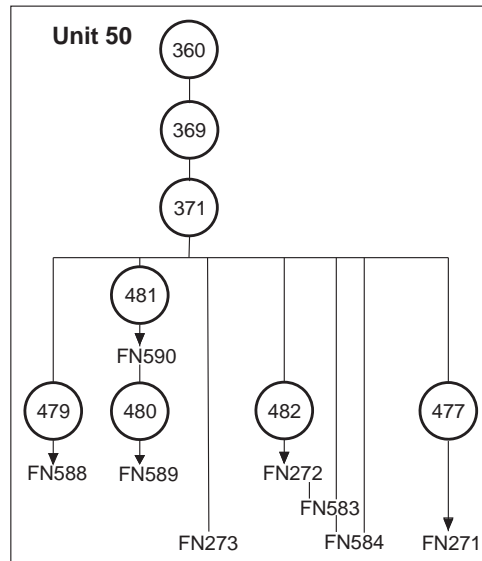
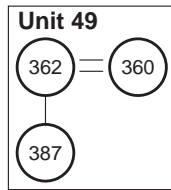


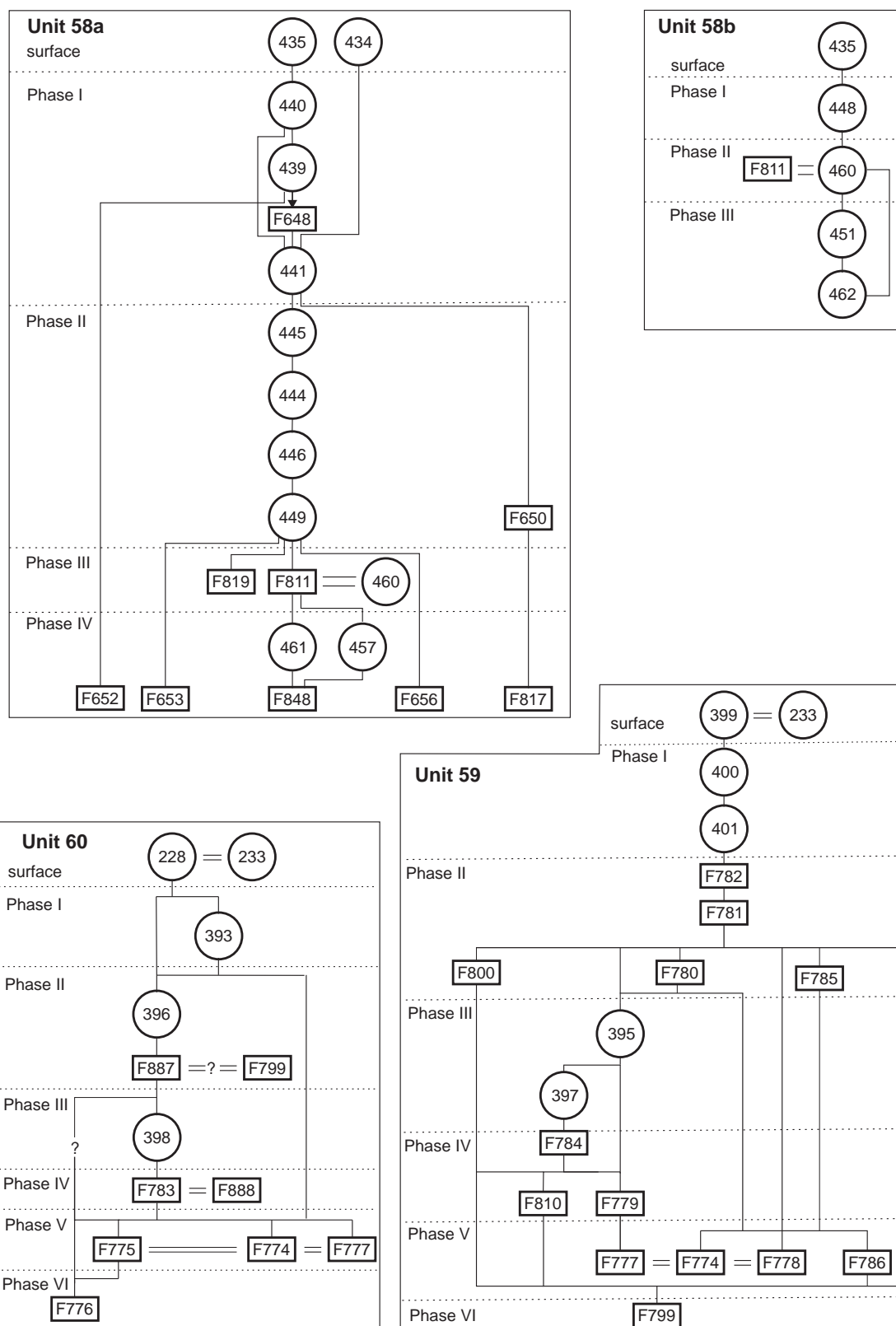




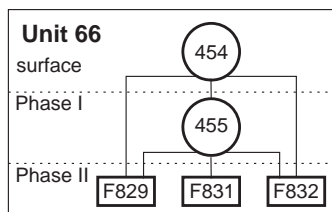
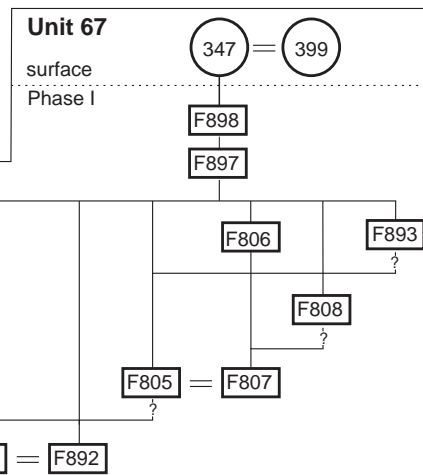
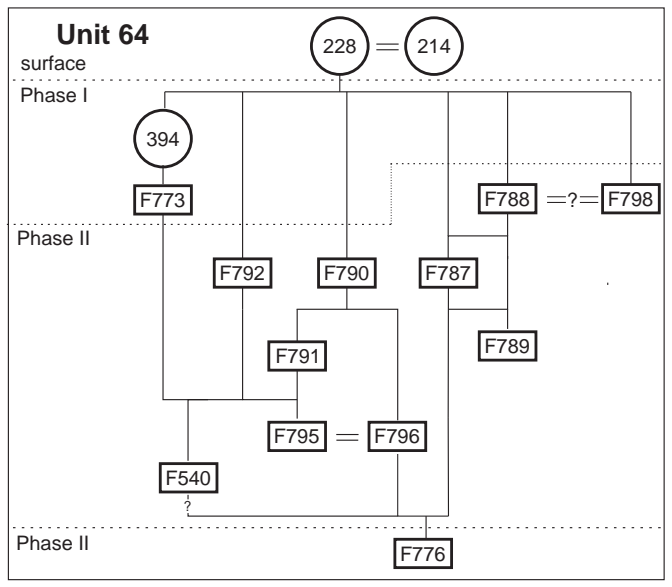
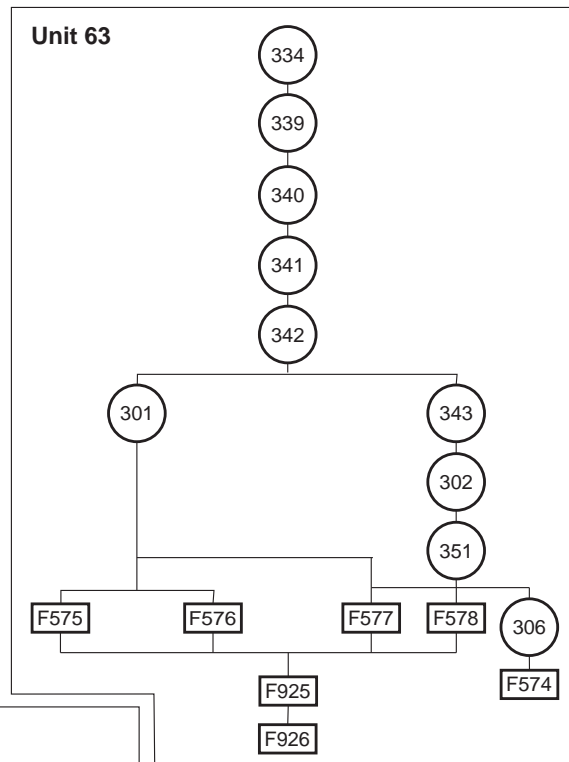
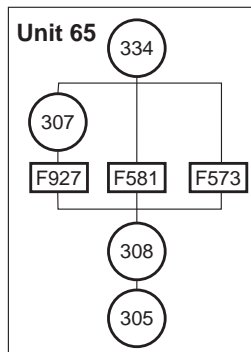
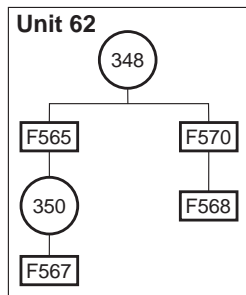


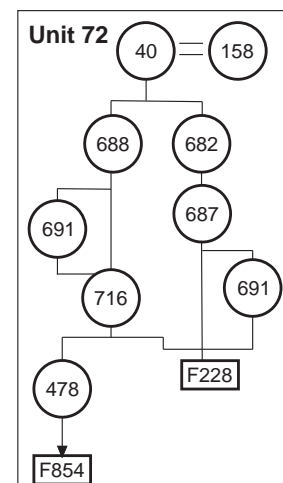
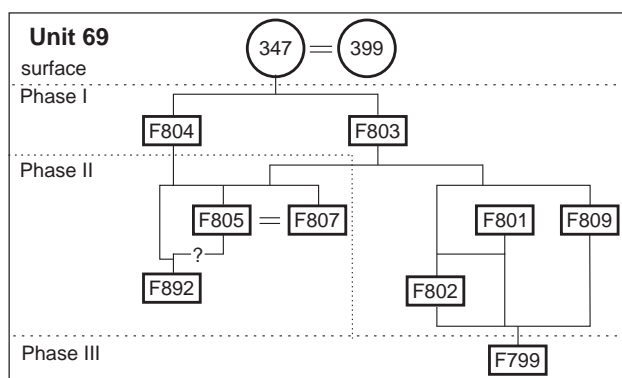
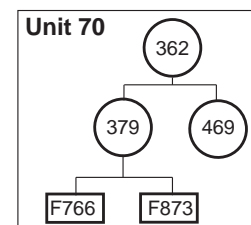
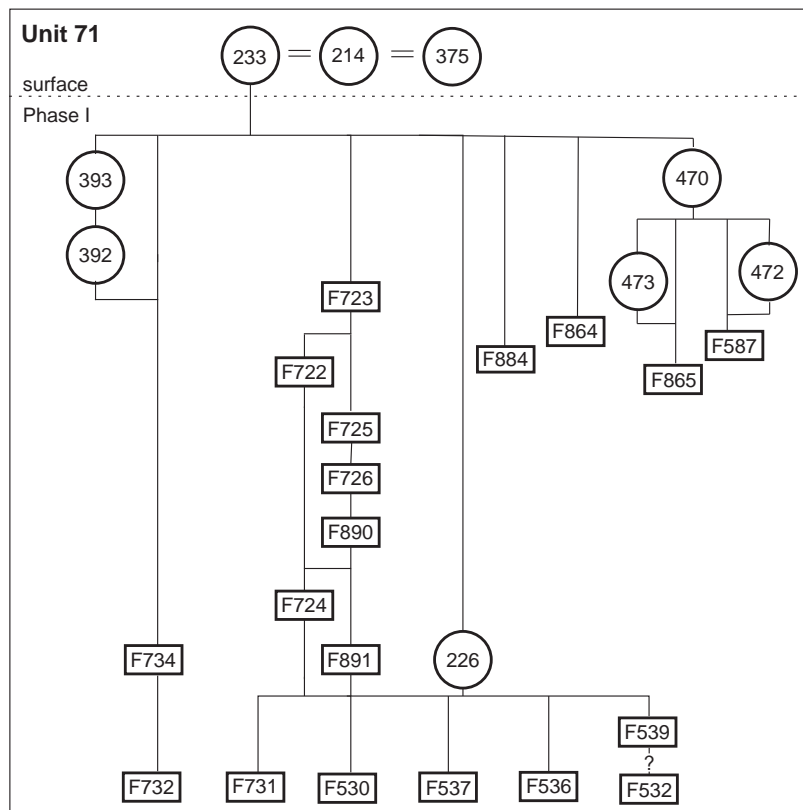


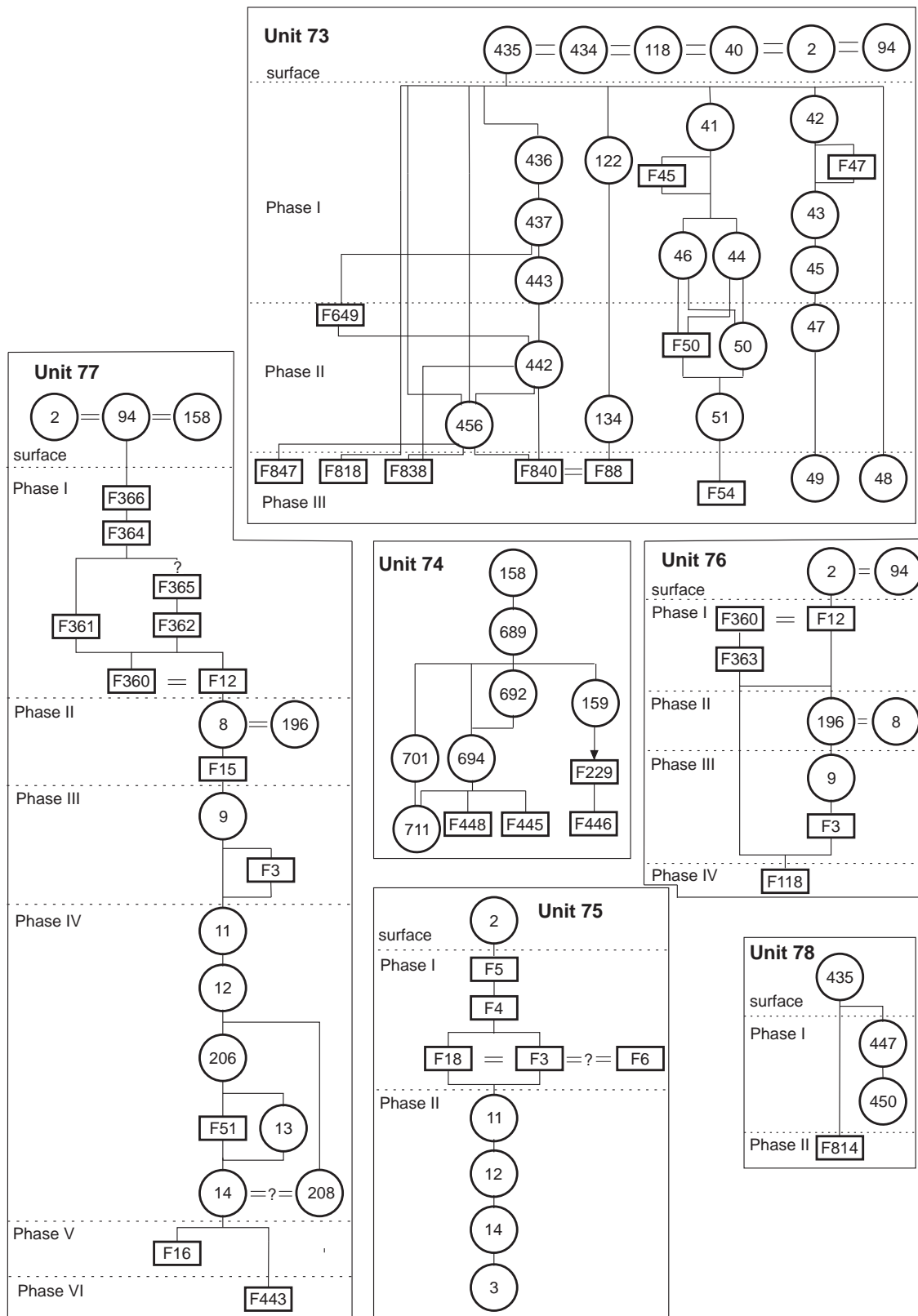




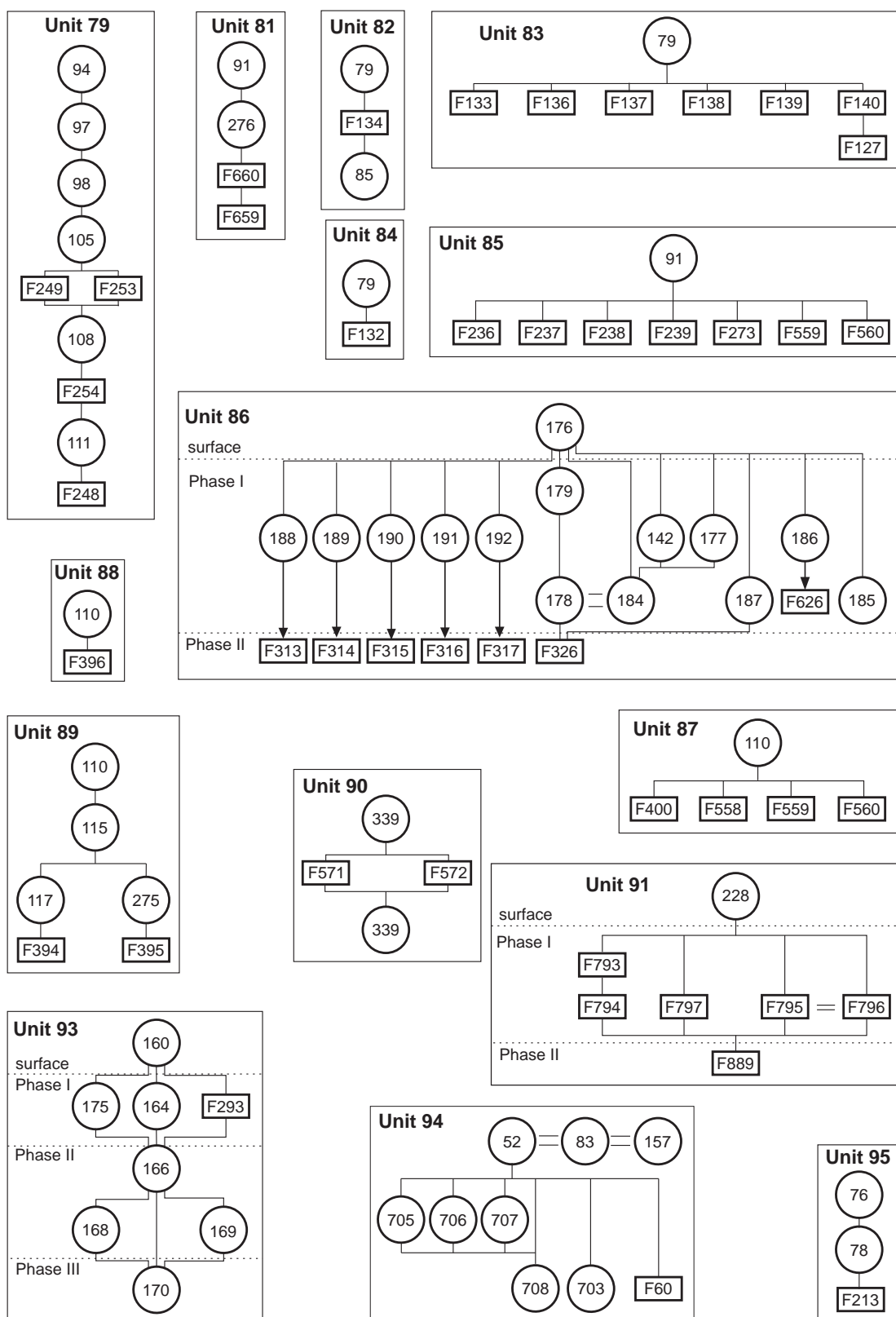


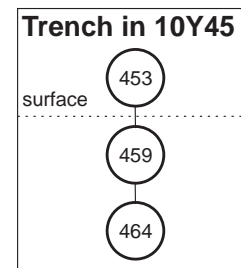
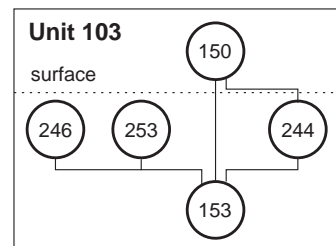
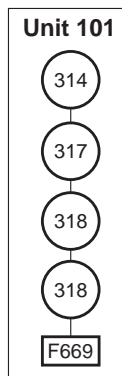
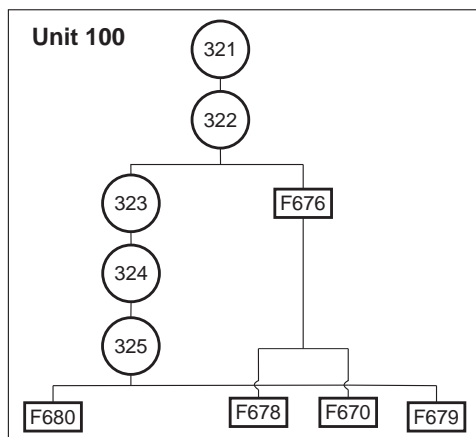
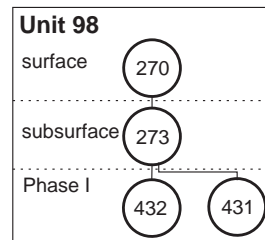
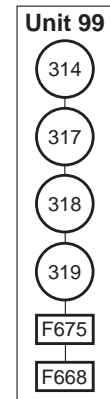
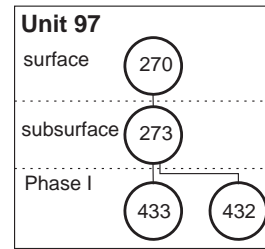
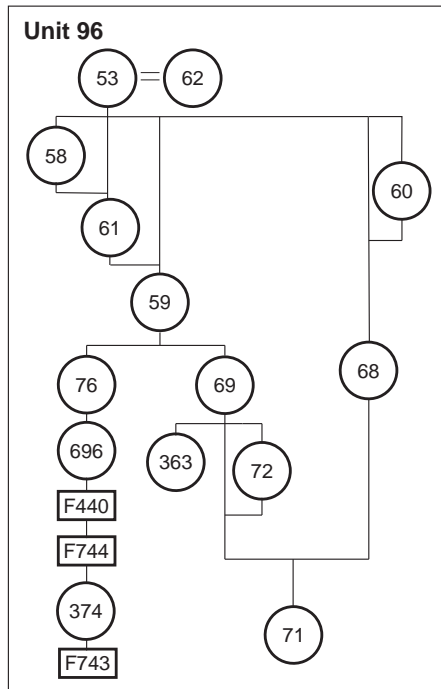
















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Courtesy of the Polish Centre of Mediterranean Archaeology of the University of Warsaw

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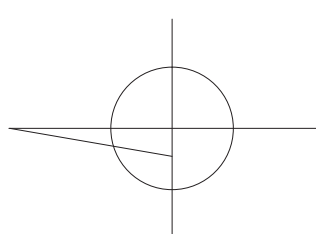
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0 20 m