

LTD1: Kerma settlement in the Letti Basin (Sudan)



Abstract: Research work carried out in the Letti Basin between 2022 and 2023 revealed a number of unknown sites including LTD1, showing the southern extent of the Kerman culture settlement sites (3rd–2nd millennium BC) in the Nile Valley. The findings represent an important voice in the decades-long debate on the “settlement hiatus” between the Third and Fourth Cataracts in this period. In addition, the results of the new excavations at Letti have yielded data on the material culture and economic basis of the Kerman community away from the capital. Research has found that the Letti population closely followed the cultural and economic patterns known from the capital. This is evidenced by artifacts, e.g. Classical pottery, the organization of settlements, and the dominant role of ruminants –cattle and ovicaprids– indicated by the results of archaeozoological analyses. What is more, strontium analyses have yielded new data on the circulation of cattle far beyond the range of influence of one of Africa’s earliest civilizations, Kerma, previously claimed by researchers to have been limited to the Middle Nile. The new research at Letti provides important information on the functioning of the Kerma state, especially on the hitherto obscure issue of its provincial settlement.

Keywords: Nubia, Letti Basin, Kerma, settlement, pottery, lithics, archaeozoology

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INTRODUCTION

New research carried out as part of the “Unearthing Pan-African Crossroads...” project has revealed a number of previously unknown sites in the so-called Letti Basin, an early Holocene Nile floodplain with ancient channels located in the Dongola Reach region. Thanks to favorable geomorphological conditions, cultivation in this area is more extensive than in other parts of the Nile Valley. An analogous and even more extensive area is the Selim Basin, located a few dozen kilometers north of Letti. There, the pre-Kerma culture emerged in the 4th millennium BC and was followed in the 3rd millennium BC by the rise of one of the earliest African civilizations: Kerma. In past publications, the Letti area was presented mainly as the economic hinterland of Old Dongola, the capital of medieval Makuria (Jakobielski and Krzyżaniak 1967–1968; Grzymski 1987). Archaeological research in the area was restricted to data from regional surveys conducted in the 1970s and 1980s (Kobusiewicz and Krzyżaniak 1974; Grzymski 1987). These studies provided evidence of intensive Neolithic settlement, as well as the presence of Kushite populations, including Kerman groups, in this area (Gratien 1978; O'Connor 1993; Chłodnicki and Grzymski 2018). In the 2022 season, survey work in Letti was repeated and followed by excavations at one of the identified and examined sites, LTD₁ (Letti Desert 1). LTD₁ featured well-preserved relics of a Kerma-period settlement, as evidenced by the chronologically homogeneous pottery assemblage found on the surface. The

Letti sites now mark the southern extent of Kerman culture settlement in the Nile Valley (Osypiński et al. 2022).

Archaeological research to date has indicated a lack of Kerman settlements in the vast area between Letti and the Fourth Cataract, where almost exclusively funerary sites have been recorded. The purported settlement hiatus was a subject of scientific debates (Bonnet 2014), but no clear hypothesis explaining this phenomenon has been put forward. Systematic surface surveys on both sides of the river have revealed only scarce Kerman material, usually found in assemblages attributable to somewhat later periods (e.g. Żurawski 2003; Osypiński et al. 2023, in this volume). However, the already mentioned cemeteries studied in the area of the Fourth Cataract, e.g. at Gamamiya, el-Widay and Hosh el-Guruf or el-Ar, are linked to the Kerman horizon (Sip 2007; Emberling and Williams 2010; Osypiński 2010; Welsby et al. 2018).

One of the key topics in the debate was the economic model of the Kerman communities, especially the pivotal symbolic and economic role of cattle characteristic of this culture. Its prime examples are the burials of rulers from the Middle and Classical Kerma periods featuring monumental tumuli surrounded by thousands of bovine bucranions (frontal bones with horns). The horns bore numerous traces of intentional deformations, evocative of effects of contemporary practices among pastoral communities in Southern Sudan and Ethiopia (Chaix, Dubosson, and Honegger 2012). Archaeozoological data from Kerma, on the other hand, in-

dedicate a gradual decline in the economic role of cattle over time in favor of sheep and goats. Louis Chaix also raised the issue of the origin of large herds of primitive cattle in Kerma. Neither the Selim Basin nor the Nile Valley could provide pasturage extensive enough to support an economic model based on nomadic grazing of large cattle herds. However, until now, the question of the origin of cattle in the capital has remained in the realm of speculation and hypotheses in favor of its remote origin (Chaix 2011).

A major shortcoming of the debates

on the origins and economic foundations of Kerma was the lack of data from provincial settlement sites located outside the Selim Basin. The southern extent of the Kerman state remains hypothetical and is currently defined by cemeteries from the area of the Fourth Cataract and the Bayuda Desert (Paner 2014).

In this context, the new data from Letti are of great informative value, filling important gaps in the knowledge of how one of Africa's first states (other than the Egyptian civilization) emerged and functioned.

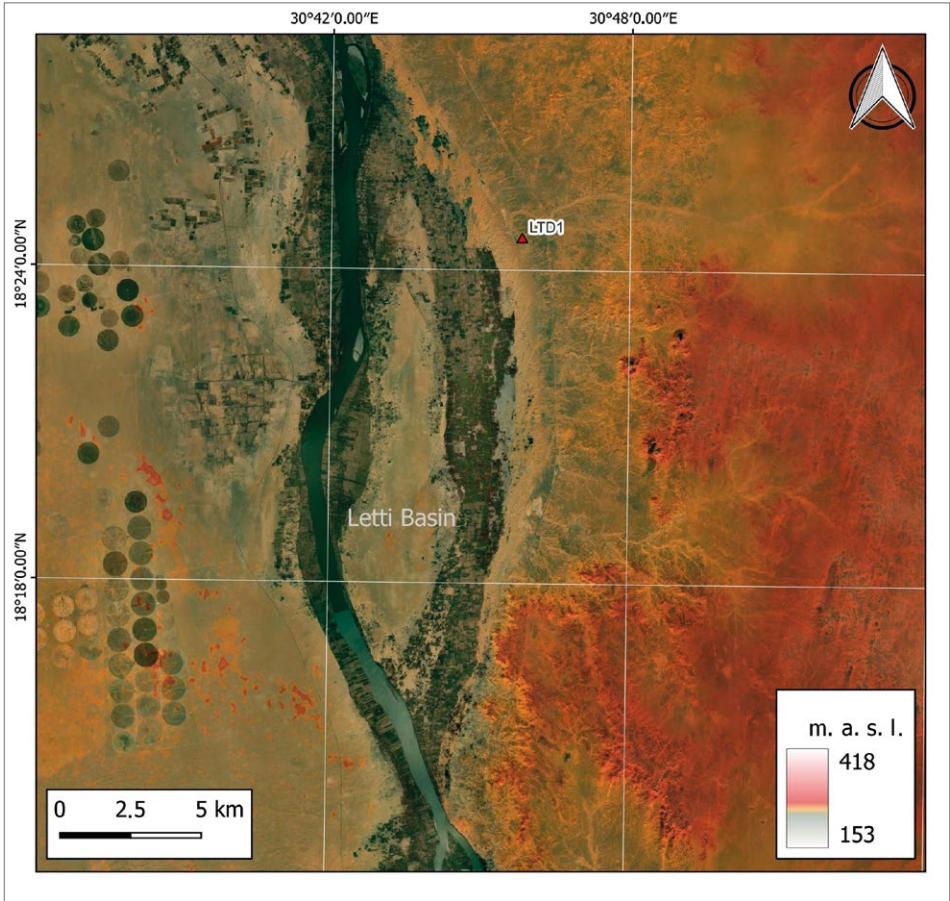


Fig. 1. Location of the LTD1 site in the Letti Basin, Sudan (Base map and editing P. Wiktorowicz)

LOCATION AND SURVEYS

Site LTD1, discovered in March 2022, is located on the northeastern edge of the Letti Basin. It was a sandy island located halfway between the Third and Fourth Cataracts, extending from the bank of the Nile in the west to an extinct channel known as Khor Letti in the east, on the border with the Nubian Desert (18°24'30.59" N, 30°45'48.09" E) [Fig. 1]. Exploration of the site started right after its discovery (Osypiński et al. 2022) and was continued in January – February 2023.

The site lies in the vicinity of the Letti Gism 1 village, located 300 m to the southeast, and a modern Muslim cemetery situated directly to the north [Fig. 2].

In the 2022 and 2023 seasons, work was carried out in three trenches, each with dimensions of 5 m × 5 m, in crucial parts of the settlement. Trench T1 was established in the southwestern part of the modern cemetery, avoiding disturbance of the contemporary graves. Trench T2 was located approximately 180 m south-

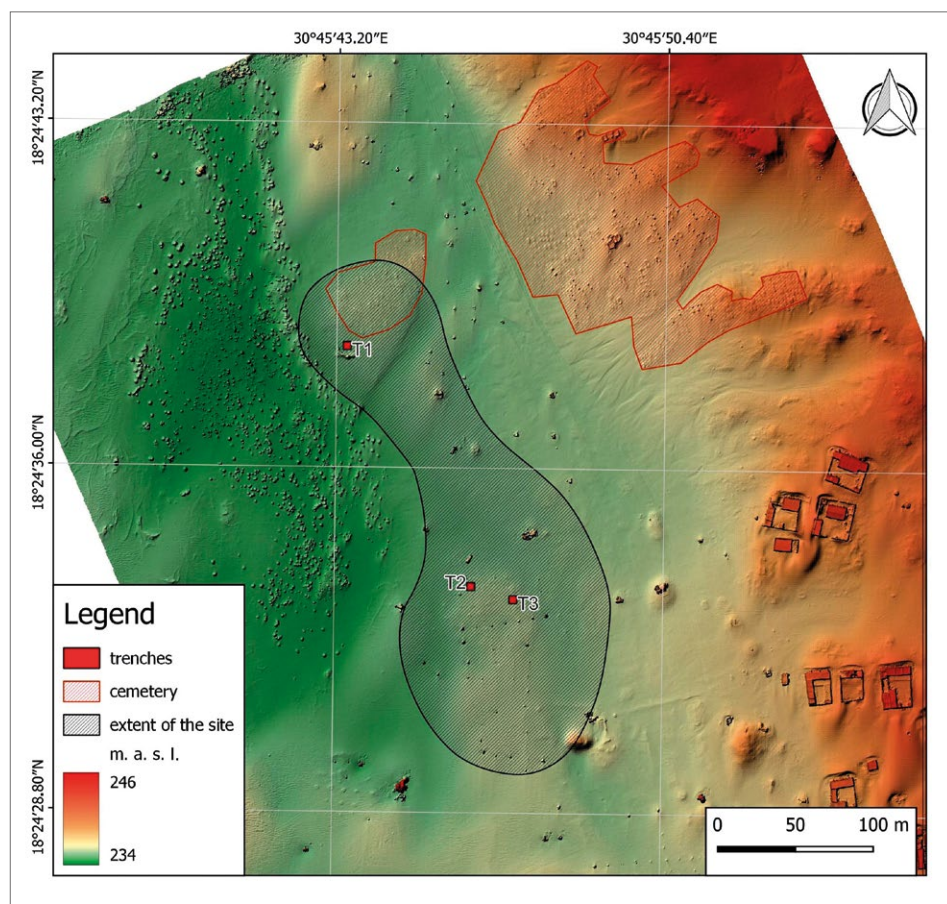


Fig. 2. General map of the site (Orthophoto R. Łopaciuk, base map and editing P. Wiktorowicz)

east of Trench T1, while Trench T3 was located 30 m southeast of T2 [see Fig. 2].

The excavation was carried out in arbitrary layers (levels) 5–15 cm thick. The method was adapted to the observed stratigraphy of the recorded deposits (contexts). The fills were screened within the distinguished units, and the material acquired was inventoried. Each of the levels was documented photographically (including the use of a drone for vertical photography) and on drawings, and height measurements were taken using an RTK GPS set.

TRENCH T1

In Trench T1, outlines of the first prehistoric features were observed following the removal of a surface layer of

sand about 5 cm thick [Fig. 3:A]. They were visible most clearly in the north-west corner of the trench (Context 2), where a dark brown formation containing charcoals was exposed. Radiocarbon dating of a sample of this sediment yielded an age of 3275 ± 30 BP (Poz-153193) = 1618–1497 calBC (91.6% probability). This feature likely represents the remains of a utility layer filling a cavity inside a dwelling or utility room. Two small near-circular features were also recorded at a similar level (Contexts 4 and 5). At each of the successive levels explored, the outlines and fills of further features —shallow pits and postholes— were observed. Most were fairly shallow, indicating an *ad hoc* function and

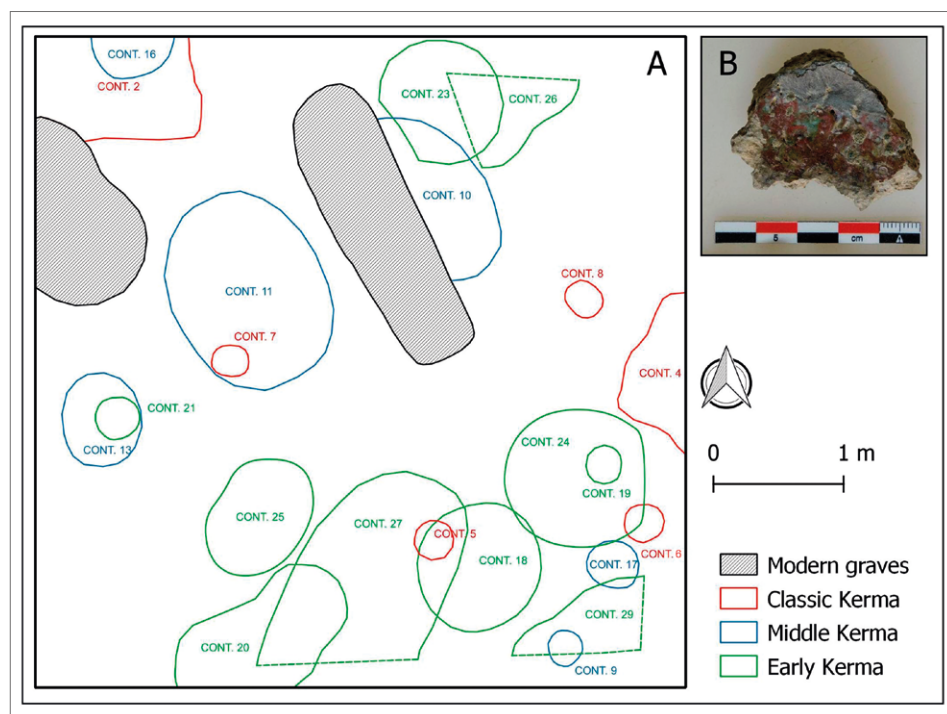


Fig. 3. Trench T1: A – contexts; B – melting form fragment (Drawing J. Kokolus, photo M. Osypińska)

renewed settlement activity in the same location with a natural rise in the surface level due to accumulation of wind-blown sand. This indicates a continuity of settlement over an extended period of time, as indicated by the sequence of radiocarbon dates. The oldest radiocarbon sample (clam shell from a cavity fill on Level V (Context 18) returned a date of 3715 ± 35 BP (Poz-154235) = 2205–2020 calBC (92.8% probability). Another sample (ostrich eggshell), collected from Level III (Context 3), yielded an age of 3490 ± 30 BP (Poz-154234) = 1892–1740 calBC (93.0% probability). The most recent date (the aforementioned Context 2) was some 500 years later. The deepest level containing artifacts (Level XII) was explored at about 1.5 m below the modern surface.

The artifactual material recovered during the exploration of Trench T1 was dominated by kitchen and table pottery, which amounted to 2484 fragments. A total of 2296 lithic artifacts was also identified, including

53 retouched tools and 18 fragments of various stone macrolithic forms, i.e. grinding tools (both grinders and querns). Animal bones —though highly fragmented— were present in almost every context explored [see below, *Table 1*]. A small number (eight specimens) of beads made of ostrich eggshell or their preforms were also found. Traces of metallurgy included two small bronze/copper smelts and a fragment of a ceramic pot with a glazed inner surface [Fig. 3:B]. The latter artifact came from the fill of a shallow pit (C11) associated with the younger phase of Kerman settlement.

TRENCH T2

Immediately after cleaning the area of surface detritus, two stone structures were identified [Fig. 4]. The first one was examined in full, the other in part. The complete structure (C2) was a rectangular stone pavement, 2 m × 2 m in size. At the same level, two cut features were visible, a posthole (C4) and a pit

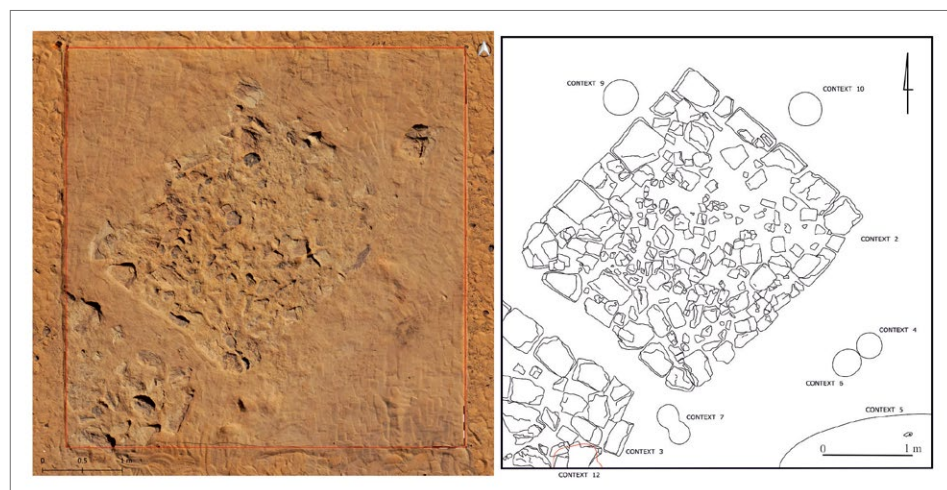


Fig. 4. Contexts of Trench T2 (Drawing J. Kokolus, aerial photo R. Łopaciuk)

(C5), both located in the southern part of the excavated area. More postholes were distinguished at underlying levels, but all the recorded features should be attributed to one occupational phase. A sample of charcoals for radiocarbon dating was taken from the fill of pit C5. It yielded an age of 3335 ± 30 BP (Poz-163168) = 1688–1531 calBC (92.8% probability), which indicates the period of functioning of the stone structures in this part of the settlement.

The source material recovered from the exploration of Trench T2 was dominated by fragments of kitchen and table pottery (1071 fragments in total); 462 lithic artifacts (including 24 retouched forms) were recorded as well. Animal bones—highly fragmented—were present in almost every context explored [see below, *Table 1*]. Also noteworthy is the fairly large number of ceramic combs amounting to eight different fragments, mainly from the first layer (illustrated below, see *Fig. 11*).

TRENCH T3

Removal of the loose sand cover exposed a fragment of a structure founded on at least two rows of stones dug into the ground. They lay parallel to each other, oriented northwest–southeast. In the northern part, more stones extended from them to the west and continued beyond the excavated area. At this level, in the northern part of the structure, an outline of a vessel (Context 2) was unearthed between two stones (Contexts 3 and 4) [*Fig. 5*]. Further work revealed the remains of two hearths, a pit, and a wall of mud bricks,

the continuation of which was observed to the south and east of the excavated area. It seems that the abovementioned stone structure damaged the mudbrick one [*Fig. 6*]. Noteworthy are fragments of mudbricks found within a radius of 1.5 m from the mud structure. An ostrich eggshell fragment, recorded at the lowest level explored (under the stones forming part of the aforementioned structure), was radiocarbon dated to 3610 ± 30 BP (Poz-163078) = 2037–1887 calBC (93.2% probability). A charcoal sample was also taken from the fill of Pit C6 located in the southwest corner of the explored area, at Level I. It yielded an age of 235 ± 30 BP, which corresponds to a dating span from the 16th century AD until modern times (95.4% probability).

The artifactual material recovered during exploration of T3 was dominated by fragments of kitchen and table pottery (1429 fragments in total, including numerous pieces of vessel C2); 1310 lithic artifacts (with a few retouched forms) were also recorded. Animal bones—highly fragmented and sometimes bearing traces of burning—were present in almost every context explored [see below, *Table 1*]. The excavation yielded a relatively high number (41) of ostrich eggshell fragments and five complete beads from this material. Several fragments of grinding tools (both querns and grinders) and two fragments of bone awls [illustrated below, see *Fig. 13*] came mainly from the upper, subsurface levels (C1). In addition, two fragments of ceramic combs were discovered.

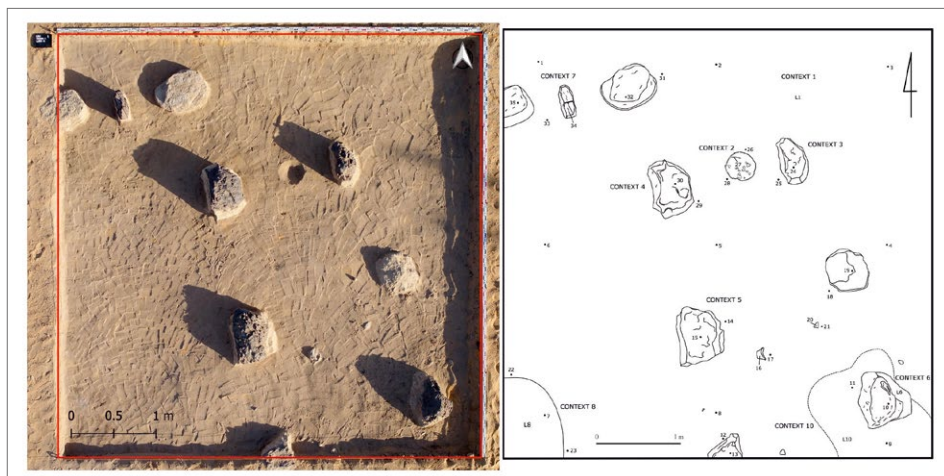


Fig. 5. Contexts of Trench T3 (Drawing J. Kokolus, aerial photo R. Łopaciuk)

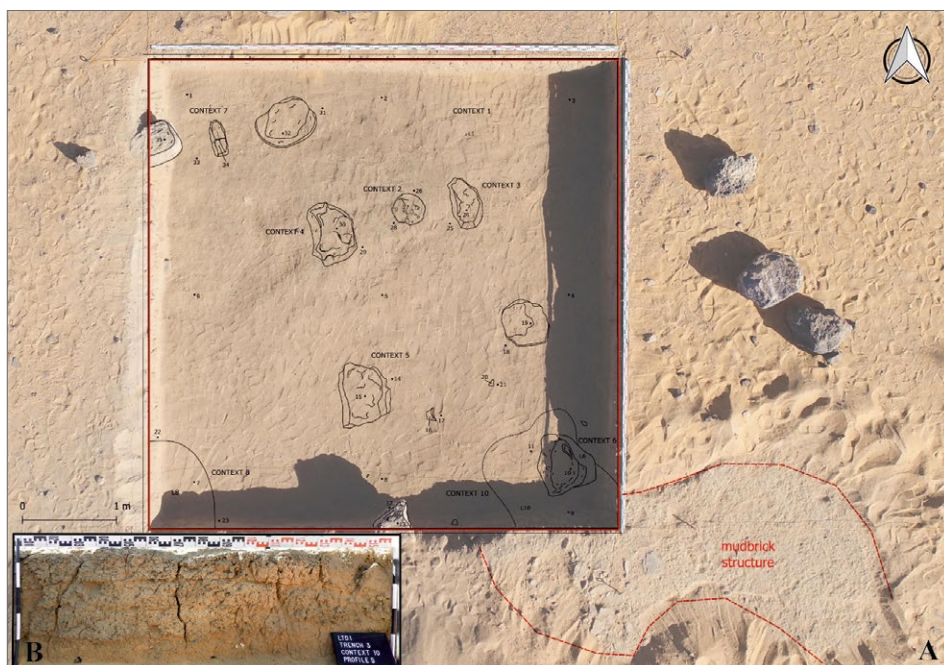


Fig. 6. Data compilation: structures around Trench T3. Inset photo: cross-section of a mudbrick wall (Drawing and inset photo J. Kokolus, aerial photo F. Osypiński)

ASSEMBLAGE

LITHIC AND STONE (MACROLITHIC) ARTIFACTS

Analysis of the stone artifacts found at site LTD1 has enabled identification of some general features of tool acquisition and use by the Kerman community.¹ Above all, no convincing evidence of local production of blade blank was found in any of the pits and contexts explored. This observation is also confirmed by

an analysis of the forms retouched or used as tools. Nor were any significant numbers of cores for flakes found (only a dozen specimens made of chert and single specimens of agate, quartz, and fossilized wood). On the other hand, there were several clearly older forms: Levallois flakes made of chert and different varieties of quartzitic sandstone. It can therefore be surmised that in the process of sourcing lithic raw material for toolmaking, the resources available in the area (older Stone Age sites) were used, although blade products were not favored.

The assemblages found are marked by the presence of rocks with traces of ad hoc quality testing — their proportion ranges from 2% to 3.5% depending on the batch of sediment (excavation area). This category includes both cryptocrystalline raw materials (chert, agate) and quartz. Among the debitage from the various raw materials, unprepared butt predominate, which is indicative of the simple and ad hoc methods used to obtain the blank for tools. The dominant raw material was quartz and, to a slightly lesser extent, chert, with a low proportion of other raw materials. Among the latter, agate and sandstone were the most abundantly represented (with a high share of clearly older artifacts) [Fig. 7].



Fig. 7. Artifacts from Trench T1: A – different kinds of raw material used on the site; B – samples of cores and tools (Photos P. Bobrowski)

¹ A total of 4070 siliceous rock artifacts were recovered from the three trenches during the 2022–2023 survey. The largest number came from Trench T1 (2298), Trench T2 yielded 462, and Trench T3 — 1310 artifacts. It was possible to fully analyze the specimens recovered from different contexts (features and depositional layers) within the first two excavation areas. Analysis of the material from Trench T3 was planned for the next research season, but initial observations of the artifact collection have already shown that it does not generally differ from the rest of the Kerman material.

The proportion of overheated artifacts varies between 19% and 37%, with no recorded intentional overheating of the tools' raw materials.

In terms of form, the repertoire of stone tools from the Kerman settlement is dominated by simple, ad hoc flakes with a denticulated edge [Fig. 8:A.4], most likely used for cutting soft organic materials. Analogous forms with abrupt retouch [Fig. 8:A.7] and perforators [Fig. 8:A.3, 5, 15–17] were also present. We have no indication of whether these forms were hafted in any way. In contrast, the use of mounted composite tools is suggested by the presence of several backed pieces made exclusively from flake

blank [Fig. 8:A.9]. A separate category appears to be wedge-type tools — perhaps a waste product of this use of artifacts are a few splintered pieces (including flakes with edge butts).

The flint materials find their technological and typological parallels at another site with remnants of Kerman settlement at Letti: Kadakol 1 (cf. Kobusiewicz and Krzyżaniak 1974; Chłodnicki and Grzymski 2018; Bobrowski et al. 2022).

POTTERY FINDS

In the 2022 season, 805 pottery fragments from T1 were analyzed. Among them, several categories were distinguished [Figs 9–11].

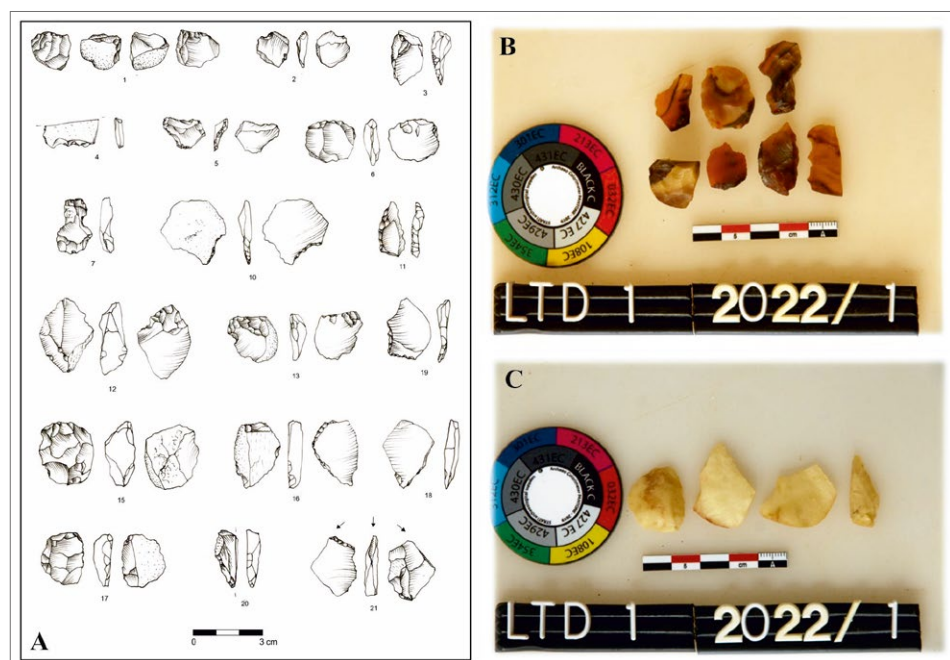


Fig. 8. Lithic artifacts from Trench T1: A – lithics: 1 – core, 2 – borer, 3, 5 – perforators, 4 – denticulated piece, 6 – scraper, 7 – notch (all made of agate); 8 – borer, 9 – segment, 10–12 – perforators, 13 – core (all made of chert); 14 – scraper, 15–17 – perforators (all made quartz); 18 – burin made of silica glass; B – samples of tools made of agate; C – samples of tools made of quartz (Drawings and photos P. Bobrowski)

Fine, well-polished pottery with very fine temper constituted 14% of the sample [see Fig. 9:A, B]. The surfaces were red (sometimes brown), black, or with a grey band between the red and black. The wall thickness was 2–6 mm. All these vessel fragments came from black-top beakers. The group also included well-polished pottery with fine temper, both surfaces black, and rims slightly thickened.

Fine, brown pottery with polished or smoothed surfaces constituted 11% of the sample. The break and interior were black, with very fine temper. The wall thickness was typically 4–6 mm.

Thick-walled pottery coated with a red slip on the outside and with black or brown interiors constituted 9% of the sample. The break was black, with fine mineral and or-

ganic temper. The wall thickness was mostly 6–10 mm. Thickened rims were decorated with oblique comb impressions [see Fig. 9:C].

Brown, coarse ware was the most common category (41% of the sample). The external surface was brown or grayish brown, the interior grayish brown to brown. The break was black with fine and medium mineral and organic temper.

Pottery with fine mat impressions was the second most popular category (21% of the sample). The whole surface was covered with mat impressions, and sometimes near the rim additional decoration constituted a row of deeply impressed dots. The external surface was grayish brown to brown, and the internal — dark gray to black. The break was black with abundant medium-sized chaff temper [see Fig. 9:D].

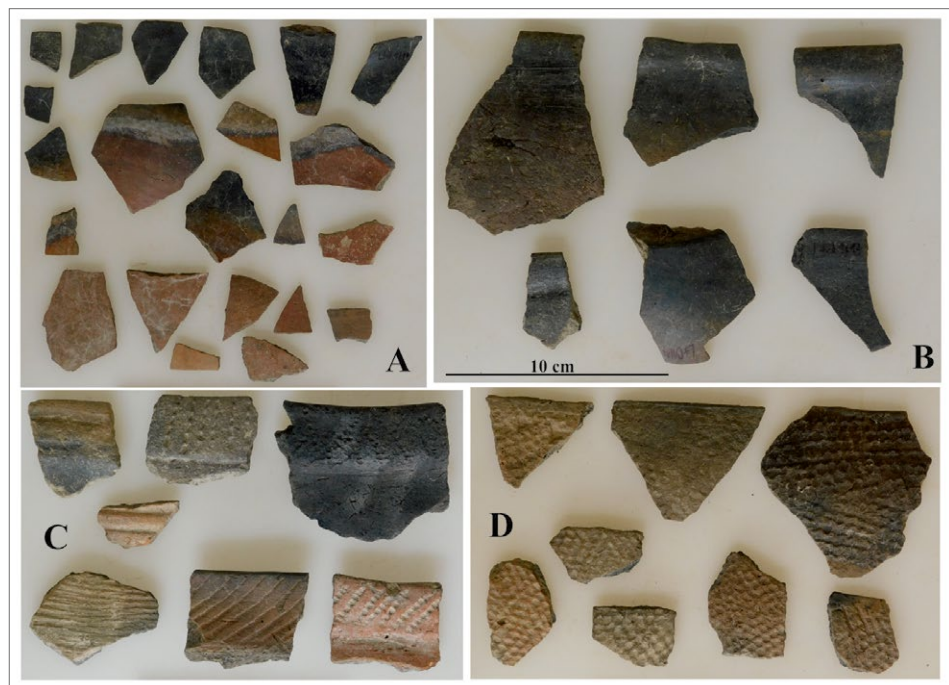


Fig. 9. Pottery from Trench T1: A, B – well-polished pottery with very fine temper; C – pottery with comb impressions; D – pottery with fine mat impressions (Photos M. Chłodnicki, editing P. Wiktorowicz)

Vessels with coarse mat impressions were rare (1%). They had brown or grayish brown external and internal surfaces. The color of the break ranged from dark brown to black. Fine to medium mineral temper was discerned.

About 3% of the pottery was decorated mostly with incisions, sometimes comb impressions. All the decorations were preserved only in small fragments.

A further 2500 fragments of ceramic vessels were collected during the 2023 season. The material in its mass appeared similar to that found in 2022, but some differences could be seen, and some types of decoration were not observed in

the previous season. Fragments of black-top ceramics and typical Classic Kerma cups were less numerous than in the previous season. Thick-walled pottery covered in red slip, with thickened rims decorated with diagonal comb impressions, was also rare. On the other hand, bowls with a straight rim decorated under the edge with oblique engravings, comb impressions or a grid pattern were more numerous [see *Fig. 10:A–D*]. Sub-edge decoration in the form of rows of triangular impressions was attested [see *Fig. 10:E*]. Storage vessels covered with mat impressions were popular. The share of ceramics decorated with paral-

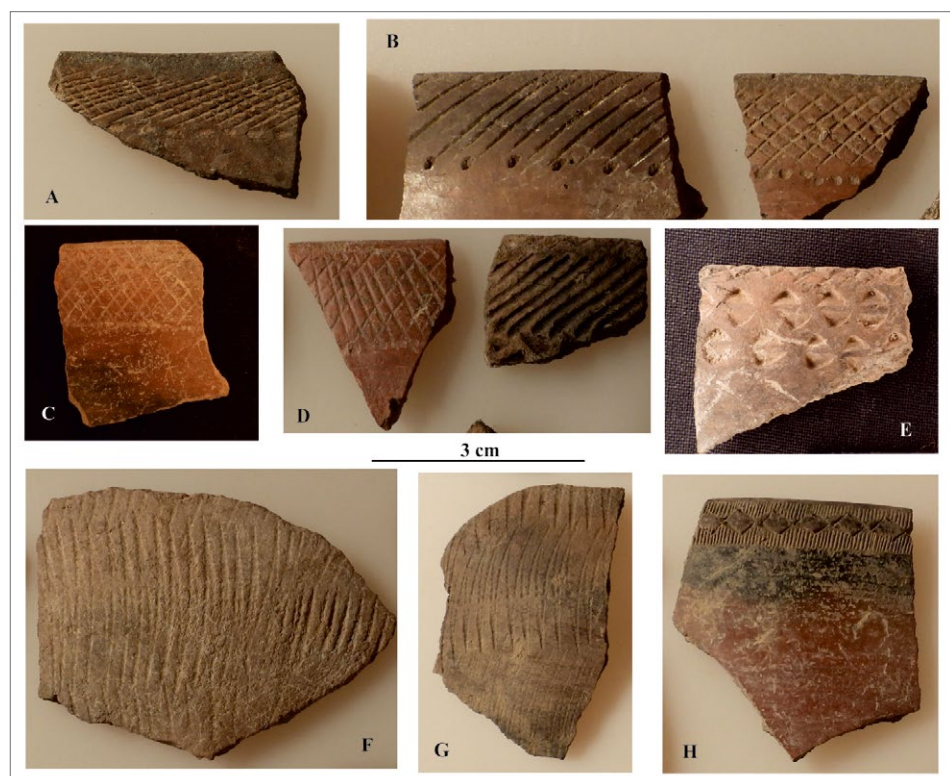


Fig. 10. Decorated pottery from Trench T1: A–D – diagonal engravings, comb impressions or grid patterns; E – rows of triangular impressions; F–G – engraved lines and zigzagging made using the rocker-stamp technique; H – geometric patterns (Photos M. Osypińska)



Fig. 11. Finds from trenches T1, T2, and T3: A – reconstructed early Kerma vessel; B – ceramic combs (Photos M. Osypińska, editing P. Wiktorowicz)

lel engraved lines as well as zigzagging made using the rocker-stamp technique was prominent [see *Fig. 10:F, G*]. Tools probably used for executing this type of decoration have been found at the site [see *Fig. 11:B*]. They were made from vessel fragments, but their form is the same as in similar stone tools known from other Kerma culture sites (cf. Nordström 2004: 253).

Of particular note is the only complete vessel discovered in Trench T1 (Context 21/L) [see *Fig. 11:A*]. It was decorated under the edge with a double zigzag placed between vertical lines. Other geometric patterns were also attested [see *Fig. 10:H*]. The decoration found on the ceramics from LTD1 appears as early as in the late phase of Early Kerma and the early phase of Middle Kerma (Gratien



Fig. 12. State of preservation of osteological materials from LTD1 and graph showing the shares of identified taxa in general terms (Photos and graph M. Osypińska)

1978: Figs 4, 41, 43, Pl. V; Bonnet 1996: 108; Privati 1999: Figs 2, 4, 7, 8; Welsby et al. 2018: Figs 3.14, 3.15). The more numerous fragments of black-top beakers found in the upper layers [see Fig. 9] indicate that settlement continued after the Classic Kerma period (Gratien 1978: Figs 61, 62; Bonnet 1996: 112–113; Privati 1999: Figs 10, 18–20; Emberling and Williams 2010: 24–32).

ARCHAEOZOOLOGICAL DATA

Material

During the two excavation seasons, a total of 3015 animal remains were discovered in the three trenches. They represented a variety of taxa including mollusks, fish, and birds, although mammalian remains were by far the

most numerous. The state of preservation of the faunal material from LTD1 was very poor. The relatively low percentage of remains identified was impacted by severe fragmentation, resulting from the fragility caused by great loss of organic components (collagen). The composition and geological structure of the overlying deposits (dominance of aeolian sands) were not conducive to the preservation of organic artifacts. The state of preservation was particularly poor in the materials from T1, where the percentage of elements identified is only NISP=20.16%. Slightly more diagnostic features were preserved in the animal remains from the other trenches, T2 and T3, where the NISP amounted to 43.1% and 42.6%, respectively [Table 1].

Table 1. Animals from the Kerma settlement at LTD1

	LTD1/T1		LTD1/T2		LTD1/T3 (2023)	
TAXONS	n	%	n	%	n	%
Cattle (<i>Bos primigenius</i> f. <i>taurus</i>)	60	34.68	89	27.63	113	17.87
Sheep/goat (<i>Ovis aries</i> / <i>Capra hircus</i>)	62	35.83	209	64.90	439	69.46
Rodents	2	1.15	2	0.62	2	0.31
Fox (<i>Vulpes</i> sp.)	0	—	4	1.24	—	—
Common ostrich (<i>Struthio camelus</i>) – eggshell	5	2.89	13	4.03	35	5.53
Fish	—	—	1	0.31	—	—
<i>Pila africana</i>	44	25.43	3	0.93	21	3.32
<i>Bivalvia</i> sp.	—	—	1	0.31	2	0.31
NISP	173	100 / 20.16	322	100 / 43.16	632	100 / 42.61
Large ruminants	44	5.12	—	—	23	1.55
Medium ruminants	360	41.95	52	6.97	—	—
Mammals	233	27.15	347	46.51	745	50.23
Unidentified	48	5.60	25	3.35	103	6.94
TOTAL	858	100	746	100	1483	100

Six cattle tooth fragments were submitted for strontium isotopic analysis ($^{87}\text{Sr}/^{86}\text{Sr}$) at the university laboratory in Poznań. Preliminary interpretations of the results based on previous studies (Osypińska et al. 2021; 2023) have indicated that two samples were from organ-

isms of local origin (from the riverine floodplains), but the others were from animals raised outside the Nile Valley [Table 2]. Detailed studies concerning issues of isotopic composition of animal tooth enamel from Letti sites are discussed in detail in a separate, forthcoming paper.

Table 2. Strontium isotope analysis results for samples from the Kerma settlement at LTD1

Context (site-trench-context-level/Sample ID)	$^{87}\text{Sr}/^{86}\text{Sr}$	Error	Comments (compared to published data: Osypińska et al. 2021; 2023)
LTD1-T1-C3-V/PO23.2	0.708582	± 0.000010	Non-local
LTD1-T1-C1-V/PO23.3	0.708721	± 0.000009	Non-local
LTD1-T1-C1-II/PO23.10	0.708735	± 0.000009	Non-local
LTD1-T1-C22-VIII/PO23.11	0.707140	± 0.000011	Local
LTD1-T1-XI/PO23.12	0.707682	± 0.000012	Local
LTD1-T3-C1-V/PO23.13	0.708415	± 0.000010	Non-local

Discussion

The archaeozoological data from site LTD1 corresponds with the state of knowledge on the role of animals and meat consumption patterns in the Kerma period. It should be noted, however, that almost all previous data available for studies on this issue had come from the capital, Kerma. LTD1 is therefore unique in terms of archaeozoology, as it

complements and enriches our knowledge by providing data from a provincial settlement.

As in the metropolis, the economy in the Letti Basin was also based exclusively on ruminants, cattle (*Bos primigenius* f. *taurus*) and sheep (*Ovis aries*), to judge by archaeozoological analysis. So far, the remains of other domesticated animals —goats, donkeys, pigs,



Fig. 13. Artifacts from Trench T3: A – bone awls (Context 1, Levels II–V); B – ostrich eggshell beads (Photos M. Osypińska)

or dogs— have not been recorded. The well-recognized stratigraphy allowed us to observe an important change in meat consumption preferences in the Letti settlement that occurred over time. The older phases of the LTD₁ settlement were dominated by cattle remains, while in the more recent phases sheep were definitely prevalent. It should be added that both isotopic samples of cattle of local origin were from the earliest contexts, while in the later period only animals from outside the Nile Valley were recorded. A similar phenomenon of the declining role of beef in the consumption pattern in favor of mutton is observed in Kerma itself (Chaix 2006; 2011). There, this process is accompanied by an increase in the importance of cattle in funerary practices, e.g. the monumental deposits of “bucranions” at royal tombs.

Due to the lack of funerary data from Letti, we do not currently know whether cattle played a role in the symbolic sphere in the Kerma hinterland.

The presence of the remains of these animals tends to be linked to burials of the upper classes (Chaix 2001). This is, therefore, an interesting issue to clarify in the course of future research at Letti. It should be added that in the numerous burials of the Kerman horizon in the area of the Fourth Cataract studied to date, only the remains of sheep have been recorded.

In general, however, all contexts of LTD₁ showed a clear domination of the remains of small ruminants, mainly sheep [Fig. 12, graph]. The elements of the bovine skeleton occupied the second place. In addition, isolated bone fragments of fish (Nile catfish) and fox, ostrich eggshell beads and semi-finished products [Fig. 13:B], a Nile oyster shell fragment, and bones of small rodents were recorded — the latter most likely a natural feature of the environment.

The anatomical distributions of cattle and sheep remains indicated local meat consumption and no evidence of distribution outside the Letti settlement area.

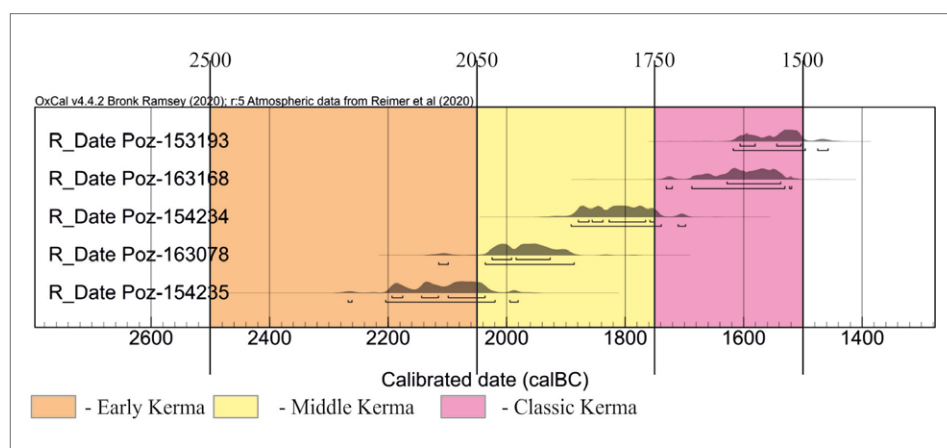


Fig. 14. Absolute chronology of the excavated trenches. Results of calibration of radiocarbon dates (Poznań Radiocarbon Laboratory)

The lack of distinctive traits made it impossible to assess the sex profile of the slaughtered animals. However, it was possible to assess their age at the time of death. The proportion of animals killed before maturity was low and similar for both cattle and sheep, amounting to less than 2% of the total remains in both taxonomic groups (ovicaprids 1.8%; cattle

1.9%). Due to the high fragmentation of animal remains, only a few measurements could be made. A morphological feature noted was the hornedness of the ruminant varieties bred at Letti.

Two ad hoc bone tools of the awl type were made from fragments of shafts of the long bones of a large ruminant [Fig. 13:A].

SUMMARY

The results of two seasons of excavation at site LTD1 have revealed the remains of a settlement in a good state of preservation, which probably functioned continuously for at least 500 years, from the older, through the Middle, to the Classical phases of the Kerma culture [Fig. 14]. The latter chronology finds confirmation in the analyzed ceramic material, as well as in the radiocarbon dating of the samples collected. The next settlement phase at the site was already associated with the modern Muslim cemetery and village. The Kerma settlement undoubtedly included residential and storage lots (like the area of rectangular stone pavements), as well as a zone in which mudbrick structures of unknown function were erected. The site should undoubtedly be interpreted as a local settlement.

Importantly, surface reconnaissance has indicated the existence of similar settlements in the immediate vicinity, both in the Letti Island area and on the edge of the desert plateau (Osypiński et al. 2023, in this volume). Assuming their similarity to LTD1, these settlements indicate that the Letti area was highly attractive for permanent settlement with an economy based on agriculture and resource control. However, no evidence of a dominant role of large ruminant husbandry has been found. Letti cannot, therefore, be seen as a cattle-breeding base for the kingdom of Kerma, but the first isotopic data have indicated that an elaborate system of importing these animals from outside the Nile Valley was in operation from the Middle Kerma period onwards.

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