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Prehistoric settlement south of the 5th Nile Cataract – Some results of recent archaeological work of the El Gol Project

Introduction

Prehistoric archaeological research in Sudan had a long period of intense activity since the pioneering work by Anthony Arkell at the Khartoum Hospital site in the 1940s. Prehistoric sites are known along the Nile Valley and in adjacent desert areas. The evidence is, however, still patchy and very much depending on the intensity of research (Usai 2016). One region relatively untouched by prehistoric research is the area of the 5th Nile Cataract. After first sporadic archaeological investigations in the 20th century it was only during the last two decades that more ample research had been started. The planned dam construction at Shereiq triggered rescue survey in areas which would have been affected by the flooding (Welsby 2013: 131). Different teams worked along the Nile, among them the University of Münster's El Gol Project (Jesse et al. 2013). While these recorded sites of all periods, a special focus was laid on the "Mesolithic/ Neolithic", the Early and Mid-Holocene period, during the survey and excavation work undertaken by Hassan Mustafa Alkhidir in the area of Fotwar (e.g. Alkhidir 2018, 2019). Recent fieldwork by the El Gol Project in the 5th Cataract area added more data which also contributes to the understanding of the place of this region in the prehistoric picture of Sudan.

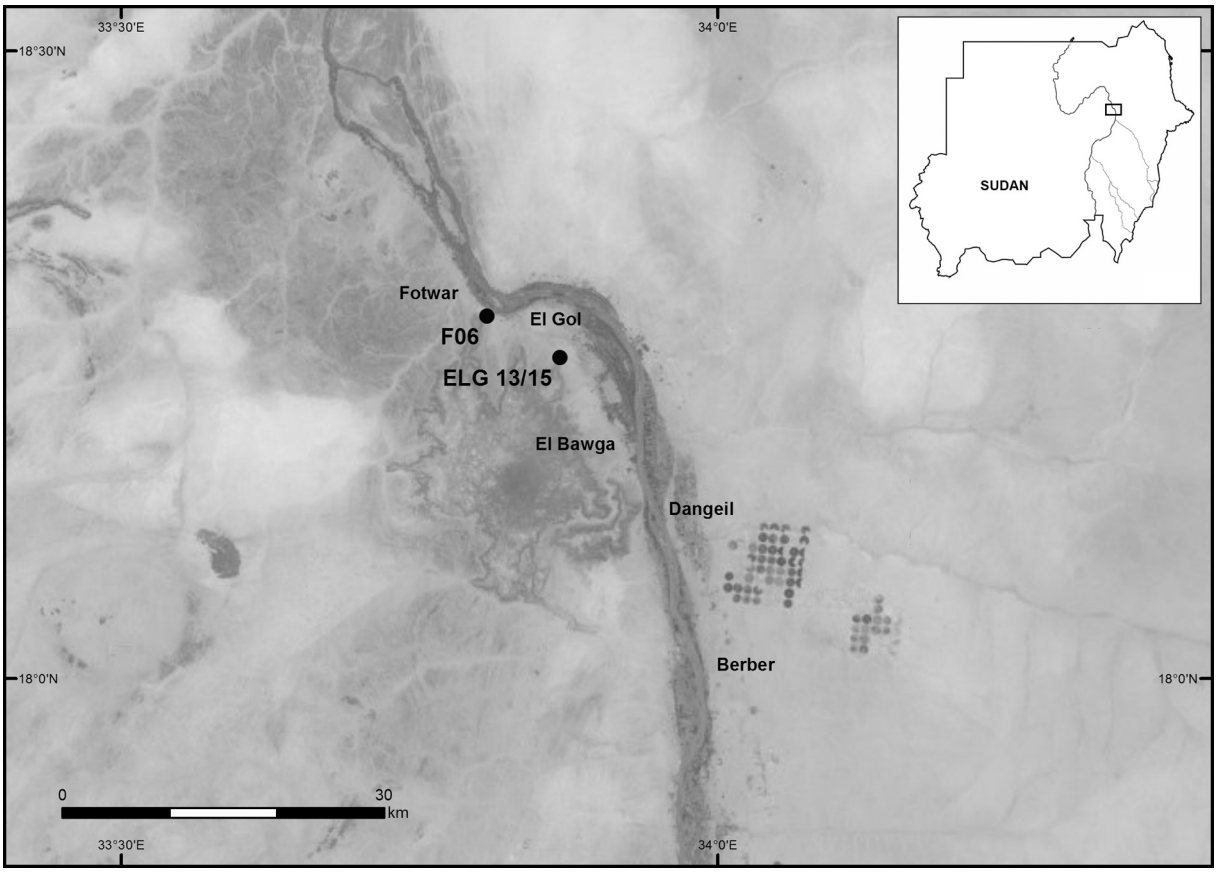

Fig. 1: Map of the working area indicating the location of sites ELG 13/15 and F06 (Satellite imagery: ESRI basemap).

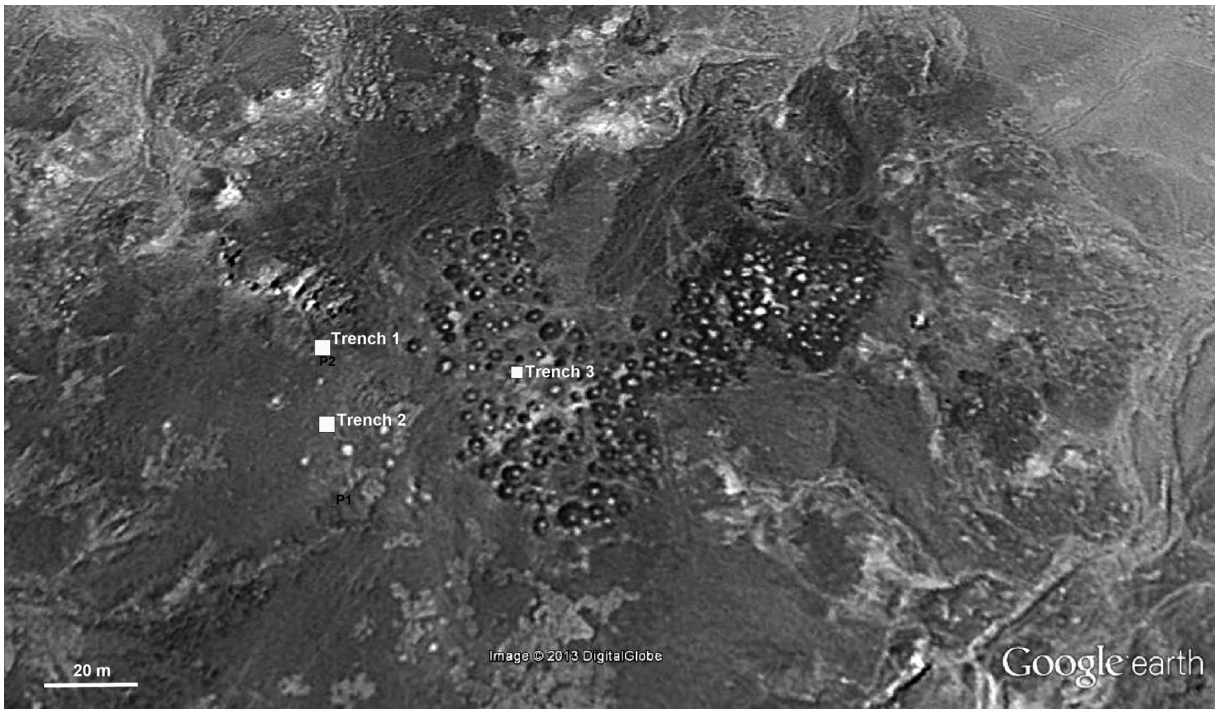

Fig. 2: Satellite image of site ELG 13/15 with the excavated trenches. P1 and P2 indicate the reference points for all measurements (Satellite imagery: Google Earth).

Previous research by the El Gol Project

In 2013, a first survey of the El Gol Project was carried out in the area of El Gol (Fig. 1), roughly between N 18° 06' and N 18° 20' south of the 5th Cataract (Jesse et al. 2013). More than 100 sites of various periods were recorded, among them two large late prehistoric settlement sites, site ELG 13/15 and site ELG 13/56. Both sites are characterised by rich midden deposits covering hundreds of square meters. According to the pottery found on the surface, both sites date from the Early to Mid-Holocene. At site ELG 13/15, situated northwest of El Bawga, pottery sherds and some faunal remains were collected on the surface. Site ELG 13/56, located on a small jebel close to the village of Fotwar, was only briefly visited. At both sites, graves are present. According to observations in 2013, the numerous tumuli at site ELG 13/15 might (at least) be partly of the same age as the surrounding site. The graves consist of small-sized round tumuli, 2 to 4 m in diameter and not more than 50 cm high, with a depression in the centre. Mostly they cluster very closely to each other. At site ELG 13/56 some box graves were observed at the foot of the small jebel indicating also a later use of the area (Jesse et al. 2013: 61–64).

In 2013, the prehistoric site discovered close to the village of Fotwar was recorded as site ELG 13/56 as the El Gol Project team was not aware of the results of a short archaeological survey around Fotwar in 2008 during which the site was already mapped as site Jebel El-Khazna (F06) (Alkhidir 2019: 89). Between 2013 and 2016, Hassan Mustafa Alkhidir documented and studied the Jebel El Khazna F06 site within the scope of his MA-Thesis (Alkhidir 2017; see also Alkhidir 2018, 2019). In 2017, it was therefore decided by the El Gol Project to use this name, Jebel El Khazna F06, or shortened F06, for all further archaeological work at the site.

The field work in 2017

The aim of the 2017 season in the El Gol area was a preliminary study of the two sites ELG 13/15 and Jebel El Khazna F06 (the former site ELG 13/56) (Fig. 1) in order to determine the thickness of the archaeological deposits and possible strata as well as to obtain a representative sample of archaeological material for further analysis. The investigation took place in autumn 2017 (Jesse et al. 2018).[1] At both

1 The field work at both sites was carried out from 1st to 16th of November 2017. The team consisted of Dr. Friederike Jesse, Jan Kuper, M.A., Dr. Nadine Nolde (all University of Cologne, Institute of Prehistoric Archaeology), Hassan Mustafa Alkhidir (Shendi University, representative of the National Corporation for Antiquities and Museums (NCAM)) and Modather Abdallah Jadain (El Nilein University, Khartoum). For the first days also Professor Dr. Angelika Lohwasser (University of Münster), head of the El Gol Project, participated in the field work.

sites small trenches were excavated and a general survey of the sites using a total station was made, including the mapping of single finds and features. All trenches were excavated in artificial spits of 5 cm thickness with the only exception of trench ELG 13/15-3 where artificial spits of 10 cm thickness were excavated. All sediment was sieved using a mesh size of 3 mm.

The excavations at site ELG 13/15 and site Jebel El Khazna F06

Site ELG 13/15

The site extends at least about 200 by 100 m over a small plateau on the north-eastern slopes of the small mountain ridge which forms the first terrace west of the river Nile, about five km from the actual river course (Fig. 1 and 2). Several erosions channels cut into the site. In the northern and eastern part of the site a large field of tumuli is present. These tumuli consist of small stone heaps and stone rings. The latter might, however, only represent the remnants of already plundered stone heaps. There are clear indications that some of the tumuli were robbed. On the plateau of the terrace and especially in the area of the tumuli only a few artefacts such as pottery sherds are visible on the surface. On the eastern slope of the site much more archaeological material, especially faunal remains, but also pottery sherds are present.

A general survey using a total station was made to record single finds and features. Furthermore, two areas in the western part of the site were chosen for excavation (Fig. 2): One trench (ELG 13/15-1) was set up close to the slope in an area already disturbed by looting and the second (ELG 13/15-2) right on the plateau. A third trench, ELG 13/15-3, was located close to one of the tumuli.

Excavation at trench ELG 13/15-1 covered 2 m² and was dug to a depth of about 60 cm up to the natural soil. No features such as hearths, pits or hut structures were recorded. The fine sandy-clayey sediment was of greyish colour in the top layers and became harder and of more brownish colour at the bottom. A gravel layer with reddish sediment indicated the end of the archaeological deposits and the beginning of the natural sediment. Remarkable was the large amount of molluscs in the upper part of the excavations, mostly gastropods such as *Pila* sp., which sometimes formed small concentrations. The aquatic fauna is very rich as for example also numerous bones of fish and hippopotamus were found. Pottery sherds, numerous flakes and a few ostrich eggshell beads complete the spectrum of finds.

The excavated area of trench ELG 13/15-2 also covered 2 m². Here, the natural soil was reached at a depth of about 30 cm below surface. At a depth of 5 cm a large concentration of snail shells (*Pila* sp.) appeared (Fig. 3) with some pottery sherds in between as well as a fragment of a lower grinding stone. As in trench 1, the archaeological material consists of pottery sherds, lithic artefacts and faunal remains. The sediment in trench 2 was sandy and of light brown to ochre colour in the top layers which changed to a more brown-greyish colour in the bottom layers. Except the concentration of *Pila* sp. no other features were recorded during excavation.

Most of the tumuli present at ELG 13/15 were disturbed by looting. In some cases the unearthed sediment contained prehistoric material which would indicate a later date for at least some of the tumuli. To clarify this, a small trench (ELG 13/15-3) was established at the edge of one tumulus located in the middle of the cemetery (Fig. 2). The tumulus is a rounded stone heap of the locally available basalt blocs (up to double fist size) with an approximate size of 2.5 x 2.5 m and a height of 45 cm. No disturbance of the tumulus was observed. In the north-western fringe of the tumulus an area of 1 x 0.5 m was excavated up to a depth of 30 cm where bigger stones and gravel indicated that the natural soil was reached. Only very few finds, mostly stone artefacts, were made. These were, however, not diagnostic for further analysis.

In all trenches, sediment samples were taken. In trench ELG 13/15-1, square 101/139c, a sediment sample (c. 5 l) was taken in every spit for wet sieving. The analysis of these sediment samples is not yet completed. Micromorphology samples were taken in the sections of trenches 1 and 2, one sample was also taken from planum 3 (reached at a depth of 10 cm) in trench 2.

A charcoal sample taken in a depth of about 15–20 cm in trench ELG 13/15-1, square 101/139d-22 was dated to 5630±30 cal BC (Tab. 1).

Site Jebel El Khazna F06

The site is located on a small mound close to the village of Fotwar and about 600 m west of the Nile (Fig. 1 and 4). A dense artefact scatter is present with pottery sherds, stone artefacts, faunal remains as well as grinding material. Different features probably not all contemporaneous with the prehistoric occupation were observed, such as a circular stone structure made of sandstone blocks on the eastern side of the mound or a probable storage pit which was dug in the exposed rock on top of the mound (Alkhidir 2019).

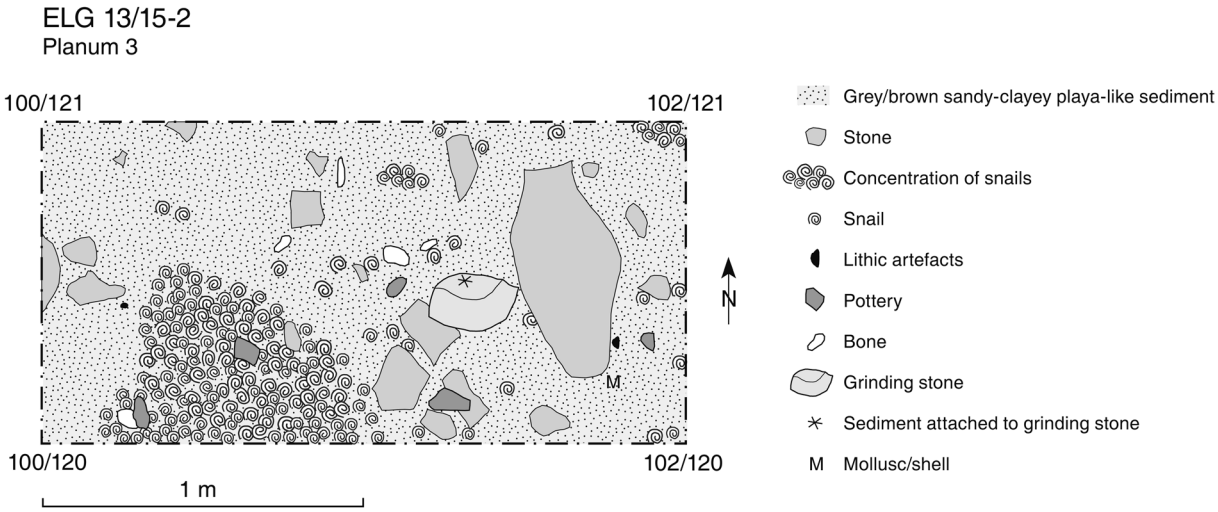

Fig. 3a: Site ELG 13/15-2: Drawing of Planum 3 showing the concentration of snails (Graphic representation: Anja Rüschmann).

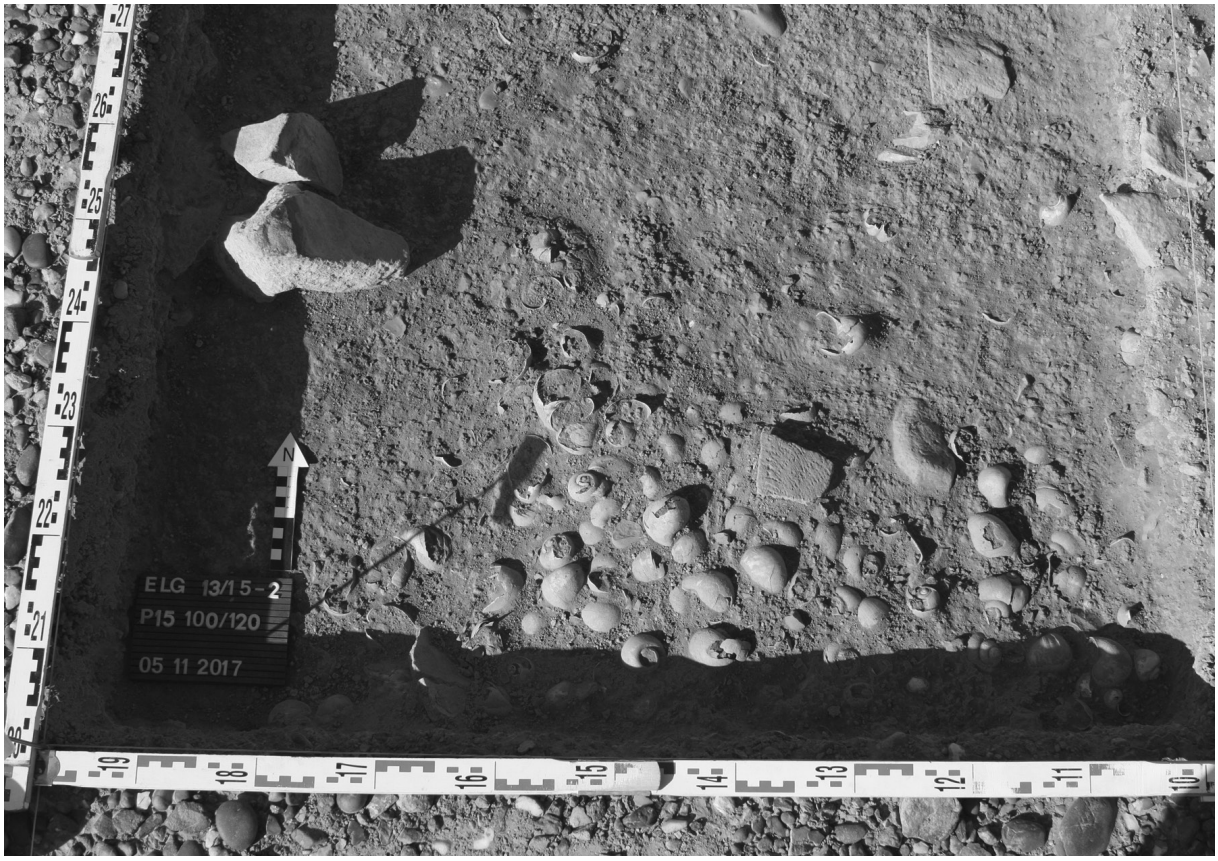

Fig. 3b: Site ELG 13/15-2: The concentration of snails in square 100/120 of Planum 3 (Photo: Jan Kuper).

Site	Context	Lab No	BP	±	cal BC*	±	δ13C	Material
F06-4	Sq. 300/340b (20-25 cm)	Beta-499977	7530	30	6410	30	-25.3 o/oo	Charcoal (*Acacia*)**
ELG 13/15-1	Sq. 101/139d (15-20 cm)	Beta-499978	6720	30	5630	30	-25.4 o/oo	Charcoal (*Acacia nilotica*)**

Tab. 1: Radiocarbon dates. *Laboratory dates were calibrated using CalPal 2-D dispersion calibration, version 2016 (Weninger & Jöris 2008) with the Intcal13 dataset (Reimer et al. 2013). **Determination: Dr. Barbara Eichhorn, Frankfurt.

Fig. 4: The small mound of site Jebel El Khazna F06 seen from southeast (Photo: Friederike Jesse).

Tumuli (mostly disturbed) are visible on the mound as well as some box graves at the foot. In the south and south-west graffiti as well as rock engravings were observed on the sandstone blocks cropping out here.

To complete the study of the site (see Alkhidir 2019) a detailed survey using a total station was made including the mapping of single finds and features and a small trench extending 1 x 1 m, was excavated in the northern part of the site (Fig. 5). Trench F06-4 is situated on the slope, c. 3 m below hilltop. In contrast to the trenches 1–3, already excavated by Hassan Mustafa Alkhidir in the southern part where the thickness of the archaeological deposits was partly up to 1 m (Alkhidir 2017, 2019), here natural soil was reached at a depth of 30 cm below surface. Also the excavated sediment differed. Whereas in trenches

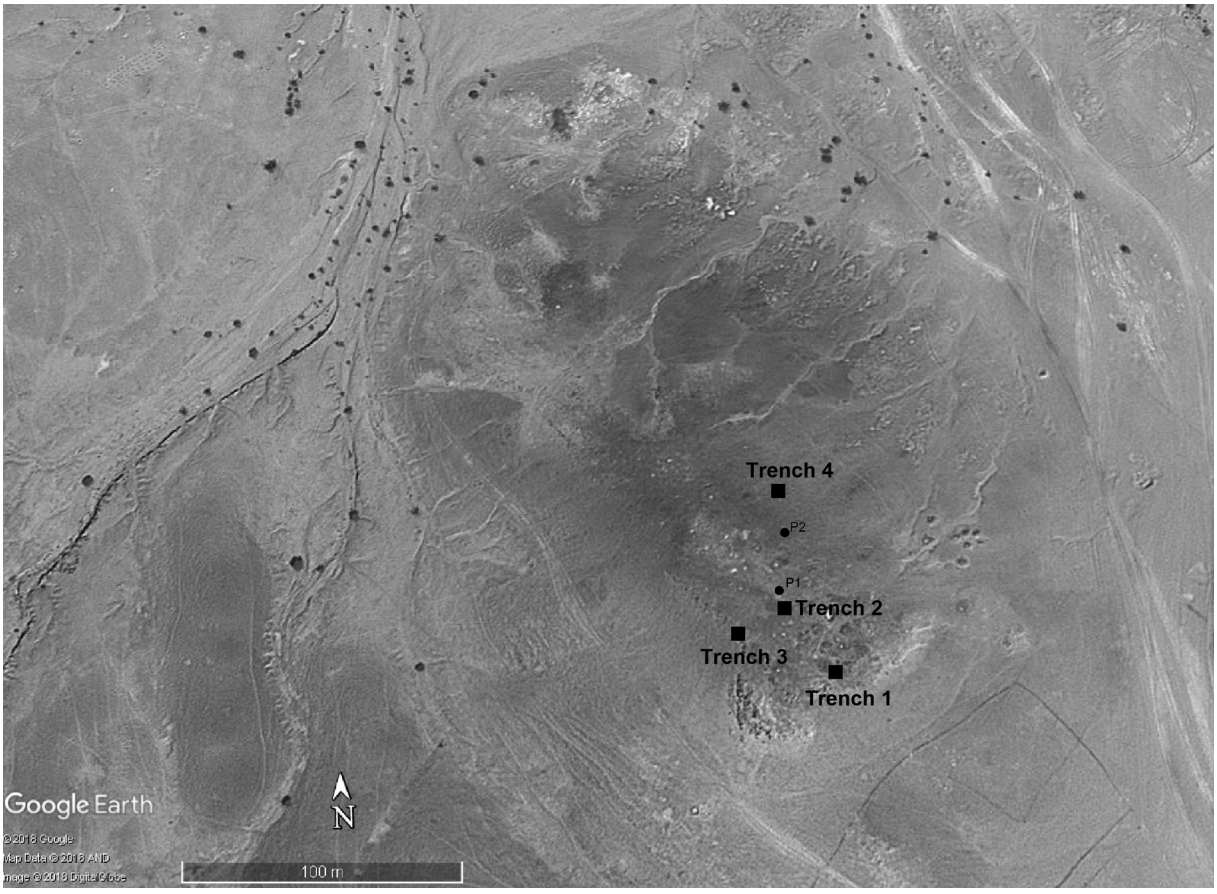

Fig. 5: Satellite image of site Jebel El Khazna F06 with the excavated trenches. Trenches 1 to 3 were excavated between 2013 and 2016, Trench 4 was excavated in 2017 (Satellite imagery: Google Earth).

Site	ELG 13/15-1	ELG 13/15-2
Recorded sherds	387	247
Vessel Units (VU)	356	176
Weight	8.3 kg	3.5 kg
Treatment of surface	Smoothed to well smoothed	
Colour of surface	Brown to reddish-brown, black to grey (about 1/3 of the 356 VU)	Brown to reddish-brown, few black to grey (more often on the inner surface than on the outer surface)
Colour of core	Not recorded	Brown to reddish-brown (79 VU), black to grey (47 VU), not determined (50 VU)
Temper	Angular and rounded grains of quartz, mica (sometimes rather large flakes were added)	Angular and rounded grains of quartz, mica (sometimes rather large flakes were added); fine to medium sized grains; little to medium amount of temper added
Wall thickness	6 - 17 mm; predominantly 7 -10 mm	5 - 14 mm, predominantly 7 -10 mm
Rim diameter	Mostly not determinable, when possible: 18 - 27 cm	Mostly not determinable, when possible: 22 - 28 cm; one obviously rather large vessel (>40 cm rim diameter)
Vessel form	Closed forms mainly	
Main decorative types	Impressed packed zigzags, impressed horizontal rows of dots	

Tab. 2: The pottery of site ELG 13/15 – an overview.

1 to 3 the sediment was of more greyish colour, in trench 4 the sediment was light brown to ochre in the top layer, then changed to a rather brownish-greyish colour in the lower layers until finally the yellowish natural sandstone was reached. Some freshwater molluscs and fish bones were found during excavation. However, a large amount of pottery sherds and a lithic industry mainly based on quartz was recorded.

Sediment samples were taken for wet sieving every 10 cm starting with spit 3 (square 300/340c) and a micromorphology sample was taken from the eastern section of trench 4. The analysis of these samples is not yet completed.

A charcoal sample taken in trench F06-4, square 300/340b-19 was dated to 6410±30 cal BC (Tab. 1).

Description of the archaeological material

At both sites the archaeological material found during the excavations and recorded during the survey included pottery sherds, knapped lithic artefacts, grinders, faunal remains and very few botanical remains. The latter were small charcoal fragments found in the excavations at ELG 13/15 and rarely at F06. Identification of *Acacia* type, *Acacia* type *nilotica* and in one case (ELG 13/15) probably *Prosopis africana* (African mesquite) was possible.[2]

Pottery

Among the archaeological material, pottery is most revealing in terms of chronology and supra-region cultural contacts, the lithic industry discovered at both sites is less indicative. Therefore, the emphasis of the analysis was placed on the pottery. Analysis of the pottery was not carried out on the basis of individual sherds but so-called vessel units (VU). Technological features (e.g. temper, surface treatment and colour) were recorded as well as form and decoration (Tab. 2 and 3). The pottery is rather fragmented, not much refitting was possible and no complete vessel could be reconstructed. According to the rim sherds present, vessels are globular in shape and mostly closed forms could be identified. Rim top forms included rounded and flattened ones. The few base sherds indicate rounded bottoms, sometimes a small knob was added. All vessels are handmade, as far as recognisable coiling

2 Archaeobotanical determination: Dr. Barbara Eichhorn, Frankfurt.

Site	F06-4
Recorded sherds	215
Vessel Units	201
Weight	3.13 kg
Treatment of surface	72 VU (36%) smoothed; 65 VU (32%) polished; 32 VU (16%) eroded surface; 25 VU (12%) unpolished; 7 VU (3%) burnished.
Colour of surface	129 VU (63 %) light to dark brown; 56 VU (28%) grey; the rest is between black to red.
Colour of core	Not recorded
Temper groups	Mainly (74 %) grains of quartz mixed with mica (sometimes rather large flakes were added)
Wall thickness	5 - 14 mm; predominantly 7 - 9 mm.
Rim diameter	Mostly not determinable, when possible: 28 cm
Vessel form	Closed forms mainly
Main decorative types	Different kinds of impressed dotted zigzags; Dotted Wavy Line

Tab. 3: The pottery of site Jebel El Khazna F06 – an overview.

technique was used for the fabrication. At both sites the pottery is tempered with quartz grains (angular and rounded) and mica. Some sherds show a high content of mica causing a shiny effect on the surfaces. Vegetal temper was not observed at all. Decoration was mainly made by impression using the rocker technique, a more detailed description of the recorded decorative patterns is given for each site. At both sites numerous sherds were found showing rounded edges and thus obviously were modified for a secondary use (Fig. 6. 8–9).

ELG 13/15

The pottery sample from site ELG 13/15 comes from the two excavation trenches and the detailed survey using the total station. The pottery sample from the site is rather homogeneous. Altogether 1794 sherds with a total weight of 17.1 kg were collected. Sherds larger than c. 2 cm² were considered for more detailed analysis, therefore only 673 sherds were taken into account which could be grouped to altogether 558 vessel units (VU). During the detailed survey, 26 VU were recorded, 356 VU are from trench ELG 13/15-1 and 176 VU come from trench ELG 13/15-2 (Tab. 2). The surface colour of the sherds is mainly brown to reddish-brown, sometimes black to grey. Vessel surfaces are smoothed to well smoothed. Quartz and mica were added as tempering materials. As far as vessel forms could be reconstructed, these are mainly closed forms. The rim lips are simply rounded or, less frequent, flattened. Decoration was made by impression, mainly applying the rocker technique, resulting in a variety of different zigzag patterns. These patterns vary according to the form and size of the tools and teeth and of course in the way the tool was moved across the vessel. Mostly packed zigzags or horizontal lines of dots were recorded. Decoration on the inner surface was rarely observed (Fig. 6.1). Modifications on the pottery were observed and mainly consist in rounded edges indicating a secondary use of the sherds. Sherds are rarely perforated (Fig. 6.13).

ELG 13/15-1

The analysis is based on 387 sherds, corresponding to 356 VU. The colour of inner and outer surface is mainly brown to reddish-brown, about one third of the 356 VU show black to grey surfaces (Tab. 2). Mica as tempering material was observed in 145 VU (40.7 %) of which 54 VU show addition of large pieces of mica.

Most of the pottery is decorated, only 12 VU (3.4 %) are plain and 9 VU (2.5 %) show an eroded surface. Decoration was made by impression mainly using the rocker technique. Among the decorative patterns packed zigzags are dominant (166 VU; 46.6 %), followed by horizontal rows of impressed dots (79 VU; 22.2 %). Impressed zigzags made with a cord wrapped implement producing dashes are less common (14 VU; 3.9 %) as are zigzag patterns where the movement of the comb is clearly visible (13 VU; 3.7 %) (Fig. 6). Nearly 18 % of the VU did not allow for a clear description of the decorative pattern.

Rims are present on 29 sherds (29 VU). The rim lips are rarely decorated (only 7 VU) and mainly with oval or rounded impressions. Only once a milled rim

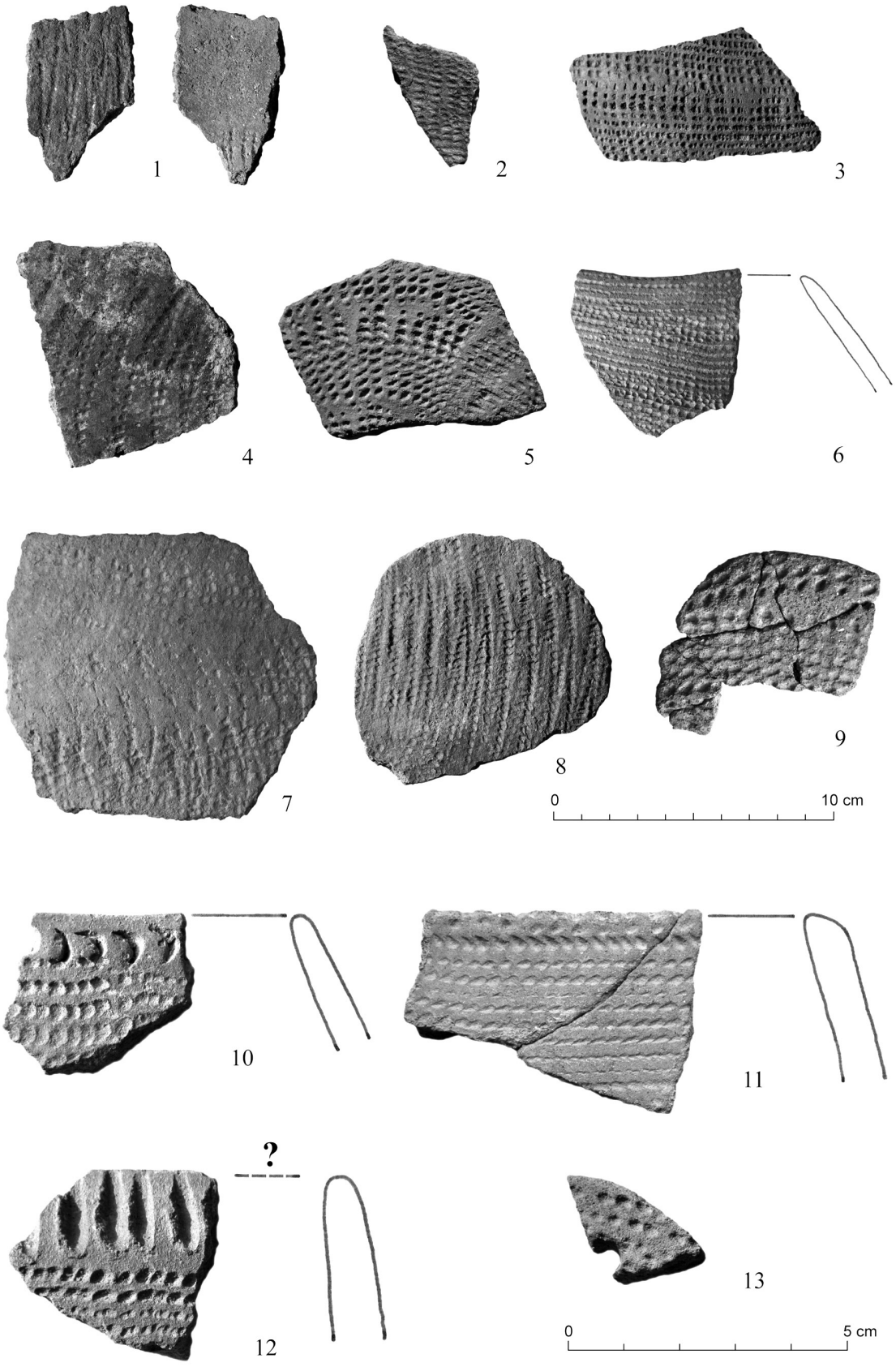

Fig. 6: The pottery of site ELG 13/15 – some examples. Nr. 1, 3-5, 7-8 – Dotted zigzag; Nr. 2, 9 – Dotted zigzag made with a cord wrapped implement; Nr. 6, 10-13 – Horizontal rows of dots. Nr. 1 (left: exterior surface; right: interior surface), 3-6, 8, 10, 12-13 – ELG 13/15-1; Nr. 2, 7, 9, 11 – ELG 13/15-2. Nr. 1-9 scale 1:2; Nr. 10-13 scale 1:1 (Photos: Friederike Jesse).

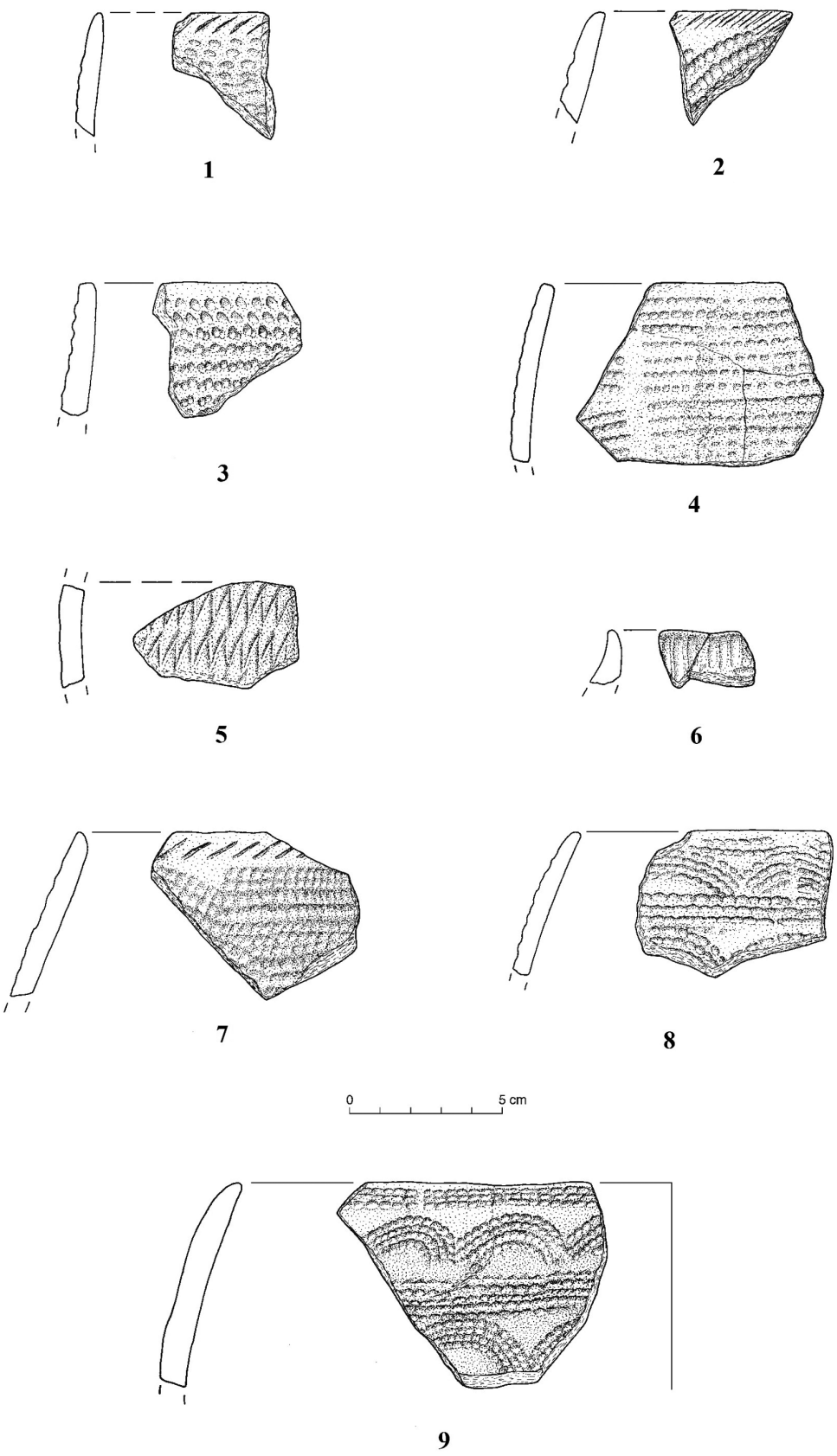

Fig. 7a: The pottery of site Jebel El Khazna F06-4 – some examples. Nr. 1-2, 6-7 – Discrete rim zone decoration; Nr. 3-4 – Dotted straight line; 5 – Plain zigzag; 8-9 – Dotted Wavy Line (Drawings: Anja Rüschmann).

Fig. 7b: Jebel El Khazna F06-4: Different varieties of Dotted Wavy Line (Photo: Friederike Jesse).

is observed. A distinctive decoration of the rim zone is also sometimes recorded (13 VU). Here fingernail impressions (4 VU) occur (Fig. 6.10) or horizontal rows of dots sometimes applied using a two-toothed implement. U-shaped impressions are recorded once (Fig. 6.12).

In about 25 cases intentional modification of the edges was recorded, mainly rounded edges (Fig. 6.8-9). Special forms are one token, one sherd with a perforation (Fig. 6.13) and one sherd with two notches.

ELG 13/15-2

The analysed sherds (n = 247) were grouped to 176 VU. Some sherds are encrusted. A test with 10% hydrochloric acid caused reaction indicating that the encrusting sediment is calcareous. Colour of the surface is mainly brown to reddish-brown. A black to grey colour was recorded less frequently and more numerous on the inner surface. Mica was added in more than half of the vessel units (91 VU) of which 18 VU show large amounts.

Most sherds are decorated, only 9 VU (5.1 %) are plain or with an eroded surface and 2 VU (1.1 %) are only decorated in the rim zone. A clear description of the decorative pattern was not possible for 22 VU (12.5 %). Among the decoration various types of impressed zigzag patterns are dominant (Fig. 6): Horizontal rows of impressed dots (56 VU; 31.8 %), dotted zigzags often densely packed (69 VU; 39.2 %), and a zigzag pattern probably impressed with a cord wrapped implement producing dashes (18 VU; 10.2 %). Decoration on the rim lip was recorded on 8 VU (of a total of 26 VU with rim sherds) and consist of impressed dots or dashes. In three cases a sort of milled rim was recorded. A distinct decoration of the rim zone such as fingernail impression is present on 9 VU.

Modification of sherds was rarely recorded, only 5 VU show rounded edges.

F06-4

Altogether 624 potsherds with a total weight of c. 4.6 kg were collected during excavation in trench 4 (1x1 m). Not classified in detail were 409 small frag-

Fig. 7c: The pottery of site Jebel El Khazna F06-4 - some more examples. Nr. 1 – incised Wavy Line; Nr. 2 – Dotted straight line; Nr. 3 – perforated sherd; Nr. 4 – Fish scales (Photo: Friederike Jesse).

	Quartz		Chert		Volcanic rocks		All materials	
	n	Weight	n	Weight	n	Weight	n	Weight
Cores &	547	1,266	229	815	50	489	826	2,570
Debitage	66.2%	49.3%	27.7%	31.7%	6.1%	19.0%	100.0%	100.0%
Retouched			2	2			2	2
tools			100.0%	100.0%			100.0%	100.0%
Total	547	1,266	231	817	50	489	828	2,572

Tab. 4: El Gol 13/15-1: Lithic assemblage of square 100/139a by raw material (weight in grams).

ments of potsherds (weight 1.5 kg). The remaining 215 potsherds were classified accurately, regarding tempering material, shape, decoration, surface treatment and colour. They form 201 VU with a total weight of 3.1 kg.

The result of the analyses are: In more than two third (68%) of the 201 VU quartz was the dominant tempering material. 6% of the VU included large amounts of mica and the rest was tempered with a mixture of quartz and mica. The colour of the surfaces is by majority brown and in some cases grey, black or red. Most of the pottery is polished and smoothed. Only a few sherds were burnished, creating a shiny surface, and there are also unpolished (12 %) and eroded (16%) potsherds (Tab. 3).

Nearly all the pottery (97%) from trench F06-4 is decorated. Decoration consists mostly of impressed designs (95%). The dominant decoration (64%) are dotted straight lines, which in some cases are combined with other impressed decorations (Fig. 7a.3–4; Fig. 7c.2). In addition, the site is characterised by Dotted Wavy Line (altogether 10% of the decorated VU). Different types are represented (Fig. 7b): There are continues waves and arch-shaped motifs, sometimes separated by dotted straight lines (Fig. 7a.8–9). The arch-shaped motifs were produced with implements with 4–6 teeth. Most of the potsherds with Dotted Wavy Line patterns come from the middle layers between 10–20 cm depth below surface.

There are, however, more patterns such as fish scales (Fig. 7c.4), scraping comb, packed dots, evenly spaced dots, dotted zig zag, plain zig zag (Fig. 7a.5), vees and stippled lines. A few potsherds with an unrecognizable decoration were recorded as "varia".

In addition, 4 VU show incised Wavy Line (Fig. 7c.1), which in general is considered as one of the main decorative patterns among the Early Khartoum sites (e.g. Arkell 1949). Other types of incised decoration are also rare and include scraping comb and incised lines, which is repeated frequently and in various forms on the side of the rims (Fig. 7a.1–2,6).

Due to the small size of the rim sherds present it was not easy to recognize vessel shapes. In a few cases where this was possible, vessel shapes are closed forms (Fig. 7a.7–9). There is some reuse of potsherds visible at the site. Four potsherds clearly show corresponding traces, three of them have abraded (smoothed) edges and one shows a conical perforation with a diameter of 12 mm outside and 7 mm inside (Fig. 7c.3).

Lithic artefacts

At both sites, knapped lithic artefacts represent the majority of the archaeological finds, both in terms of quantity and weight. Quartz is the dominating raw material, however, chert also forms a considerable part of the assemblages of both sites. The production of lithic artefacts follows a rather expedient approach. Small quartz or chert pebbles were collected near or at the sites and worked without further preparation, partly resulting in the production of "crescent-shaped" flakes. The "slicing technology" used to produce such blanks is a characteristic feature of "Neolithic" sites in the Khartoum region such as Kadero and Saggai (Kobusiewicz 1996; see below). Formal tools are rare and consist predominantly of (squat shaped) segments – a common tool type of the Mid-Holocene of the Sudanese Nile Valley. Grinding material is present at both sites.

ELG 13/15

At site ELG 13/15 only one trench (13/15-1) has been examined so far. Moreover, only a sample of it has been analysed, the lithic material of the 50 x 50 cm square 100/139a. This sample is comprised of 828 pieces from altogether ten spits (Tab. 4). The majority (66.2 %) of lithics are made of quartz, the remainder consist of chert (27.7 %) and volcanic

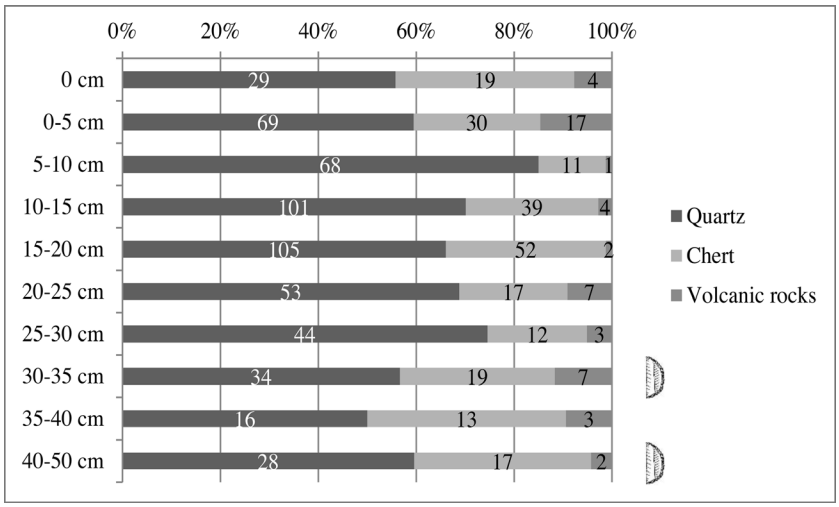

Fig. 8: El Gol 13/15-1: Lithic assemblage of square 100/139a by raw material and spit (cores and debitage only). Origin of tools is indicated by icons.

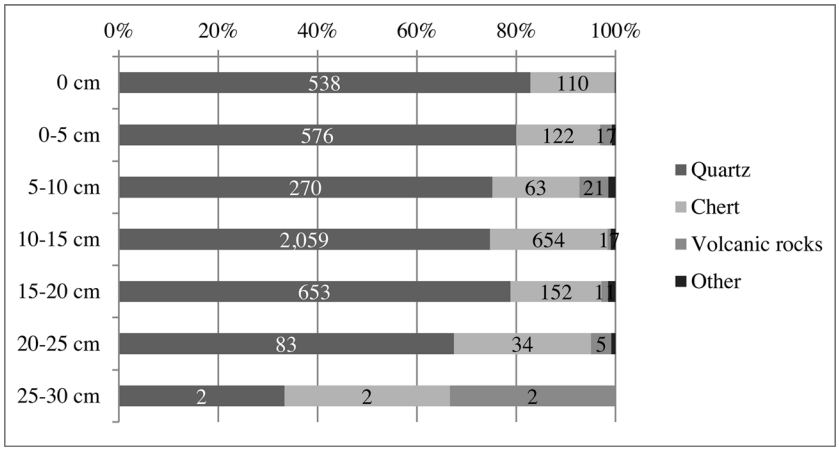

Fig. 9a: Jebel El Khazna F06-4, Lithic assemblage by raw material and spit (cores and debitage only).

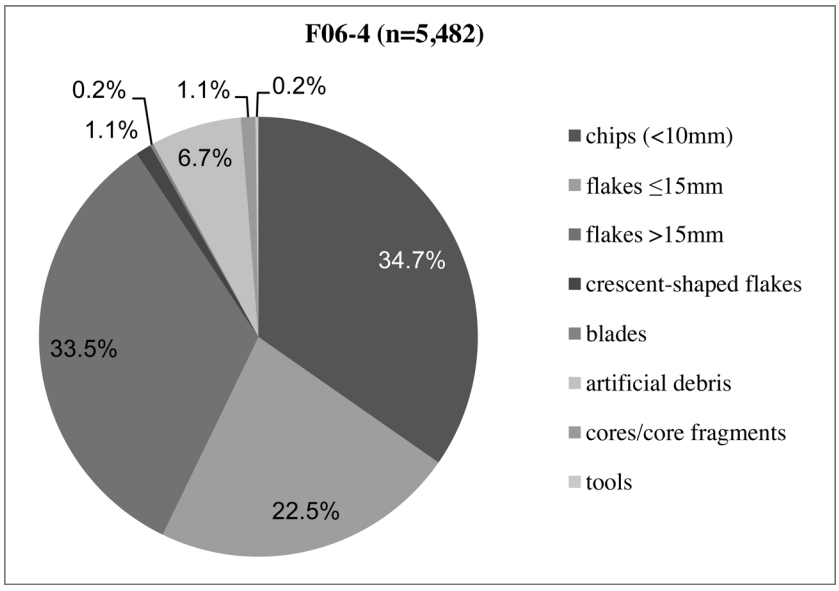

Fig. 9b: Jebel El Khazna F06-4, Lithic assemblage (all raw materials).

rocks (6.1 %), though the proportions vary according to the individual spits (Fig. 8). All raw materials can be immediately accessed at the site. Cores consist mostly of small egg-shaped quartz or chert pebbles which had been knapped without further preparation, resulting in debitage which mainly consist of irregularly shaped flakes and occasionally "crescent-shaped" flakes (see below). Only two flakes made of chert had been converted into formal tools, i.e. segments, which had been found in depths of 30–35 cm and 40–50 cm, respectively (Tab. 4; Figs. 8 and 10.8–9).

Two complete and three fragmented upper grinding stones have been found in the two penultimate spits. A larger fragment of a lower grinding stone made of the locally available grey basalt (170 x 120 x 75 to 105 mm, weight: 4.5 kg) was recorded only on the site. The piece clearly shows knapping traces at the edges, the grinding face was not much used.

F06-4

The lithic material of trench F06-4 at Jebel El Khazna is comprised of 5,482 pieces from altogether seven spits (Tab. 5). The majority (76.8 %) of lithics are made of quartz, the remainder consists of chert (20.9 %), volcanic rocks (1.4 %) and other materials (0.9 %), though the proportions vary according to the individual spits (Fig. 9a). Quartz, chert and volcanic rocks are available in the immediate vicinity of the site. Besides chips and small flakes ≤ 15 mm, which are considered as waste products, flakes > 15 mm (33.5 %) are the most common blank type (Fig. 9b).

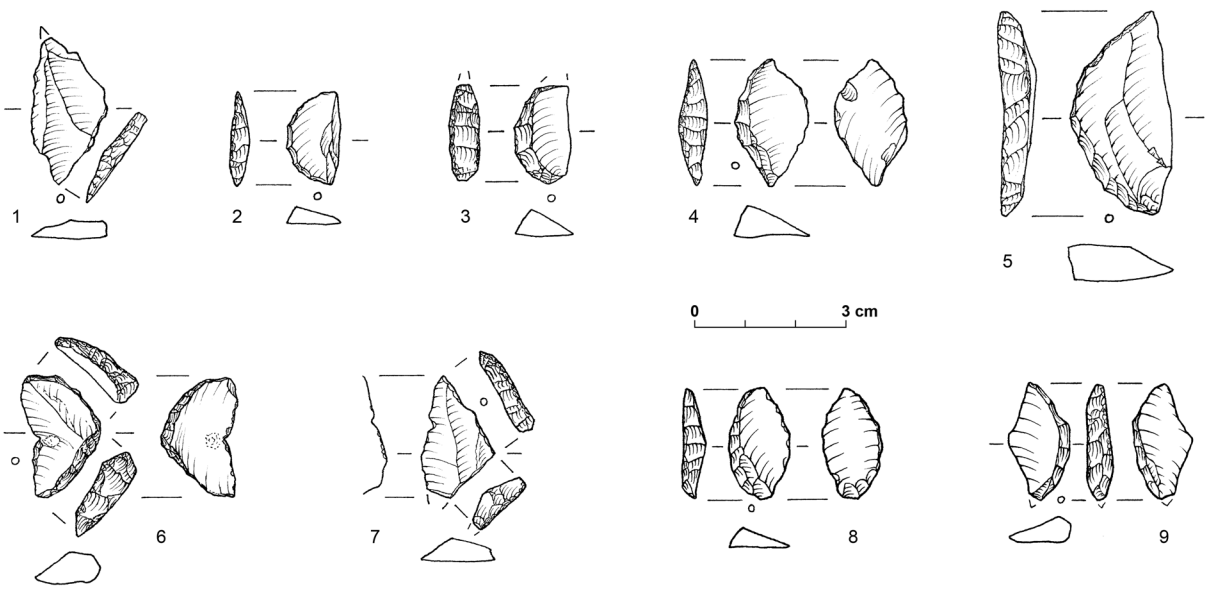

Fig. 10: Backed lithic artefacts. Nr. 1-7 – Jebel El Khazna F06-4; Nr. 8-9 – ELG 13/15-1. Scale 2:3 (Drawings: Anja Rüschmann).

	Quartz		Chert		Volcanic rocks		Others		All materials	
	n	Weight	n	Weight	n	Weight	n	Weight	n	Weight
Cores &	4,203	8,169.8	1,144	1,884.1	76	520.4	47	257.1	5,470	10,831.4
Debitage	76.8%	75.4%	20.9%	17.4%	1.4%	4.8%	0.9%	2.4%	100.0%	100.0%
Retouched	1	0.6	11	25					12	25.6
tools	8.3%	2.3%	91.7%	97.7%					100.0%	100.0%
Total	4,204	8,170.4	1,155	1,909.1	76	520.4	47	257.1	5,482	10,857.0

Tab. 5: Jebel El Khazna F06-4: Lithic assemblage by raw material (weight in grams).

Occasionally, flakes have been observed (1.1 %) which show a naturally arched back, a straight, sharp edge and the shape of a segment of a circle, which correspond to the "crescent-shape" flakes described by Kobusiewicz (1996), that can be produced by "slicing" of quartz pebbles. These blanks could have been used as insets in composite tools without further treatment and may have been a major target of lithic production at the site. With a share of 1.1%, the proportion of cores and core fragments corresponds to that of the crescent-shaped flakes. Blades make up only 0.2 % of the entire assemblage and are certainly accidental products. As indicated by a considerable amount of chips and small flakes ≤ 15 mm (combined 57.2 %), blank production has certainly been carried out at the site (Fig. 9b). The lithic toolkit of trench F06-4 comprises 12 pieces, which have been found in the five upper spits and mainly belong to the group of geometric microliths. Nine segments (Fig. 10.2–6) made on flakes, one equilateral triangle which corresponds to Tixier's Type 89 (Tixier 1963) (Fig. 10.7), one small truncated piece (Fig. 10.1) and a notched flake have been found. With the exception of one segment made of quartz, all tools are made of chert (Tab. 5). Only two fragments of grinding material and one hammerstone were found in the trench.

Faunal remains
(Nadine Nolde)

Material and method

Almost 10,000 finds in total can be assigned to animals at sites ELG 13/15 and F06. Due to weathering and trampling most of the remains were in a bad state of preservation and show a high grade of fragmentation. Especially the sieved material from the excavation trenches contains heavily damaged faunal remains broken into pieces smaller than 10 mm and hence preclude identification. Nevertheless, the sieving process ensured that bones of small vertebrates

			ELG 13/15						F 06			
			Trench 1		Trench 2		Single finds		Trench 4		Single finds	
			n	Weight	n	Weight	n	Weight	n	Weight	n	Weight
Mammals	*Phacochoerus africanus*	Warthog	3	12.5	·	·	1	43.9	·	·	1	29.5
	Hippopotamus amphibius	Hippopotamus	2	95.5	2	173.0	40	4,877.3	·	·	7	603.8
	Hippopotamus?	Hippopotamus?	1	104.7	2	189.5	·	·	·	·	·	·
	Giraffa sp.	Giraffe	·	·	·	·	·	·	·	·	1	72.5
	Syncerus caffer	African buffalo	·	·	·	·	3	255.7	·	·	2	125.6
	Hippotragus equinus	Roan antelope	·	·	·	·	·	·	·	·	2	39.9
	Alcelaphus buselaphus	Hartebeest	·	·	·	·	·	·	·	·	2	56.9
	Gazella sp.	Gazelle	1	0.8	·	·	1	9.6	·	·	·	·
	Antelope, large	E. g. hartebeest	·	·	1	3.5	6	182.5	·	·	5	82.7
	Antelope, small	E. g. gazelle	5	25.2	3	24.5	1	8.6	1	0.6	2	17.0
	Bovide, large	Large antelope or buffalo	2	45.4	2	6.5	·	·	2	2.3	·	·
	Rhinocerotidae	Rhinoceroses	·	·	·	·	·	·	·	·	1	99.5
	Viverrid?	Civit?	1	3.3	·	·	·	·	·	·	·	·
	Leporid?	Hare?	1	< 0,1	·	·	·	·	·	·	·	·
	Rodentia, small	Small rodents	9	0.2	·	·	·	·	·	·	·	·
	Mammalia, large	Mammal, size hippopotamus	169	1,073.5	83	448.9	28	649.2	4	6.1	1	101.3
	Mammalia, large	Mammal, size large antelope	190	265.6	159	211.2	9	144.8	231	379.2	2	43.9
	Mammalia, medium	Mammal, size small antelope	8	10.2	10	6.9	·	·	14	10.2	·	·
	Mammalia, small	Mammal, size fox/hare	2	0.7	5	0.7	·	·	1	0.1	·	·
	Mammalia, indet.	Mammals	109	75.8	53	31.7	·	·	73	26.2	·	·
	Homo sapiens	Human	·	·	·	·	26	45.1	·	·	1	9.2
sub-total			**503**	**1,713.4**	**320**	**1,096.4**	**115**	**6,216.7**	**326**	**424.7**	**27**	**1,281.8**
Aves	*Struthio camelus*	Ostrich	39	4.8	20	0.3	·	·	·	·	·	·
	Aves	Birds	26	5.6	3	0.6	·	·	9	0.7	·	·
sub-total			**65**	**10.4**	**23**	**0.9**	·	·	**9**	**0.7**	·	·
Reptilia	*Crocodylus niloticus*	Crocodile	3	6.4	·	·	·	·	·	·	3	132.8
	Crocodylus?	Crocodile?	·	·	1	4.8	·	·	7	7.9	·	·
	Varanus niloticus	Nile monitor	6	12.4	3	0.5	·	·	·	·	·	·
	Trionyx triunguis	Nile softshell turtle	8	29.7	3	0.7	·	·	·	·	·	·
	Trionyx?	Softshell turtle?	1	0.2	·	·	·	·	·	·	1	16.8
	Testudines	Turtles	7	4.2	·	·	·	·	9	4.4	1	2.6
	Reptilia	Reptiles	16	2.6	1	< 0,0	·	·	1	1.4	·	·
sub-total			**41**	**55.5**	**8**	**6.0**	·	·	**17**	**13.7**	**5**	**152.2**
Fish	*Lates niloticus*	Nile perch	197	207.2	56	17.1	40	196.0	·	·	5	96.5
	Clariidae	Catfishs	214	126.5	116	11.3	3	8.2	·	·	·	·
	Pisces indet.	Fish	1,027	215.1	465	45.3	5	6.4	701	158.6	1	4.6
sub-total			**1,438**	**548.8**	**637**	**73.7**	**48**	**210.6**	**701**	**158.6**	**6**	**101.1**
Freshwater gastropods	*Pila* sp.		2,188	3,484.9	1,317	8,095.6	13	20.8	·	·	·	·
	Lanistes carinatus		65	55.0	21	5.3	·	·	·	·	·	·
	Cleopatra bulimoides		115	13.8	25	2.1	·	·	·	·	·	·
	Lymnea sp.		4	< 0,1	2	0.9	·	·	·	·	·	·
	Gastopoda, indet.	Snails	2	0.4	1	6.4	·	·	143	22.4	·	·
sub-total			**2,374**	**3,554.1**	**1,366**	**8,110.3**	**13**	**20.8**	**143**	**22.4**	·	·
Freshwater bivalves	*Aspatharia* sp.		93	298.2	38	101.8	·	·	·	·	·	·
	Chambardia wahlbergi		24	115.6	·	·	·	·	·	·	·	·
	Mutela sp.		17	25.2	1	2.2	·	·	·	·	·	·
	Etheria elliptica		3	8.2	·	·	·	·	·	·	·	·
	Iridinidae		607	286.2	112	25.6	·	·	·	·	·	·
	Bivalvia, indet.	Shells	·	·	·	·	1	5.3	3	0.3	·	·
sub-total			**744**	**733.4**	**151**	**129.6**	**1**	**5.3**	**3**	**0.3**	·	·
Terrestrial molluscs	*Zoothecus insularis*		11	0.4	6	< 0,1	·	·	·	·	·	·
indet.	indet.		49	24.5	18	13.9	·	·	564	140.5	·	·
sum total			**5,225**	**6,640.5**	**2,529**	**9,430.8**	**177**	**6,453.4**	**1,763**	**760.9**	**38**	**1,535.1**

Tab. 6: Absolute frequencies of species remains in ELG 13/15 and Jebel El Khazna F06 (weight in grams).

such as fish, micro-mammals and small artefacts could also be recovered. Especially the single finds collected during the survey yield better determination conditions, due to their larger size. However, an affiliation to the same chronological context as the faunal remains from the excavation is not necessarily given. Therefore, in the further presentation the faunal results will be separated not only to site and trench but also to single and excavation finds (Tab. 6). The identification was carried out at the osteological reference collection of the Institute of Prehistoric Archaeology at the University of Cologne and at the Staatssammlung für Anthropologie und Paläoanatomie Munich.

The examination of a selected part of the fish bones was supported by Nadja Pöllath[3]. The determination of the molluscs was based on reliable identification keys (van Damme 1984; Brown 1994) and

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	Warthog	Hippo	Giraffe	Roan antelope	Hartebeest	African buffalo	Rhino	Crocodile	Softshell turtle
Marsh						■			
Forest						■	■		
Dry savanna	■		■	■	■	■			
Wet savanna						■			
Steppe	■		■	■	■	■	■		
Scrubland			■	■	■		■		
River		■						■	■
Water bodies		■						■	■

Tab. 7: Habitat requirements of evidenced species in ELG 13/15 and Jebel El Khazna F06 (excavation and single finds).

reference objects from the Mograt Island Archaeological Mission (MIAMI 2014-5), Sudan (Dittrich et al. 2015), which were originally identified by Rainer Hutterer[4]. The presented results are preliminary as for most of the finds a quick screening was conducted in order to provide a first classification into an animal group (mammal, bird, reptile, fish or mollusc). Further investigations will follow. The quantification is based on the number of identified specimens (NISP) and number of specimens (NSP) when exact identification was impossible, respectively, as well as the minimum number of individuals (MNI) and bone weight (BW) with an accuracy of 0.1 gram. To avoid a bias of the numerous molluscs' fragments, it was decided to evaluate only the almost complete shells as well as the number of fragments with complete umbilicus in gastropods and the beak (umbo) in bivalves as indicator for the minimum number of individuals in ELG 13/15. Many gastropod shells are still filled with soil. In order to enable future investigations, removal and cleaning was avoided during the preliminary studies. Thus, the weight ratio of the gastropods is biased, which must be considered in the following evaluation.

Species appearance and their habitat

As mentioned for other sites in the Nile valley animals recorded from ELG 13/15 and F06 demonstrate a strong adaptation of Early to Mid-Holocene humans to aquatic resources, mainly fish and freshwater molluscs (cf. Gautier 1983; Peters 1991, 1992, 1995; Jesse et al. 2013; Chaix & Honegger 2015). Especially the spectrum of fauna in the single finds is quite rich: In ELG 13/15 seven, and in F06 even eleven different species have been identified. Among the molluscs *Pila wernei*, *P. ovata* and *Cleopatra bulimoides* are the most frequent species (Tab. 6). In ELG 13/15 *Pila* is characterised by the fact that it was found in high concentrations, which indicates an extensive harvesting of this snail in swampy areas during decreasing water level as food source in Holocene time (Gautier 1983: 93–94). A similar situation was also observed in El Damer II, where concentrations of *Pila* occurred together with high amounts of the terrestrial snail *Limicolaria cailliaudi* (Peters 1995: 188). Furthermore ethnographic parallels show that *Pila* and *Lanistes* could be used as bait for fishing, too (Arkell 1949: 28–29). Some individuals of the small terrestrial snail *Zoothecus insularis* in contrast point to a semi-arid environment (van Neer & Uerpmann 1989: 312), which seemed to be adjoining the Nile Valley. Also freshwater bivalves (*Aspatharia, Chambardia, Mutela* and *Etheria*) are present and may be used for food or as ladles (Gautier 1983: 60; van Damme 1984: 76). While *Aspartharia* and *Mutela* prefer large rivers and streams, *Chambardia* appears mainly in lacustrine environments and *Etheria* inhabits both types of water bodies (van Damme 1984: 64–74). The amount of fish bones in ELG 13/15 and F06 — most of them not yet identified — assume that a significant part of the diet was provided by fishing. Species such as Nile perch (*Lates niloticus*) and catfish (verified until now are merely members of Clariidae-family) were probably caught with nets (Peters 1991: 39) and played a major role at the two sites. Remains of riverine reptiles like crocodile (*Crocodylus niloticus*), Nile monitor (*Varanus niloticus*) and softshell turtle (*Trionyx triunguis*) are present but rare as well as water and marsh land adapted mammals, in particular hippo (*Hippopotamus amphibius*) but also African buffalo (*Syncerus caffer*). There is further evidence of species like warthog (*Phacochoerus africanus*), roan antelope (*Hippotragus equinus*), hartebeest (*Alcelaphus buselaphus*) and rhino (Rhinocerotidae) which prefer steppes, grasslands, savannas and scrublands (Kingdon 2018) (Tab. 7). The occurrence of giraffe (*Giraffa* sp.) is in addition linked with high trees. Domestic animals could not be documented.

4 Zoological Research Museum Alexander Koenig, Bonn.

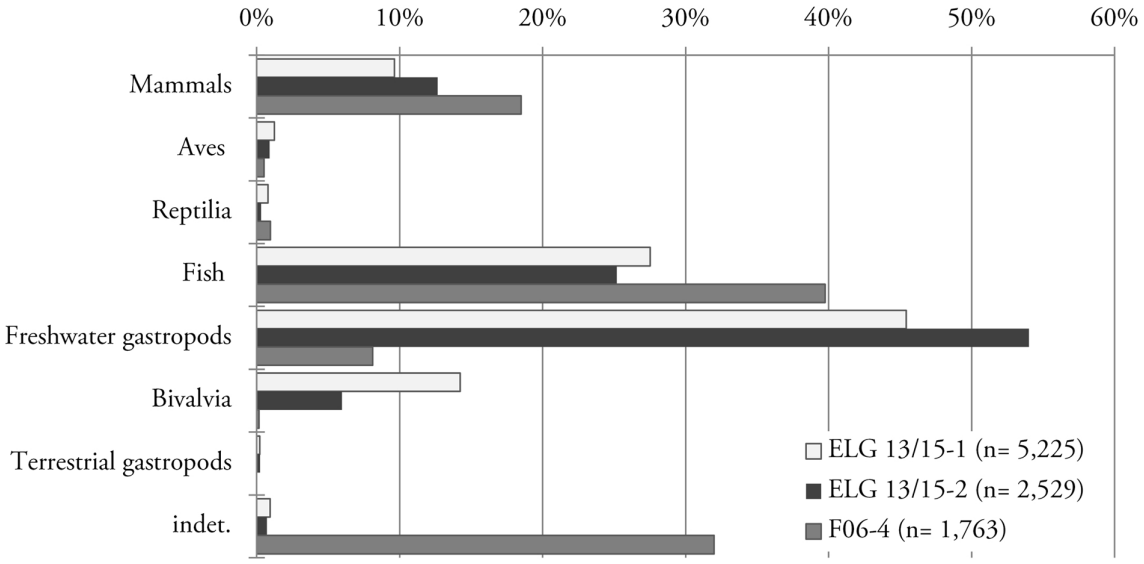

Fig. 11: Percentage frequencies of animals groups based on NSP and NISP.

Faunal distribution

With almost 20 %, mammals are predominant among the faunal remains from F06-4. In ELG 13/15-1 they reach less than 10 % and in ELG 13/15-2 almost 13 %. Due to the conservation state and size of the mammal bones, only eight specimens from ELG 13/15-1 and 2 but not a single one from F06-4 could be identified until now (Tab. 6; Fig. 11). However, considering the weight of all the fragments definitely classified as mammals and the previously mentioned bias of weight in the gastropods, large mammals such as hippo represent the main prey for humans in both sites. Cut marks on the iliac part of a hippo pelvic bone (ELG 13/15, single find no. 18) indicate a butchering process and therefore the exploitation of these large mammals (Fig. 12). Food preparation by fire is demonstrated by 20 burnt mammal bones in trench 1 and 26 in trench 2. Also the single finds in ELG 13/15 are dominated by hippo and hippo-sized mammals whereas rich species diversity could be observed in F06 single finds. Here several fragments of rarer species could be collected. Giraffe was already identified in the faunal sample of the first archaeological survey in 2013 at El Gol (Jesse et al. 2013), now it can also be considered confirmed in F06. Parallels are found in other Holocene sites along the Nile like Sagai I, El Geili (Gautier, 1983) and Esh Shaheinab (Bate 1953; Peters 1986). Remains of large antelopes like hartebeest and roan antelope (Gautier, 1983: tab. 1), but also rhino, which is rare, but regularly found in other Early to Mid-Holocene contexs (eg. Peters, 1986, 1995), have been discovered only in F06.

Bones of birds are rare, but beads made of ostrich eggshell are frequently documented in ELG 13/15, whereas they are not represented in F06.

Reptile remains constitute only a small amount of the faunal sample from both sites. In ELG 13/15 they

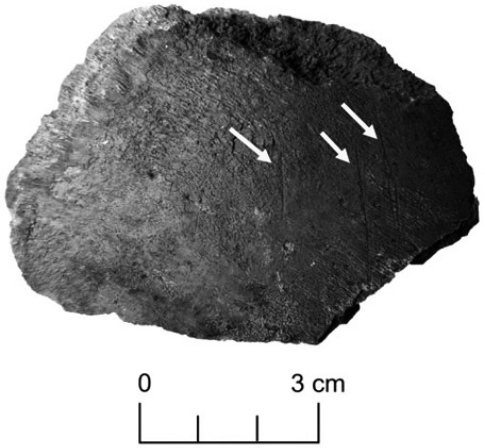

Fig. 12: Cut marks on iliac part of hippo pelvic bone, ELG 13/15 single find no. 32 (Photo: Nadine Nolde).

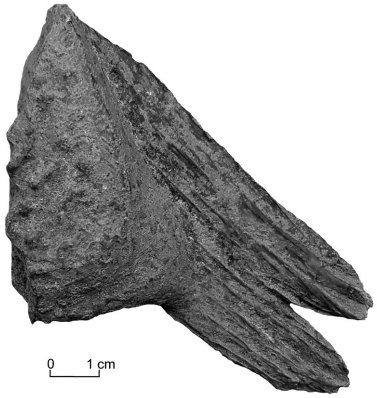

Fig. 13: Carapace fragment of Nile softshell turtle (Photo: Nadine Nolde).

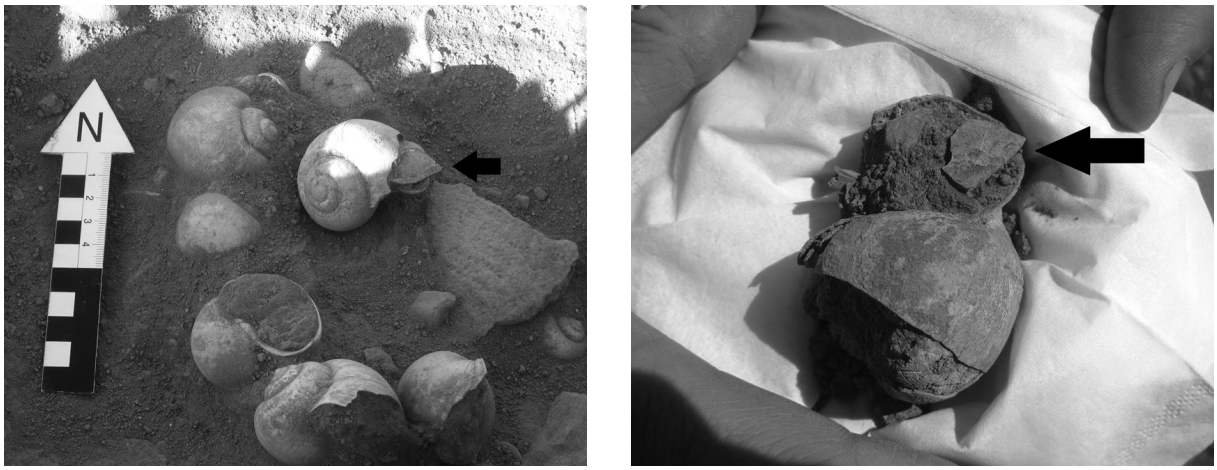

Fig. 14: Nearly complete *Pila* with operculum in situ (arrows) (Photo: Nadine Nolde).

are represented by 49, in F06 by 22 finds (Tab. 6). Reptiles recorded from ELG and F06 belong mainly to turtles, most of them to Nile softshell turtle (*Trionyx triunguis*), which carapaces show vermiculate surface ornaments and free rib-ends typal for the species (Peters 1995: 197) (Fig. 13). Further carapace fragments without outer pattern indicate the presence of other turtle species (Testudines). As in Abu Darbein, EI Damer and Aneibis (Peters 1995: 195–197, also fig. 3), they are potentially members of the African helmeted turtle (*Pelomedusa subrufa*) or of the genus of mud turtles (*Pelusios*). Crocodile (*Crocodylus niloticus*) occurs in both sites in small numbers. Mostly scutes have been preserved but also one vertebra and one skull fragment. An identification of Nile monitor (*Varanus niloticus*) was possible only in ELG 13/15 on the basis of vertebrae but it is conceivable that there are further remains among the hitherto unidentified reptile bones (Reptilia).

In total 2,830 fish-remains are recorded from ELG 13/15 and F06 (Tab. 6), but until now it was only possible to identify Nile perch (*Lates niloticus*) and catfishs (Clariidae). However, comparisons with other Holocene sites (cf. Gautier 1983; Peters 1986, 1995) give rise to the assumption that species diversity in the ichthyofauna of the two sites will be significantly higher. The results are therefore preliminary; however, a further investigation of the fish remains is intended. More than 50 % of the remains are represented by vertebrae, followed by neurocranium fragments (mainly Clariidae). Comparisons with recent individuals of known size from the osteological reference collection at the Staatssammlung für Anthropologie und Paläoanatomie Munich enabled a size-variation from c. 50 cm up to c. 200 cm in Nile perches and c. 100 to 150 cm in Clariidae. Adult individuals of Nile perch normally stay in deep-water and can seldom be caught from shore, so the larger animals in the material may indicate a possible availability of fishing boats (cf. Peters 1991: 39). In ELG 13/15 the percentage of recovered fish bones among the faunal remains of the trenches and the single finds reaches c. 27 %; in site F06-4 it even rises up to 39.3 % (Fig. 11). However, the amount of fish among the single finds is larger at ELG 13/15 than at F06. Traces of fire were found on 16 fish bones from ELG 13/15 and on 172 from F06.

Freshwater gastropods dominate in trench 1 and 2 of ELG 13/15 but are rarely present in F06 (Fig. 11). They achieved the highest proportion in trench 2 with 54 %, which is derived from a bulk deposit of almost complete shells of the genus *Pila*. Accumulations of molluscs can have an anthropogenic origin, but they may also result from natural reasons, such as the drying-out of a waterhole or swamp. This death-accumulation, or thanatocoenosis, in molluscs can be observed by the presence of different shell sizes according to the different age groups of the individuals, whereas snails that have been used as food show a more limited size variation in the distribution's top (Bernáldez-Sánchez & García-Viñas 2014). *Pila* shells from ELG 13/15 show a comparatively uniform spectrum in their size variance, outliers, especially very small specimens are rare, indicating a selective choice rather than a death accumulation. In some *Pila*, parts of the operculum – a calcareous lid that allows the snail to close its shell – were still present in situ in the area of the aperture (Fig. 14). It seems that these animals were not used by humans but died in a still lidded condition. It would be conceivable that snails were kept alive for a certain time as a kind of food storage before their exploitation. In ELG 13/15, the percentage of snail shells containing the operculum is very low after a superficial inspection, so that an extensive keeping of living snails can be excluded.

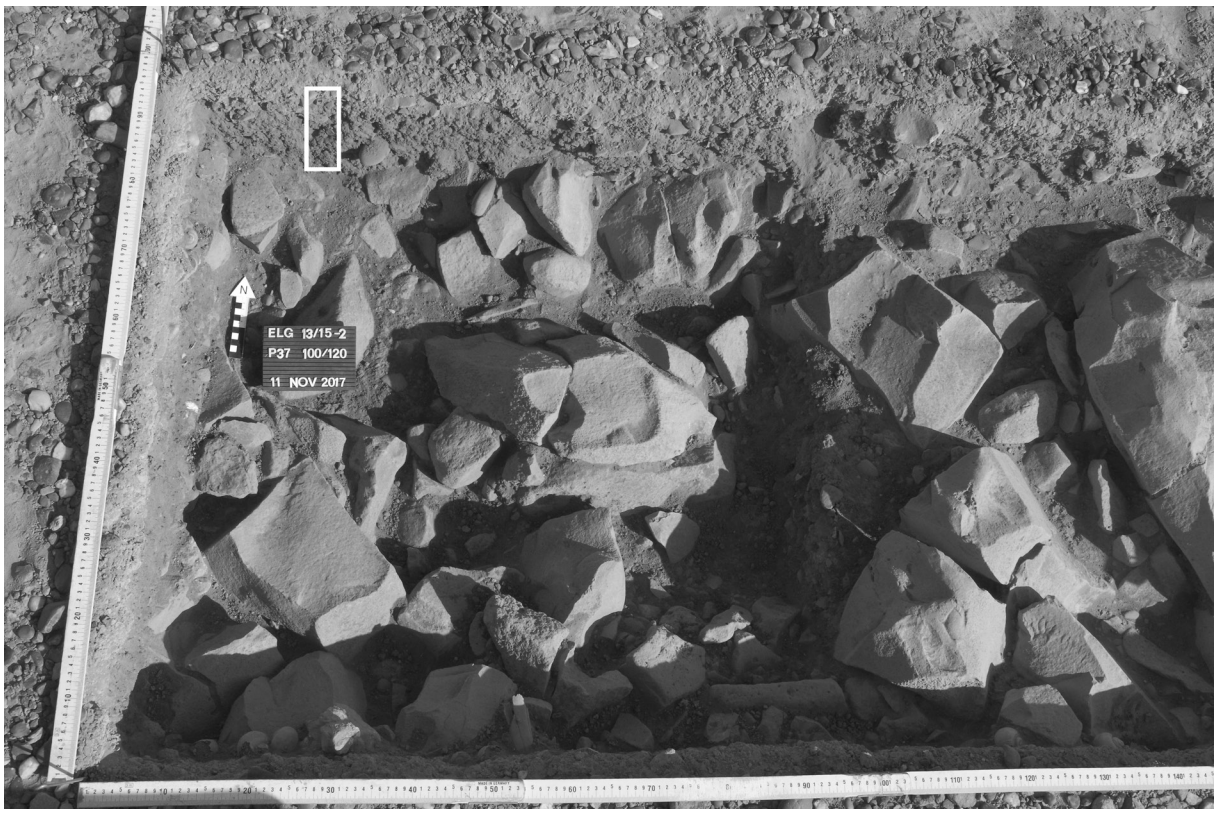

Fig. 15: Location of the micromorphological samples of profile ELG 13/15-2 (Photo: El Gol Project).

Micromorphology
(Astrid Röpke)

Micromorphological analyses were implemented in the archaeological record to characterise genesis and composition of the sediment sequence ELG 13/15-2. For this purpose, in trench ELG 13/15-2 a micromorphological sample (length 20 cm) was taken from one of the profiles (Fig. 15). In this archaeological area high amounts of *Pila* sp. snails occurred.

Method

The soil samples were air-dried, impregnated with polyester resin and made into two thin sections. They were described at a magnification of 800x using plane-polarised (PPL) and crossed-polarized light (XPL). The description mainly follows the terminology of Stoops (2003).

Micromorphological description

The sequence of the two thin sections (Fig. 16, Colour fig. 3) can be divided into four segments:
- A: coarse pebble and stone layer with clayey ground mass
- B: an upper occupation deposit
- C: a former surface
- D: a lower occupation deposit

Interpretation

The thin section sequence of ELG 13/15-2 includes a coarse layer with pebbles and stones covering two occupation deposits with a former surface in-between. Embedded anthropogenic constituents point to human presence to the bottom. The bedrock has not been reached.

The best preservation conditions as well as the largest anthropogenic constituents occur in the former surface layer (Fig. 16, section C, Colour fig. 3). Apart from high amounts of bone fragments, some molluscs and lithic artefacts and a concentration of burnt bone (Fig. 17c, Colour fig. 4), reddened sediment and micro charcoal was detected. The irregular outlines of the reddened sediment (Fig. 17d, Colour fig. 4) could be distinguished from the clearly defined contours of pottery fragments. This ensemble of heat-altered remnants could belong to a former fireplace.

The ground mass of the occupation deposits is composed of clay with decomposed fine organic matter (Fig. 17a,b; Colour fig. 4). In the former

surface it forms spheroidal aggregates (Fig. 16, section C, Colour fig. 3). The accumulation of decomposed fine organic matter might derive from a former vegetation cover which would point to more humid conditions than today. This is supported by the presence of limpid clay coatings (Fig. 17b, Colour fig. 4). They are the result of illuviation of clay (lessivation) a process which needs infiltration of water to run.

In the occupation deposits fragments of bones, molluscs, pottery and lithics are embedded. High amounts of micro charcoal pigment might be the result of reworking/relocation of the material. Compared to the upper occupation deposit the lower occupation deposit contains distinctly smaller fragments of bones and molluscs are more weathered.

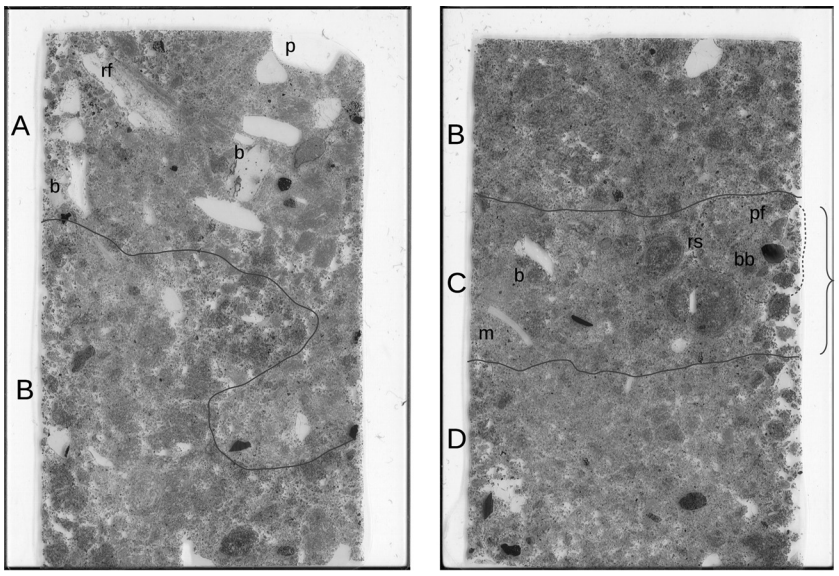

Fig. 16: Scans of the two thins sections from Profile ELG 13/15-2.

Some fragments of layered yellowish clay with silt to sand-sized grains (Fig. 17e, Colour fig. 4) can be observed in the occupation deposits. Since they are not in situ anymore, it is difficult to reconstruct the process of their formation. They could be parts of former sediment crusts which need water to develop but also a fluvial event cannot be excluded. It seems to be a recurring event, because this clayey sediment (Fig. 17f, Colour fig. 4) also builds the ground mass of the coarse pebble/stone layer on top of the sequence. The coarse fraction of this layer is composed of fluvial (pebbles, rounded by water) and non-fluvial elements (stones, physically weathered rock) indicating a multi-factorial genesis and also human influence has to be taken into account. To receive a more profound answer further research has to be done.

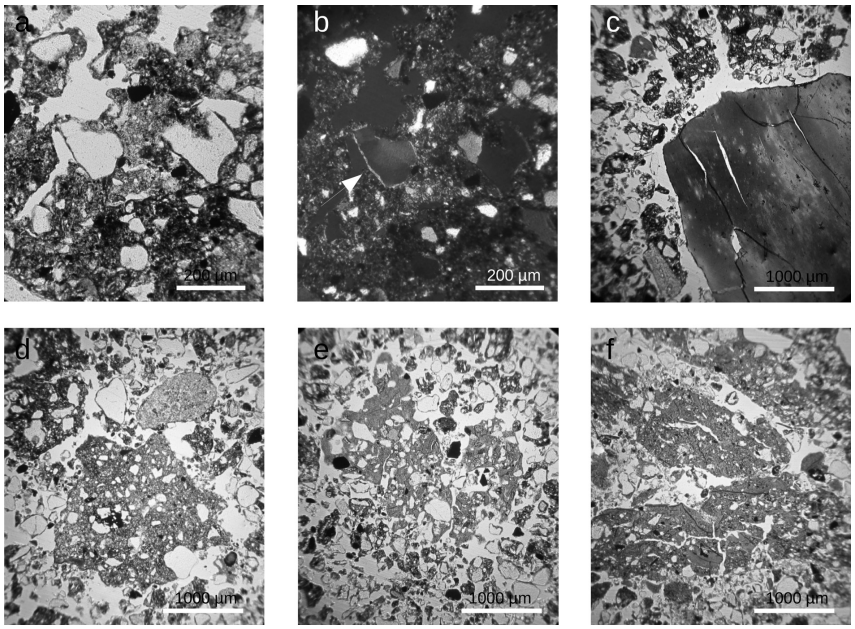

Fig. 17: Micrograph: a) upper occupation deposit: decomposed fine organic matter with clay of the ground mass (PPL); b) the same in XPL see also clay coatings around quartz grain (white arrow); c) former surface: burnt bone fragment (PPL); d) former surface: reddened sediment (PPL); e) upper occupation deposit: clay fragment embedded in humic ground mass (PPL); f) coarse layer with clayey ground mass (PPL).

Accordingly, four different phases can be identified. The great difference between the occupation deposits and the pebble/stone layer points to a deposition in different periods of time. Since the pebble/stone layer also contains anthropogenic constituents, it could be seen as a later phase of human presence.

Sample	Description
ELG 1.2. A	Coarse layer: mixed coarse materials, highest amounts of pebbles (> 1cm) and stones (> 2cm) from different geological background in disturbed layered yellowish clayey ground mass, some calcite carbonate Anthropogenic constituents: bone fragments (> 8 mm) and micro charcoal (size: 10-60 µm)
ELG 1.2./1.1. B	Upper occupation deposit: mixed material, crumb microstructuree, clay with decomposed organic fine material, spheroidal aggregates of decomposed organic fine material, coarse fraction: sand-sized quartz, layered clay fragments (some with mica), some calcite carbonate Anthropogenic constituents: micro fragments of bones, lithics and charcoal (size: 10-60 µm), molluscs Pedogenic features: clay coatings, bioturbation
ELG 1.1. C	Former surface of the lower occupation deposit: mixed material, crumb micro-structure and larger spheroidal aggregates of decomposed organic fine material (>12 mm), clay with decomposed organic fine material, coarse fraction: sand-sized quartz, layered clay fragments (some with mica). Anthropogenic constituents: fragments of bones (> 7mm), micro charcoal (> 100 µm), lithics (>3mm), pottery (>3mm) and molluscs (>10 mm) concentration of burnt bone (>4mm), reddened sediment (> 3mm) and micro charcoal (> 100 µm) Pedogenic features: clay coatings, bioturbation
ELG 1.1. D	Lower occupation deposit: mixed material, partly crumb micro-structure, clay decomposed organic fine material, coarse fraction: sand-sized quartz, layered clay fragments (some with mica) Anthropogenic constituents: micro fragments of bones, lithics and micro charcoal (size: 10-60 µm) Pedogenic features: clay coatings, bioturbation

Tab. 8: Micromorphological description.

Conclusion

Small scale excavations at two open air sites in the 5th Cataract area revealed dense Early to Mid-Holocene archaeological deposits and offered a large variety of finds for further analysis. Both sites show similarities concerning the archaeological material. However, being located only about 8 km as the crow flies apart from each other, it is interesting to note, that the patterns used for pottery decoration differ to some extent: Whereas at both sites packed dotted zigzag patterns (Figs. 6–7a) were found, Dotted Wavy Line patterns (Fig. 7b; also Alkhidir 2019: 94–95, Fig. 14–15) were only detected on site F06 so far. Not a single piece was found during excavation work at site ELG 13/15. Seen the radiocarbon dates available so far (Tab. 1), the difference in age might be an explanation. ELG 13/15 and F06 also indicate that different zones of activity are to be expected within both sites. This is for example indicated by the different amounts of molluscs and fish remains as well as large mammal bones in the different areas of the sites respectively. Cut marks discovered on hippopotamus bones furnish evidence for butchering processes at site F06. Fireplaces used for food preparation are indicated by burnt bones and the results of the micromorphology study at site ELG 13/15-2. The large amount of chips and small flakes indicate that lithic production was carried out at both sites. However, the small scale of the areas excavated so far does not provide further indications of the structure of the sites and the activities performed. Here further work would be necessary.

Both sites indicate that people in the 5th Cataract region based their living to a large extent on aquatic resources during the Early and Mid-Holocene.

The pottery decoration, especially the design of the Dotted Wavy Line patterns found at site Jebel El Khazna F06 show links to the Early Khartoum sites in the Atbara region (e.g. Haaland 1995: Fig. 19,b). Dotted zigzag patterns and horizontal rows of impressed dots are ubiquitous and find parallels not only in the Atbara region but also on prehistoric sites in Mograt Island (e.g. MOG086, Dittrich & Gessner 2014: 140, Fig. 20.14–16; MOG064, Dittrich 2018: Fig. 10, GE 14, 15, 20 or MOG116, Dittrich 2018: 141, Fig. 22), in Boni Island (Petrick 2012: Pl. 20, 6–10) or in the Bayuda Desert (Jesse & Maso-

jc 2018: Fig. 10–11). Mica temper in combination with packed dotted zigzag decoration is for example recorded for vessels excavated at site MOG064 (Dittrich 2018: 128) and site BP 424 (Jesse & Masojc 2018: 630). Sherds at site BP 424 also show worked (rounded) edges (Jesse & Masojc 2018: 631) and this also was common at the Early Khartoum sites in the Atbara area (Haaland 1995: 93). In addition, there are several examples of abraded sherds which refers to reusing potsherds as tools. This is a rather common practice during the late prehistoric period. There still is no clear interpretation of their function. Studies as for the Atbara sites (Haaland 1995: 94–101) come up with different interpretations and propose that the sherds with a central hole (e.g. Haaland 1995: Fig. 9–10) could have been used as fish net-sinkers, whereas others having traces of shallow drilling or regular smoothed edges could have been used during the production of bone tools.

Evidence for the collection of *Pila* shells as a food resource also comes from Mograt Island, site MOG064, where they were found in a pit feature in trench 2008-1 together with rocker-stamped pottery and non-diagnostic flakes and dated to the 6th millennium cal BC (Dittrich 2018: 127, see also Tab. 1). Collection of *Pila wernei* is also attested at other Early and Middle Holocene sites such as Khartoum Hospital (Arkell 1949; Peters 1986), Saggai (Gautier 1983) and the Atbara sites, especially at El Damer (Peters 1995). At all sites more or less complete examples of different size, fragments and opercula are present. Concentrations of snails have also been observed (e.g. Khartoum Hospital; Arkell 1949: 28, or El Damer II; Peters 1995: 210).

Research at the prehistoric sites in the region of El Gol add new evidence to the general picture of late prehistoric development in the Nile Valley. However, looking at the location of sites which can be taken into consideration for regional comparison it becomes obvious that the work presented here is just one step on the way to a more comprehensive understanding of the late prehistoric landscape in the 5th Cataract area.

Zusammenfassung

Nach einem ersten Survey 2013 fanden im Herbst 2017 erneut archäologische Arbeiten des El-Gol-Projektes im Gebiet südlich des fünften Nilkatarakts statt. Der Schwerpunkt lag auf der Untersuchung zweier prähistorischer Fundplätze, ELG 13/15 und Jebel El Khazna F06. An beiden Plätzen wurden Funde und Befunde mit Hilfe eines Tachymeters eingemessen sowie kleinere Ausgrabungen durchgeführt. Die Mächtigkeit der archäologischen Sedimente schwankt zwischen 30 und 60 cm.

Das reichhaltige Fundmaterial setzt sich aus Keramik, Steinartefakten sowie Faunenresten zusammen. In allen Schnitten wurden in regelmäßigen Abständen Sedimentproben genommen, ferner auch einige Mikromorphologieproben. Die Keramik an beiden Fundplätzen ist mineralisch gemagert, teilweise erzeugt ein hoher Glimmeranteil eine glänzende Oberfläche der Scherben. Die Verzierung ist überwiegend in Eindrucktechnik ausgeführt, horizontale Punktreihen und gepunktetes Zickzack dominieren das Verzierungsspektrum. Dotted Wavy Line Muster wurden allerdings nur am Fundplatz Jebel El Khazna dokumentiert. Bei den geschlagenen Steinartefakten dominiert Quarz das Rohmaterialspektrum; zur Grundformproduktion wurde unter anderem die sogenannte "slicing technology" angewandt, die an beiden Fundplätzen belegt ist. Die wenigen retuschierten Stücke sind überwiegend Segmente.

Anhand der Tierknochen lassen sich verschiedene Säugetiere (darunter Flusspferd, Giraffe, Rhinozeros und Antilope), selten Reptilien (Schildkröte) sowie häufig Fisch (Nilbarsch, Wels) und Mollusken (vor allem die Apfelschnecke *Pila* sp.) belegen. Domestizierte Arten wurden bislang nicht gefunden.

Die Untersuchung einer Mikromorphologieprobe aus Grabung ELG 13/15-2 liefert Hinweise auf einen alten Begehungshorizont.

Zwei Radiokarbondaten datieren die beiden Plätze in das 7. und 6. Jahrtausend v. Chr., also das frühe und mittlere Holozän. Das etwas ältere Datum für den Fundplatz Jebel el Khazna F06 erklärt möglicherweise die nur dortige Präsenz von Dotted Wavy Line Mustern.

Beide Fundplätze zeigen eine stark an aquatischen Ressourcen ausgerichtete Lebensweise und liefern somit weitere Bausteine für ein besseres Verständnis der prähistorischen Landschaft im frühen und mittleren Holozän in diesem Bereich des Niltals.

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