

PRELIMINARY REPORT

AKORIS

2015



Grave and its mortuary goods (pp. 6–8)

AKORIS ARCHAEOLOGICAL PROJECT

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CONTENTS

1	PREFACE	KAWANISHI, H.
2	ARCHAEOLOGICAL INVESTIGATIONS	
	2-1 Excavations in the Southwest Area	KAWANISHI, H.
	2-2 Finds from the Excavated Area	KAWANISHI, H.
	2-3 Anthropoid Coffin from Tomb 5 in 2014	UCHIDA, S.
3	INVESTIGATIONS IN THE PTOLEMAIC QUARRY AT NEW MINYA	
	3-1 Architectural and Epigraphical Investigations	SUTO, Y. and TAKAHASHI, R.
	3-2 Architectural Investigations of Unfinished Obelisk	NISHIMOTO, S. and YASUOKA, Y.
	3-3 Some Remarks on the Cat Reliefs in the Quarry	SHENOUDA, R. F.
4	LASER SCANNING OF AKORIS AND NORTH QUARRY AREA	HORI, Y.

1 PREFACE

The settlement area excavated successively from 2002, lies in a depression between two crags as shown in Fig. 3, and extends southwestward from the south end delimited by the Roman outer wall of the extant main area in the site of Akoris. The findings of the excavations indicate it to date from the 20th Dynasty to the beginning of the Late Period and thereafter it was abandoned except for a partial use as a graveyard and a ritual spot. According to the tentative surface survey data of the main area, details of which will be mentioned in a future report, the contemporaneous remains are mostly gathered around the Western Temple Area and north, and cannot be ascertained near the south end. Thus the excavated settlement seems to have been isolated from the main area.

The pre-20th Dynasty remains are invisible in the main area except for four Middle Kingdom funerary chapels and some limestone blocks with Rameses II cartouche in the Western Temple Area. Is it true that the city formation started from the 20th Dynasty in Akoris? The north part of the main area was dug deeply due to *sebkha*, and some spots reach down to the natural sand layer which belongs to the pre-20th Dynasty. Another spot southeastward somewhat distant from the Western Temple Area also reaches the natural sand layer and scattered remains do not go back to the pre-20th Dynasty.

If the pre-20th Dynasty city had almost the same dimensions as the extant main area, it is concluded that floods derived from cloudbursts in the eastern dessert, whose scale must have been far larger than in the case of the 1995 disaster, tore through the city from the eastern *wadi*, and a

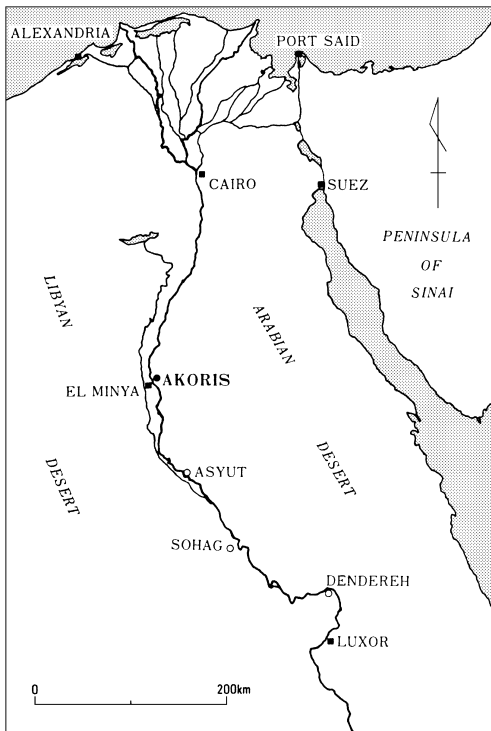


Fig. 1 Map of Egypt.

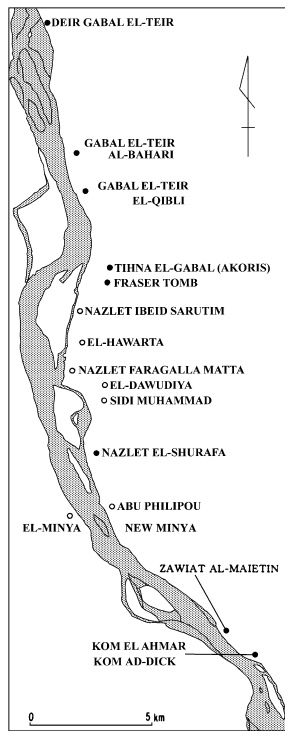


Fig. 2 Sites and villages near Akoris.

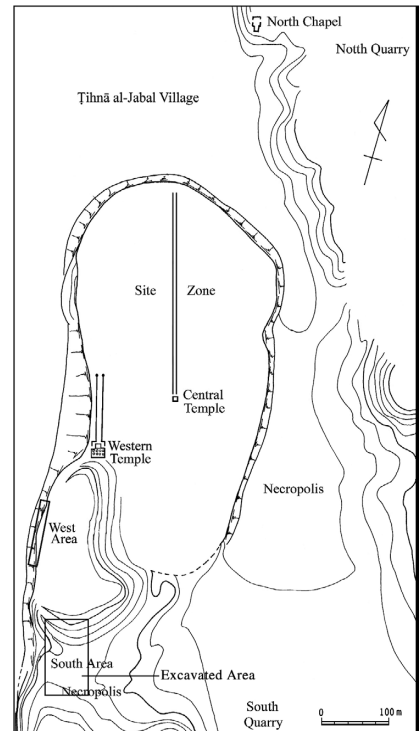


Fig. 3 Map of Akoris.

great quantity of sand carried by the floods accumulated thickly over all the low places except the Western Temple Area. Compared to the 1995 disaster, it is not strange that its depth attained 1m. Alternatively, the then city may have been far smaller than the extant main area. Regardless of floods, it is difficult to gain evidence of the city through the surface survey data. At any rate, undoubtedly its clue lies under the natural sand layer. (KAWANISHI)

2 ARCHAEOLOGICAL INVESTIGATIONS

2-1 Excavations in the Southwest Area

From a bare crag overlooking the Nile valley, the ancient city, Akoris, extends north- and eastward. And a settlement, somewhat apart from it, occupies the south side of the crag, on the bottom flat of the saddleback and reaches up to the north skirt of the next crag (Figs. 3 and 4 Nos. 1 and 2). Based on the fruits of our excavations in this area from 2002, the settlement started at the end of the New Kingdom and ended at the beginning of the Late Period, while the main city area continued to function up to the Early Islamic Period, around A.D. 700. In the 2015 season three places were excavated in the settlement, that is, an oven area on the north side of a main street extending east-west on the bottom flat, buildings located in the center of the flat and the north skirt of the next crag (Figs. 5 and 6).

Oven Area The west half of this area had been excavated in 2002 and 2003 (Preliminary Reports 2002 and 2003), and five ovens, three made of pottery and two made of mud brick, were revealed (Fig. 4 No. 3). The east half of the area yielded two ovens last season, though the complete excavation could not be realized because of a shortage of time. Reckoning that these seven ovens lining the main street had formed a thermal workshop area in the settlement, we carried out a total investigation of them (Fig. 5). The data of each oven is as follows:

Nos.	Outer diameter	Building	Nos.	Outer diameter	Building
No. 1	0.9m	mud brick-made	No. 5	1.2m	pottery-made
No. 2	1.0m	pottery-made	No. 6	1.8m	mud brick-made
No. 3	0.6m	pottery-made	No. 7	2.3m	mud brick-made
No. 4	1.5m	mud brick-made			

Among these, No. 4 oven is so poorly preserved that we doubt if it bore an actual function. Nos. 3 and 5 were wholly destroyed after our excavations of 2002 and 2003 by looting.

In the oven area, three pottery ovens, Nos. 2, 3 and 5, are concentrated at the west end, and the other four unfired brick ovens, including No. 4, are exclusively in the east section. Given the height and the stratigraphy of the bottom of each oven, it is known that No. 5 postdates Nos. 2 and 3, and Nos. 1, 4 and 6 also postdate No. 7. The inner face of No. 6 located at the east end, is vitrified under the influence of probably the more than 1000 degree temperatures. Considering that the other ovens bear no such traces and the east wind is always blowing by day in the saddleback, the location of No. 6 is proper for getting intense heat, while the location of the three pottery ovens confined to the west end is also proper for lower temperatures. The center of the

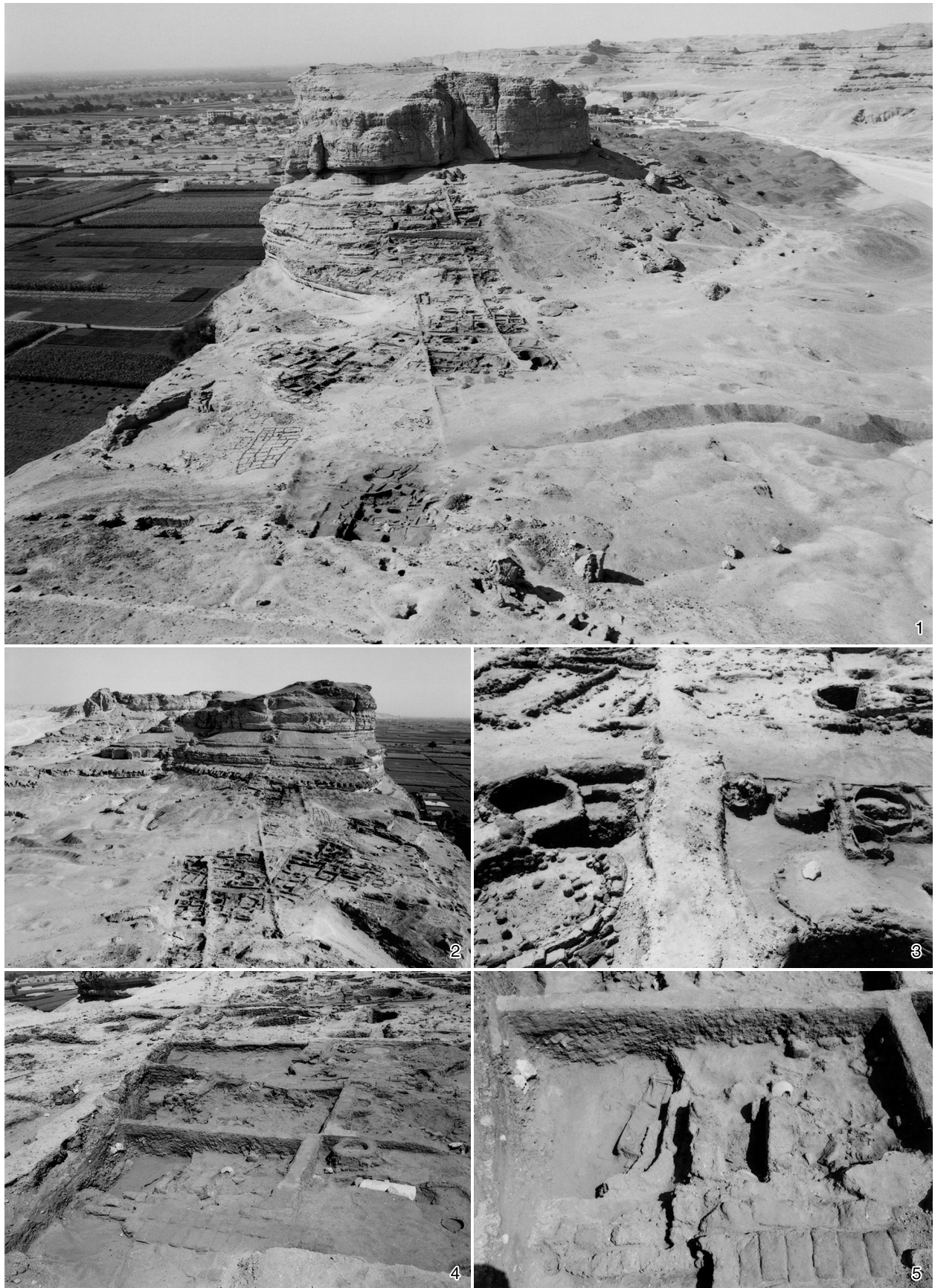


Fig. 4 Southwest area of the site of Akoris. 1: Panoramic view, from south; 2: Panoramic view of the next crag, from north; 3: Oven area, from north; 4: Buildings in the center, from south; 5: Grave in Section 7, from south.

bottom of No. 6 is made of gypsum and sand. Such provision is for dampproofing and is helpful in heating a high temperature oven.

Regrettably no finds indicating fired products could be gained from any of the ovens. Supposed by the location, construction and temperature, the pottery ovens seem to have been for baking bread¹⁾ and No. 6 for firing pottery or other earthen products. Intriguingly such a workshop area is alongside the main street, which leads us to imagine the scenes of commercial transactions with many unspecified persons. According to our scientific data the oven area belongs to the latter half of the 20th Dynasty or the 21st Dynasty.

Buildings in the Center (Fig. 5) The uppermost layer directly under the surface sand was removed from three central buildings in the 2012 season, and each part surrounded by mud brick walls was referred to as Section 1–10 respectively (Preliminary Report 2012). Sections 4 and 7 were selected as the target of this season's excavation, because both sections are extant in better condition than others. Additionally Section 7 forms a large room, 7.6m east-west by 5.8m north-south, and leaves the trace of gypsum plaster on its inner faces, which suggests the significance of the room.

Sections 4, 7, and 8 shared an entrance in the uppermost layer. The southeast corner of Section 4, the northwest end of Section 7 and the southwest corner of Section 8 were destroyed and beaten down by human passage. The east half of Section 8 to the east end of Section 7 had already been demolished down to the floors of lower layer buildings. This large pit was proved to date from the end of the Third Intermediate Period or the beginning of the Late Period in the 2012 season. Except for the north end, the west wall of Section 7 had been also demolished when a large pit which extends to Sections 5 and 6 was made in the same period as the foregoing east pit.

Section 4 measures 6.7m east-west by 2.8m north-south in the inner space, and each surrounding wall is around 60cm in thickness. The tops of the lower layer walls appear in the floor. They tell us that the south wall continuing from the lower layer was mostly cut down to enlarge the room, consequently, the north wall of Section 5, adjacent southward, became the south wall of Section 4, while the other walls are discontinuous from the lower layer walls. Two fragments of papyri bearing hieratic (Fig. 10 No. 1) were uncovered on the floor by the side of the east wall, and a large amulet (Fig. 10 No. 2), made of faience, was found in the fill.

In Section 7 the uppermost layer was removed in 2015, and the vestiges of the collapse of the lower layer building appeared. The mud-covered roof with twigs had fallen down and its debris heavily accumulated in the lower layer building. We could not remove it because of a shortage of time.

The foregoing large west pit yielded a rectangular wooden coffin laid at the east end of its bottom (Cover; Fig. 4 No. 5). The outer length is 116cm, and the outer width is 28cm at the south end and 25cm at the north end. The outer height is 21cm. The wooden lid is missing and instead a large, elaborately woven mat (Cover No. 12) covered the coffin. A buried corpse, lying with its head in a southward direction, was extant in good condition, but the coffin, excepting the north end, was poorly preserved and the cloth wrapping the corpse almost completely decayed. The corpse is that of a 7–9 year-old. It wore a necklace with strung beads of faience and glass (No. 4), and an anklet with strung faience beads, doubly wound around the left ankle (No. 11). Additionally listed are two amulets of faience (No. 9) tied together by a strand under the right arm and a glazed stone scarab

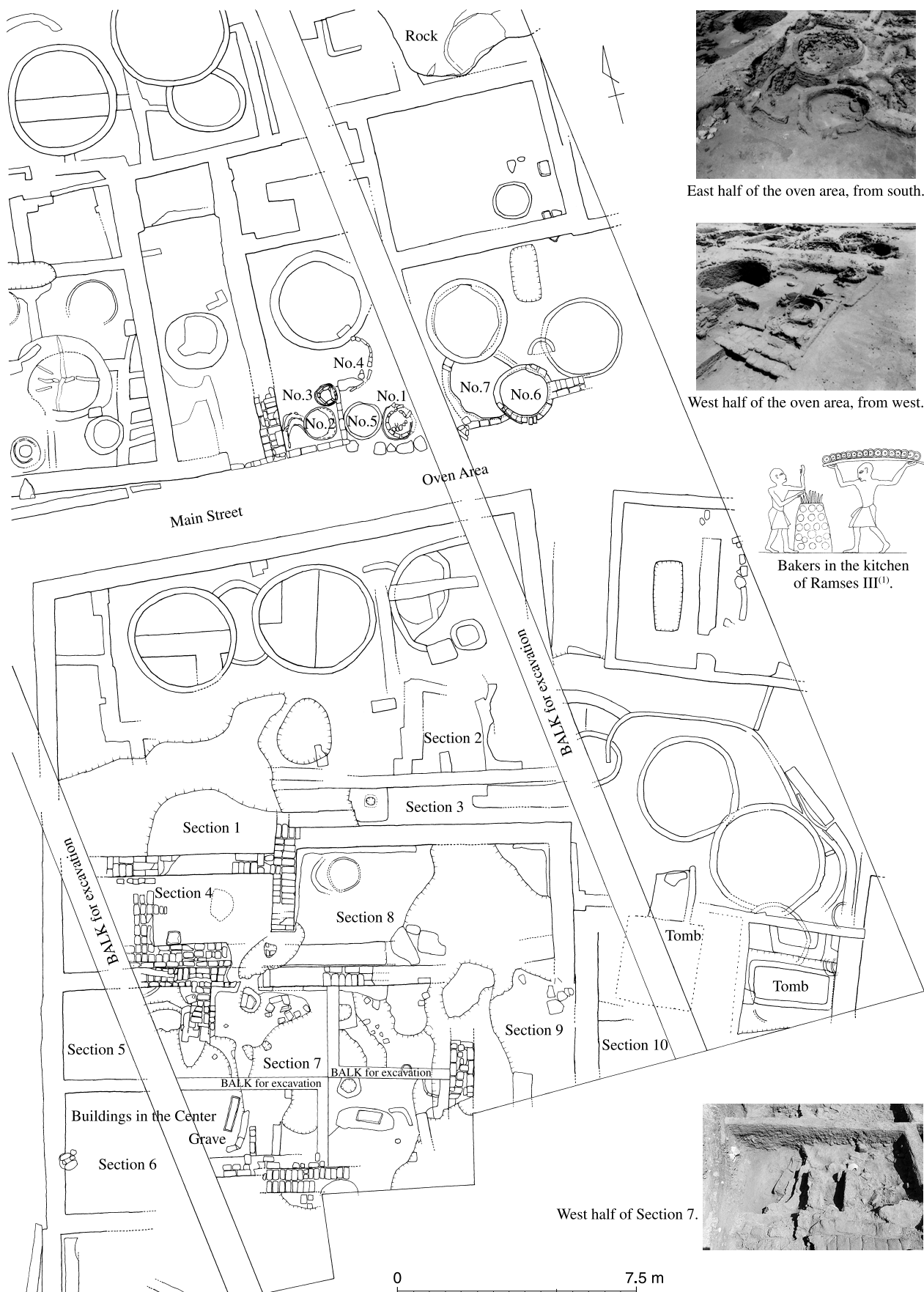


Fig. 5 Plan of the ovens and buildings excavated in 2015: The joints of walls uncovered before 2015 are not illustrated.

(No. 10) under the left wrist. A round-shaped fabric woven out of fine reed (Nos. 7 and 8), whose center was painted red and green colors, was over the chest, and two pairs of wooden, hand-shaped clappers (Nos. 3, 5 and 6) were near the feet. They were added as mortuary goods offering to the dead and found in the narrow space between the cloth and the coffin. Given the age at death, the richness and the elaborate craftsmanship of these finds are remarkable. Another intriguing fact is that the grave was built in the settlement that was still maintained, which is against traditional funerary custom.

Finds from the Coffin (Cover) Nos. 1 and 2: Occurrence of grave in Section 7; No. 3: Occurrence of wooden clappers; No. 4: Occurrence of necklace. It consists of 108 red, 38 yellow, 10 white and 2 blue beads. Each one is d. 2.0×1.7 mm, and total length is ca. 25cm; Nos. 5 and 6: Wooden clappers. No. 5, left is l. $17.6 \times w. 4.6 \times t. 1.7$ cm, right is $17.6 \times w. 4.5 \times t. 2.0$ cm. No. 6, left is $18.8 \times w. 3.8 \times t. 1.7$ cm, right is l. $19.0 \times w. 4.5 \times t. 2.2$ cm; No. 7: Occurrence of round breast decoration made of woven mat; No. 8: Details of breast decoration, d. ca. 20cm; No. 9: Faience amulets of the gods Isis and Bastet. Isis is h. $1.7 \times w. 0.8 \times t. 0.3$ cm. She sits on a chair with Horus in her arms. Bastet is l. $1.6 \times w. 1.1 \times t. 0.4$ cm. They seem to have hung from the fore-mentioned necklace, and several glass beads also hung from it with another plural strings; No. 10: Scarab of glazed steatite. L. $1.6 \times w. 1.3 \times h. 0.8$ cm. Carved device represents a person drawing a bow against two quadruped, possibly lions; No. 11: Occurrence of anklet. It consists of 102 gear-shaped beads of light blue and 28 thin cylindrical ones of white, yellow, red and black. Each of them is t. 0.2cm on the average, and so the total length reaches ca. 26cm.

North Skirt of the Next Crag The north end of this area is 40m southward from Section 7. Many rock-cut tombs, most of which are not datable, lie on the northern ledge of the next crag. In the 2010 season we dug a long north-south trench on the skirt to the ledge to ascertain archaeological features, and in the process newborn/infant graves, round structures and some mud brick walls were uncovered there (Preliminary Report 2010). In the 2015 season we extended the trench eastward as far as the end of the settlement on the skirt. The extended area measures 11.5m east-west by 25m north-south. Consequently the higher southern half yielded a house, three round underground structures and five graves, whereas the northern half yielded three round structures, two graves, part of a building and a wall with an arch-shaped plan (Figs. 6–8).

The house in the southern half, measuring 8.5m east-west by ca. 12m north-south, consists of three rooms, southern, middle and northern. The Southern room is almost shielded by a natural overhanging rock used as the ceiling (Fig. 7 No. 3). A north mud brick wall divides it from the middle room, and an entrance of 70cm width opens to the middle room at the west end of its wall. The excavation was confined within the very narrow limits of 1.0 by 2.5m behind the entrance, and heavy limestone debris thickly accumulated in the room. Among the finds weaving paraphernalia such as seven wooden spindles (Fig. 10 No. 8) and a wooden shuttle for vertical looms (Fig. 10 No. 9) are considerable in number.

The middle room measures 8.5m east-west by 4.6m north-south (Fig. 7 No. 3). The slight vestige of a north-south wall was extant on the floor, which suggests that the room either started in a two-room formation or that it belongs to the lower layer. If it is the partition wall, the east room

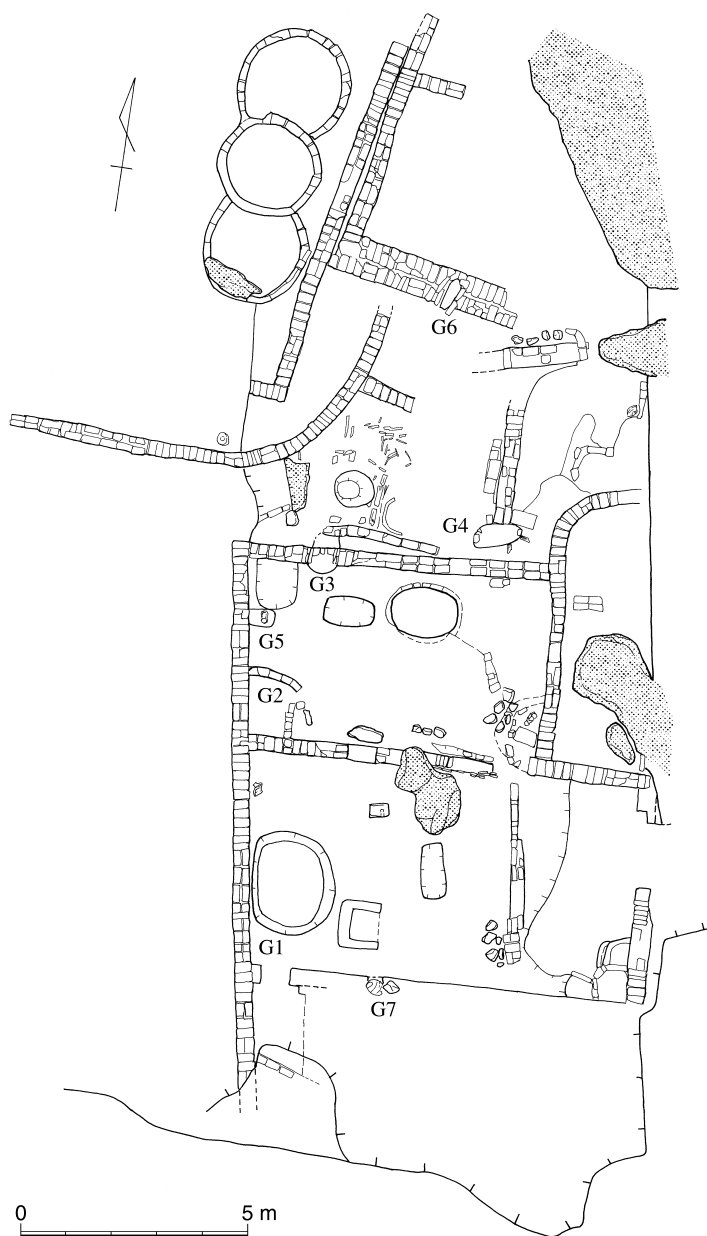


Fig. 6 Plan of the north skirt of the next crag.

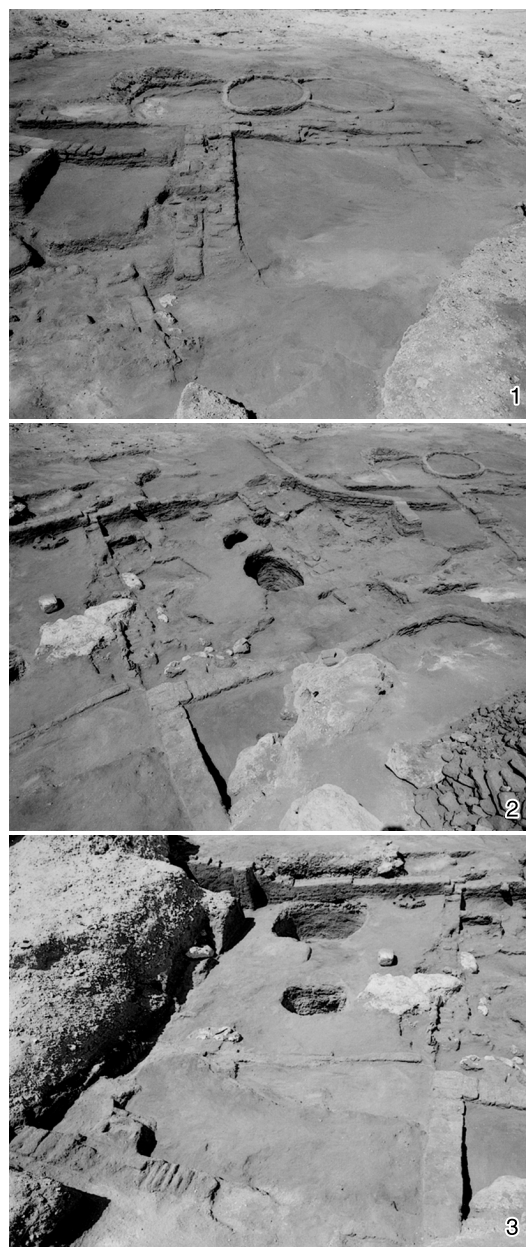


Fig. 7 Each part of the excavated area. 1-3: View from east.

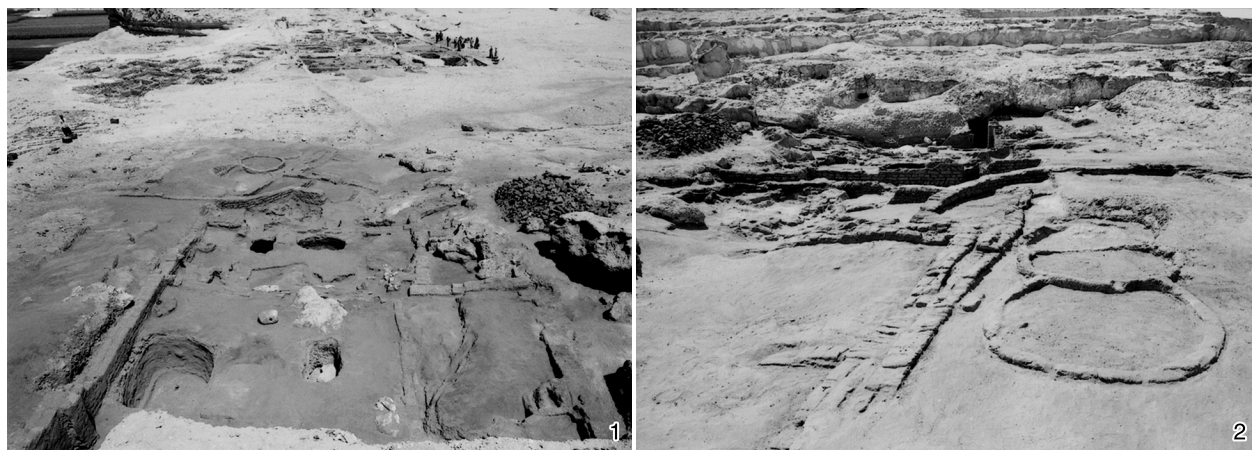


Fig. 8 Panoramic views of the excavated area. left: View from south; right: View from north.

comes to measure 2.4m east-west by 4.6m north-south and the west one 5.7m east-west by 4.6m north-south. Given the existence of the following large-sized oven, it is inferred that the larger west room was used for a courtyard, and afterward the smaller west one was added to it by the removal of the dividing wall. Contrarily, if it belongs to the lower layer, the middle room comes to have been a courtyard from its incipience.

An elliptical underground structure, which measures 1.8m east-west by 2.3m north-south in diameter by 1.0m in depth, was provided beside the west wall. It was built by digging down from the floor. Given its location and construction, it must have been an obstacle and diminished the function of the entrance. A large-scaled, U-shaped oven, measuring 1.0 by 0.9m, is barely extant on the floor, whose fire door opens against the east wind. Judging from the poor preservation, it had already been disused when the middle room was abandoned. Though one was destroyed, three shallow, small-sized enclosures made of mud brick, occurred in the southeast corner of the middle room. The installations of such shape and size lead us to believe they had been a manger similar to the present one in the nearby village.

The south wall of the middle room, that is the north wall of the southern room, was partially lost to lay a large jar (Grave 7), which leans greatly to the south and has a shallow bowl covering its mouth (Fig. 9 No. 1). Though no evidence was extant in it, it must have been a pottery coffin for burying a newborn. Additionally, a buried corpse of a 3 or 4 year-old child sandwiched between two mats was uncovered in the fill over the floor and the foregoing round structure in front of the entrance (Grave 1: Fig. 9 No. 2). These burials were carried out after the middle room lost its function.

Thick debris of limestone accumulated from the north part of the southern room to the middle room. Some fragments of a cartonnage, a large fragment of a dog's mummy, human and cattle bones, dozens of cylindrical faience beads, some large fragments of small-sized jars with painted decoration, and linen cloth were found in a condition to have lost their original positions in the eastern debris over the southern and the middle rooms. Undoubtedly they must have been removed from higher, nearby rock-cut tombs at the time of looting. The cartonnage and pottery (Fig. 10 Nos. 17 and 18) belong to the Ptolemaic Period, while the others leave no archaeological clue to determine their dates.

The northern room is 6.5m east-west by 3.9m north-south and the floor is 1.0m lower than the middle room (Fig. 7 No. 2). It is connected to the courtyard of the middle room by a narrow entrance of 0.6m in width as well as a stepping stone. No outer entrance was provided in this room. Locating its position in the house, it is quite possible that the east wall of the middle room

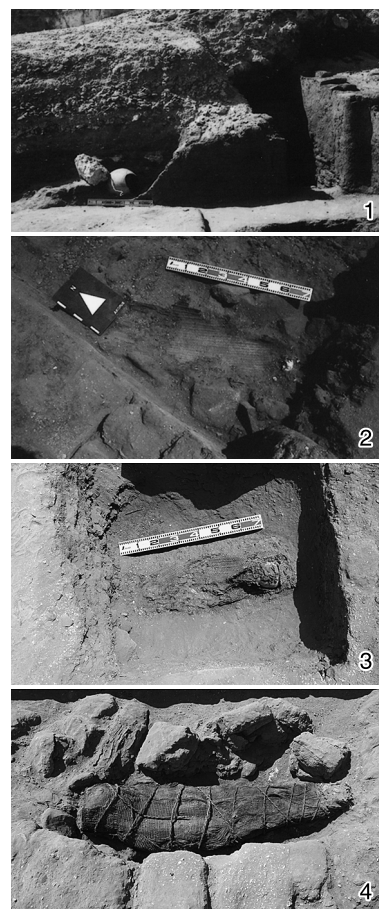


Fig. 9 Unearthed graves.
1: Grave 7, jar burial;
2: Grave 1, mat burial;
3: Grave 2, mat burial;
4: Grave 4, mat burial.

whose middle part was lost had the outer entrance rather than other walls completely existent. Two underground structures were positioned side by side in the east-west direction beside the north wall. Each structure has an elliptical plan and a domed ceiling whose upper part was equally lost to keep the almost same height as the floor. Reconstructing the former state, the tops of both ceilings were somewhat protruding from the floor. The east one is 1.5 by 1.3m in diameter at the bottom and 1.4m in depth. Straw and grains, probably emmer wheat, filled the inside space, which expresses clearly the function of this structure. Pottery shards together with several almost complete cooking pots and so on were included in the straw, which offers good chronological data to us (Fig. 10 Nos. 11–16). Based on them, this structure dates from the latter half of the Third Intermediate Period. The west one, 1.2 by 0.9m in diameter at the bottom and 1.0m in depth, is on a smaller-scale than the east one. The unearthed pottery shards tell that the date is almost the same as the east one. Remarkably a large bone of a soft-shelled turtle was extant near the floor.

Among three graves in the northern room, a buried corpse sandwiched between two mats in the southwest corner of the room was surrounded by two low thin walls on the east and north sides respectively, and was laid on the mud-made slope added to the floor (Grave 2: Fig. 9 No. 3). The buried corpse is of a 1.5–2 year-old child. Given the special preparation for burying established on the floor, it seems to be concurrent with the room. In another case, a buried corpse was also sandwiched between two mats, which destroyed the top of the north wall (Grave 3). Though it was poorly preserved, the corpse seems to be a 2 or 3 year-old child judging from its bones. The third one was uncovered in the debris on the floor beside the west wall (Grave 5). Only the cloth wrapping an infant skull was extant and no burial preparations accompanied it. It is doubtful whether it was in situ. These two burials postdate the normal use of the room according to the height and stratigraphy of them.

In the northern half of the excavated skirt the foregoing arch-shaped wall extends straight westward to be identified with the east-west straight wall uncovered in the 2010 trench (Fig. 7 No. 2 and Fig. 8 No. 2). Two graves, a mat burial and a small-sized wooden coffin, were revealed. The mat burial (Grave 4) is located in the southeast end while the wooden coffin (Grave 6) was barely extant on the top of a thick central wall. The buried corpse of the former was wrapped tightly and wholly by a mat, thus the corpse is unseen (Fig. 9 No. 4). This wrapped example is different from the two sandwiched ones in the packing way of the corpse. The corpse in the wooden coffin had already been lost by looting.

The three round structures were lined along a wall extending in the north-south direction. The inner diameter of each structure is 2.1m, 1.9m and 2.0m respectively from the north structure. The depths are unknown because the excavation did not reach the bottom. Judging from the overlapping of the walls, undoubtedly the middle one postdates the others.

Some Examinations According to the fruits of the 2010 season in the trench, the newborn/infant graves were in the south and the round structures were distributed northward from the foregoing straight wall. In respect of the fruits of the 2015 season all graves are outside the arc-shaped wall and postdate the house in the southern half except for Grave 2, whereas the round structures spread in- and outside of it. However, among the three examples of the round structures



Fig. 10 Finds from the excavated area.

in the southern half the two are concurrent with the house. Moreover, Grave 1 in front of the entrance clearly shows it to postdate the round structure. With regard to the mud brick walls forming part of a building in the northern half, their direction is parallel to the buildings unearthed in the bottom flat in the 2010 season. Thus, it can be concluded that the arc-shaped wall fulfilled the significant function of dividing the southern newborn/infant graveyard from the northern secular zone.

(KAWANISHI)

2-2 Finds from the Excavated Area (Fig. 10)

No. 1: Papyrus fragments. Unearthed on the floor by the east wall of Section 4. A part of hieratic text written in black. Left: $6.8 \times 2.1\text{cm}$, right: $3.6 \times 1.7\text{cm}$.

No. 2: Faience amulet in a shape of Theban triad. Unearthed in the fill of Section 4. H. $4.3 \times$ w. $2.7 \times$ thickness (afterward t.) 0.7cm . Pierced in the center of the upper part.

No. 3: Impression of scarab on a mud seal. Unearthed in the fill of Section 7. L. $2.1 \times$ w. 1.5cm . Two *nfr* and some unidentifiable signs.

No. 4: Wooden stamp. Unearthed over the partition wall between the south and central rooms in the north skirt of the next crag. L. $4.8 \times$ w. $3.2 \times$ h. 2.3cm . Fine comb incisions on the both ends, a wave pattern and three straight lines are arranged, and a V-shaped and a diagonal lines are occupied in two squares respectively. Based on the stratigraphy, it is surmised to date from the Ptolemaic Period.

No. 5: Wooden anthropomorphic plate. Unearthed from the gravel debris over the north skirt of the next crag. Left part is lacking. H. $13.1 \times$ extant width $2.8 \times$ t. 0.5cm . A projection on the lower end is fitted for inserting into some pedestal for stabilization. Possibly a cultic object.

No. 6: Unidentifiable wooden product. Unearthed from the fill north adjacent to the northern room in the north skirt of the next crag. L. $22.5 \times$ w. $3.4 \times$ t. 1.3cm . Two teeth of one side are lacking. Each tooth of one side might have been linked to the one of another side by an oblique band.

Nos. 7 and 8: Wooden spindle. No. 7: Diameter of upper end $3.4 \times$ diameter of lower end $4.4 \times$ h. 1.6cm . Unearthed in the fill of the middle room. No. 8: D. $5.2 \times$ h. 2.5cm . Unearthed in

the lower fill of the southern room in the north skirt of the next crag. Both are different each other not only in shape but in wood species. No. 7 is “abal” in local name, tamarisk population, and No. 8 “gimmeiz” in local name, sycamore Fig. The former is harder and heavier than the latter. Probably they were made for proper use.

No. 9: Wooden shuttle. Unearthed in the fill of the west end of the southern room. L. $17.9 \times$ w. $1.9 \times$ t. 1.2cm . Made of dark and hard wood unknown locally (the Egyptian ebony?).

No. 10: Leather shoe or boot for left foot. Unearthed in the lower fill of the northwest corner of the middle room. Heel part is lacking. Extant size is l. $18.2 \times$ w. 8.9cm . The root part of fingers is reinforced on the sole by a small rectangular leather.

Nos. 11–16: Pottery. Unearthed from the east round structure of the northern room. They date from the latter half of the Third Intermediate Period. No. 11: H. $18.5 \times$ diameter of the body 14.2cm . Blackened by soot. Judging from burn marks, it was probably used as cooking pot. No. 12: Small jar. H. $14.8 \times$ diameter of the body 7.3cm . Used for containing some liquid. No. 13: Pilgrim flask. H. 13.3cm . No. 14: Cup. H. $7.0\text{cm} \times$ diameter of the rim 13.1cm . No. 15: Cup. H. $8.6 \times$ diameter of the rim 13.4cm . No. 16: Fire-stand Lower end is lacking, and extant height is 17.7cm . Such kind of pottery is said to have been inverted and used as part of bellows²⁾. However, since burn marks, sooted/reddened, are almost limited to the upper face, it was undoubtedly used as a fire stand, so called “Firedogs”.

Nos. 17 and 18: Small jar with handles. Unearthed in the gravel fill over the southern and middle rooms. They date from the Ptolemaic Period. No. 17: H. $10.5 \times$ diameter of the body 9.0cm . No. 18: Diameter of the body is 8.8cm . Bottom part is lacking. Floral designs painted in dark brown are on the upper part of the body, and a wide, red band on the lower part.

(KAWANISHI)

2-3 Anthropoid Coffin from Tomb 5 in 2014

This coffin was found from Tomb 5 in the Southwest Area in the previous season³⁾. The outer surface was plastered and decorated with a polychrome scheme based on red ink on a yellow ground, over-painted in red, pale blue, pale green, black and white pigment.

Decoration: Lid (Fig. 11) The lid is broken into a number of fragments, and its lower left part has been mostly lost.

The deceased on the lid is shown wearing a lappet wig, in which each lappet is bound with a polychrome band. The wig is painted black above the band, while it's blue underneath. The wig above the lappets is damaged, but traces of a polychrome fillet are discernible above the brow.

The face was painted yellow, although most of the painting layer flakes off exposing white gesso except a part of its right (i.e., spectator's left) half, showing a blue outlined eye with its black pupil. Although the ears are represented as covered by the wig, domed earrings are depicted, traces of which polychrome decoration are partly preserved. There are breasts with rosettes preserved below the lappets, indicating that this coffin was made for a female owner.

Below the face, there are fragments of a broad collar painted with polychrome. The upper part of the collar directly below the neck is covered by a pectoral consisting of a scarab with a sun-disc,

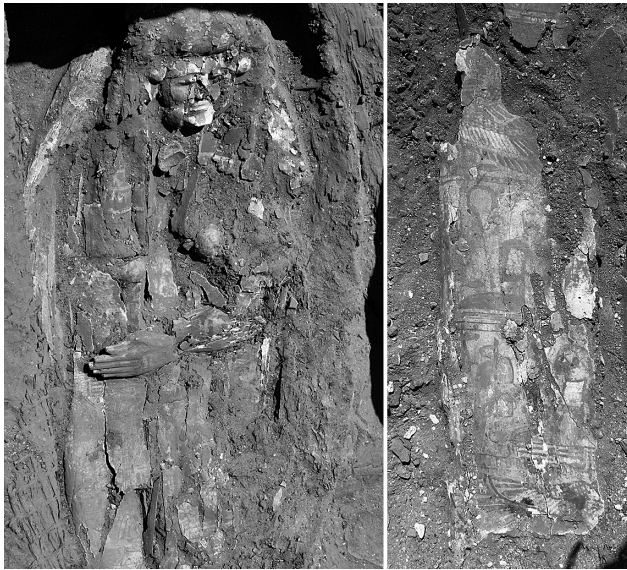


Fig. 11 Anthropoid coffin from Tomb 5; left: the upper part; right: a part of the lower decoration.

flanked on each side by a *wraeus*. The *wraeus* to the right is wearing a White Crown, while the left one, supposedly depicted in the same manner, is lost except its back.

A pair of crossed arms is represented below the pectoral. The hands are carved in relief, and posed flat on the chest, as commonly observed in female coffins. The fingers of the right hand are damaged, although the left fingers are better preserved, showing red and pale blue dots alternately painted on their backs. The partly preserved forearms adorned with polychrome bracelets are not carved, but painted crossing over the collar.

Below the collar, a further scarab topped with a sun-disc and two *wraei*, is depicted in the central position. This scarab is flanked on each side by a figure of Osiris seated on a throne, turning back to the central scarab. The left figure of Osiris is wearing a collar and a clumsily depicted *atef*-crown⁴⁾, holding the scepters. The right figure of Osiris, probably depicted in the same fashion, is heavily damaged.

Facing each of these Osiris figures, a *wraeus* and a winged goddess are depicted with space-filling symbols including an Anubis fetish and a star. The goddess to the right is Maat, as indicated by *maat* feathers which she is wearing on her head and holding in her hand. The figure of the left goddess is lost except a part of her wings and hand. Each of the *wraei* is wearing a White Crown. This section of the decoration is partitioned from the scene below by a broad polychrome baseline.

Below the baseline is depicted a kneeling winged image of Neith facing left, although it's heavily damaged. She is holding a *maat* feather in her right hand, while her left hand is lost.

The decoration below, which must have been consisted of symmetrically arranged compartments, is heavily damaged, particularly in its left half. The scene directly below Neith is mostly lost except a part below her right wing, in which are depicted a small sphinx-like deity and a seated deity holding an *ankh* sign, facing an Anubis fetish. The deities are turning back to the center, and the seated one is labeled in hieroglyph as "Great God".

A long and narrow fragment, positioned below, show parts of lower four scenes partitioned from each other by red outlined baselines with blue dots. The uppermost scene shows an image of a winged *wraeus* wearing an *atef*-crown, facing a now lost central element of the decoration. As for the counterpart *wraeus* to the left, just a part of wings remains. The second scene below shows a seated deity holding a crook, facing an Anubis fetish. This deity has a head in the form of the west symbol, turning back to the center, and surrounded by space-filling objects. The third scene shows a seated deity turning back to the center, facing an Anubis fetish, while the fourth scene shows a part of the right wing of a now lost central element. This wing is not accompanied with an arm, which would be present if the central element were a goddess. Therefore, the winged element here in the

center would have been probably a sun-disc.

Another fragment further below shows a part of two columns of inscription flanked on each side by a seated deity turning back to it. The deity to the right, of which the upper body is preserved, is wearing a sun-disc on his head. Although the figure of the left deity is mostly lost, his back of the head with a part of sun-disc is discernible. This fragment is clearly a part of the central decoration, situated below the winged element above. The inscription contains a word “Great God” in hieroglyphic, although other signs are mostly pseudo-hieroglyphic.

The other decoration of the lid is too fragmentary to be reconstructed.

Decoration: Case The exterior decoration of the right sideboard, broken into many pieces, includes several symbols such as a winged *wedjat* and a *maat* feather. The left sideboard is heavily damaged, in which only the lower decoration is partly discernible, showing lower parts of several symbols and deity figures. There are traces of red paint remaining inside of the sideboards, while there is no trace of decoration on the bottom.

Dating This coffin is a “Yellow Coffin”, typical of the early Third Intermediate Period, and its lid conforms to Type II-d of Niwinski, dating from the middle to later half of the 21st Dynasty (c. late 11th to mid. 10th century BC)⁵⁾. (UCHIDA)

3 INVESTIGATIONS IN THE PTOLEMAIC QUARRY AT NEW MINYA

3-1 Architectural and Epigraphical Investigations

Further archaeological and epigraphical exploration was conducted at the huge limestone quarry of Ptolemaic date in New Minya (Fig. 2 and 12 No. 1). We focused on the investigation of a section named L (Fig. 12 No. 2), situated on the upper eastern side of the valley, where two rectangular parallelepiped upright stone blocks remain not detached from the bedrock. The primary purpose of our research is to elucidate the relationship between the vertical trenches surrounding the aforementioned two stone blocks and the graffiti on the surrounding walls of the trenches in order to reveal the working process of cutting the trenches. This survey leads to two conclusions. The first is that both archaeological remains and the dates of the Greek graffiti help to reconstruct the actual order of digging the trenches. The second is that numerals written in the graffiti almost exactly correspond to the supposed volume of stone cut for making the vertical trenches, which still exist or once existed in front of the graffiti. The following description explains on what basis we reached these conclusions.

We have removed the debris of three trenches, called A, B, and D until their rock floors were observable (Fig. 12 No. 3). Trench A is 420cm long and runs north and south between a wall of the valley on the eastern side and two blocks on the west (Fig. 12. No. 4). Trench B runs east and west between the southern wall and the southern block. Trench D runs also east and west separating these two blocks (Fig. 12 No. 5). Trench C was supposed to have been existed in front of the western side of the northern block and the western end of Trench D. Its existence is confirmed by a slight trace of a corner at the northwestern corner of the southern block (Fig. 13 No. 1).

The archaeological observation of the trenches reveals the following three points. (1) Chisel



Fig. 12 1: Panoramic view of the quarry from north; 2: Section L; 3: Trenches A–D in Section L; 4: Trench A, from north; 5: Trenches B (right) and D (left), from west.

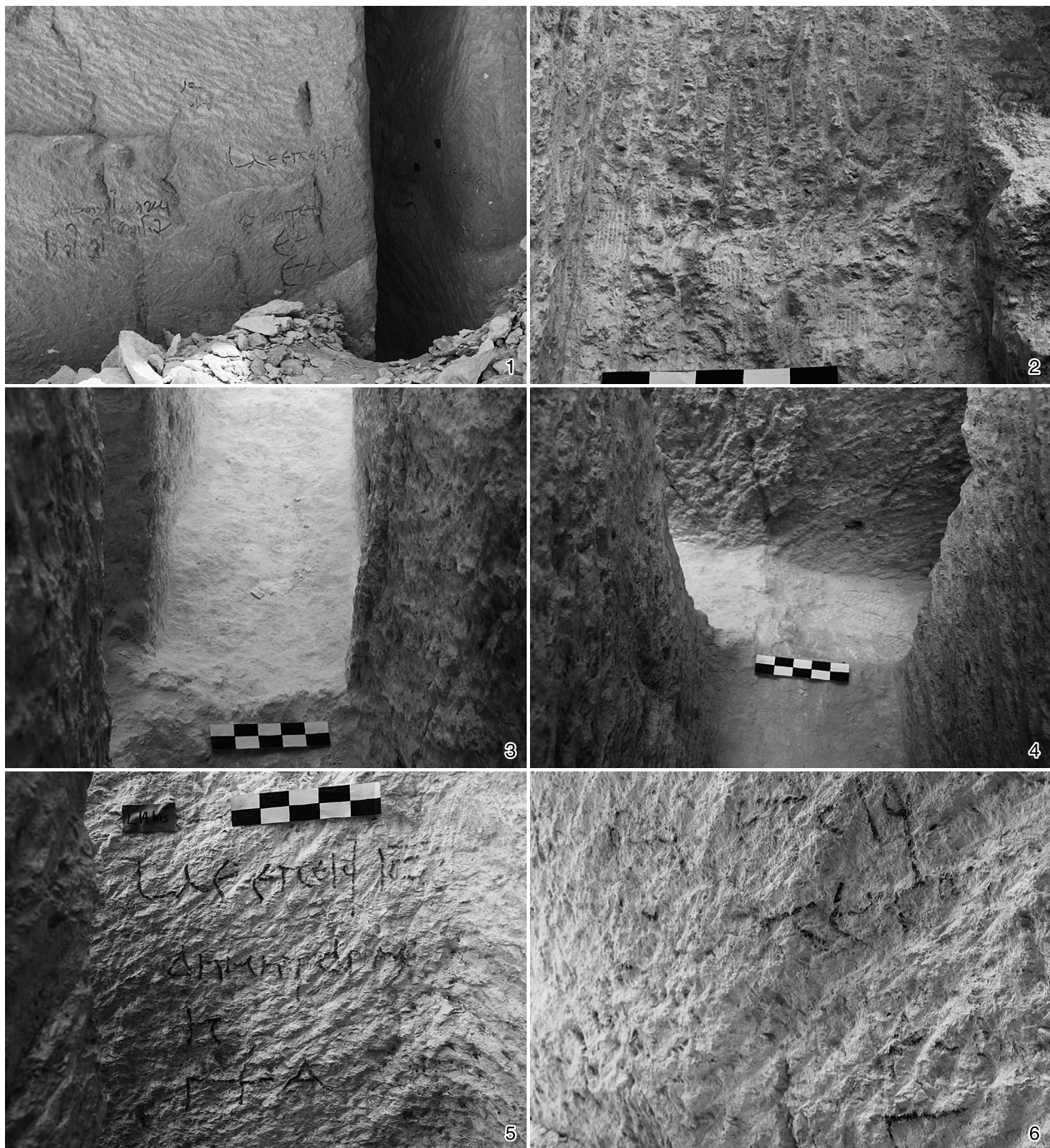


Fig. 13 1: Trench C; 2: Chisel marks on the southern wall of Trench A; 3: Intersection of Trenches A and D, from east; 4: Intersection of Trenches A and D, from west; 5: Graffito on Trench A, L14; 6: Graffiti on Trench A, L42+43.

marks on the southern wall suggest that Trench A was cut from the north (Fig. 13 No. 2). (2) Trench A is divided into two parts (the northern and southern parts) by a distinct elevation on the floor at the point of 230cm from the north, exactly at the intersection of Trench A and Trench D (Fig. 13 No. 3). As discussed below, this division is also used for recording the volume of stone cut. (3) Trench A seems to have been cut earlier than Trenches B and D. At the points where the latter trenches meet Trench A, only chisel marks of Trench A remain. This suggests that digging Trenches B and D stopped when they meet Trench A (Fig. 13 No. 4).

Graffiti in section L can be used to reconstruct the chronological sequence of the quarrying activity in fairly consistent way. Two dates are confirmed among graffiti around the trenches: 5th and 10th September 251 B.C. If our hypothesis that the dates in Greek graffiti represent those of inspection by officials is correct, the dates may not indicate the exact dates of completion of quarrying. But the sequence of the dates still seems to reflect the actual quarrying procedure: the earlier the date denoted by the graffiti, the upper or outer the location of the relevant segment of the trench. Graffiti with the earlier date of 5th September are found on the southern side of Trench B (L15+16), on the southern wall of the section L (L20+21), which is extended from the above-mentioned side of Trench B, and on the upper part of the southern half of Trench A (L14, Fig. 13 No. 5). Graffiti with the later date of 10th September are distributed on the wall of northern half of Trench A (L42+43, Fig.13 No. 6), in Trench C (on the wall of the southern block; L13), and in Trench D (on the northern block; L9–12). The depth of the trench indicated by the graffiti strongly suggests that these trenches were cut from the top of the present surface, and Trenches A and B might be cut earlier than Trenches C and D.

Even though not all numerals recorded in the graffiti exactly match the lengths or depths measured between the preserved edges of the trenches, it is now beyond doubt that the volume recorded in a certain pair of graffiti or a graffito means that of the stone actually cut for making a trench. However, it is not always clear under what conditions the way of recording at each trench was determined. As regards Trench A, different methods of measurement were applied due to an unknown reason. For the southern part seems to have been measured in two steps: L14 recording “ $3 \frac{2}{3} \times 8 \times 1$ ”, “ $196 \times 230 \times 53.75\text{cm}$ ” and the demotic graffito of L58 below L14. Unfortunately the relevant numerals on the demotic graffito L58 are now almost illegible, though certainly it must have indicated the depth of the lower half of the southern part of Trench A, since the depth of 196cm in L14 almost exactly corresponds to the depth of the upper half of the southern part of Trench A. By contrast, the northern part of Trench A was measured only once from the top to the bottom. The graffiti there, L42+43, have the numerals of “ $3 \frac{1}{2} \times 11 \frac{2}{3} \times 1$ ”, “ $188 \times 626 \times 53.75\text{cm}$ ”. The length between the elevation on the floor of the trench and the northeastern corner of the northern block on the opening of the trench is 188cm. The depth of 626cm must be that of the trench, although the top of the trench has been collapsed. The measurement of 618cm, the depth indicated by L13, which records “ $4 \times 11 \frac{1}{2} \times 1$ ”, “ $215 \times 618 \times 53.75\text{cm}$ ”, must be also that of Trench D. Its lateral length, 215cm, is almost equal to the actual length of Trench D, 225cm. The graffiti L15+16 on Trench D record “ $5 \frac{1}{2} \times 8 \times 1$ ”, “ $295 \times 430 \times 53.75\text{cm}$ ”. Its length of 295cm corresponds to the actual length between the southeastern corner of the southern block and the opening of the trench, 260cm. This supports the interpretation that the completion of the Trench A antedates that of the Trench B.

The analysis of the data presented by these Greek and demotic graffiti as well as the minute archaeological observations of the limestone blocks left on the site will surely illuminate the complex mechanism of operations at work in this quarry during the Ptolemaic period.

(SUTO and TAKAHASHI)

3-2 Architectural Investigations of Unfinished Obelisk

The most significant discovery made during this season was an unfinished obelisk still lying on the limestone bedrock, which was abandoned during the extraction phase (Figs. 14 Nos. 1–6). Although this obelisk is not mentioned in any bibliography⁶⁾, some researchers who visited the unfinished colossus of an unidentified Ptolemaic king, which lies less than 40 meters away, must have seen it without recognizing it as an obelisk. Indeed, it is difficult to recognize it as an obelisk today, since the initial trench that the Egyptians made was a pure rectangle. Moreover, it is now half covered with debris, which we intend to clear in the next season.

Another reason for overlooking this obelisk was that the obelisks of monumental size — in this case being c. 21m in length and c. 2.4m in width at the base — were made of red granite in Aswan⁷⁾. Since there is no parallel for an obelisk of monolithic limestone in this size⁸⁾, and since there are also other unfinished monolithic colossal statues⁹⁾ and columns¹⁰⁾ known from the limestone quarry of Akoris and New Minya, a certain change in the ideal stone monuments in the Ptolemaic Period compared to the use of Aswan granite par excellence in the earlier periods can be observed. Further documentation work would shed a new light to the architectural program of the Ptolemaic Dynasty.

From the unfinished state of the obelisk, it is possible to reconstruct the construction process (Figs. 15 and 16)¹¹⁾: Firstly, trenches were dug by pickaxe to form a rectangular block. The width of the trench on the east side is c. 51cm wide, while the remaining three measured 101–109cm, which correspond to 1 and 2 cubit, respectively. Shortly after the beginning of the trench work, if not simultaneously, the longitudinal centerline and the outlines of the obelisk, including the pyramidion, were marked with chisels. There were no other preliminary lines found, at least not in the form of notches. The base of the obelisk was planned as 4.5 cubit (= 2.42m), the height of the shaft as 36 cubit (= 19.02m). Thus, their proportion is 1:8.

Judging from the distorted shape of the pyramidion and from the fact that the incised centerline lies displaced eastwards, it is obvious that this obelisk underwent at least a couple of changes of plan, which shall be clarified in the future. It is significant that the diminution of the obelisk (1/42,3) was created by using only one longitudinal side and leaving the other as the completed surface. The flattened top of the pyramidion may indicate that the electrum cap was produced. The height and the width of the pyramidion without the cap both measures c. 1.98m ($3 \frac{2}{3}$ cubit), and it is plausible that the height of the pyramidion with the cap was planned as such.

The area of the obelisk and the colossus at New Minya are not yet protected as an archaeological site. Some interventions were made by the locals during our survey and our inspector, Mr. Shenouda Rizkalla, has kindly dealt with them. It is strongly recommended that the Ministry of Antiquities officially announces this region as an archaeological site and protect it from diminishing through construction works that has been intruding into the site in the last years.

Since obelisks are usually erected in pairs, a reconnaissance to the limestone quarries located around Akoris site was performed to find the counterpart. A rectangular solid block of c. 30m in length located approximately 1.4km to the south of Akoris, which had already been known to us, may also be regarded as an unfinished obelisk. The apparent discrepancy in the dimensions of the two obelisks, however, makes it difficult to recognize them as a pair. There may also be other

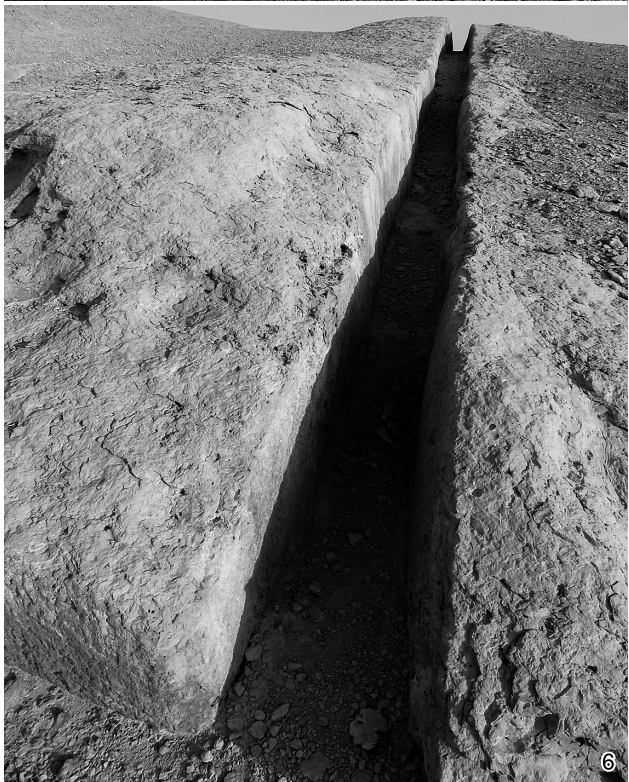
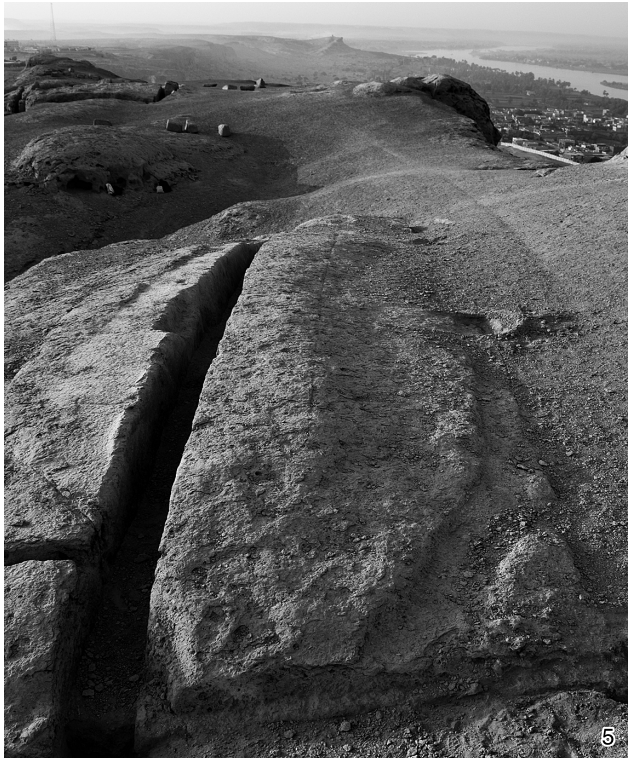
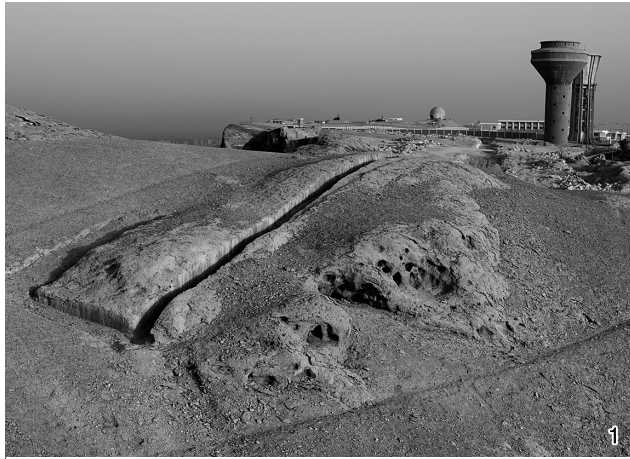


Fig. 14 1: View from east towards northwest;
2: Base of the shaft of the obelisk; 3: View
towards southeast; 4: View from southwest
towards northeast; 5: Pyramidion;
6: The narrow trench from the southeast
corner.

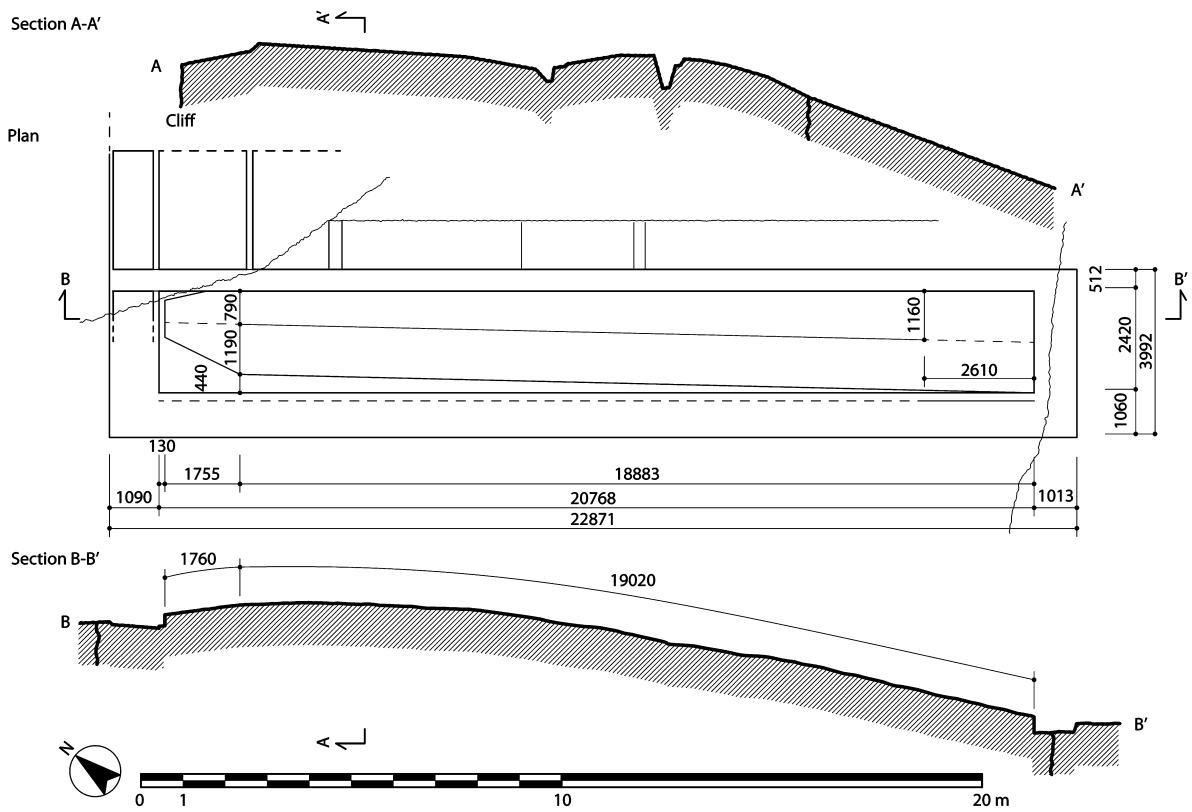


Fig. 15 Plan and sections of the unfinished Obelisk (dimensions in metres).

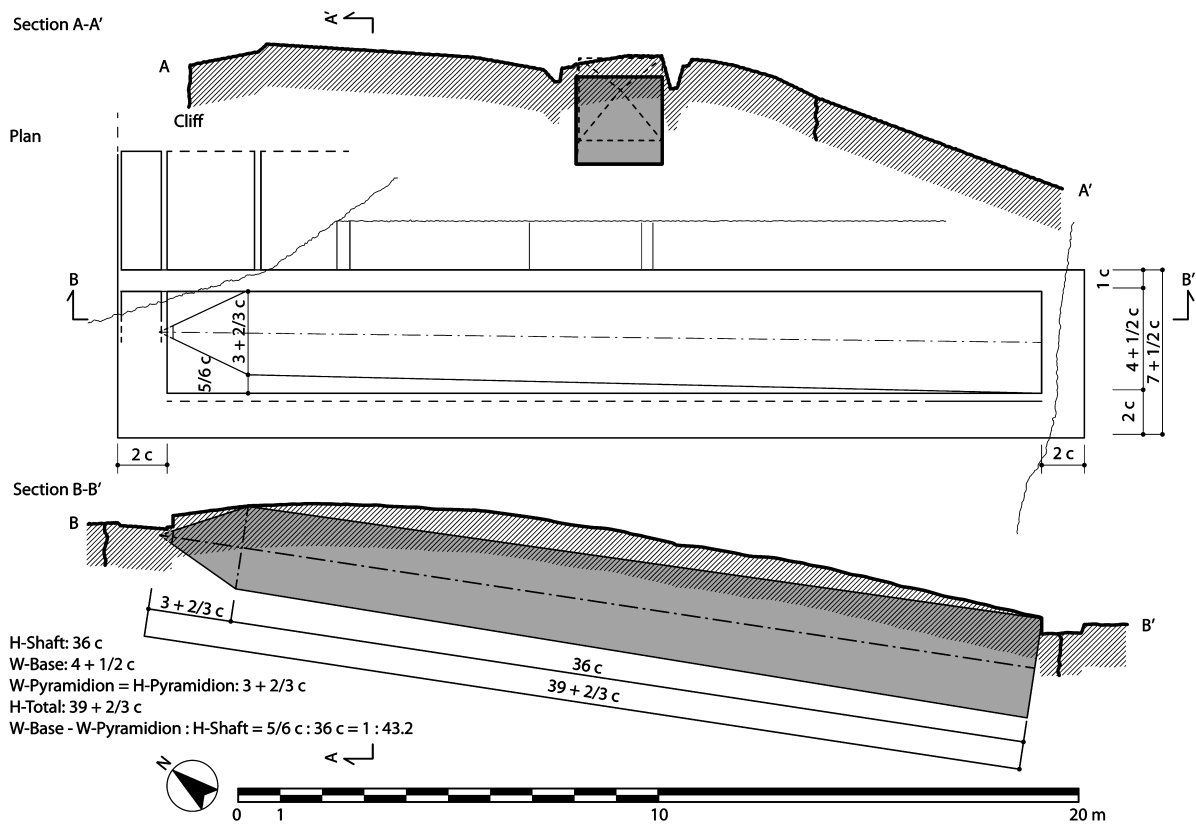


Fig. 16 Obelisk as planned (dimensions in cubit).

obelisks and colossal statues lying in the vicinity, and the survey of the quarry site, particularly of this monolithic block, will be conducted in the next seasons.

The documentation work of the pair of the colossi was continued, and a short draft of the final report was prepared. A few demotic graffiti inscribed on the ceiling of the rooms beneath the colossus at New Minya quarry will be newly recorded in the next season. (NISHIMOTO and YASUOKA)

3-3 Some Remarks on the Cat Reliefs in the Quarry

There are several rock-cut reliefs representing cat faces in the ancient quarry at New Minya (Fig. 17 No. 1). The cat has two vertical horns on the head and an open mouth below them. In my opinion, these reliefs depict the goddess of Pakhet, who was represented as a cat in the Greek and Roman periods. In objects of the Pharaonic period, Pakhet takes the form of a lioness like her twin sister, Sekhmet, and her name is accompanied by the determinative of a lioness¹²⁾. By the Greek and Roman periods, however, the determinative ceased to be used.

Several inscriptions and objects provide clues to connect this goddess to the New Minya quarry. In the Greco-Roman tomb of *pA di km* in Hermopolis, there is an inscription referring to “the cat Pakhet”¹³⁾. The titles of Pakhet is “the great one of Seth”¹⁴⁾. According to Gauthier, “*st*” is identified with Speos Artemidos, which is located c. 25km to the south of Minya near Beni Hasan. The city had Pakhet, who resembles the cat goddess, as its patron goddess¹⁵⁾. It is worth noticing that both the city and the Ptolemaic quarry in New Minya were located in the 16th nome of Upper Egypt¹⁶⁾.

Pakhet was worshiped at the New Kingdom temple in Speos Artemidos built by Queen Hatshepsut. This temple bears an inscription read as “goddess Pakhet who cut the quarry by her knife”. Pakhet herself is represented as an image of Hathor, who is a cow-goddess and a goddess of quarry in ancient Egypt. This explains the presence of two diagnostic horns on the head of Pakhet at the quarry of New Minya. There are many small niches for a god or goddess in this quarry, and I suggest that they were used for the statues of Pakhet as the goddess of quarry.

As already mentioned, Pakhet was worshiped also as a cat-goddess in the Greek and Roman periods. Thus we find a lot of cat mummies in front of her temple in Speos Artemidos (Fig. 17 No. 2). According to my observation, similar cat mummies are also found in a rock-cut chapel at Akoris, which is located at the north end of the western cliff facing the Nile¹⁷⁾. There is a relief of the god Khnum on the outer face of the chapel¹⁸⁾, and I found horns of sheep inside the chapel (Fig. 17 No. 3). Moreover, Khnum was the husband of Sekhmet. There is a relief of the couple in the Greco-Roman temple of Esna, and Sekhmet there is represented as a lioness goddess. The close relationship between Sekhmet/Pakhet and ancient quarries strongly suggests that mummies of cats in Akoris represent the goddess Pakhet and they were also related to the activities at quarries in the vicinity of this site.

Moreover, the word “*st*” indicates not only the city of Speos Artemidos but also quarries in this area. The determinative of the word “*st*” consists of a hill with three summits which represents a mountain, not a city like “*niwt*” sign, and a knife which surely refers to the cutting of quarries with the knife of Pakhet.

I have also found an object at Zawiet el-Maيتين (Fig. 17 No. 4), which is located not far from



Fig. 17 1: Cat relief in New Minya quarry; 2: Cat mummies found in Speos Artemidos; 3: Animal bones found in the rock-cut chapel; 4: Cat relief in Zawiet el-Maيتين.

the quarry at New Minya and where I have been working for the survey of the UCL mission. The city was called “*Hbnw*”, namely “cut by knife”. I believe that this name refers to the quarry at New Minya.

Hannig suggests that the site of “*st*” was located somewhere between “*Hbnw*” and “*Mnat xwfw*”, modern Beni Hasan on the eastern side of the Nile, and he considered Beni Hasan and Speos Artemidos are collectively called “*Mnat xwfw*”¹⁹).

In the Coptic period, the mountains of the 16th nome are called “Mountain of Column”. According to my view, the whole mountains of the nome were called “*st*” in ancient times and were famous for the production of fine limestone blocks. (SHENOUDA)

4 LASER SCANNING OF AKORIS AND NORTH QUARRY AREAS

This chapter contains two important reports on the results of fieldwork using a laser scanner; the first of a survey of the remains of the town area, including the recording of mud brick structures covering the tableland of Akoris (Fig. 18 No. 1) and the second of the investigating of the quarries, including the unknown Roman imperial quarry north from Akoris (Fig. 18 No. 3). The work of scanning ancient quarries around Akoris, interrupted in 2013, resumed this year and the work



Fig. 18 1: Scanned area and axiality of the mud-brick wall in Akoris City zone; 2: Cross sections of Akoris, above: north-south section viewed from west; below: east-west section viewed from south; 3: Location of North Quarry; 4: Pit A of the North Quarry.

shifted successively from the southern area toward the north, where an ancient Roman quarry including a monumental inscription dedicated to Diocletian has survived and the open-air trenches are clearly visible, showing an impressive scale. This quarry on the northern mountains has not

been scanned, since this was not easily reached from Akoris that geographically separated by *wadi*. In 2011, this area has been surveyed using a long-range scanner, but detailed scanning has been postponed. We reached the east end of this huge quarry and identified the abandoned stone blocks under the extraction process (Fig. 18 No. 4).

Mud-brick structures at Akoris urban area We surveyed the whole area of Akoris covered by mud-brick structures. In 2012, we launched a project that is perhaps more ambitious than any other early researches on mud-brick structure, which nonetheless seems unexceptional by Ptolemaic and Roman standards and was dwarfed by the Roman buildings of the old city. For simple linear structures such as Roman buildings in the western and central temple areas, have been measured with tapes on scale plans. However, for recording the mud-brick walls showing in various places above the extensive and thick deposit of pottery, laser scanning is essential, contributing a detailed three dimensional record in which we can observe structural features that might be overlooked or go unnoticed in alternative forms of recording. The great potential of digital data makes many views possible that no human surveyor could ever have achieved.

Of the following sections (Fig. 18 No. 2), the above is a summary of the slope downward to the north and the courtyards on the steps flanked, the below comments on the heights of the Serapeum and the North gate within the historical sequence so revealed and refers briefly to the original surface of the ground in the Roman period and the subsequent development of that city.

Here the overall scale is same as that in Roman period, but even so the vast rebuilding of the town in the late antiquity gives us a question whether the intensive reorganization of the basic Roman fabric inevitably followed the numerous fires and floods which plagues the town has happened or not. At the southern end of this town, deriving traditional and local importance from the north-south axis of hypostyle hall does not shared with the sacred road with south and middle courts ending at the north gate, its axiality follows that of Serapeum at the central temple area. And many walls of mud bricks surviving above the deposit run actually parallel with the Serapeum and the central road suggested, tough some exceptions could exist (Fig. 18 No. 1).

What we might conclude from these brief observations is that the axiality established in the Roman period has been maintained in late antiquity or the early medieval ages.

Northern quarry area We believe that the quarry on the northern tableland from Akoris, of which the height of 50–60m was adequate above slopes that are generally as steep as 1:2 and south and east sides might be termed cliffs, should be associated with the city, but were clearly located farther north beyond the *wadi*-valley, the continuous platform of limestone bedrocks, if sufficiently thick and high-quality, represents a costly but appropriate solution to the problem of access road from Akoris.

While the main extracting area of this quarry seem to have extended eastward from the west end of the quarry that could provide an access road from Akoris. Probably the production have started from the west end and extended eastward. And finally the work suddenly interrupted under the extraction of stone blocks in Fig. 18 No. 4 and Fig. 19. At the east end of the huge imperial quarry, in several pits, a plenty of unfinished stone blocks had been ready for carrying out (Fig. 18 No. 4). The pits are filled with domino-shaped stone blocks falling down one on another

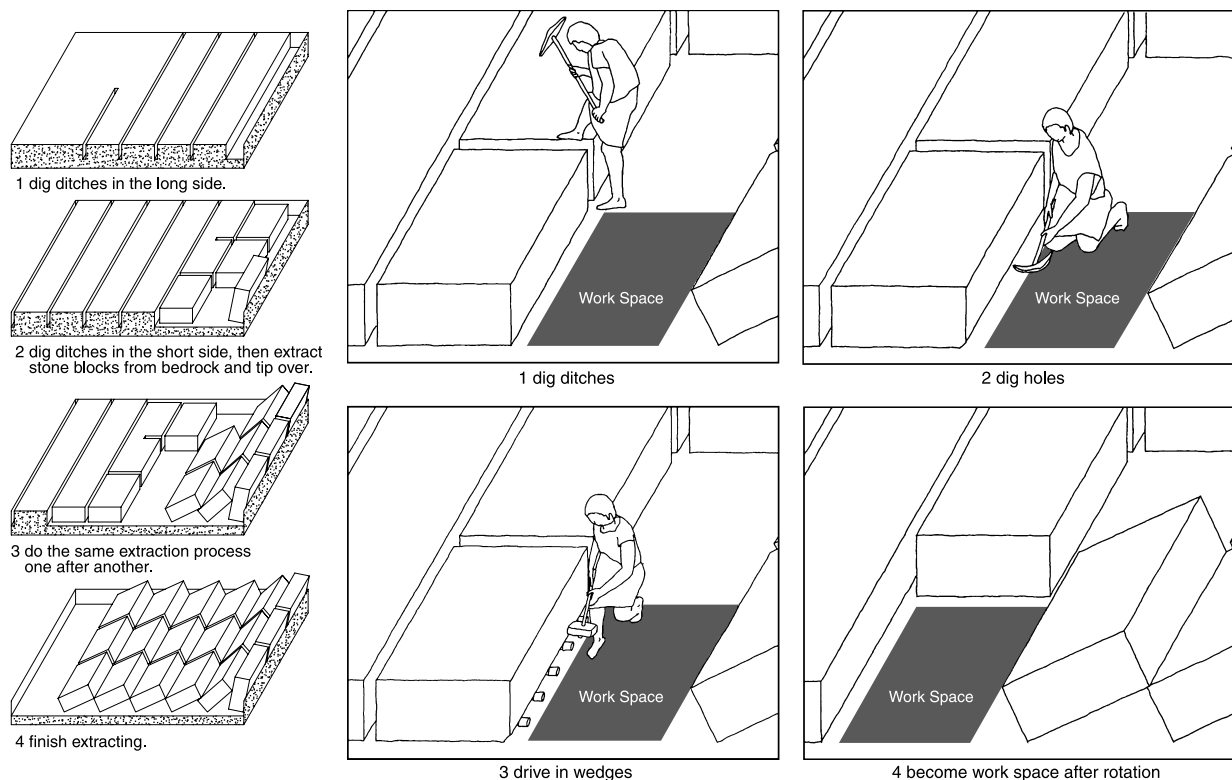


Fig. 19 Extraction process reconstructed on the North Quarry.

within a matrix, but the short side of the stone blocks adjacent to each other are aligned while overlapped sequentially just like one-way dominoes. The extraction process can be reconstructed as shown in Fig. 19. On a single mason's assigned workspace, of which the depth is equal to that of the domino-like block previously extracted, a new stone block is tipped over the long side edge, even distance from the extracted block to guide the horizontal progress of the next extraction work. Finally masons carried out stone blocks after the whole process of extracting on every pits has been completed. Why this process was applied remains unclear. We need further investigation of this imperial quarry. (HORI)

Notes

- 1) Darby, W. J. et al., 1977 *Food: The gift of Osiris*, Academic Press, Fig. 12, 14.
- 2) Nibbi, A., 1995 'The Ingot and the Hand Bellows Pot of Middle Kingdom Egypt', in Esmail, F. A. (ed.), *Proceedings of the First International Conference on Ancient Egyptian Mining & Metallurgy and Conservation of Metallic Artifacts*, Supreme Council of Antiquities of Ministry of Culture, pp. 159–174.
- 3) See *Preliminary Report Akoris 2014*, cover photo and pp. 12–13.
- 4) Roughly depicted feather adornments of *atef* crown were added to a White Crown.
- 5) The representation of crossed arms on this coffin, with carved hands and painted forearms, is characteristic of Type II-d. Niwinski, A., 1988 *21st Dynasty Coffins from Thebes: Chronological and Typological Studies*, Mainz am Rhein, pp. 75–76. Also see Aston, D. A., 2009 *Burial Assemblages of Dynasty 21–25: Chronology-Typology-Developments*, Wien, p. 272. In addition to this coffin, at least two “Yellow Coffins” were found in our previous excavations at Akoris. See *Preliminary Report Akoris 2004*, pp. 10–12 (Niwinski's Type III); *Preliminary Report Akoris 2006*, p. 10 (fragmentary).
- 6) Delgeur, L., 1885 *Communication au sujet d'un colosse projeté trouvé dans les carrières de Zawiyet-el-Méitîn*, *Actes du sixième congrès international des orientalistes, tenu en 1883 à Leide*, IV, Leiden, pp. 199–200; Klemm, R. and D. D.

- Klemm, 2008 *Stones and Quarries in Ancient Egypt*, London, pp. 70–77; Kessler, D., 1981 *Historische Topographie der Region zwischen Mallowi und Samalut, Beihefte zum Tübinger Atlas des Vorderen Orients. Reihe B, Geisteswissenschaften* 30, Wiesbaden, p. 66.
- 7) For other examples of monumental obelisks in granite, see Habachi, L., 1984 *The Obelisks of Egypt: Skyscrapers of the Past*, Cairo.
 - 8) For smaller obelisks made of calcite and sandstone, see Empereur, J.-Y., 1998 *Alexandrie redécouverte*, Paris, p. 79; Kuentz, C., 1932 *Obélisques, Catalogue Général des Antiquités Égyptiennes du Musée Carie* Nos. 1308–1315 et 17001–17036, Cairo.
 - 9) Endo, T. and S. Nishimoto, 2005 *The unfinished Colossus at the Quarry of Zawiet Sultan*, in: *Summaries of Technical Papers of Annual Meeting and the Summaries of Design Works of Annual Meeting F-2*, pp. 427–428; Endo, T., 2008 'Architectural Study on the Relationship between Red Lines and Graffiti found at the Underground Chambers of the Unfinished Colossus', *Cyber University Bulletin*, Vol. 1, pp. 33–51.
 - 10) *Preliminary Report Akoris 2010*, pp. 15–19.
 - 11) There are also other unfinished obelisks known in Aswan, for which close examination is still wanting. Engelbach, R., 1922 *The Aswan Obelisk with some Remarks on the Ancient Engineering*, Cairo; Habachi, L., 1960 'Notes on the Unfinished Obelisk of Aswân and Another Smaller One in Gharb Aswân', in Struve, V. V. (ed.), *Drevnij Egipet: à la mémoire de Wladimir Sémonovitch Golénischeff*, Moscow, pp. 216–236; Jenkins, M. R., 2010 'The 'other' Unfinished Obelisk' in: *KMT: A Modern Journal of Ancient Egypt*, Vol. 21, pp. 54–61.
 - 12) Leitz, C. (ed.), 2002 *Lexikon der ägyptischen Götter und Götterbezeichnungen*, Bd. III, p. 28.
 - 13) *Ibid.* p. 242.
 - 14) Fakhry, A., 1939 'A New Speos from the Reign of Hatshepsut and Tuthmosis III at Beni-Hasan', *ASAE* 39, p. 716.
 - 15) Salah, R., 2014 *Pakhet Goddess of Speos Artemidos*, unpublished Master's thesis, Tanta University, Egypt.
 - 16) Gauthier, H., 1925 *Dictionnaire des noms géographiques*, Vol. 5, p. 91.
 - 17) Kawanishi, H. (ed.), 1995 *Akoris: Report for the Excavations at Akoris in Middle Egypt 1981–1992*, Kyoto, p. 12.
 - 18) *Ibid.* Fig. 5.
 - 19) Hannig, R., 1995 *Großes Handwörterbuch Ägyptisch-Deutsch*, 1477f.

Members in 2015

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Supreme Council for Antiquities: Hany Abu El Azm.

Site Inspector: Omran Atana Ahmed and Shenouda Rizkalla.

Supporting Persons

Muhamad Hallaf, Hafitz Fathy, Fukami, N., Hasegawa, S., Iwaki, N., Murata, Y., Ozawa, A., Sari Jammo, Sharaf, E., Spencer, V., Yakata, T. and Yamamoto, H. This project is sponsored by the Grant-in Aid for Scientific Research, Japan.

Correction Preliminary Report AKORIS 2012, Fig. 6, scale "15.0m" ⇒ "7.5m".

