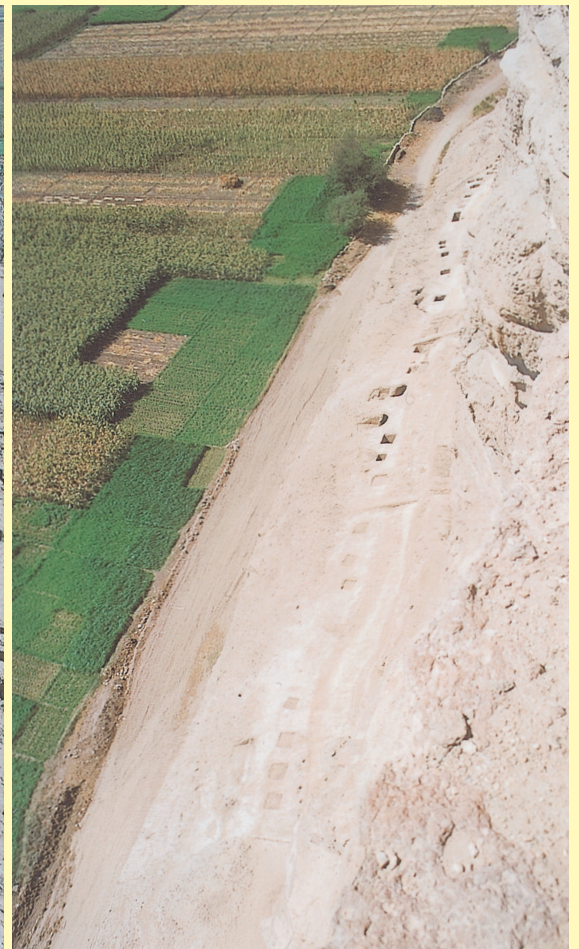


PRELIMINARY REPORT

# *AKORIS*

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# 1 GENERAL VIEW

Considering various archaeological traces stretching from the 5th Dynasty to A.D.700, the vital trend shown through grave- and house-constructions and manufacturing among the masses are confirmed. They are the end of the Old Kingdom (OK)/the First Intermediate Period, the end of the New Kingdom (NK)/The Third Intermediate Period (TIP) and the Coptic Period. In order to elucidate the city formation and its function and to re-examine ancient Egyptian history from a local viewpoint, the Akoris Project was started in 1981 and since 1997 has mainly concentrated on the end of the NK to the Ptolemaic Period.

The city area is situated at the center while graveyard and production areas extend on its periphery. The graves are both shaft- and tunnel-type and date from the OK to the Coptic Period. Small scale production areas where faience, glass, pottery, olive oil, leather goods, etc. were scattered around the city area while the large production areas were located on the western riverside stretching below the city area for agriculture and the northern and southern limestone crag for quarrying.

Many ancient quarries are existent within a 15km radius of the city area corresponding to a one-day around trip. These quarries await archaeological and philological research. Being led by the large inscriptions of Rameses III, Dr. L. Habachi suggested that the quarries in Akoris and

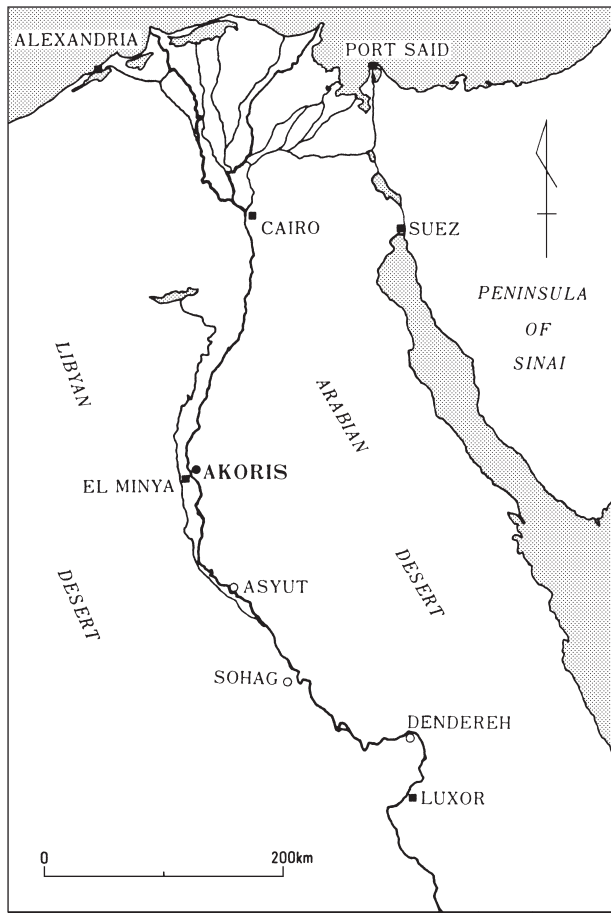


Fig. 1 Map of Egypt.

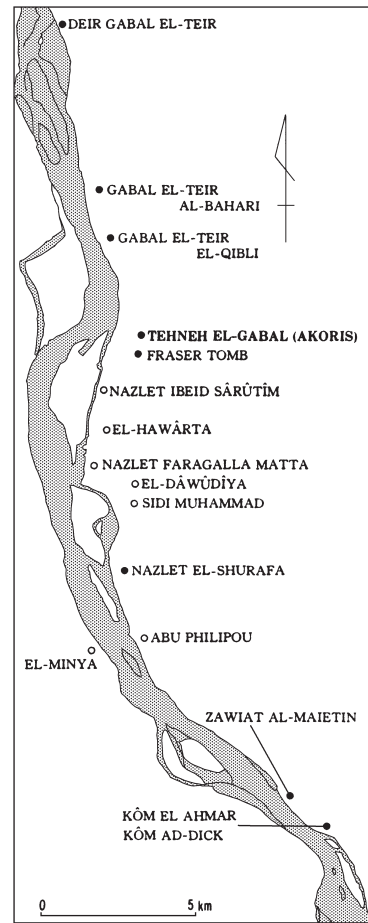


Fig. 2 Sites and villages near Akoris.



al-Bābīn date back to the 20th Dynasty. However, this is still an uncertain assumption because of no archaeological inspection.

Based on the investigations of the demotic and Greek graffiti which remain at the northern Zāwiyat al-Sulṭān and the southern Akoris quarries, the fact that they had been in operation in the Ptolemaic Period was testified. They are probably the oldest quarrying traces in existence.

Among the eleven graves excavated in the West Area, two are distinguished in that one contained products for the wealthy such as a copper/alloy mirror and another an animal such as a gazelle. Moreover, both were women and date from the end of the OK. It might imply that these women were of a special status.

In the South Area eleven mummies dating from the TIP, have been found in our investigations since 2002. Most of them consist of women and one discovered in this season had a deliberately pierced skull, which raises an issue about the social position of women in this period. (Kawanishi)

## 2 ARCHAEOLOGICAL INVESTIGATIONS

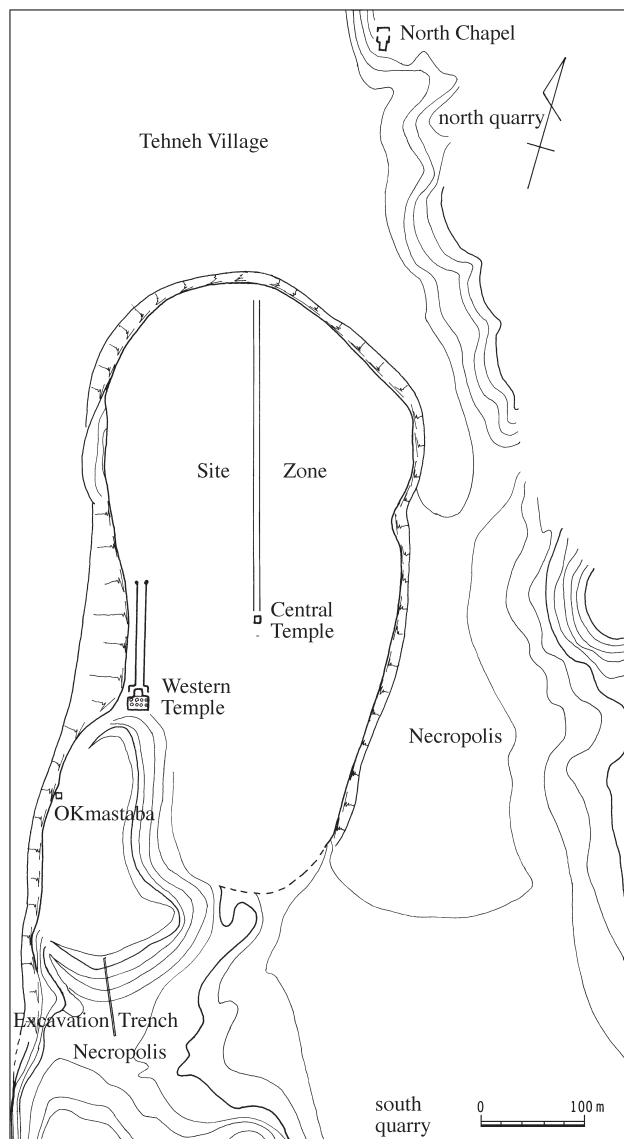


Fig. 3 Map of Akoris.

**South Area** (Cover; Figs. 3–6) At the end of the 2003 season, the excavation trench was laid, measuring 80.0m in length north-south on the slope and 8.0m in width east-west in the South Area at the base of the crag. The trench was divided into ten 8.0m-grids, labeled A–J from top down and preceded by the number of the year.

Since the 2004 season, we extended the already existing rectangular trench further to the west. It was extended to 11.0m in Areas 04A–F in the 2004 season, and 15.0–18.0m in Areas 05A–D in the 2005 season. In the 2006 season, we continued the excavation 50.0m in length north-south and 38.0m in width east-west in Areas 06E–J at the end of the season. We found many mud brick structures, houses, granaries and workshops, belonging from the TIP to the Late Period.

Areas 06E–F were situated in the south of Area 05D, and in the west of Areas 04E–F. The bedrock of this area, together with some mud brick structures at the southern edge of Area 06F were abruptly cut, showing a horizontal gap about 5.0m. The bedrock collapse must have happened shortly after the time of this occupational layer.

Areas 06G–J, where the inclination of the





Fig. 4 South Area.

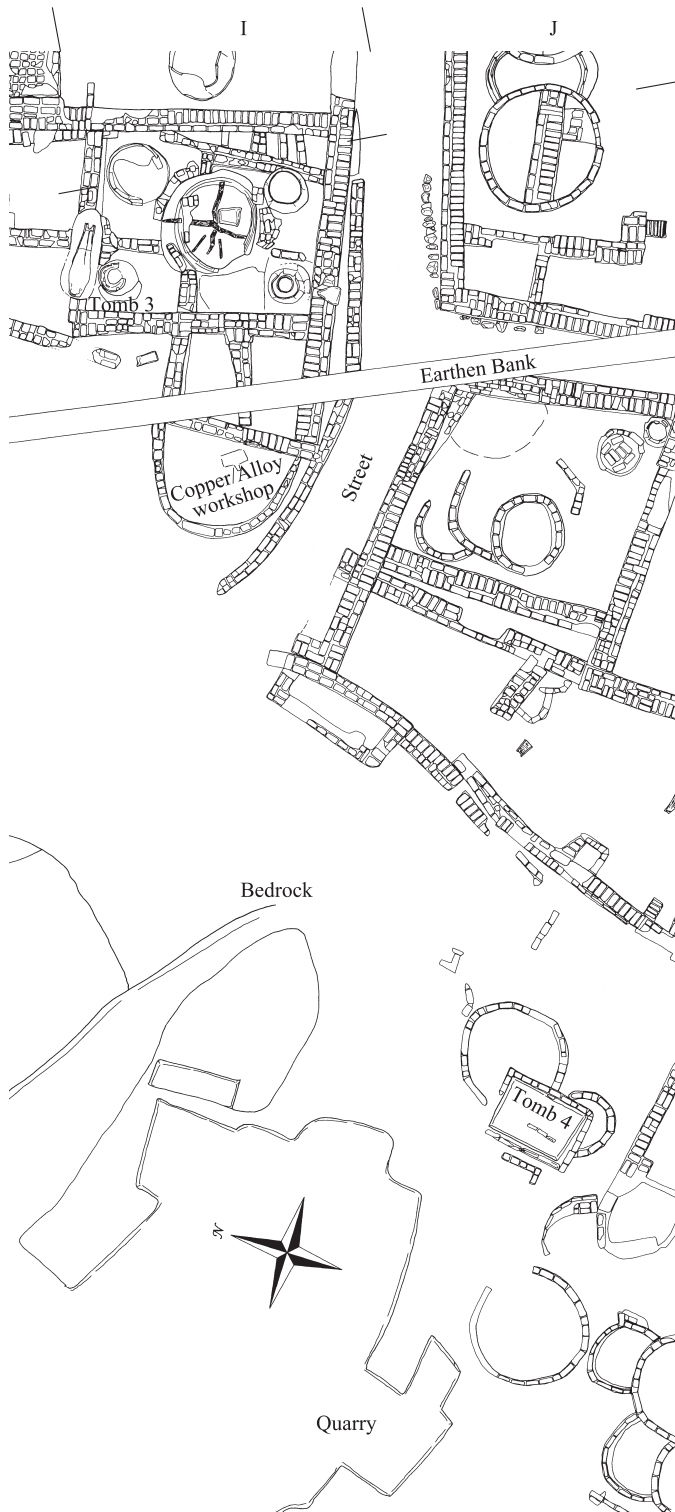


**Fig. 5** Plan of the South Area, excavated in 2006.

slope ended, were situated at the south of Areas 04F and 06F, and at the west of Areas 03G–J. These Areas 06G–J were divided into western trench and eastern trench by leaving a 0.7m bank in the middle. The divided areas were thus named as 06eG–J and 06wG–J.

In Area 06F, we confirmed many ruins of circular structures built of mud bricks (Fig. 4: Upper left and right). These could be classified into two types by their size and by the material remains from inside. One type is a large granary, which usually have more than 2.5m in diameter. Four





**Fig. 6** South Area.  
Upper: General view from the south; Upper middle: Tomb 2; Lower middle: Tomb 3; Lower: Circular structure in Area 06eI.



such granaries were found from Area 06F. Two of them retained their circular form and they were constructed at almost the same time adjoining each other, east and west. The eastern one was 2.9m in diameter and 0.6m in maximum height, and the western one was 4.1m in diameter and 1.0m in maximum height. The size of mud bricks of these structures was 38–40 × 18–19 × 7–8cm. Their floor was not covered by mud bricks but paved with mud. We found a small quantity of grain, chaff and ears of cereal which were probably cultivated emmer wheat on the floor. It was the first time to find such vegetable remains since we started the investigation in the South Area.

Another evidence of grain was found from a circular structure in Area 06eJ, at the south side of the 12m long east-west wall, which is mentioned below. The size of the circular structure was 3.0m in diameter and 1.4m in depth, with the mud bricks measuring 37–38 × 18–19 × 7–8cm. It was constructed subterranean, and a small quantity of grain was found on the floor. Thus it is plausible that the original function of this structure was a granary. There were two other circular structures which were found in 2002 and 2003 had an east-west alignment with the newly found one. All these structures had peculiar straight walls, with 0.7m and 1.0m thickness, as if to fill up a third to a half of inside spaces. The function of these fillings is still unclear.

Another type of circular structures was probably used as storerooms. There were five, with a smaller diameter of about 1.0–1.5m used for general storage. However, all but one structure were left with just a part of their mud brick walls only a few tiers high. The only structure which kept the upper part was 1.4m in diameter and 1.0m in maximum height, and the wall was very thin made of mud brick stretchers set on their side and plastered over with mud. Attached to that, there was a semicircular structure, 1.3m in diameter and 1.0m in height, and the vegetable remains were piled up in the inside of both structures.

Two circular ovens in Area 04F were already reported in our previous report of 2004. There are two more ovens found from the Area 06F. The four ovens in total were adjoining each other and standing in an east-west alignment, each measuring about 1.1m in diameter and 0.5–0.6m in height. The walls of the ovens were well fired and very thin, and much ash and charcoal were piled up in the interior and around the ovens to more than 0.8m in height. It is supposed that the ovens were used for baking bread or something for which does not require high temperature. One oven out of the four, situated in the western end, was found underneath of the already mentioned eastern larger granary, thus the ovens must have been constructed earlier to the granaries.

Although we have found 6 large circular structures with over 2.5m in diameter in our previous investigations and 8 in this year, the function of them are still unclear (Fig. 4: Upper middle right; Lower left). There are no storage jars or amphorae found from insides of the structures, the few exceptions were two structures from Area 06F and 06eJ mentioned above, which some grains were found. Moreover, these are constructed with half subterranean chambers as opposed to general idea of Egyptian archaeology that granaries are silos built on the floor level, with an opening at the top to pour grains in, and at the lower bottom to extract grains. Some circular structures were even reused as burials, 4 out of 12 burials found during 2002–2005 seasons were found from such reused circular structures.

There was a house with more than five rooms was found from the Area 06eI (Fig. 4: Upper middle left). The eastern wall, measuring 8.2m in length, was excavated in 2003. The western wall, measuring 6.4m, ran parallel to the eastern wall. The southern wall, measuring 9.2m, connects at right angles to the eastern and western walls and there is the northern walls which consisted of some

divided walls in the line.

There was a circular structure, with approximately 2.2m in diameter and 1.2m in depth, located almost at the center of a house in Area 06eI (Fig. 6: Lower). It was constructed half subterranean by digging the hardened floor of the house. Inside of the circular structure, there were a lot of mud brick fragments and two wooden logs, measuring more than 2.5m in length and 2–10cm in diameter, which had fallen down from the upper part of the structure. As the two logs were put into the wall and set crosswise at the boundary between lower and upper part of the structure, logs were supposedly used for supporting the upper part of the structure which was constructed by piling mud bricks leaning slightly inward and forming cupola.

Four other small circular structures were found at the four corners of a house in Area 06eI. They were not built of mud bricks, but simply made of mud. The base of the structure at the southwest corner was cut more than 0.8m deep into the hardened floor level and had sand piled around the structure. The use of sand around the structure might have helped reducing the pressure imposed on the thin wall. The structure was about 1.40m in maximum diameter and tapered inward to the top, where there was an opening, 0.7m in diameter, with an unfired earthen lid. Unfortunately, the content of this structure was not yet confirmed, since removing debris from inside would cause collapse of the thin wall.

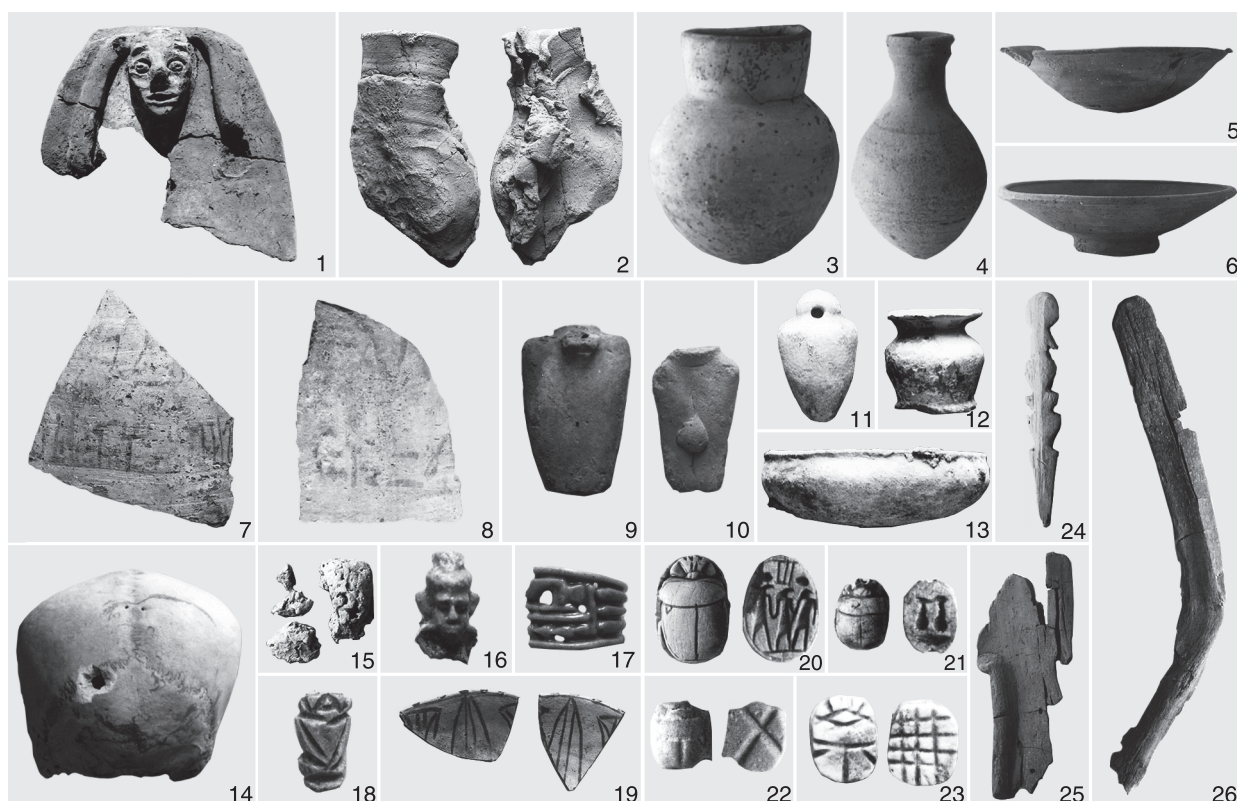
The half subterranean structure, which was mentioned above, might have served as a storage for seed, for it could have kept the inside temperature constantly. According to the local residents who live near the site, this kind of half subterranean circular structure is still in use nowadays for keeping seed.

In Area 06eG, there were a rectangular and a circular structure built side by side. They were built on the slope of the site, the floors of which were not artificially modified horizontally. The rectangular structure measured  $3.6 \times 1.8$ m square with an entrance facing the south and the height of the existing wall was 0.7m. The size of the mud bricks was  $34\text{--}35 \times 16\text{--}17 \times 6\text{--}7$ cm. The circular structure, measuring 2.1m in diameter, was probably constructed at the same time as the rectangular structure. Many fish bones, especially of catfish, cattle bones, and pottery sherds were found. These structures were probably used for the storage of food.

There was an ancient street in Areas 02–03eJ. This street is a continuation of the street of the previous seasons, and now has 25m in length, 2m in width (Fig. 4: Lower middle left). The street is running east-west, turned toward north at Area 06wJ. The trace of the street became obscure at Area 06wH–I, since bedrock was exposing on the surface of the ground. A 1.3m width street was running vertically to this wide street at the area between Area 06eJ and 06wJ, forming a junction. There were long dividing walls surrounding circular structures and common houses on both sides of the streets, however, no entrance was found through these walls. There are walls for the circular structures and rectangular houses alongside of the wide east-west street, however, no access entrances from the street to the circular structures or houses have been made.

In this season, four burials were found in Areas 06F, 06eG, 06eI and 06wJ. Tomb 1, contained a small rectangular wooden coffin, measuring 0.9m in remaining length, with only half of it where the legs had been remained. There were only a child's finger bones and some fragments of cloth from the coffin.

Tomb 2 was situated in the inside of the circular structure in Area 06eG (Fig. 6: Upper middle). The edge of the wooden coffin was uncovered during the 2004 season, however, at that time almost



**Fig. 7** Finds from the South Area.

the entire coffin was out of the investigation area and so it had been left untouched. The burial was found from the upper part of the circular structure and the coffin contained the skeletal remains of an adult female. The coffin and the skeletal remains were cut cleanly in half. However, it was strange that the skeletal remains were not scattered here and there, but were in their original position. The size of the coffin measured 1.3m in length and 0.5m in maximum width.

The burial, Tomb 3 was created by demolishing the northern wall of a residence in Area06eI (Fig. 6 Lower middle). Tomb 3 had a colored anthropoid coffin, measuring 2.0m in length and 0.6m in width and covered with a straw mat. The lid of which was already destroyed in ancient times. The base color of the coffin is whitish-yellow, with floral headband and gods were painted in blue, red, black, and green. The deceased was a female, originally wrapped in cloth, only fragments of which now remain. No funerary gift was discovered. The coffin was similar to the two anthropoid coffins found in 2004 and 2005 seasons, therefore the one found this year might also be dated from the 21st or the 22nd Dynasty. The dating criteria were already discussed by Mr. Uchida in the 2004 season's Preliminary Report. It was noteworthy that a small hole was observed on the skull, with no trace of callus around the hole. This may indicate the cause of her death. Her brain was found intact.

Tomb 4 was  $2.2 \times 1.5$ m square and 0.5m in depth, situated in Area 06wJ. It was a rectangular shaft surrounded by mud bricks on the bedrock (Fig. 4: Lower right). (Hanasaka)

**Finds from the South Area (Fig. 7)** No. 1: Pottery Coffin, Area 06eG, l.  $42.3 \times$  w.  $43.4 \times$  t. 10.3cm. Fragment of a pottery anthropoid coffin lid with human face and two arms coming out from the both sides of the face.

No. 2: Unfinished Pottery, Area 06eI, h. 25.5  $\times$  max d. 16.0  $\times$  t. 3.5cm. Lump of unfired



pottery jar with rim and neck, found in a smashed state.

No. 3: Pottery. Round bottomed jar, Area 06wJ, h. 15.7 × max d. 13.0cm.

No. 4: Pottery. Long necked jar with round bottom, Area 06wJ, h. 16.2 × max d. 10.6cm.

No. 5: Pottery. Round bottomed bowl, Area 06eJ, h. 7.4 × max d. 21.7cm.

No. 6: Pottery. Shallow pedestal bowl, Area 06eI, h. 5.3 × d. 19.1cm.

No. 7: Ostrakon, Area 06wJ, h. 12.4 × w. 11.5 × t. 1.3cm. Bearing three lines written in hieratic on a pottery sherd. Translation of the second line is [May he guard against the easterners(?) and nomads(?)].

No. 8: Ostrakon, Area 06wJ, h. 9.6 × w. 6.7 × t. 1.2cm. Bearing two lines written in hieratic on a pottery sherd.

No. 9: Cobra figurine, 06wJ, h. 8.9 × w. 5.7 × t. 2.6cm. There were 38 cobra figurines of similar size and shape found from the South Area in this season.

No. 10: Human figurine with a navel-like projection, Area 06wJ, h. 7.2 × w. 4.3 × t. 2.2cm. There are 4 figurines of this type found from the South Area in this season.

No. 11: Stone weight, Area 06eI, h. 6.3 × d. 3.6cm. Cone shaped alabaster plumb.

No. 12: Stone Vessel, Area 06eI, h. 5.6 × d. 5.4cm. Ointment jar, shaped out of alabaster block.

No. 13: Bronze bowl, Area 06eI, h. 2.8 × d. 8.3 × t. 0.29cm. Probably produced by hammering a sheet metal.

No. 14: Human bone, Tomb 3 in Area 06eI, adult female skull with a small hole, about 1cm in diameter, at the back of the head.

No. 15: Brain, found from the inside of the skull, No. 14, a fist-sized lump of brain.

No. 16: Amulet, area 06E, h. 2.36 × w. 1.35 × t. 1.28cm. Fragment of faience god figurine, Pataikos, with a scarab on the head.

No. 17: Amulet, Area 06E, d. 1.95 × w. 1.35 × t. 0.29cm. Fragment of faience open-work ring. TIP-?

No. 18: Amulet, Area 06wJ, h. 1.27 × w. 0.72 × t. 0.44cm. Glazed stone god figurine, Pataikos.

No. 19: Faience plate, Area 06wI, w. 7.2 × h. 4.6, w. 5.9 × h. 5.2cm. Two pieces of faience plates with papyrus pattern, bright greenish blue, Late New Kingdom (Ramesside).

No. 20: Amulet, Area 06G-I, l. 1.53 × w. 1.10 × t. 0.74cm. Glazed steatite scarab, with engravings of three humans or gods/goddesses and a sign.

No. 21: Amulet, Area 06F, l. 0.91 × w. 0.69 × t. 0.48cm. Faience Scarab with two *nfr*-signs (?) and a *nb*-sign.

No. 22: Amulet, Area 06G-J, l. 0.84 × w. 0.97 × t. 0.54. Left side of faience double scarab.

No. 23: Amulet, surface of the area, l. 0.84 × w. 0.67 × t. 0.48cm. Glazed stone scarab, with engravings of cross stripes.

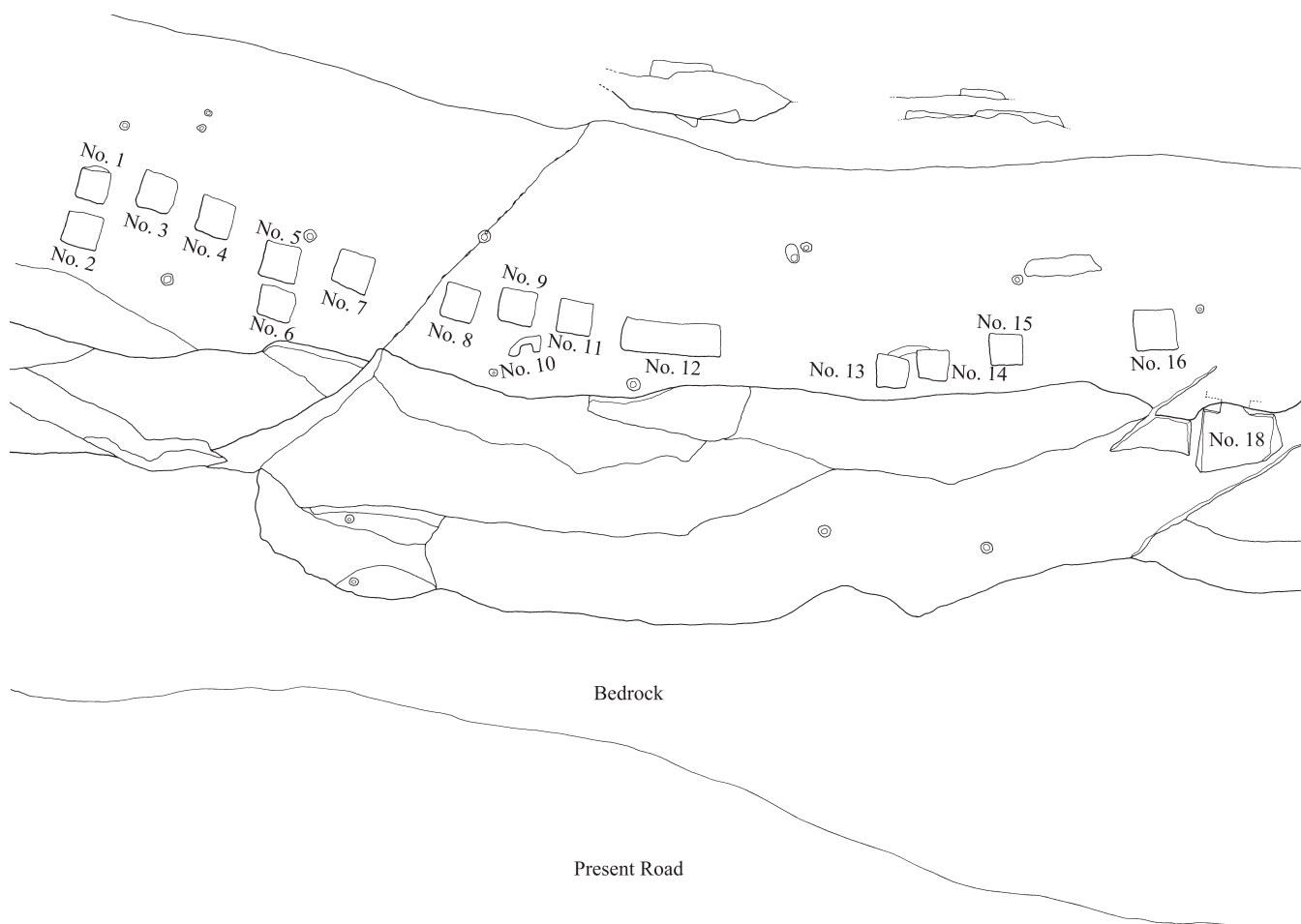
No. 24: Wooden Object, Area 06wJ, l. 19.5 × w. 3.0 × t. 1.1cm. Unidentified wooden object with a crown headed bird on the top. Looks like a magical ivory knife of Predynastic Period.

No. 25: Wooden Object, Area 06eI, l. 31.4 × w. 12.2 × t. 0.5cm. Unidentified wooden object, possibly a farm implement for scooping cereals.

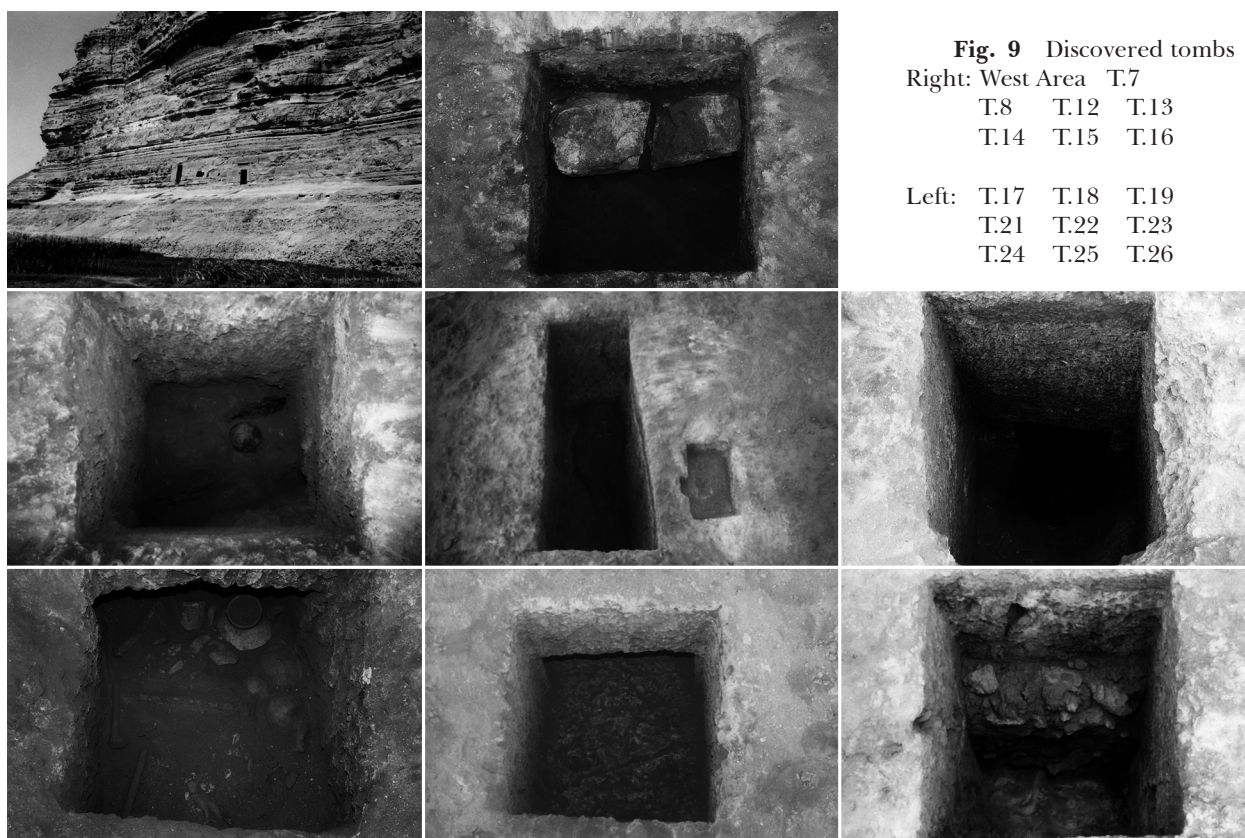
No. 26: Wooden Object, Area 06eI, l. 40.4 × w. 3.8 × t. 1.6cm. Wooden boomerang.

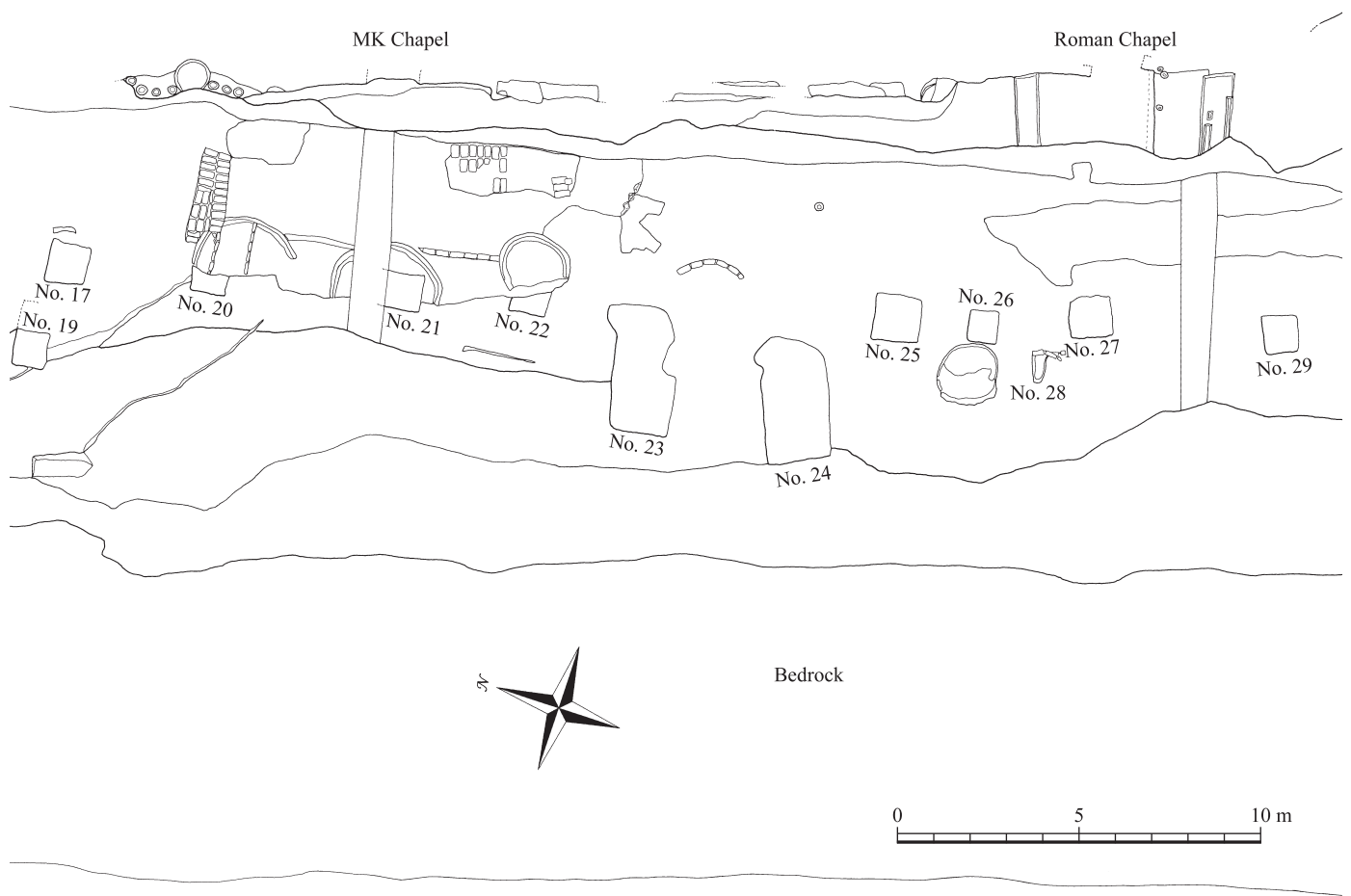
(Hanasaka)

**West Area** (Cover; Figs. 8–11) We finished excavating some shaft tombs (Nos. 7, 8, 12, 13–16, 19, 21 and 22) among the tombs that we found in the last season. All of them except No. 12 measure



**Fig. 8** Geographical map of the West Area.









**Fig. 10** Upper left: Tomb 12; Upper and upper middle right: Tomb 16; Lower middle left: Tomb 14; Lower middle right and lower right: Tomb 21; Lower left: Tomb 22.

ca.1m square at the mouth, however, the in depths differ. Tombs having a burial chamber are Nos. 7, 13, 14, 15, 16, 19 and 21, of which only No. 21 has a chamber to the west, rather to the east as the other do. It was proved that they had been made in the OK Period and some of them had been reused in the TIP according to chisel unearthed objects and the chisel mark of the shaft as well as the shaft tombs themselves in the north part of this necropolis.



**Fig. 11** Skull with a hole.

No. 7 which has a shallow shaft ( $1.0 \times 0.95 \times 1.2\text{m}$ ) with three notches on the west wall and a small chamber ( $1.3 \times 0.53 \times 0.4\text{m}$ ) belongs to the TIP as shown by an east-west row of bricks ( $36 \times 18 \times 7\text{cm}$ ) just under surface layer at the mouth of the shaft, in addition to unearthed pottery, several amulets which are *Udjat*-eye and figurines of deities made of faience, and a finger ring made of cornelian. Both of No. 8 which is nothing more than a vertical shaft, and Nos. 13–15 that consist of a shaft and a small chamber as well as the above mentioned No. 7 are possibly to belong the TIP as determined by pottery remains including a human figurine with a navel-like projection characteristic of the TIP which was found in No. 14 (shaft:  $0.78 \times 0.74 \times 0.88\text{m}$ , chamber:  $0.82 \times 0.30 \times 0.66\text{m}$ ).

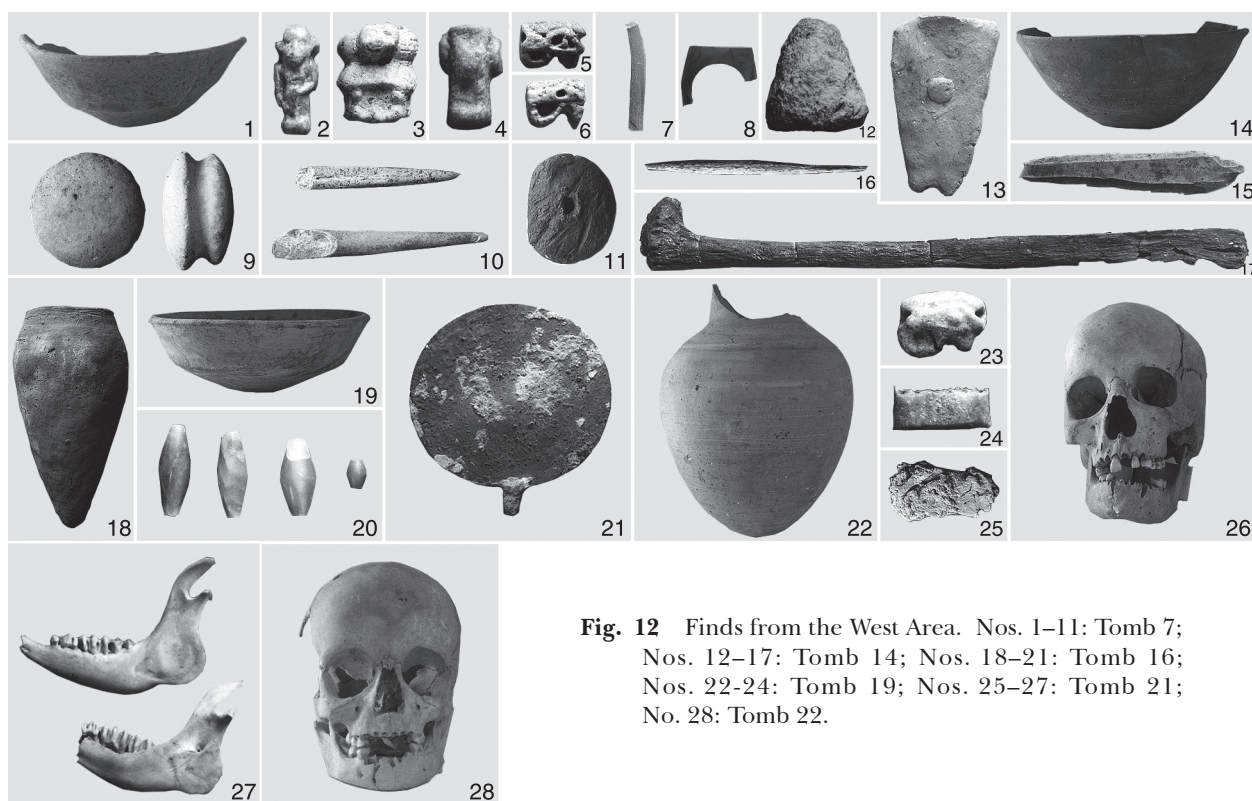
No. 12, the largest rectangular shaft ( $2.55 \times 0.95 \times 1.95\text{m}$ ), is also supposed to have been cut in the same period by remains (Fig. 10: Upper left). An anthropoid wooden coffin (north-south  $1.9$  long  $\times$   $0.52$  wide at the shoulder  $\times$   $0.42\text{m}$  high) remains at a little to the east on the bottom of the shaft. Because the lid was badly damaged except for the north part with the face and wig decoration, the legs of the body were exposed. Though the lid has not been removed yet, the body interred in the coffin is estimated to be a male considering the size of the legs. Three round hollows on both the east and west walls made pairs respectively and three wooden bars assumed to have been inserted in the hollows were found. They were perhaps supports for something like a plank or a cloth over the coffin.

No. 16 has the deepest shaft ( $1.07 \times 1.1 \times 2.15\text{m}$ ) and the largest chamber ( $2.13 \times 1.4 \times 1.2\text{m}$ ), which connects diagonally to the shaft (Fig. 10: Upper and upper middle right). The entrance of the chamber had been closed with rubble and lumps of clay. A female adult body with the head to the north was lying on her back in the chamber. There is no coffin at present, but many wooden pieces at her feet may have been a part of the coffin. A mirror with a tongue made of copper/alloy, three large and a small the jujube-shaped beads made of red agate and funerary goods of two intact potteries, a bowl and a beer jar remains at her head. The pottery belonged to the 5th or 6th Dynasty at the end of the OK Period.

No. 19 has a shallow shaft ( $1.0 \times 0.9 \times 0.9\text{m}$ ) and a large chamber ( $2.15 \times 1.15 \times 1.0\text{m}$ ). A rectangular burial space ( $1.56 \times 0.36\text{--}0.20\text{m}$ ) was built with rows of mud bricks ( $38 \times 18 \times 8\text{cm}$ ) and the lower parts of the east and the south chamber walls covered with a thick mortar of clay and pottery shards. There were no human bones inside, however judging from the widths of both ends, the north is a direction of the head. Pottery unearthed from this tomb belongs to the TIP.

No. 21 has a shaft ( $1.1 \times 1.1 \times 1.6\text{m}$ ) and a chamber ( $1.42 \times 0.7 \times 0.65\text{m}$ ) to the west (Fig. 10: Lower middle and lower right). The entrance of the chamber had been closed in the same way as No. 16. Because the chamber is small, the adult female inside was found lying on her side with bent legs and arms. Strangely, an ibex-like animal head was laid facing the female. Its forefoot was





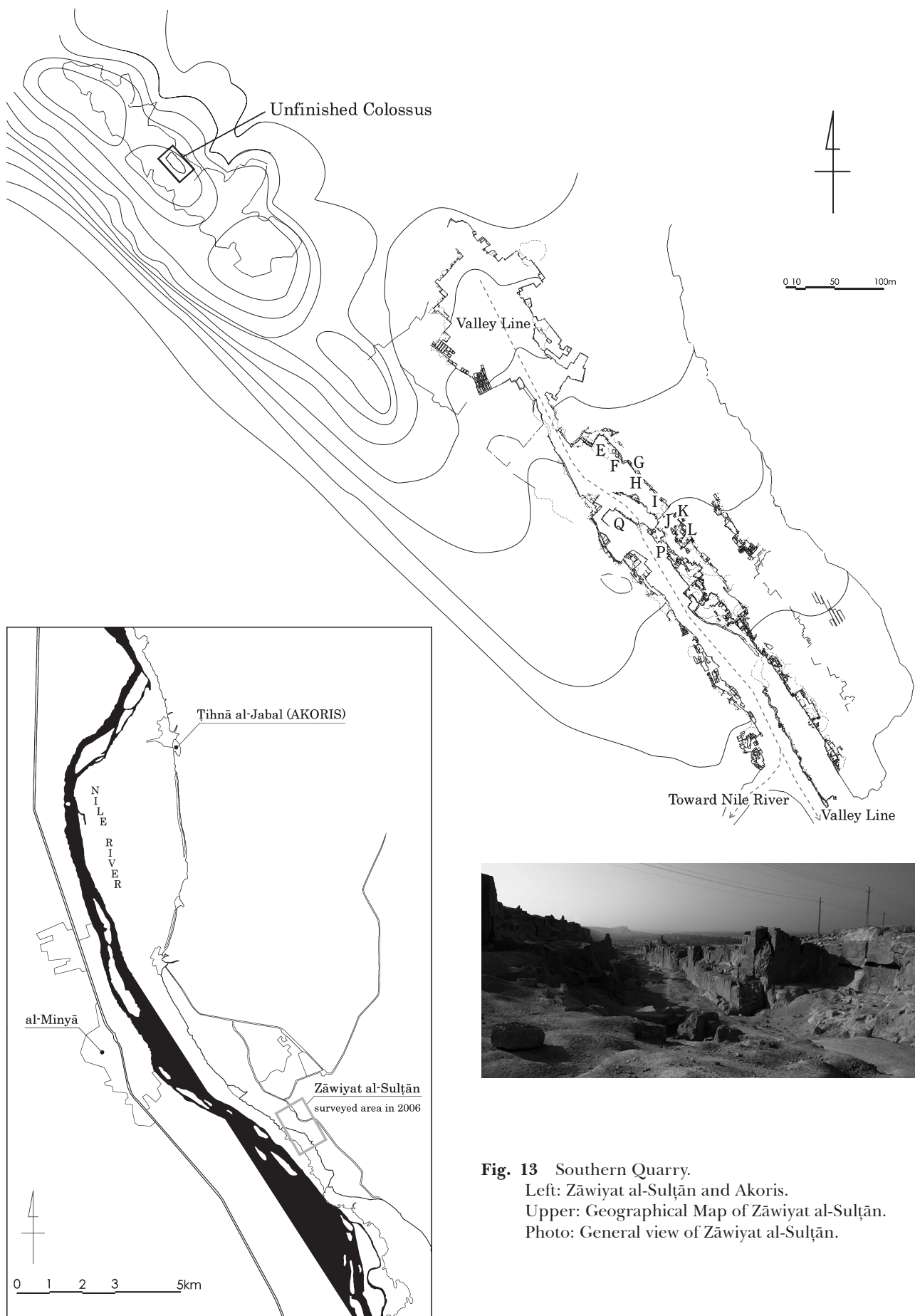
**Fig. 12** Finds from the West Area. Nos. 1–11: Tomb 7; Nos. 12–17: Tomb 14; Nos. 18–21: Tomb 16; Nos. 22–24: Tomb 19; Nos. 25–27: Tomb 21; No. 28: Tomb 22.

found behind the animal's head, and its hind legs were found between her legs and the west wall. The human skeleton of the whole body including the brain was in place, while the animal bones remains only partially. It is therefore, it is unknown whether this animal was buried as a sacrifice or remnants of banquet as a religious observance.

No. 22 shaft is of usual size at the mouth, but its depth is shallow ( $1.10 \times 1.08 \times 0.57\text{m}$ , Fig. 10: Lower left). A bent human skeleton estimated to be 7–8 years old with the head in the direction of the north was found in a depression lined with stones ( $0.64 \times 0.40 \times 0.12\text{m}$ ) at the northeast corner. This skull had a hole of 7mm in diameter at the *Vertex* (Fig. 11). At the circumference scrape marks by a sharp knife were observed but no rejuvenation of bone cells. Judging from the shape of the hole, it is supposed to be the same medical operation as the trepanned female skull discovered in the South Area, however neither one must have survived. (Tsuji-mura)

**Finds from the West area** (Fig. 12) No. 1: Bowl, intact, rim diam.  $17.6 \times \text{h. } 7.2\text{cm}$ . No. 2: Amulet, l.  $1.30 \times \text{w. } 0.52\text{cm}$ , faience. No. 3: Amulet, l.  $1.79 \times \text{w. } 1.45\text{cm}$ , Thoth as a dog-headed baboon, faience. No. 4: Amulet, l.  $1.22 \times \text{w. } 0.74\text{cm}$ , faience. The head is lost. No. 5: Amulet, l.  $1.12 \times \text{w. } 0.83\text{cm}$ , *Udjat*-eye, faience. No. 6: Amulet, l.  $1.04 \times \text{w. } 0.79\text{cm}$ , *Udjat*-eye, Faience. No. 7: Unidentified stone object, l.  $4.60 \times \text{d. } 0.76\text{cm}$ . No. 8: Ring,  $2.08 \times 1.66\text{cm}$ , diam.  $1.55\text{cm}$ , carnelian. No. 9: Gaming piece, diam.  $3.57 \times \text{h. } 2.13\text{cm}$ , alabaster. No. 10: *kohl* pencils, l.  $6.64 \times \text{w. } 0.95\text{cm}$ , l.  $5.12 \times \text{w. } 0.73\text{cm}$ , bones. No. 11: Spindle, diam.  $4.57 \times 3.69$ , t. l.  $31\text{cm}$ , earthen. No. 12: Corn-shaped weight, bottom diam.  $3.76 \times \text{h. } 3.94\text{cm}$ , limestone. No. 13: Human, figurine with a navel-like projection, present l.  $7.91\text{cm} \times \text{w. } 4.69\text{cm}$ . The head is lost. No. 14: Bowl, rim diam.  $22.0\text{cm} \times \text{h. } 9.6\text{cm}$ . No. 15: Blade, l.  $8.47 \times \text{w. } 1.53\text{cm}$ , flint. No. 16: Wooden object, l.  $13.7\text{cm}$ . No. 17: Wooden staff, intact, l.  $56.2\text{cm}$ , w. of the grip  $7.0\text{cm}$ . No. 18: Beer jar, intact, rim diam.  $11.6\text{cm} \times \text{h. } 29.2\text{cm}$ . No. 19: Bowl, intact, rim diam.  $24.6\text{cm} \times \text{h. } 8.85\text{cm}$ . No. 20: Beads,





**Fig. 13** Southern Quarry.  
 Left: Zāwiyat al-Sulṭān and Akoris.  
 Upper: Geographical Map of Zāwiyat al-Sulṭān.  
 Photo: General view of Zāwiyat al-Sulṭān.

l.  $3.10 \times d. 1.05\text{cm}$ , l.  $2.93 \times d. 1.04\text{cm}$ , l.  $2.68 \times d. 1.21\text{cm}$ , l.  $1.00 \times d. 0.68\text{cm}$ , agate. No. 21: mirror, l.  $10.1 \times w. 11.1 \times t. 0.35\text{cm}$ , (tongue l.  $1.5\text{cm}$ ), bronze. No. 22: Jar, diam. (max)  $19.4\text{cm} \times$  present h.  $25.0\text{cm}$ . No. 23: Amulet, l.  $0.94 \times w. 0.66\text{cm}$ , *Udjat*-eye, faience. No. 24: Spacer Bead, l.  $2.30 \times w. 1.03 \times t. 0.52\text{cm}$ , faience. There were six holes for stringing beads. No. 25: Brain, No. 26: Skull, No. 27: Animal bones, No. 28: Skull. (Tsujimura)

### 3 QUARRY

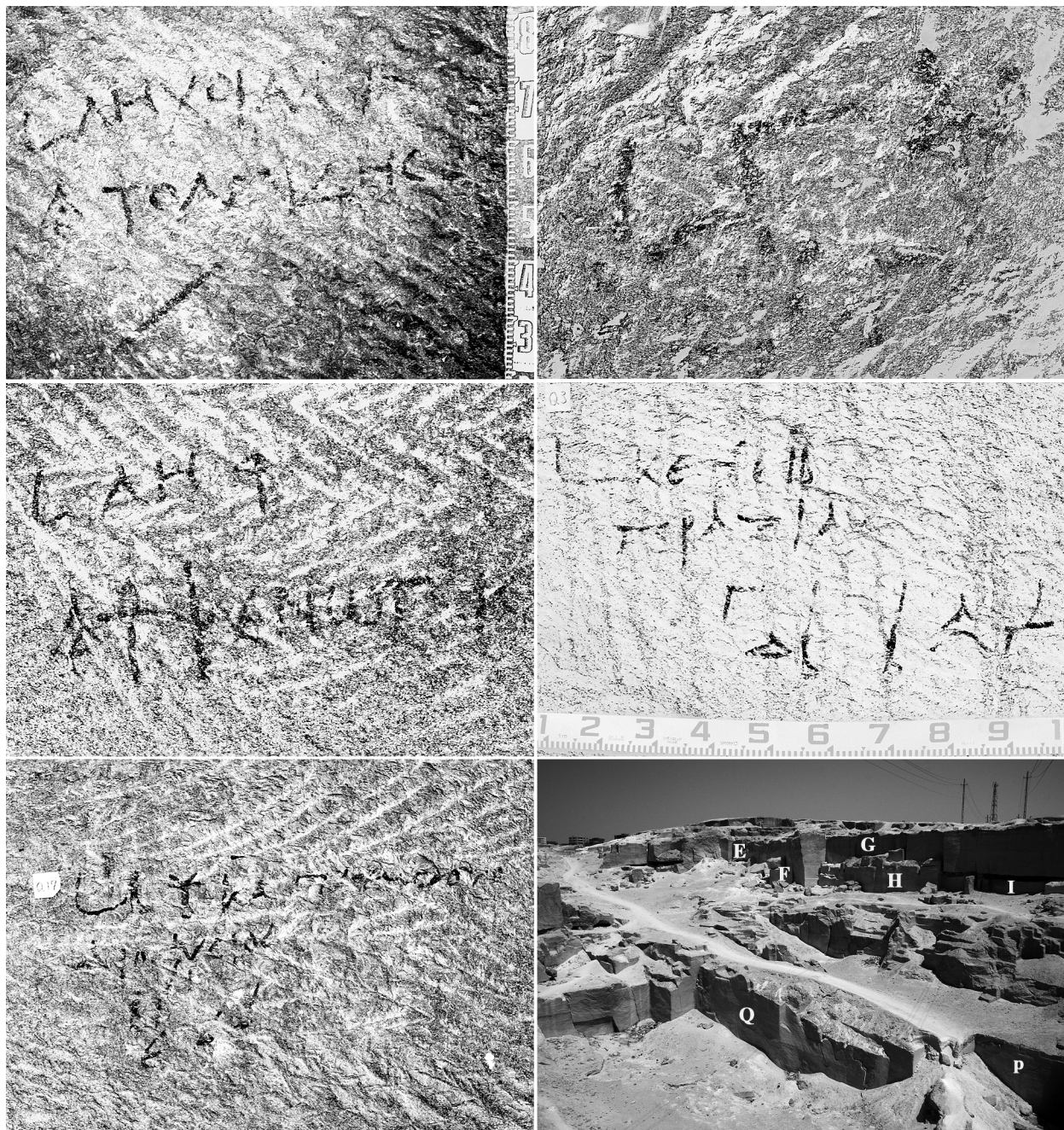
**Greek Graffiti at Zāwiyat al-Sulṭān** (Figs. 13, 14) There are extensive traces of ancient quarries on the high barren plateau along the eastern edge of the Nile valley in the vicinity of Akoris, which have been surveyed by our team of architectural history directed by Y. Hori of Kyusyu University. Zāwiyat al-Sulṭān near New al-Minyā is one of the most impressive ancient quarries ever discovered in this area. The most spectacular monument is undoubtedly a huge unfinished limestone block for a colossus of a standing king located at the top of the valley. Finding many Greek and demotic graffiti on the ceiling of the hewn gallery under the huge block, T. Endo and S. Nishimoto have recently made it clear that the modeled king is not Amenhotep III, as R. Klemm and D. Klemm have identified (*Steine und Steinbrüche im alten Ägypten*, Berlin 1992, pp. 94–97), but a Ptolemaic ruler. A number of Greek and demotic graffiti are also found in the valley extending from the site of the unfinished colossus toward the southeast. Our epigraphic investigations at Zāwiyat al-Sulṭān aim at elucidating the nature of these valuable testimonies concerning the quarrying activities within their proper historical settings of Ptolemaic Egypt.

In 2006 we registered 172 more or less legible Greek and demotic graffiti in the valley. They are always painted in characteristic red color with a small brush for the Greek ones and a comparatively wide brush for the demotic ones. The graffiti are not evenly distributed inside the valley but are concentrated in several sections. This situation of preservation may have largely been caused by weathering and the later quarrying activities, since even on the southwestern side of the valley, where very few legible graffiti are left on the vertical open walls, abundant graffiti are still preserved in excellent condition on the ceiling of the horizontal galleries deeply hewn into the vertical walls. The intensive survey of those graffiti inside the galleries will be conducted in 2007.

A typical Greek graffito is composed of three parts; a date (regnal year, month, day), a personal name in the nominative or genitive case, and several numerals possibly concerning the size of the quarried stone. The personal names refer to both Greeks and native Egyptians. They may have been the quarrymen (*latomoi*) who were responsible for the work in progress. Some names bear additional monogram composed of *lambda* and *epsilon*, which seems to indicate that they belong to the privileged status of free-quarrymen (*eleutherolatomoi*).

The sequence of the regnal years on the Greek graffiti suggests that there are two clues to fix these relative dates on the scale of absolute chronology. First, the graffiti of the sections L, J, G, and F indicate that the vertical faces on the upper northeastern area of the valley were quarried from the south to the north in the years between the 34th and 38th regnal years of a king, whose reign must have abruptly ended most probably in or just after the 38th year because the two graffiti inside the inner trench of the section G belong to the third year of an apparently new sequence (Fig. 14: G6, G9 and F11):





**Fig. 14** Greek graffiti. Upper left: G6; Upper right: G9; Middle left: F11; Middle right: Q3; Lower left: Q17; Lower right: General view from the east.

L: 34 → 35  
J: 36  
G: 35 → 37 → 38 → 3  
F: 37 → 38

There are only two kings in the history of the long Ptolemaic reign, whose regnal years reached to, or went beyond, the 38th year, i.e. Ptolemy II Philadelphos and Ptolemy VIII Euergetes II.

Secondly, the regnal years on the graffiti of the section Q clearly show that another sequence must have ended in or after the 25th year of another Ptolemy since the lower part of the wall at the extreme northeastern corner of the section Q yields another two graffiti dated to the 2nd year



(Fig. 14: Q3 and Q17):

G: 22 → 23 → 25 → 2

The strong candidates for the kings are Ptolemy III Euergetes I, who died in the beginning of his 26th regnal year (autumn of 222 BC) and Ptolemy IV Philopator. It seems that the section was worked in the last years of Ptolemy III and the early years of Ptolemy IV (ca. 226–221 BC).

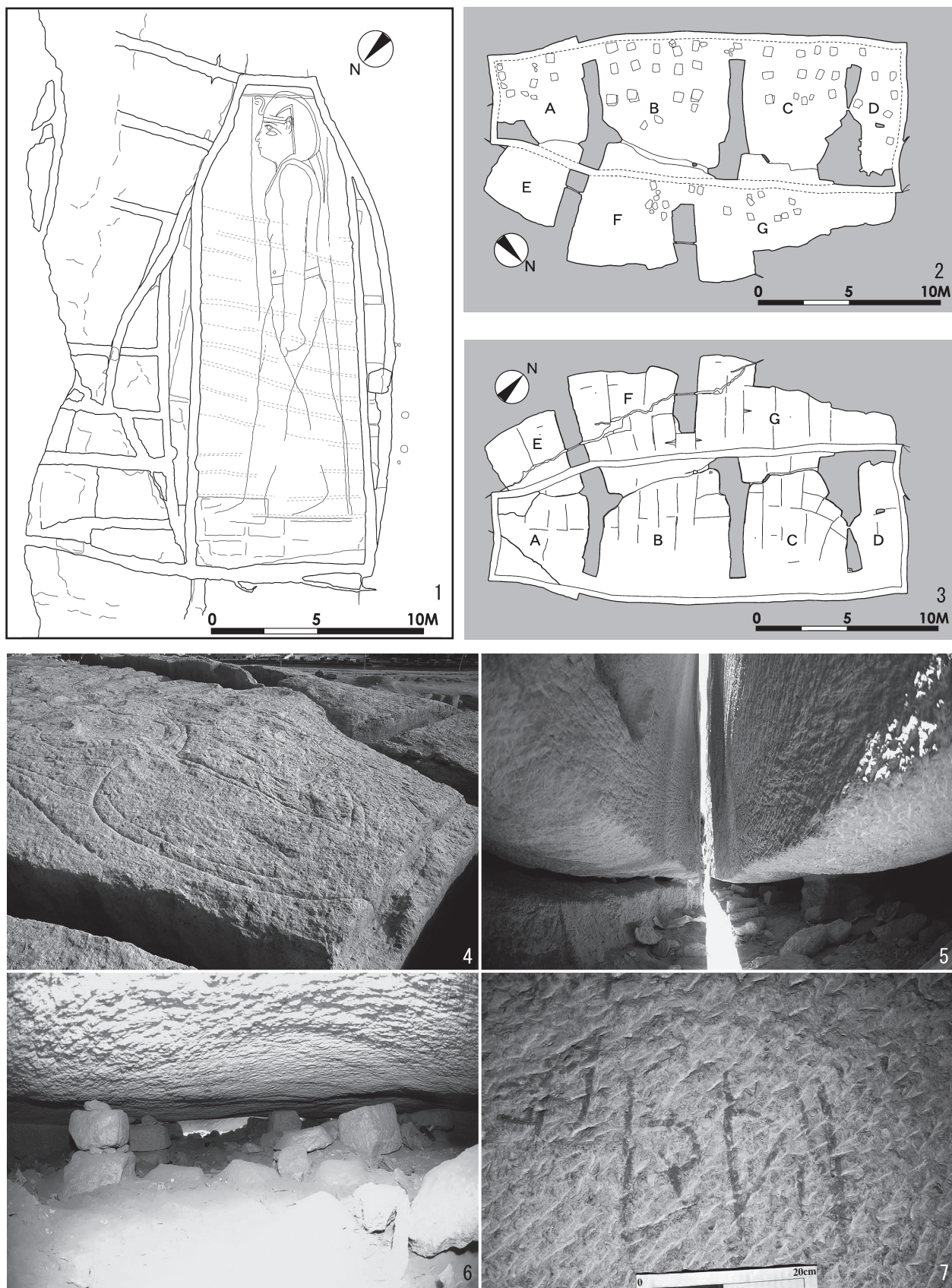
Is it then possible to decide whether the sections L, J, G, and F were quarried earlier or later than the section Q, namely under Ptolemies II and III or VIII and IX? In my view, the sections were operated earlier than the section Q, and thus those sections were quarried during the later years of the rule of Ptolemy II (ca. 252–248 BC). The quarry faces of the sections L, J, G, and F, which are located higher up the valley, must have been worked earlier than that of the bottom of the valley, since the continuous high vertical wall left by the quarrying activities at the bottom must have made it almost impossible to transport the blocks downward from the upper area.

If the argument I have developed above is along the right line, we must admit that a significant change of writing custom had occurred in the third quarter of the third century BC. The Greek graffiti of the middle of the century were almost always juxtaposed with their demotic renderings, while this interesting custom seems to have gradually been obliterated and only Greek was adopted to make a record on the quarry face of the section Q in 220s. This phenomenon must have been relevant to the literacy of the people working in this quarry. The custom of using monograms to denote the month was also introduced and established in the course of this change.

The results of our epigraphic investigations at Zāwiyat al-Sulṭān show that this enormous limestone outcrop was intensively exploited in the latter half of the third century BC under the successive reigns of Ptolemy II and III. The unfinished colossus at the top of the valley now seems to have been that of Ptolemy III rather than Ptolemy II, since the Greek graffiti found under the rock have already adopted the system of monogram for representing the names of months. The gigantic size of the statue seems especially worthy of the king, who was called *euergetes* through his illustrious success in the east during the Third Syrian War against Seleucus II (246–241 BC). (Suto)

**Unfinished Colossus Remaining in the Quarry at Zāwiyat al-Sulṭān** (Figs. 13, 15) Zāwiyat al-Sulṭān is located about 6km southeast of el-Minyā, in middle Egypt, along the east bank of the Nile River. Ancient quarries lie wide in the limestone mountain over the back of Muslim cemeteries spread throughout the neighborhood. In a quarry at the northernmost summit, a colossus of an unknown king of a length of no less than 20m remains as abandoned during quarrying. Our investigation has so far completed a detailed drawing of the above-ground and underground regions of this unfinished colossus; we have recorded the distribution of many demotic and Greek graffiti and innumerable red lines that were newly discovered on underground parts. The following serves as an interim report on the knowledge obtained so far from an architectural point of view.

The unfinished colossus in Zāwiyat al-Sulṭān is reported briefly with a rough sketch in the recent petrological studies (R. Klemm and D. D. Klemm: *Stein und Steinbrüche im Alten Ägypten*, Berlin 1992, pp. 94–97). However, it was not until our investigation that precise measurements had been carried out both above-ground and underground (Fig. 15: Nos. 1–3). A king's statue is drawn with faint chiseled lines on a rock at the mountain summit, with length of about 22m and width of about 8m at maximum (Fig. 15: No. 4). Although it is among the greatest colossi of ancient Egypt, there is no such case of one abandoned during quarrying. Accordingly, this is an extremely



**Fig. 15** No. 1: Plan of the unfinished colossus. No. 2: Floor plan of the underground region. No. 3: Roof map of the underground region. No. 4: Detail of the unfinished colossus. No. 5: Bottom of a vertical separating-trench. No. 6: Beneath the unfinished colossus. Room C. No. 7: Demotic graffito discovered in Room C. (Nos. 1–4: Drawings and photograph by T. Endo; Nos. 5–7: photographs by S. Nishimoto)

invaluable reference that indicates its own construction process<sup>1</sup>. There are vertical separating-trenches excavated on the four sides surrounding the statue of about 8.5m deep. Their width is about 50cm, which is presumed to be the minimum within which a human can engage in excavation work (Fig. 15: No. 5). The bedrock has natural fissures along the vertical separating-trenches. It is probable that the ground surface was cleaned first and the natural fissures were identified before quarrying the colossus, then fissured parts, which were easy to excavate, were dug deeply according to the dimensions of the huge rock to be acquired.

In the excavation of vertical separating-trenches, while two ramps were prepared for engaging many workers efficiently, foothold holes were dug in multiple places as a secondary route for ascending and descending the rock face. Moreover, many vertical separating-trenches were excavated on the east side of the colossus so that excess rocks were separated in parallel, to finish quarrying and to carry out the colossus. Therefore, it is presumed that smooth progress of work had been perfectly examined.

A low horizontal tunnel with a ceiling height of about 60cm had been dug underground, under the boulder on which the relief of a colossus had been chiseled, to separate the colossus from the bedrock. The underground floor plan is shown in Fig. 15: No. 2. Rooms A-D immediately under the colossus support the huge rock on top with a columnar wall that remains at the southeast corner, with only three cross walls left. Double-coursed square stones are aligned with an almost constant interval in the western half of the block of the colossus (Fig. 15: No. 6). These are assumed to have been prepared as a foundation at the time of the block's separation from the bedrock.

Our investigation revealed that red lines and many demotic and Greek graffiti had been written on the ceilings of rooms A-G (Fig. 15: Nos. 3, 7). Graffiti are observed between numberless red lines so that the regions are indicated. It is assumed that they are notes that are deeply related to the excavation work of those days at the underground region. It is presumed that the date of the graffiti is of the Ptolemaic period. R. Klemm and D. D. Klemm, who probably observed only the above-ground region of this colossus, presumed the date of this colossus to be of the reign of Amenhotep III in the NK period (Klemm and Klemm 1992, p. 97). However, this presumption must be reconsidered for the reason described above. It is very likely that a few pottery fragments discovered underground might become indirect evidence to support the date to be the Ptolemaic period assumed from graffiti. Future investigation is essential.

The total number of the discovered graffiti is greater than one hundred. The demotic graffiti consist of three consecutive numbers, and fractions such as  $1/2$ ,  $1/3$ ,  $2/3$ ,  $1/6$ ,  $5/6$ , and  $1/12$  are also used. The Greek graffiti, written together by the demotic ones, consist of a year of reign, a date, a personal name, and then three consecutive numbers. The three numbers contained in a Greek text written near a demotic one are of the same combination except for few exceptions. Why are almost identical contents indicated in two different languages in the same place? The answer should be derived carefully through detailed investigation of the position of graffiti in each language, the direction of texts, etc.

Precise measurement surveys indicate that the three numbers are likely to denote the amount of excavation in the region sectioned by red lines on the ceiling surface. It is especially noteworthy that the last number always represents 1. This seems to signify the ceiling height of the low horizontal tunnel dug underneath the colossus. It is interesting that numbers used here express values with a unit close to the royal cubit (1 cubit = 52.5cm) in the dynastic period. The fractions



imply that measurement was carried out using a six-division ruler. Furthermore, measurements proved that three numbers always represent width, depth, and height in this order.

The following summarize the outcome newly revealed by our investigation described above on an unfinished colossus remaining in the quarry at Zāwiyat al-Sultān.

1. The colossus was abandoned after a tunnel had been dug thereunder and during the process of separation from the bedrock.
2. An elaborate construction plan had been prepared for extracting a colossus, with preparation of vertical separating-trenches excavated using natural fissures, and with many workers and their configurations in consideration.
3. The construction date is assumed as the Ptolemaic period based on many newly discovered graffiti in the underground region of the colossus.
4. The three numbers shown in both demotic and Greek graffiti are likely to express the amount excavated in the region sectioned by red lines. Moreover, these three numbers represent width, depth, and height in that order.
5. A measuring unit close to the royal cubit (1 cubit = 52.5cm) of the dynastic period was used successively also here; it is assumed that measurement was carried out using a six-division ruler.

Ancient Egyptian civilization has been well-known for many years to have developed the technology of dealing with megaliths in construction activities. However, many unresolved issues remain related to its definite processes and labor organization at the time of acquiring the largest stones. Accordingly, this quarry is an invaluable reference. Field surveys and discussions are in progress; further studies will be conducted in the future on the contents summarized here.

The investigation at the site was assisted by S. Nishimoto, Y. Hori and his students. Also, the author is indebted to S. Nishimoto for providing valuable information and to S. Uchida, Y. Suto, R. Takahashi and Dr. J. G. Manning for the reading of demotic and Greek graffiti.

Note:

1. Recent excavation study in a granite quarry at Aswān revealed an abandoned colossus during quarrying. The author was allowed to inspect the investigation district through the courtesy of Dr. Adel Kelany, who administered the site. (Endo)

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