

# PRELIMINARY REPORT

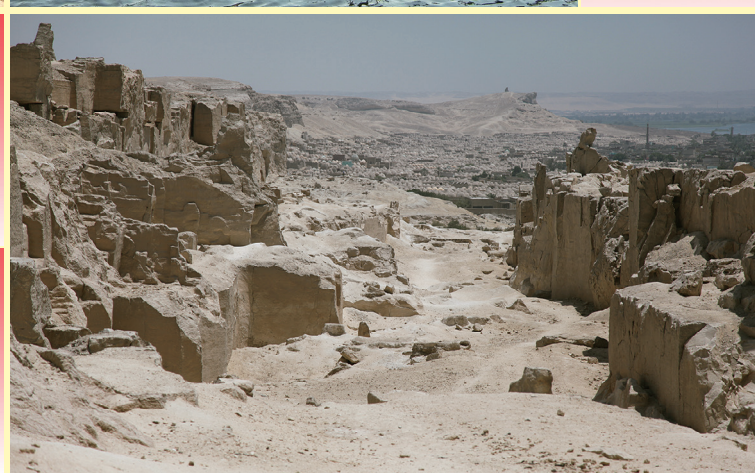
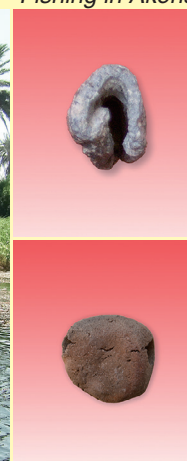
# *AKORIS*

2011

*South Area*



*Fishing in Akoris*



*Cobra Figurines*

*New Minya Quarry*

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# 1 PREFACE

KAWANISHI, Hiroyuki

The archaeological fieldwork in 2011 was forced into restricted activities by the Egyptian civil affairs concomitant with the revolution. In our case, the annual excavation was discontinued under the instruction of the SCA, and instead a detailed examination of archaeological, epigraphic and architectural data since 1997 was carried out in our local house.

The archaeological investigations in 1997–2001 exposed the Ptolemaic masonry workshop and the Late Period northernmost outer wall at the north end of the existent city zone which extends 650m north-south × 300m east-west. Thereafter the southwestern end which is on the south and the west sides of a crag and its southern valley floor, together with nearby quarries where the local people were engaged in quarrying, have been the main objects of our fieldwork since 2002. According to our archaeological investigations the south side and the valley floor were settled mainly in the Third Intermediate Period. The west side has rock-cut tombs which were made in the late Old Kingdom and reused in the Third Intermediate Period. By our epigraphic and architectural work executed in the nearby quarries, they proved to be dated from the Greco-Roman age. And one of them, the New Minya quarry of the early Ptolemaic Period, has been undergoing a very close

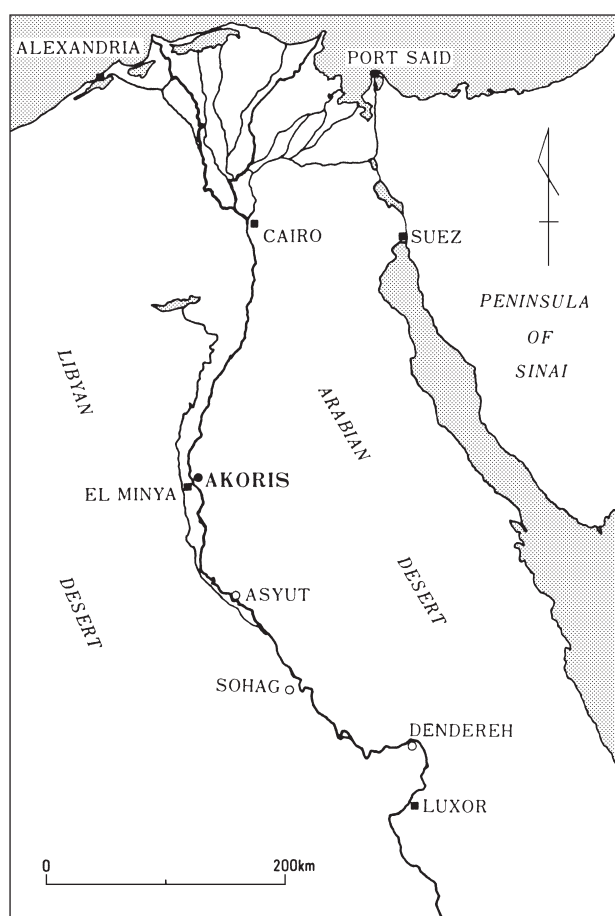


Fig. 1 Map of Egypt.

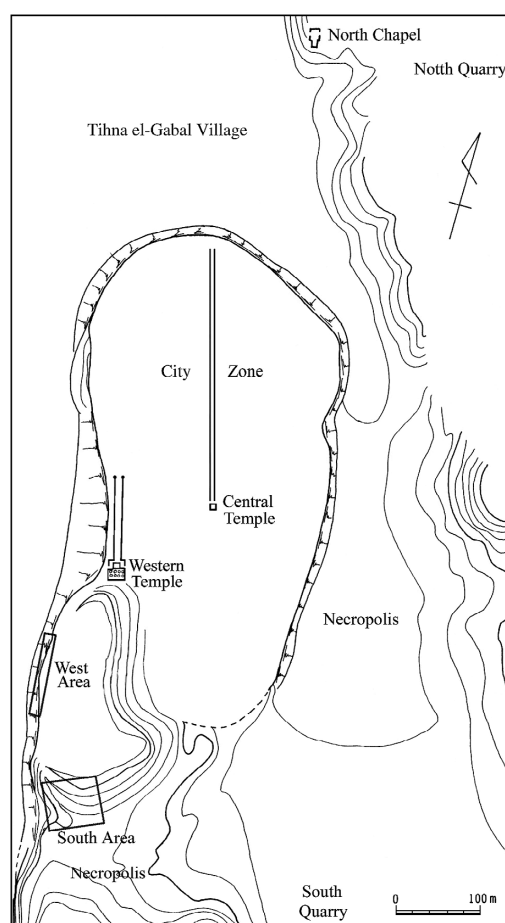


Fig. 2 Map of Akoris.

examination since 2005 so as to analyze the exact length of the operations and the working pattern.

Our assignment is to establish the extent of human activities, rather than to study the sociopolitical entity in the local city Akoris from the end of the New Kingdom when dynastic power is said to have deteriorated, to the Ptolemaic Period when Egypt fell into permanent foreign rule for the first time in its history. For that purpose we have continued our fieldwork and made the results public in the annual preliminary reports from 1997, and in a research paper issued in 2005. Yet, various inquiries concerning the daily life as well as the spiritual space of the people await our continued research, even if restricted to the existing data. This paper is a short step in realizing our plan.

## 2 CLAY COBRA FIGURINES UNEARTHED FROM AKORIS (Tihna el-Gabal)

HANASAKA, Tetsu

**Introduction** The purpose of this paper is to introduce the clay cobra figurines unearthed from Akoris during the 2002–2012 seasons. These small hand modeled figurines are represented in the shape of a rearing cobra with a wide hood. We discovered 292 clay cobra figurines in total; 265 fragments from the South Area and 27 fragments from the West Area of Akoris<sup>1)</sup>.

More than 400 similar clay cobra figurines have been confirmed at many sites both in Egypt and the Levant, such as Tell el-Amarna<sup>2)</sup>, Kom Rabi'a (Memphis)<sup>3)</sup>, Kom Firin<sup>4)</sup>, Kom Rebwa (Sais)<sup>5)</sup>, Beth Shean<sup>6)</sup> and the like<sup>7)</sup>. We suggest that those examples share the same basic standards as the figurines from Akoris described below. It was reported that those examples were found in the context of the New Kingdom and the Third Intermediate Period, especially from the Ramesside period to the early Third Intermediate Period. Within the past few decades, the number of the excavation reports and studies focused on clay cobra figurines has increased. Furthermore, a database making project entitled *Clay Cobra Figurines of Ancient Egypt and the Levant* is in progress under Dr. K. Szpakowska<sup>8)</sup>.

This paper will specifically focus on the features, the manufacturing methods and the functions of the clay cobra figurines from Akoris; the number of which accounts for the great majority of all of the examples found in Egypt and the Levant. I propose that this study contributes to both the chronological and regional studies of clay cobra figurines in the near future.

**Location of our finds** The South Area of Akoris is the valley floor at the southwest end of the city zone and it is adjacent to the crag (Cover, Ch. 1 Fig. 2). We found many mud brick constructions; houses, granaries and workshops in the South Area, which have been dated from the end of the New Kingdom to the Late Period, mainly in the Third Intermediate Period, judging from our chronological studies of pottery and other archaeological remains. There were 265 fragments unearthed in the total region of the South Area without a concentration of find spots or layers. We found many fragments from the thick earthen fill which also contained many other archaeological remains. Unfortunately, there were no figurines found *in situ* or from the floor level but in this area figurines were found in the earthen fill derived from the collapsed rubble of mud



brick walls and roofs which covered with the mud brick constructions. If we consider the find condition as a reflection of the original positions, the figurines might have been set in some sort of a niche higher than the level of the floor. There were no figurines unearthed from small funeral structures such as pit graves, pottery tombs and wooden coffins. These tombs were excavated from upper layers and can be dated from the Third Intermediate Period to the Late Period.

On the other hand, there are more than sixty rock-cut shaft tombs and tomb chapels built in or after the Old Kingdom in the West Area (Ch. 1 Fig. 2). The clay cobra figurines, counting 27 fragments, were unearthed from earthen fill that plugged up several tomb shafts. There were many other finds which were unconnected to grave goods such as pottery and wooden farm implements from the upper layer. It is likely that these tombs and the whole region of the West Area were reused during the Third Intermediate Period to the Late Period as a religious/ritual zone.

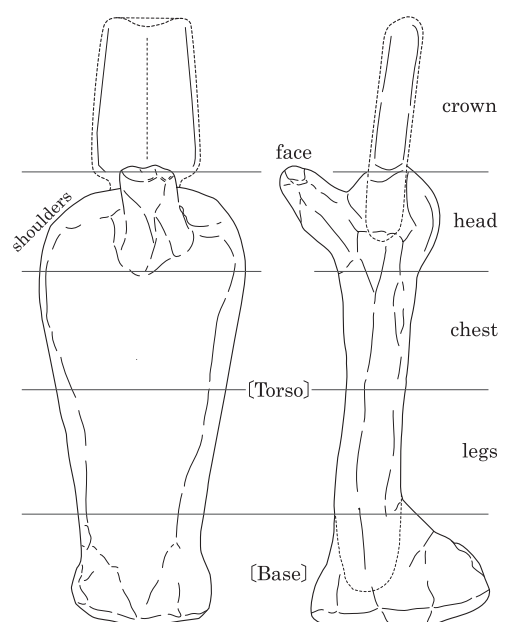
Judging from the above information, it seems reasonable to infer that the clay cobra figurines unearthed both from the South Area and the West Area belong to the first half of the Third Intermediate Period. It is suitable to the indication of other reports that the clay cobra figurines are date back to the Ramesside Period and the early Third Intermediate Period. Below we document the location of our finds and we also discuss the function of the clay cobra figurines.

**General information of the clay cobra figurines** The clay cobra figurines from Akoris were roughly hand modeled using Nile silt and fired to an orange or a reddish-brown color in the same way as the examples from other sites. It might be inferred from an unfired figurine found in the South Area that these figurines had been manufactured somewhere around the South Area (Cover). The manufacturing area has been pointed out in the archaeological report of Sais that there was a production center in the excavated area because researchers found some figurines in ash-chaff near the bottom of a large oven<sup>9)</sup>.

It is possible to divide a figurine into two parts; a standing vertical torso and a supporting horizontal base (Fig. 1). These sections are modeled separately and then joined together. This manufacturing technique was confirmed by using X-ray analysis of the example unearthed from Beth Shean in Israel<sup>10)</sup>.

In this paper, the vertical torso section is discussed by separating it into three further divisions which have the following tentative names moving respectively from top to bottom; 'head', 'chest', and 'legs'. In addition to these classifications, the rounded corners of the head part which represents a wide hood of a cobra will be named 'shoulders' and the projection sticking out on the front of the head part is referred to as the 'face'. There is another part at the top of head we have opted to call 'crown'. This is one of the notable features of the clay cobra figurines from Akoris, described as below.

Unfortunately, almost all the figurines unearthed from Akoris are in a fragmentary state similar to the



**Fig. 1** Names of divisions.

examples from other sites (Fig. 8). In many cases, the figurines were broken into two parts, head-chest parts and leg-base parts, and there are many base parts which are no longer attached to the leg parts. Now, an experimental investigation is underway by Dr. K. Szpakowska that replica cobra figurines are dropped onto the mud floor. She records the resulting breaks and analyzes the fractures compared with original broken figurines<sup>11)</sup>.

There is an indication that clay cobra figurines were broken deliberately in order to keep dangers or nightmares away<sup>12)</sup>. However, there were no intentionally damaged figurines from Akoris. It is doubtless that the fragmentary condition of the figurines occurred by accident since their broken points are fragile by nature such as projecting faces, contact points between leg and base parts or between crown and head parts. Indeed, there is just one example which could be jointed together among 292 fragments unearthed from Akoris.

The number and the average size of each part are given below; head (4), h.  $2.67 \times w. 3.36 \times d. 3.27$ cm: head and chest (111), h.  $6.88 \times w. 5.37 \times d. 3.26$ cm: chest (6), h.  $5.32 \times w. 4.98 \times d. 2.12$ cm: chest and legs (16), h.  $8.31 \times w. 4.96 \times d. 2.34$ cm: legs (7), h.  $6.18 \times w. 4.24 \times d. 2.10$ cm: legs and base (68), h.  $5.78 \times w. 4.34 \times d. 4.61$ cm: base (33), h.  $3.03 \times w. 4.28 \times d. 4.80$ cm: head to legs (34), h.  $9.62 \times w. 5.12 \times d. 3.21$ cm: head to base (9), h.  $11.94 \times w. 5.30 \times d. 4.60$ cm. Among 292 examples there are only 9 fragments which have retained an almost complete shape from their head to their base parts (Cover, Fig. 8 nos. 22 and 23). The largest example within these almost complete figurines measures h.  $14.80 \times w. 6.60 \times d. 6.40$ cm, and the smallest one measures h.  $8.31 \times w. 4.74 \times d. 3.06$ cm. It is likely that the size of the figurines from Akoris would be 10–15cm in height, 4–7cm in width, and 4–6cm in depth, which would indicate that their size is almost the same as those of examples found at other sites.

It is hard to know how many figurines were manufactured in those days. However, it could be estimated that the number of figurines in Akoris would be more than 100, because there are 158 remaining head part fragments and 110 base part fragments.

**Comparison with examples from other sites** We examined the details and features of each part of the figurines from Akoris comparing them with examples from other sites.

In the case of the base part, there are several kinds of shapes visible from the top; rounded-square, rounded-triangle, rounded-trapezoid, circle, oval and so on (Figs. 2, 3 and 8 nos. 19–21). These differences do not reflect the size or the date of production, but it is possible to say that they reflect the personal making habits of individual craftsmen. The bottoms of the bases were usually shaped nearly horizontally flat, however they were not finished so as to be a stable setting.

The average size of the 33 base part fragments we uncovered is h.  $3.03 \times w. 4.28 \times d. 4.80$ cm. In terms of their shape they are thick and short. The shape is totally different from examples found at Kom Rabi'a which have a flat and long base measuring 6–10cm in depth; in sum, the base being much lower and longer. It seems that the figurines from Akoris resemble those from Kom Firin and Sais based on their having a thick and short base.

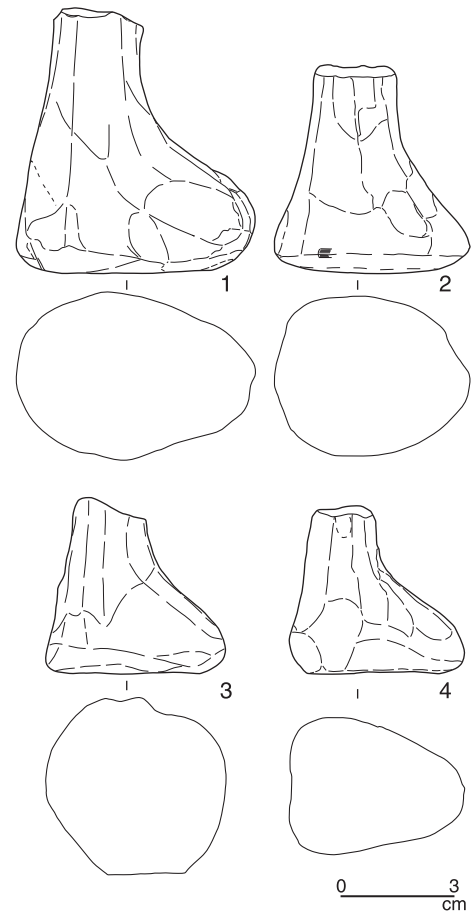
There are two kinds of base part production; a hollow type and a flat face type, and these differences owe to the way of supporting the vertical torso section. The former has an oval hollow on the top and in the middle of the upper face plate of the base where the leg part has been inserted

(Fig. 3 no. 1, Fig. 8 nos. 16 and 19). As for the latter example, the leg part was designed to lean against a slanting flat face at front of the base (Fig. 3 no. 2, Fig. 8 nos. 17, 18, 20 and 21).

I propose that a general way of making the hollow type base would be as follows: First the clay material would be roughly formed in the outer shape as mentioned above. That is to say, about 3–4cm in thickness, with a flat surface both on the upper and bottom faces at first. Then, an oval hollow was made, about 2–3cm in depth, on the upper face. After putting the legs into the hollow, it was pinched in with clay around the hollow to fix the leg part in place. Moreover, a lump of clay was added around the lower leg part, indeed a great deal of clay was used at the back so that the overall structure would become steady.

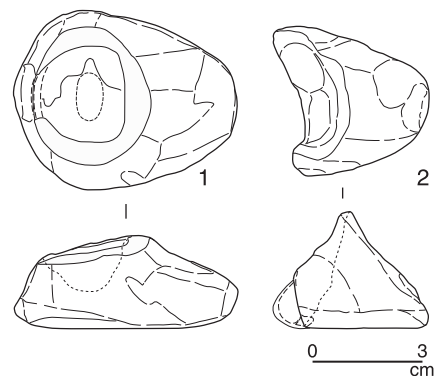
The method of making the flat face type was to form a rectangular flat sheet about 1cm in thickness. Then this sheet was manipulated into an uplifted triangular shape by folding two corners upward and putting them together at the top (Fig. 4). In sum, this folded section became the back side of the base which also had a ridgeline made by folding the clay sheet. Another way of making this type was that a slanting flat surface was simply made on the front face of a lump of clay. The leg part was set at the front of the base leaning against this structure and a lump of clay was added in order to attach it together. However, a small amount of clay was used when compared with that the hollow type base, and clay was usually added at the sides and back of the base not at the front.

Thus, one is able to roughly recognize the two types of base through seeing how the leg and the base parts have been jointed together. The leg part which was jointed to the hollow type base shows a tendency for the figure to be in an upright stance, on the other hand, the figure with the flat face type base lean backward. Moreover, the ways of adding lumps of clay for stability also differ. In regard to the hollow type, clay was added around the lower legs but in the case of the flat face type clay was only utilized at the sides and back. This could be induced from seeing the leg part fragments. The surface clay attached to the



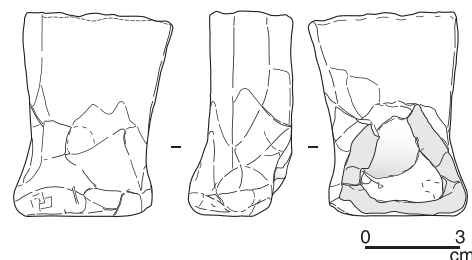
**Fig. 2** Shape of base part.

1: h. 6.95 × w. 4.47 × d. 6.34; 2: h. 5.40 × w. 4.18 × d. 5.03; 3: h. 4.55 × h. 5.11 × d. 4.95; 4: h. 4.37 × w. 3.51 × d. 4.56



**Fig. 3** Type of base part.

1: h. 2.63 × w. 4.92 × d. 6.02; 2: h. 3.24 × w. 4.07 × d. 4.80



**Fig. 4** Way of making flat type base.

h. 6.39 × w. 4.66 × d. 3.04

hollow type base was exfoliated at both the front and the back (Fig. 8 no. 13), however the flat face type was exfoliated at only the back (Fig. 8 no. 14).

There are 68 fragments of the hollow type, 27 of the flat face type and 6 of unidentified out of 111 fragments which is the total number of base and leg-base parts we found. The average size is respectively w.  $4.44 \times d. 4.96$ cm, w.  $4.09 \times d. 4.16$ cm and w.  $4.05 \times d. 3.71$ cm, in general the flat face type base is a little bit smaller than the hollow type. It is possible that the total size of the figurines with the flat face type base would be smaller than those with the hollow type base, since it was hard for the flat face type base to stay balanced because of support only from the back. Judging from the plates and the pictures that have appeared in excavation reports from other sites, it seems that in most cases the base type of these other examples would be the hollow type. This hypothesis could be supported by X-ray analysis on the find from Beth Shean.

Furthermore, another difference between the figurines from Akoris and other examples is the decoration on the surface of the bases. Such a feature has never been observed on the figurines from Akoris, but some other examples have a wavy clay ridge expressing a snake-tail or an altar-like decoration attached on the surface of the base<sup>13)</sup>. It is likely that these differences are related to the shape and size of the base part, either a thick short base or a flat long base.

The shape of the torso part generally has a flat surface both in the front and the back with rounded corners on the sides. These examples measure about 2cm in thickness (depth) at the chest part which corresponds to the condition of other examples. There are some fragments that have a rounded surface rising up at the center of the torso section. That is to say, one has a rounded rectangular shape and another has an oval or a lens-like shape in a cross section (Fig. 5). A front view of the torso part shows an inverted triangle, an oval or a tear-drop shape, tapering gradually towards the base part.

We have 19 figurines with one to four red horizontal lines painted on the front from the chest to the base parts, 12 of them have two red lines (Cover, Fig. 8 nos. 6, 17 and 23). There are not many, but similar painted examples were found in other sites, and some of them not only have horizontal lines but also vertical or grid lines. Red pigment is usually used for this kind of decoration but other colors, such as white, black, yellow and blue were sometimes used in other sites<sup>14)</sup>.

We also note that small clay lumps attached on the front of torso sections are one of the popular features of the clay cobra figurines found in other sites. This kind of decoration is referred to in various ways such as 'offering cup', 'miniature cobra', 'breasts' and so on<sup>15)</sup>. However, this feature has not been seen in the figurines from Akoris. It is possible that the presence of the decoration indicates a different date of production and locality of the clay cobra figurines.

There are two ways of making the head part of the figurines found in Akoris. One is to gently bend the upper torso section forward, which is a popular way of making as found in the examples from other sites (Fig. 6 no. 1). However, another way, popular in Akoris, is a small lump of clay was attached on the surface of the upper torso, which we name the 'face' in this article (Fig. 6 no. 2). The face part is projected forward measuring about 2cm in length, and then tapered off to the tip of the face. There are many faces which are slightly turned up to create a polyhedral angle, with a depression

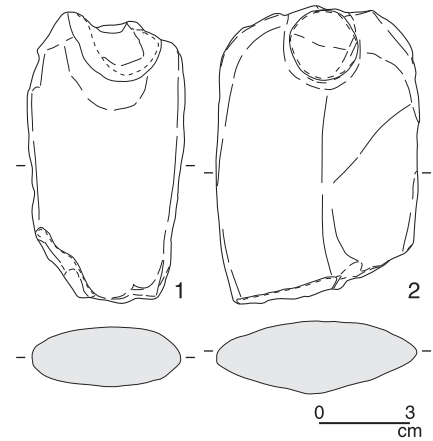


on the top surface where it was pressed by finger.

Only 2 fragments among the more than 150 figurines that remain with the face part have eyes expressed by the use of clay pellets as ‘eyeballs’ on the both sides of the face<sup>16)</sup>. It is possible that the clay pellets may have fallen out over time, but there is no trace of them at the site. However intriguingly, there are no figurines from Akoris with hollow eyes which is popular way of expressing eyes in other sites.

The unique feature of the figurines from Akoris is the ‘crown’ part attached to the top of the head (Fig. 7 no. 1, Fig. 8 nos. 1–6). There has been no example of a crown feature verified from other sites so far, except for one case uncovered from Kom Firin<sup>17)</sup>. It was modeled separately and joined via a hollow opening at the top of the head (Fig. 7 no. 2, Fig. 8 nos. 7–9). We could identify the stem of the crown in 98 fragments and a hollow joining section in 43 fragments among the 157 fragments of the head parts we unearthed. It seems reasonable to assert that all of original figurines manufactured in Akoris would have the crown. However, the original shape of these potential figures is unclear because all of them were broken at the point between the end of the stem and a missing upper part. Judging from the condition of what remains of the lower edges, which have right-angled corners stretching upward, the shape of the missing part is likely not a round shape like a sun disk or cow horns but a square shape like a plumed ornament. The crown is added with some clay around the bottom of the stem in order to reinforce it and many fragments were finished like a human occipital bone with rounded edges.

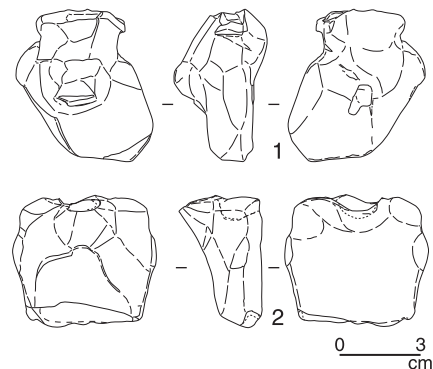
**Summary** There is considerable validity in the proposition that the clay cobra figurines belong in a period from the Ramesside Period to the Third Intermediate Period, based on investigation reports. In sum, we can safely say that the site, or the structural remains where the clay cobra figurines are expected to be uncovered, will belong to those periods. Clay cobra figurines have been excavated from many sites not only inside Egypt



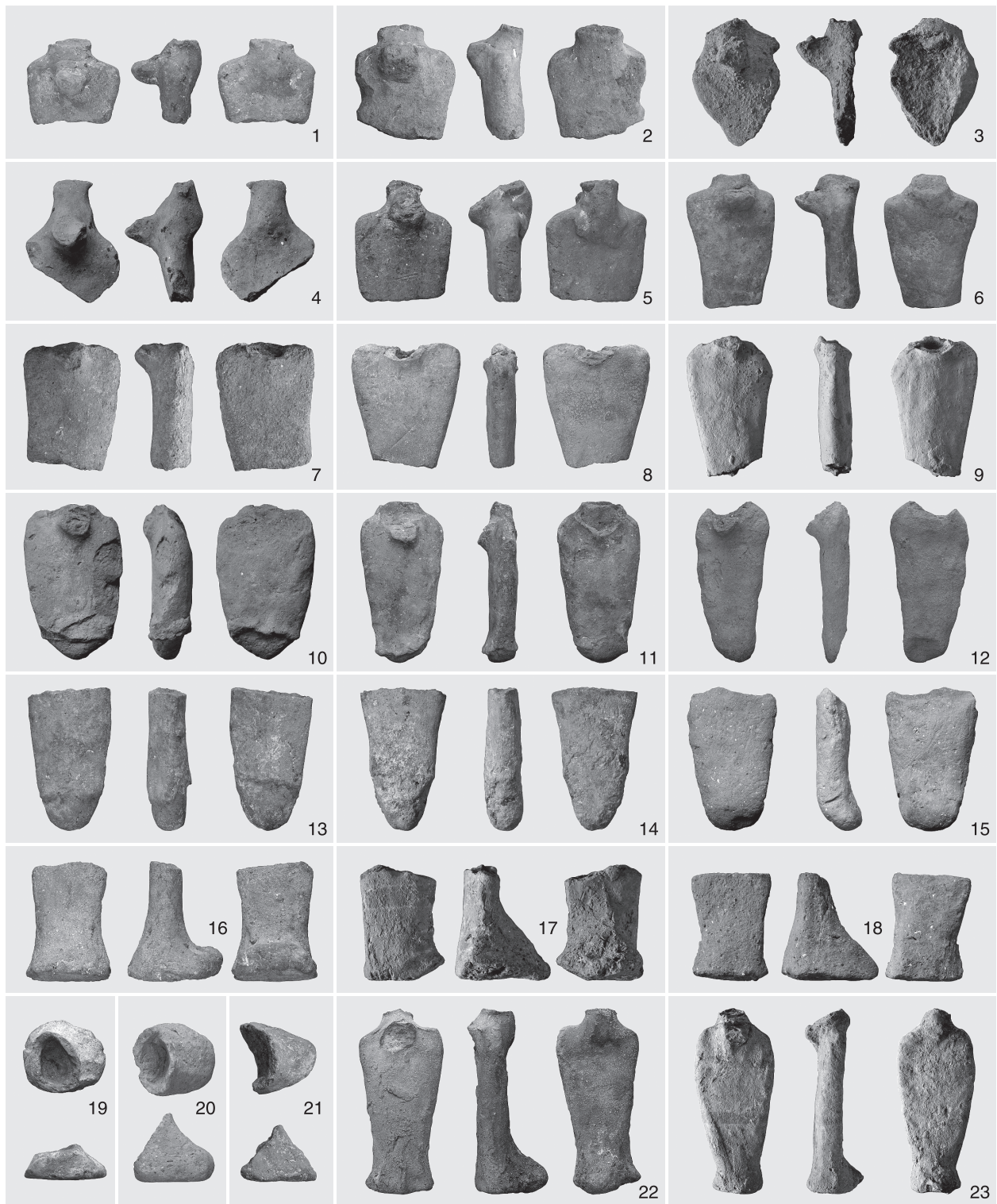
**Fig. 5** Cross section of torso part.  
1: h. 9.55 × w. 5.19 × d. 2.21; 2: h. 9.75 × w. 6.68 × d. 2.79



**Fig. 6** Ways of making face part.  
1: h. 8.26 × w. 5.41 × d. 4.21; 2: h. 9.07 × w. 5.78 × d. 3.37



**Fig. 7** Head part with ‘crown’.  
1: h. 5.50 × w. 5.05 × d. 3.47; 2: h. 4.76 × w. 5.22 × d. 2.94



**Fig. 8** Cobra figurines unearthed from Akoris.

- |  |   |   |
|--|---|---|
| 1: w. 4.51 × h. 5.22 × d. --- (07-153);    | 2: w. 6.20 × h. 5.50 × d. --- (07-077);   | 3: w. 7.28 × h. 4.96 × d. 3.56 (03-224);  |
| 4: w. 6.39 × h. 5.09 × d. 3.30 (02-WA021); | 5: w. 6.77 × h. 5.45 × d. --- (07-114);   | 6: w. 7.32 × h. 4.98 × d. --- (07-180);   |
| 7: w. 6.64 × h. 5.15 × d. 3.19 (09-120);   | 8: w. 8.02 × h. 6.99 × d. --- (07-177);   | 9: w. 7.14 × h. 4.37 × d. 1.87 (03-380);  |
| 10: w. 7.71 × h. 4.96 × d. 2.58 (06-068);  | 11: w. 9.76 × h. 5.04 × d. --- (07-068);  | 12: w. 10.70 × h. 4.93 × d. --- (07-191); |
| 13: w. 6.51 × h. 3.82 × d. --- (07-063);   | 14: w. 8.51 × h. 5.17 × d. 2.36 (04-195); | 15: w. 8.71 × h. 5.50 × d. --- (07-186);  |
| 16: w. 6.25 × h. 4.49 × d. --- (07-224);   | 17: w. 6.90 × h. 5.20 × d. 5.60 (03-121); | 18: w. 5.79 × h. 4.68 × d. 5.15 (06-116); |
| 19: w. 2.02 × h. 4.11 × d. 4.66 (07-089);  | 20: w. 3.38 × h. 3.58 × d. 4.00 (07-106); | 21: w. 3.24 × h. 4.07 × d. 4.80 (04-196); |
| 22: w. 11.60 × h. 5.24 × d. --- (07-104);  | 23: w. 13.00 × h. 5.55 × d. 3.95 (03-214) |   |

such as Tell el-Amarna, Kom Rabi<sup>c</sup>a (Memphis), Kom Firin, Kom Rebwa (Sais), Zawiyet Umm el-Rakham, Tell el-Borg and so on, but also from the Levant such as Beth Shean in Israel and Kamid el-Loz in Lebanon<sup>18</sup>). While they were products made within a wide range of time and space, there are many common features among them; for example they are about 12–15cm on average in height, their shape consisted of the standing vertical torso and the supporting horizontal base, and they shared the manufacturing methods of hand modeling or making each part separately. On the other hand, there are some differences in the decoration techniques, such as a wavy clay ridge on the base, small clay lumps on the torso, colored lines, and a head decoration for example. It is hard to conclude if these differences result from discrepancies in the time of production and/or the locality.

It can be said at the moment, that the city sites where the cobra figurines have been unearthed were especially converged in Lower Egypt. Those cities had the role of being military or administrative centers. This situation may show one of the features of how the clay cobra figurines were used, but at the same time we should consider that there are few archaeological investigations of local settlements in Egypt. This might indicate the possibility that the clay cobra figurines became popular in other small local settlements throughout the country, because there were many examples unearthed from Akoris which was a local settlement that was situated in middle Egypt. On the other hand, when we pay attention to the find areas in each site, reports indicate that almost all of the cobra figurines were found in domestic areas and not unearthed from public administrative buildings, temples and tombs. Therefore we can say, with a fair degree of certainty, that the clay cobra figurines were not used as grave goods buried with the deceased.

**Discussion** Let us focus on the functions and the representations of the clay cobra figurines from Akoris. There are many studies that have considered the clay cobra figurines to be depictions of some ancient Egyptian deities. One possibility is the goddess *Wadjet* who was depicted in an upright form as a cobra in hieroglyph signs. She was the patron and the protector of Lower Egypt and her cult center was Buto, in the Delta. Her image as *Uraeus* was worn by the pharaohs as their head ornaments and this symbolized the ruler of Lower Egypt. There is also the ritual spell which referred to four clay *Uraeus* figurines being placed in each corner of a bedroom in order to protect sleepers<sup>19</sup>).

The next one is *Meretseger* who was the local goddess especially worshiped by residents at Deir el-Medina during the New Kingdom. Many votive stelae dedicated to *Meretseger* were found, but what needs to be emphasized is that there have been no clay cobra figurines unearthed from Deir el-Medina.

The goddess *Renenutet* is one of the cogent deities represented by the clay cobra figurines. There were many cities where the goddess was worshipped, such as Medinet Madi in the Fayum and Kom Abu Billo in the western Delta. She was the goddess of the harvest and fertility, and popular among agricultural workers with a festival dedicated to her. In her epithets her role is denoted as the ‘lady of the fertile land’ and ‘lady of the granaries’. Moreover, she also had another role as the protector of the household and the nurse of infants. In ancient Egyptian mythology, she was interrelated with other deities and represented as the goddess of motherhood.

On the other hand, there are also several studies that have not related any specific deity to the

clay cobra figurines<sup>20</sup>). These studies suggest that these figurines were interpreted as a local Egyptian household deity and used as a talisman to protect against dangers or nightmares. There is also a ritual spell which refers to the clay cobra figurines placed in each corner of a bedroom, as mentioned above. However, it is difficult to confirm the validity of these claims since we do not have any examples placed *in situ* in corners. Though they have similarities in their shapes, sizes and manufacturing techniques, there are many differences in the decorations and the representations and these were one of the most important things utilized to recognize a specific deity. With these points in mind, it is hard to accept that the figurines were manufactured to represent a specific deity in a standardized form. Moreover, they are roughly hand modeled with Nile silt which is easy to obtain in the vicinity of the domestic areas. I suggest that those figurines were manufactured for and by ordinary people and not for the upper classes. Moreover, there are find spots in each archaeological site that indicate that they had been used in domestic, not higher class, living areas. It is possible that the figurines from Akoris represent the goddess *Renenutet*, but it would be much more reasonable to conclude that they were not linked to a specific deity. In sum, it seems that they were manufactured by ordinary people and used as ritual items in local popular religion.

As outlined above, the figurines from Akoris were unearthed in a fragmentary state and these conditions occurred by accident and not through human intent. However, another type of clay figurine was excavated in the South Area, counting about 70 fragments, which were destroyed intentionally<sup>21</sup>). These were small hand modeled human figurines which indicate no particular physical features such as breasts and genitals even though they are naked, nor facial expression, hair, or ornaments (Fig. 9). A circular projection placed around a torso is the only decoration prominently highlighted on the figurines. It seems likely that this represents a navel and that the figurines symbolize children, especially infants, who have protruding navels in many cases and normally don't show any gender difference. Furthermore, it is very intriguing that all the figurines were damaged around a head. As for the present figurines, it is reasonable to assume on the basis of our examination that the head sections were broken intentionally. It could be that this behaviour is a form of cult-magical/apotropaic conduct, which would indicate that the figurine was symbolically broken acting as a substitute for children. Until now this type of human figurine has never been unearthed at other sites. One interpretation, and the one that we hold, is that the figurines were ritual items in secular beliefs practiced only at Akoris. Moreover, we have unearthed many faience amulets such as *Bes* and *Pataikos* from the South Area which were very popular as a household protector.



**Fig. 9** Human figurines.  
left: h. 6.80 × w. 4.58; right: h. 6.77 × w. 4.19

There were some structural remains such as houses, granaries, workshops, streets and so on, and clay cobra figurines were found everywhere. This may account for the diversity of the usage of the figurines. That is to say, perhaps the figurines were sometimes placed in a niche of a wall and prayed to for welfare of household. While in another case, they were dedicated at granaries to insure a good harvest. One assumes that through the diversity of their usage the clay cobra figurines did not represent a specific deity but had many functions derived from various powers of various



goddesses. I propose that the common people hoped that their pragmatic and everyday life wishes would be granted through the worship of the cobra and the human figurines; for example welfare of the household, easy delivery during childbirth, raising children in good health, producing an abundant harvest of crops, protection against dangers and so on. In conclusion it seems reasonable to assume that the clay cobra figurines from Akoris were manufactured and used for ritual and popular religion.

## Notes

- 1) See, e.g., Kawanishi, H. et al. (eds.), *Preliminary Report Akoris 2002–2010*. (PR Akoris), Ibaraki (Japan), 2003–2011; Hanasaka, T., Archaeological Interpretation of Clay Cobra Figurine: Based on the Study of the Objects from Akoris, *Journal of West Asian Archaeology* 12. 2011, pp. 57–78. (Japanese)
- 2) e.g., Peet, T. E. and C. L. Woolley (eds.), *The City of Akhenaten, Part I: Excavations of 1921 and 1922 at El-'Amarnah*. London, 1923; Stevens, A., *Private Religion at Amarna: The Material Evidence* (BAR International Series 1587). Oxford, 2006; Kemp, B. J. and A. Stevens, *Busy Lives at Amarna: Excavations in the Main City (Grid 12 and the House of Ranefer, N49.18) vol. II: The Objects*. London, 2010.
- 3) Giddy, L., *The Survey of Memphis II, Kom Rabi'a: The New Kingdom and Post-New Kingdom Objects*. London, 1999.
- 4) e.g., Spencer, N., *Kom Firin I: The Ramesside Temple and the Site Survey*. London, 2008. ([http://www.britishmuseum.org/research/publications/research\\_publications\\_series/research\\_publications\\_online/kom\\_firin\\_i.aspx](http://www.britishmuseum.org/research/publications/research_publications_series/research_publications_online/kom_firin_i.aspx)); British Museum, *British Museum Expedition to Kom Firin: Report on the 2008 season*. London, 2008. (<http://www.britishmuseum.org/pdf/Kom%20Firin%202008a.pdf>).
- 5) Wilson, P., *Sais I: The Ramesside-Third Intermediate Period at Kom Rebwa*. London, 2011.
- 6) James, F. W. and P. E. McGovern, *The Late Bronze Egyptian Garrison at Beth Shan: A Study of Levels VII and VIII* Pennsylvania, 1993; David, A., Ch. 9B: Clay Cobras: Ramesside Household Cult or Apotropaic Device?, In Panitz-Cohen, N. and A. Mazar (eds.), *Excavations at Tel Beth-Shean 1989–1996, vol. III: The 13th–11th century BCE Strata in Areas N and S*: 556–560. Jerusalem, 2009.
- 7) Szpakowska, K., Playing with Fire: Initial Observations on the Religious Uses of Clay Cobras from Amarna, *Journal of the American Research Center in Egypt* 40. 2003, pp. 113–122.
- 8) *Ancient Egyptian Cobra Project* HP (<http://ancientegyptiancobras.blogspot.jp/>)
- 9) Wilson, P., 2011, op. cit., p. 119.
- 10) James, F. W. and P. E. McGovern, 1993, op. cit., vol. II, pl. 15.
- 11) See the post on 27th March, 2012 of *Ancient Egyptian Cobra Project* HP (<http://ancientegyptiancobras.blogspot.jp/>).
- 12) Spencer, N., 2008, op. cit., p. 66.
- 13) e.g., *Amarna*: Peet, T. E. and C. L. Woolley (eds.), 1923, op. cit., pl. XXIII; Stevens, A., 2006, op. cit., fig. II 3.20. top right. *Kom Rabi'a*: Giddy, L., 1999, op. cit., pls. 4–462/465, pl. 5–786. *Sais*: Wilson, P., 2011, op. cit., pl. 19–9. *Beth Shean*: David, A., 2009, op. cit., fig. 9. 20–5; James, F. W. and P. E. McGovern, 1993, op. cit., fig. 83–7. Perhaps there are a few examples with the decoration on the surface of the base unearthed from Akoris.
- 14) e.g., *Amarna*: Szpakowska, K., 2003, op. cit., figs. 6 and 7; Kemp, B. J. and A. Stevens, 2010, op. cit., fig. 15.4–37674. *Kom Rabi'a*: Giddy, L., 1999, op. cit., pl. 3–521. *Kom Firin*: British Museum, 2008, op. cit., fig. 48, pl. 164 (F007). *Sais*: Wilson, P., 2011, op. cit., pls. 17, 3.1000, L2–3, S.011 and S.013. *Beth Shean*: James, F. W. and P. E. McGovern, 1993, op. cit., figs. 83.7 and 85.2.
- 15) *Amarna*: Szpakowska, K., 2003, op. cit., p.118, 'elongated bowl' 'miniature offering stand' 'miniature snakes'; Stevens, A., 2006, op. cit., p. 100, 'tall potstand or altar'. *Kom Rabi'a*: Giddy, L., 1999, op. cit., p. 14, 'skin flaps' 'miniature cobra' 'offering cup'. *Kom Firin*: Spencer, N., 2008, op. cit., p. 65, 'small offering cup'. *Sais*: Wilson, P., 2011, op. cit., p. 120, 'smaller baby cobras' 'offering cup'. *Beth Shean*: James, F. W. and P. E. McGovern, 1993, op. cit., p. 171, 'breasts'.
- 16) e.g. Hanasaka, T., 2011, p. 70, fig. 4 nos. 6 and 7.
- 17) British Museum, 2008, op. cit., pl. 41 (F755).
- 18) Szpakowska, K., 2003, op. cit., p. 113.
- 19) e.g., Ritner, R. K., O. Gardiner 363: A Spell Against Night Terrors, *Journal of the American Research Center in Egypt*



27. 1990, pp. 25–41; Ritner, R. K., Household Religion in Ancient Egypt, In Bodel, J. and S. M. Olyan (eds.), *Household and Family Religion in Antiquity*. Oxford, 2008, pp. 176–191.
- 20) e.g., Szpakowska, K., 2003, op. cit., p. 119; Stevens, A., 2006, op. cit., p. 102.
- 21) Hanasaka, T., Fertility Magical Practice in Akoris, *Tsukuba Archaeological Studies* 20. Ibaraki (Japan), 2009, pp. 51–74. (Japanese). See also, *PR Akoris 2007*, fig. 7 nos. 24 and 25; *PR Akoris 2008*, fig. 8 nos. 27 and 28; *PR Akoris 2009*, fig. 7 no. 12.

### 3 FISHING IN AKORIS

TSUJIMURA, Sumiyo

**Modern fishing** Tihna el-Gabal (Tihna) village near to Akoris site we have excavated is located on the east bank of the Nile River in Minya prefecture. Almost all villagers living in Tihna are farmers except young men working in quarry. While the Nile flows near the village and fish are featured largely in diet, the villagers are not active on fishing. Although a few farmers who have official permissions for fishing do simple fishing by using a pole, a trap and a net for their families only, many villagers buy fishes from fishermen coming from nearby villages, el-Hawarta approximately 3.5km to the south of Tihna and Gabal el-Teir which is at the same distance away to the north. These professional fishermen extend the fishery from their own villages to Tihna to do cast net fishing in the morning, or set a longline in the twilight and retrieve it in the early morning around each village (Cover).

Fishing methods in Mari Girgis village near Sohag 200km to the south of Minya are more various than around Tihna. According to the study of N. H. Henein cast net, longline, purse seine, set net, scoop net, fish trap, harpoon and pole fishing are in practice there<sup>1)</sup>. Especially, longline is practiced not only by a line hanging stone weights and fishhooks led by two boats but also by setting a line hanging fishhooks at a canal and by hanging a line with fishhooks down from a post on the shore to bed of the river. Meanwhile, in purse seine method a fisherman on a boat stretches a net fitted on plastic floats and lead weights from a calabash float at the end of net opposite a boat.

**Ancient fishing** Almost all of modern fishing methods mentioned above are shown in fishing scenes of tombs collected by that D. J. Brewer and R. F. Friedman<sup>2)</sup>. The seine, scoop net and hand fishing are shown in the Old Kingdom scenes, cast net in the Second Intermediate Period and pole fishing in the Middle Kingdom respectively.

In the fishing scenes, triangles turning upside down as a float and lying ovals tied with a string as a weight fitted on a net common to the depictions of seine are perhaps wooden floats and stone weights. Harpoons and fishhooks are earlier than them, attested from the Predynastic Period onward. Though purse seine has not been attested from Mari Girgis, a model depicting purse seine, in which two boats manipulate a net, was found in the tomb of Meket-Re dated to the late Eleventh or the early Twelfth Dynasty<sup>3)</sup>. In this model, oval stone weights are longitudinally fitted on unlike other seine fishing methods. Another model of boat on which some men are spearing fish with harpoon was found in the same tomb. Comparing these ancient fishing methods to the modern ones, fishing methods with no definite evidences in the Dynastic Period are set net and longline only.

Furthermore, Brewer and Friedman classified fishes depicted in fishing scenes into 11 families

and 19 genera in the same book. *Lates niloticus* (Nile perch), *Oreochromis niloticus* (Tilapia), *Clarias* sp. (Catfish) among those fishes were found in Akoris site.

**Fishing in Akoris** We have excavated the South Area of Akoris since 2002, details of a local city mainly dated from the Third Intermediate Period (1069–664 B.C.) are becoming revealed (Ch. 1 Fig. 2). A leather workshop, furnaces for copper/bronze, ovens for bread and molds for beads or amulets found in the area indicate that many people engaged themselves in manual industries. On the other hand, farming implements and fish tackles found in the same area suggest that not a few farmers and fishermen also lived in the city. In addition, many animal bones of cattle, sheep, goat, pig, ass and fish bones were scattered in and around houses. The farmers must have raised these animals, but it is unclear whether fishermen caught fishes because there is a possibility that farmers worked fishing in spare time. To clarify the existence of fishermen, it is necessary to examine unearthened fishing tackles and structures related to fishes.

In 2006, we found an interesting building in the northwest part of the area<sup>4)</sup>. This rectangular building is measured 3.6m long × 1.8m wide and more than 0.7m in height, in which a lot of bones of catfish (mainly *Clarias* sp.) were kept. The catfish were probably preserved for sale, not to be consumed in a family. Even if they were prepared for a dedication connected with Osiris myth<sup>5)</sup>, the people who caught fish and managed the building are supposed to have been fishermen.

There are a harpoon, fishhooks, weights, a fragment of net and a mending tool for net as fishing tackles unearthened in the area. A bronze harpoon with a small barb at the point is 10.2cm long (Fig. 1 no. 1). Similar harpoons dated from the Third Intermediate Period were unearthened in Ashmunein (Greek Hermopolis) located on the other side of the Nile<sup>6)</sup>. While a large-sized harpoon suggests to have been used for pursuit of a hippo or a crocodile, these small-sized harpoons are suitable for large fishes like Nile perch or *Bagradae bagrus*<sup>7)</sup>.

Bronze fishhooks are divided into two types (Tab. 1). A large-sized type including two fishhooks measuring 13.7cm and 12.7cm in length has neither a barb nor an eye, which is for large fishes in the same way as the small-sized harpoon (Fig. 1 nos. 2 and 3). Another type is a small-sized type measuring 2.57–4.60cm long, which has a barb and an eye made by turning over the end of the shank (Fig. 2). Barbed small fishhooks became popular in Egypt around the Dynasty XII onward<sup>8)</sup>. In the New Kingdom, small barbed fishhooks often lacked eyes, and fishhooks whose end of the shank slightly expanded instead of the eye were not rare. The new type fishhooks fastened to a line securely, the modern fishermen around Tihna use for longline and pole fishing, are not attested among finds from Akoris site.

Three materials of fishing weights to fit a net, consisting of stone, pottery and lead were found in the site, however almost all weights with a net in fishing scenes and models are stone weights (Cover). Actually many natural stones unearthened might be used for

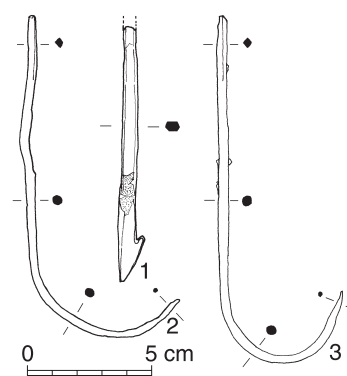


Fig. 1 Harpoon and fishhooks.



Fig. 2 Fishhooks.

**Table 1** Bronze Fishhooks.

Season		Length (cm)	Barb
2002	intact	3.90	with a barb
2003	intact	4.60	with a barb
	broken	0.50	
2004	intact	2.60	with a barb
2007	broken	2.57	
2008	intact	3.06	with a barb
	broken	2.50	
	intact	12.70	lacked a barb
	intact	13.70	lacked a barb
2009	intact	3.01	with a barb
	broken	1.45	
	broken	2.40	
2010	intact	3.08	with a barb
	broken	2.70	

**Table 2** Stone Weights.

Season	Stone	Size (cm)	Weight (g)	Groove
2002	limestone	11.8 × 10.3 × 8.3		longitudinal
2008	limestone	4.8 × 4.5 × 4.2	129.5	longitudinal
	limestone	4.0 × 3.8 × 3.3	67.4	cross
2009	sandstone?	7.87 × 6.80 × 4.27		longitudinal

**Table 3** Pottery and Lead Weights.

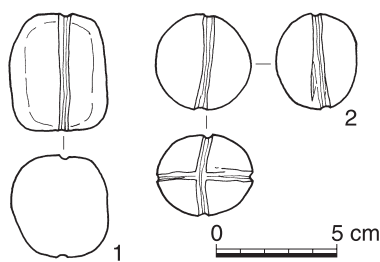
No.	Material	Size (cm)	Weight (g)	Diameter of a hole (mm)	Type
1	pottery	4.9 × 3.2	25.0	6.0	A
2	pottery	4.6 × 2.4	16.0	6.0	A
3	pottery	4.4 × 2.4	18.0	6.0	A
4	pottery	5.0 × 2.5	20.5	6.0	A
5	pottery	4.0 × 2.4	15.0	6.0	A
6	pottery	3.6 × 2.6	13.5	6.0	A
7	pottery	3.7 × 2.1	12.5	5.5	A
8	pottery	3.4 × 1.9	9.5	5.0	A
9	pottery	3.9 × 1.7	8.5	5.0	A
10	pottery	3.0 × 1.7	7.5	6.0	A
11	pottery	3.1 × 2.1	9.5	4.0	B
12	pottery	2.8 × 1.7	5.5	3.5	B
13	pottery	2.5 × 2.2	10.0	3.0	B
14	pottery	1.9 × 1.5	3.0	4.0	B
15	pottery	2.2 × 2.2	5.5	3.0	B
16	pottery	3.0 × 2.7	10.0	6.0	C
17	pottery	3.4 × 3.5	17.5	6.0	C
18	pottery	3.3 × 3.2	13.5	6.0	C
19	pottery	3.2 × 3.5	15.5	6.0	C
20	lead	1.1 × 2.0			
21	lead	1.7 × 2.0			
22	lead	2.1 × 1.8			
23	lead	3.6 × 1.3			

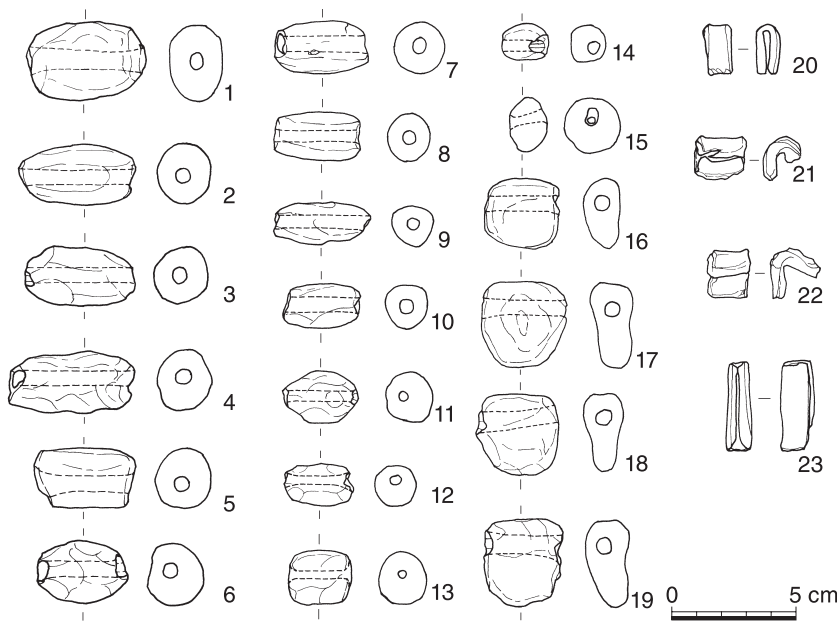
fishing weights, but those recognized as a fishing weight are limited to four stones with a groove to wind a string (Tab. 2, Fig. 3). Two oval-shaped limestone and a sandstone weights have a longitudinal groove. No. 1 measuring 129.5g in weight is limestone. No. 2 is a round-shaped limestone measuring 67.4g in weight and has a cross groove. They were probably hanged from the net border as depicted in the model of purse seine fishing found in Meket-Ra tomb.

The most of unearthed weights are pottery (Tab. 3, Fig. 4 nos. 1–19). Pipe-shaped weights were made one by one, and their weight varies widely 25.0–3.0g. The pipe-shaped pottery weights, which a lower rope of seine passes through, are seen in various parts of the world. According to the study of Japanese ancient fishing methods, pipe-shaped weights with a large eye for seine and those with a small eye for set net are inferred to have been used respectively<sup>9)</sup>. Unearthed pipe-shaped weights could be divided into two types by a diameter of eye, that is, a weight with a diameter of eye above 5mm is referred as A type (nos. 1–10), and a weight with a diameter of eye below 4mm is referred as B type (nos. 11–15). Besides pipe-shaped weights, square-shaped weights referred as

C type (nos. 16–19) were found. An eye is made in the upper part, and its diameter is above 5mm the same as A type. Therefore, the C type weights are also suitable for seine or cast net.

A lead weight is generally said to have not been used until the Roman Period. However, lead weights are attested in the Dynastic Period in Egypt, and J. G. Wilkinson introduced an example fitted on the outer rope of net kept in the Berlin Museum<sup>10)</sup>. Lead weights found in Akoris also belong to the Third Intermediate

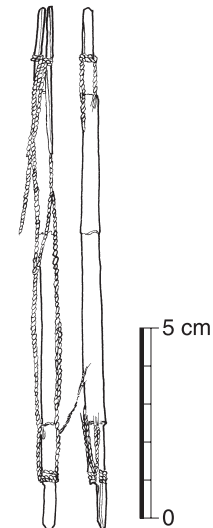
**Fig. 3** Stone weights.



**Fig. 4** Pottery and lead weights.



**Fig. 5** Net.



**Fig. 6** Tool for mending net.

Period. They are divided into two types, one of which is an elongated, folded lead plate lengthways to hold a rope of net (nos. 20–22), another is an elongated lead plate bent into a cylinder to cover a rope (no. 23). Lead weights dated back to the Iron Age were found in Tel Aphek, Israel, too<sup>11</sup>). They are cylindrical weights dated from the 11th century B.C.. In addition, a large unbarbed fishhook and small barbed fishhooks were unearthed in the site. Either of them does not have an eye, and the shank ends of the latter are slightly expanded like some fishhooks in the New Kingdom. Several metal objects dated from the Third Intermediate Period to the Late Period similar to the folded type fishhooks were found in Tell el-Rub'a (Greek Mendes), the capital of the 16th Lower Egyptian nome<sup>12</sup>). However, they are not lead- but bronze-made and are supposed to have been parts of body armor in the excavation's report. Since pipe-shaped pottery weights have been reported as loom weights, undoubted fishing tackles seem to be limited to a fishhook. Unearthed fishbone are identified as *Clarias* sp., *Synodontis* sp. and *Tetraodon fahaka*.

A fragment of a cone-shaped net made of flax is measured  $18 \times 14$ cm and its mesh 2.2–2.4cm square (Fig. 5). If this fragment was a part of fishing net, it seems to have been a pointed bottom of scoop net. A reed with both ends cut into two to wind a thread, measuring 13.8cm long, is certainly a tool for mending a net (Fig. 6). There remain a few flax threads winding it. Modern fishermen around Tihna village use a tool made of wood similar to this shape.

As mentioned above, the various fishing tackles unearthed in the South Area of Akoris indicate that many fishing methods were adopted in the Third Intermediate Period. Especially, various weights suggest that net fishing achieved a remarkable development at that time. Furthermore, fishing tackles for large fishes, harpoons and large unbarbed fishhooks, suggest the existence of professional fishermen rather than farmers' side job. Many bones of Nile perch, one of large Nile

fishes, were found at over 40 sites in Levant (mainly Cyprus, Israel and Turkey) dated from the Late Bronze to the Early Iron Ages<sup>13)</sup>. Such an international popularity of Nile perch must have been one of factors in the development of fishing in the Nile.

#### Notes

- 1) Henein, N. H., *Mari Girgis-village de Haute-Egypte*. Cairo, 2001.
- 2) Brewer, D. J. and R. F. Friedman, *Fish and Fishing in Ancient Egypt*. Warminster, 1989.
- 3) *ibid.*, fig. 2.42; Tooley, A. M. J., *Egyptian Models and Scenes*. Buckinghamshire, 1995, pp. 34–35.
- 4) Kawanishi, H. and S. Tsujimura (eds.), *Preliminary Report AKORIS 2006*. Ibaraki (Japan), 2007.
- 5) Committee of the Archaeological Survey in Egypt, *Malkata-South I*. Tokyo, 1983. Dozens of mummified catfish collected in two places each were found around Kom el-Samak. According to the report, they belong to the Roman Period, and are supposed to be related to the Osiris Myth.
- 6) Spencer, A. J., *Excavations at El-Ashmunein III*. London, 1993. Harpoons: pl. 31 nos. 59 and 60.
- 7) Brewer and Friedman, 1989, *op. cit.*, p. 22.
- 8) *ibid.*, p. 28.
- 9) Tanaka, S., *History of Fishing : in Kiso River and Ise Bay*. Aichi (Japan), 1994, p. 23. (Japanese)
- 10) Wilkinson, J. G., *The Ancient Egyptians*. New York, 1988, p. 188.
- 11) Gadot, Y. and E. Yadin (eds.), *Aphek–Antipatris*. Tel Aviv, 2009, p. 433. Lead weights: fig. 13 nos. 1-6; Fishhooks: fig. 13 nos. 7–9.
- 12) Redford, D. B., *Excavations at Mendes Volume 1 The Royal Necropolis*. Leiden, 2004, fig. 13 no. 670.
- 13) Gadot and Yadin (eds.), *op. cit.*, pp. 569–574. O. Lerna surmises the Nile perch trade between the Nile valley and the Eastern Mediterranean in this excavation's report.

## 4 EXPLORING THE RURAL CONDITIONS OF MIDDLE EGYPT IN THE HELLENISTIC PERIOD:

### An Interim Report of the Archaeological Investigations at AKORIS and Nearby Quarries

SUTO, Yoshiyuki

**Introduction** The archaeological site of Akoris was found in the early 19th century and was investigated by French scholars in the beginning of the 20th century<sup>1)</sup>. After a long interval, a Japanese mission sent by the Paleological Association of Japan in Kyoto conducted the first series of systematic excavations from 1981 to 1992 in order to elucidate the history of this settlement. The excavations, however, were centered mainly on the area in front of the large Middle Kingdom rock-cut tombs reused as Roman temples at the southwestern edge of the settlement area, and the so-called Sarapeion located at the center of the site. The material evidences recovered from these excavations were limited mostly to that of the Roman and Coptic times. Actually Hellenistic artifacts, including a typical stamped handle of a Rhodian amphora, had been found from the bottom of the deep trench to the east of the Sarapeion dug in 1982, but the historical significance of them did not attract attention at that time.

It was thus our great excitement to find a substantial Hellenistic deposit during the excavation of large unfinished limestone blocks at the north edge of the city area of Akoris in 1997, when the Akoris Archaeological Project resumed the investigation of the site in present organization. A large amount of Hellenistic pottery, both domestic and imported, was recovered in the burned soil layer,



which filled the area adjacent to the lower part of the stone blocks<sup>2)</sup>. There were also lamps and terracotta figurines in Greek style to be published soon, which suggest that daily life of the inhabitants of Ptolemaic Akoris shared the contemporary cultural milieu of the Eastern Mediterranean world.

Soon it became also clear that the limestone blocks had nothing to do with bridge or city gate, as we had supposed at the outset of excavation, but were unfinished stones being worked on this spot for shipment. The Ptolemaic date of these stones seems unambiguous. First, they were directly filled with the burnt soil containing purely Hellenistic materials. Secondly, a Late Period circuit wall was discovered under the layer supporting the base of the stones. But it was not until the completion of the analysis of the stamps on the handles of imported Rhodian amphorae that we could date this Hellenistic deposit more precisely.

**Amphora Stamps from Akoris** Actually the most unexpected and exciting finds from this Hellenistic fill were vast number of stamped amphora handles of Mediterranean origins. As has been reported elsewhere, the total of 351 stamped amphora handles, including the two large fragments with both handles, were found during the five successive field seasons from 1997 to 2001<sup>3)</sup>. The sheer number of handles is worth special attention. Although the number of the excavated stamped amphora handles from the construction fill for the Middle Stoa in Athens or the famous Pergamon Complex far exceeds that of Akoris (1498 and 882, respectively), many other sites in the East Mediterranean do not yield so many handles derived from a single context. The stamped handles of Rhodian amphorae, which constitute almost eighty percent of the total, are most valuable to gain the overview of the chronological position of the whole material (Fig. 1).

During the second century B.C., when Rhodian and other Mediterranean amphorae were transported into Akoris, the Ptolemaic regime was gradually destabilized through recurrent civil wars and external threats. The first serious event was the great uprising of Upper Egypt from 206 to 186. The chronological distribution of Rhodian amphorae in the Hellenistic deposit at Akoris eloquently indicates that the close economic as well as cultural relationship between Akoris and Alexandria had been strengthened just after the termination of the Great Uprising in the South. The presence of extremely large unfinished limestone blocks at the site suggests that the export of such stones from Akoris was decisive in generating such close contact of the local inhabitants with the Greek cultural milieu imported via Alexandria.

The size of the limestone blocks, one of which measures more than fourteen meters, indicates that they were intended not to be used locally but to be shipped out to the most prosperous city of the contemporary world, Alexandria. The Mediterranean amphorae must have been carried into the site by the ships returning from Alexandria, which were primarily used for the shipping of the stones procured from the quarries in the vicinity of Akoris. Although we don't have any documentary evidence for the shipment of stones from Akoris in the Hellenistic times, an *ex-voto* inscription for Zeus at the time of Roman Emperor Domitianus, found in Akoris North Quarry, explicitly notes that the stones from the quarry were used for the pavement of Alexandria<sup>4)</sup>.



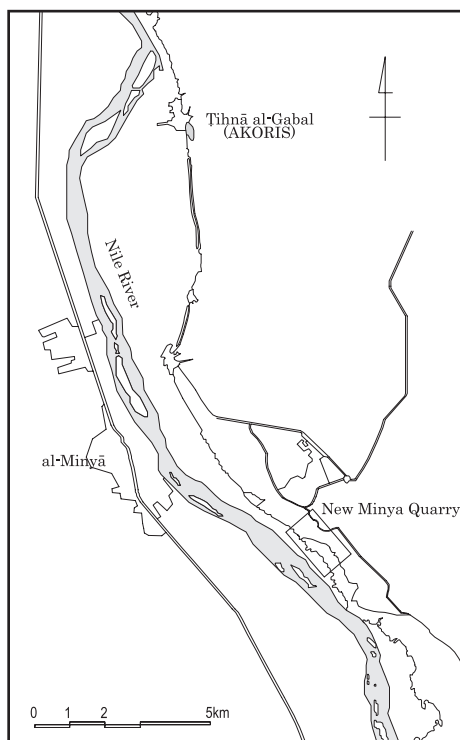
Fig. 1 Amphora stamp.

The results of our investigations thus suggest that the mining and dressing of limestone blocks from nearby quarries was important in the life of Hellenistic Akoris. It was on this observation that we launched on the next major project, the investigation of the nearby quarries.

**Quarry and Graffiti** Traces of ancient quarrying activities are ubiquitous in Egypt, where large stone buildings were continuously built from the Old Kingdom. But major ancient limestone quarries were located in the relatively narrow area of the Nile Valley between modern Minya and Sohag in Middle Egypt<sup>5</sup>).

It is usually not easy to detect the major industry of local communities when there are no written documents referring to it. But the discovery of the work area for the processing of large limestone blocks threw new light on the hitherto neglected significance of the quarry fields around the site as the possible source for the economic prosperity of Hellenistic Akoris. The documents from the Arsinoite nome regarding the mission of Kleon the architect in the middle of the third century B.C. are most illuminative in this respect. Clearly one of his duties was the administration of quarries and the transportation of quarried stones (*P. Petr.* 2.4). It is, therefore, tempting to suggest that the consumers of precious wine imported from abroad were primarily the resident Greeks of eminence who had particular duties at Akoris.

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 (Cover, Fig. 2). The long valley at New Minya near Zawiyat al-Sultan is one of the most impressive ancient quarries ever discovered in this area<sup>6</sup>). The most spectacular monument here is undoubtedly a huge unfinished limestone block for a colossus of a standing king located at the top of the valley. Contrary to the original identification of R. and D. Klemm that the block was intended to be used for a statue of Amenhotep III, our recent investi-



**Fig. 2** Geographical map of Zawiyat al-Sultan.

gations have made it clear that it was ordered by a Ptolemaic ruler, since many Greek and demotic graffiti were found on the ceiling of the hewn gallery under the huge block. Furthermore, a number of Greek and Demotic graffiti were also found in the quarry to the south of the colossus.

Today a deep straight valley of about 700m extends from below the site of colossus toward the southeast until it reaches the fringe of the flat plain of the Nile. This conspicuous terrain however is not a natural one but is the end product of successive quarrying activities from antiquity to the present. In spite of the effect of heavy weathering, almost entire quarry faces still retain astonishingly clear marks of the chisels used by ancient quarrymen.

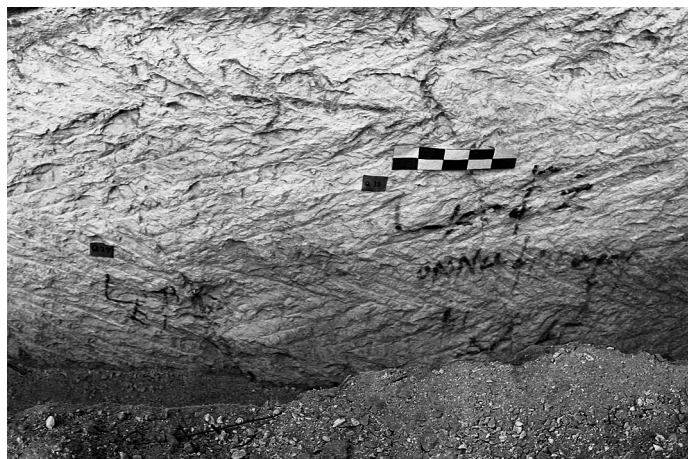
More or less continuous vertical steep quarry faces dominate the southwestern side of the valley, while the formation of the faces of northeastern side is more complicated especially in the middle part of the valley. On both sides the ancient miners seem to have carefully avoided

extracting deteriorated rocks containing natural fissures. As a result, such prominent rocks are left at several points and now interrupt the course of the successive quarried faces. It is largely on these interruptions that we divided the quarry into a number of sections to register the graffiti.

The Greek and demotic graffiti found in the valley are not evenly distributed but are concentrated in several sections. This situation of preservation may have largely been caused by post-depositional process, since even on the southwestern side, where very few legible graffiti are left on the vertical walls, abundant graffiti are still preserved in excellent condition on the ceilings of the horizontal galleries deeply hewn into the vertical walls. This may be the reason why so many graffiti are observable in the lowest sections of the quarry. 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. Both demotic and Greek versions provide three sets of information: 1) date, 2) personal name, and 3) tripartite numerals. The regnal years in demotic texts are always counted in Egyptian year, while that of Greek texts are always denoted in financial or fiscal year. It seems to have been customary in the upper part of the valley to put demotic counterparts always for the Greek texts. The date usually refers to a certain day in Greek, but often to successive months in demotic; the named person seems to be in charge of the quarrying activity; the tripartite numerals are most likely to show the volume of stone extracted in three dimensions. As our colleague of architectural history has made it clear, the three figures always represent width, depth, and height of the removed rock respectively. The last figure is almost usually 1, and it has been also made clear that it represents the basic unit of measurement, about 53.7cm, which roughly corresponds to the royal cubit in dynastic Egypt.

**Style and Language of Graffiti** The sequence of the regnal years observed in the bilingual graffiti from the upper part of the valley, from 35th through 39th to 3rd, shows that this part of the quarry seems to have been operated from the last years of Ptolemy II to the early years of Ptolemy III. The situation is quite different in the lowest level of the valley. It also provides number of graffiti, but they are now written only in Greek. Here too the sequence of regnal years affords a valuable clue to conjecture the date of them. At section Q, which is located on the lowest corner of the valley, there are series of regnal years from 23 to 25 and 2. It seems certain that quarrying activities progressed here in the last years of Ptolemy III, who died in the course of his 26th regnal year (Fig. 3).

The two above-mentioned sets of sequence of regnal years found at the upper and bottom of the valley doubtlessly suggest that the exploitation at New Minya quarry was under operation in the second half of the third century B.C. It is highly remarkable that the manner of writing graffiti shows distinct change even during this short period of time. The once so



**Fig. 3** Details of graffiti (Q29 & 30).

ubiquitous demotic graffiti completely disappeared and substituted with Greek ones. The oldest graffito attested in the valley is a long three-line demotic text left on the fallen block bearing the regnal year 32. Since it is difficult to assume that a text of this length accompanied any Greek counterpart, I am of opinion that graffiti were generally written only in demotic until this year. The custom of attaching Greek translation seems to have been introduced sometime between the year 32 and 34 to amend the demotic graffiti. That the graffiti on the ceiling of Section J still don't have their Greek counterparts are certainly not fortuitous. Then the habit of putting Greek translation to demotic ones was established leaving vast number of bilingual graffiti. But by 220s demotic seems to have lost its importance in recording quarrying process, and written language of administration at the quarry had changed from Greek and Egyptian bilingual to Greek monolingual.

Our survey shows that the practice of recording quarrying process in both demotic and Greek was not confined to New Minya. Akoris South Quarry is located on the plateau just to the south of the settlement site of Akoris. Although this quarry seems to have been exploited mainly in Roman times, there are a few remnants of Ptolemaic quarry faces left untouched until today. Three small horizontal galleries are cut below the conspicuous projection in the midst of the quarry field. Even though the outer face of the rock is heavily eroded and damaged by later activities, Greek and demotic graffiti on the ceilings are preserved in extremely good condition. At least sixteen graffiti including five pairs of bilingual ones are left on the surface of one of the galleries (AS-1). They are represented in exactly the same tripartite system as are the case with those graffiti of New Minya. The regnal years explicitly show that these graffiti were recorded in the fourth and fifth year of a certain king. Although there is no sequential evidence, it seems highly probable that they are contemporary with the standard bilingual graffiti at New Minya; hence the king in question is Ptolemy III.

In spite of the accumulation of relevant data, there are many questions to be answered about the function of the graffiti. Theoretically the graffiti on the ceiling close to the opening should be earlier than those of the interior of the gallery, though it is not always the case. For example, the bilingual graffiti AS1-1 (Greek) and AS1-2 (demotic), located near the opening, bear the date of the 7th *Hatyr* in the 5th year, while the bilingual graffiti on the inner ceiling AS1-4 (Greek) and AS1-4 (demotic) bear the date of previous month *Phaophi* of the same year. Moreover, two pairs of bilingual graffiti, AS1-7 (Greek) and AS1-8 (demotic), AS1-6 (Greek) and AS1-16 (demotic) are overlapping diagonally on the same surface, but the former show the date about half a year later than the latter. Surely there are many aspects to be elucidated about the function of these graffiti, but it seems now certain that they recorded not the detailed progress of the work but their inspection by official hands.

**Conclusions** One of our prime concerns now is the identity of the people who worked at these quarries. An important clue is obviously the personal names contained in the graffiti. It has been observed that there seems to be a marked ethnic concentration of personal names in several sections. For example, all the 12 names attested in Section F are of Egyptian such as Petesis or Stotoes. To the contrary, the graffiti of Section U contain such names as Philippos or Attalos. R. Takahashi has noted the presence of Jewish names in the graffiti found only under the unfinished colossus, which

are totally absent in the nearby quarry valley. It is tempting to see some kind of units of workers organized on the ethnic groups.

Another evidence, which may be relevant to the identity of the workers, is the seasonal fluctuation of the number of month referred to in the Greek graffiti. Although the quarry was in operation throughout the year, it seems to have been busier in the first half of the financial year. Certainly the latter half of the financial year was a slack season at least in this quarry. Similar pattern has been observed for the payment of Salt Tax<sup>7)</sup>. Here it is noted that about 70% of surviving receipts derive from the first six months of the financial year. The first day of Mecheir in the 38th year of Ptolemy II corresponds to the 23rd of March, and the first day of Mesore, the beginning of the slack season, corresponds to the 19th of September. The most logical explanation is that the quarry was busy toward the inundation of the Nile, which was convenient for the shipment of the stone extracted. My inclination is to say that some workers were not professional miners but farmers who lived in the nearby villages and were employed at the quarry only in the busy season. But this interpretation is open to challenge and critical comments are always welcome.

### Notes

- 1) For the earlier explorations, see Bernand, É., *Inscriptions grecques et latines d'Akoris*. Caire, 1988, pp. ix–xx.
- 2) Kawanishi, H. and Y. Suto, *Akoris I: Amphora Stamps*. Kyoto, 2005, pp. 11–22.
- 3) *Ibid.* pp. 23–208.
- 4) Suto, Y., Text and Quarry in Greco-Roman Egypt: Reading a Dedicatory Inscription Rediscovered at Akoris (IGRR I, 1138), *SITES: Journal of Studies for the Integrated Text Science*, 3–1. Nagoya Univ., 2005, pp. 1–14.
- 5) Aston, B. G. et al., Stones, in Nicholson, P. T. and I. Shaw (eds.), *Ancient Egyptian Materials and Technology*. Cambridge, 2000, pp. 5–77.
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- 7) Thompson, D. and W. Clarysse, *Counting the People in Hellenistic Egypt*. vol. 2, Cambridge, 2006, pp. 74–89.

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