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Geophysical Survey**

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TELL EL-RETABA 2008: EXCAVATIONS AND GEOPHYSICAL SURVEY

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Abstract: The second season of the joint Polish-Slovak archaeological mission was devoted to excavations in Areas 1 and 2, located in the northern part of the site. A fragment of the northern defences was excavated in Area 1, giving insight into wall construction techniques and wall phasing. A number of features, like a furnace and fireplace, were recorded despite heavy disturbance of the stratigraphy by *sebbakhin* pits. Explorations in Area 2 revealed a mud-brick structure of evident domestic function. An interesting array of finds came from ash deposits which filled the abandoned building. These included a cartouche plaque with the throne name of a ruler from the Third Intermediate period, scarab, iron blade, terracotta figurine, loom-weight, lead net-sinker and bone spatulas. The second major objective of the season was the continuation of the geophysical survey of the site using different methods and different equipment. The northern defence wall of the Ramesside fortress along with two gates was traced. Mapping revealed that the area inside the fortress was not empty as previously assumed by W.M. Flinders Petrie.

Keywords: Tell el-Retaba, Ramesside fortress, Third Intermediate Period, geophysical prospection, magnetic method

The objectives of the second season of fieldwork by the Polish–Slovak Archaeological Mission were twofold: excavation in two locations which had been selected based on results of the geophysi-

cal survey in 2007 and continuation of the survey using different methods and different equipment (for an extensive report on seasons 2007 and 2008, see Rzepka *et alii* 2009; 2010).

EXCAVATIONS

Area 1 was one of two locations chosen for exploration [*Fig. 1*]. In a previous season a big limestone block had been found in the center of the northern part of the site. The geophysical survey in 2007 traced the north defense wall through this area, giving reason to suppose that the block had been part of a big gate jamb, despite the absence of any gap on the geophysical map

tentatively corresponding to an entrance. Excavations soon revealed that the block was not *in situ* and that there had been no gate in this place (corroborated by a local worker's story of the block being dragged to its present location in the 1990s from a spot to the east where the ground had been disturbed by the laying of a big water pipeline).

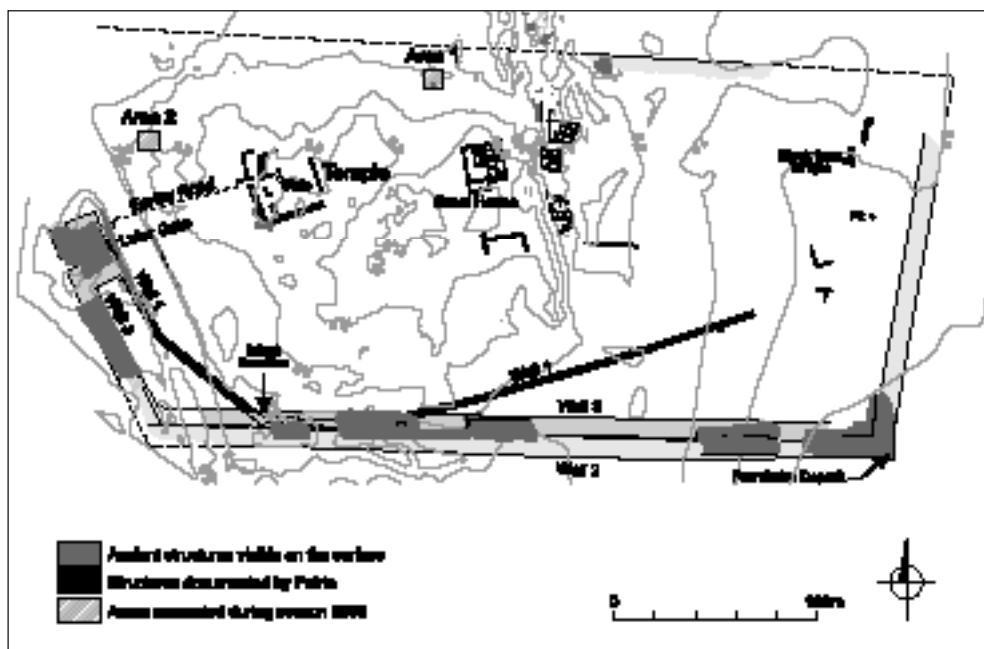


Fig. 1. Map of Tell el-Retaba showing ancient structures visible on the surface and areas excavated during the 2008 season (Drawing S. Rzepka)

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Area 2 was located in the northwestern part of the site, near the asphalt road crossing the site, in an area threatened by the planned construction of a big water pipeline. Well preserved mud-brick walls visible in the cut for the modern asphalt road indicated that ancient structures could be expected in the area.

AREA 1

Excavations in Area 1 covered 10 x 10 m, divided into four squares 5 x 5 m. Squares Y255/X265 and Y250/X270 were excavated to approximately 1.00–1.50 m; in the remaining two squares only the surface layer was cleared.

The upper layers in both excavated squares had been disturbed extensively by

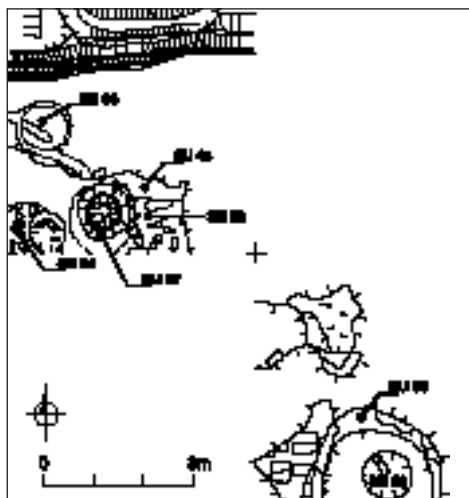


Fig. 2. Plan of Area 1
(Drawing J. Hudec, Ľ. Jarmužek)



Fig. 3. Area 1, square Y250/X270, looking north. In the background, remains of the north defense wall of the fortress (Photo J. Hudec)

sebbakhin digging: in this relatively small area 10 big *sebbakhin* pits were recorded.

A fragment of the massive north defense wall was discovered [Figs 2, 3]. The preserved part of the inner (southern) face of the wall (max. height 0.83 m) runs from south-west-west to north-east-east. The lower part of the wall consists of three stretcher courses of mud bricks, followed by a course of mud bricks laid on the long edge. This bonding pattern is then repeated with one mud-brick course of each kind [see Fig. 3]. The bondwork, as well as color and quality of the material used to manufacture the bricks show similarities with W.M.F. Petrie's Wall 3, which is visible on the surface in the southern part of the site.

Remains of a vaulted mud-brick silo were found close to the inner face of the defense wall. Its external diameter was approximately 1.10 m, wall thickness about 0.10 m. It stood about 0.45 m from the defense wall. The silo should be older than the nearby oven and fireplace, judging by its position and the stratigraphy of layers covering it on the southwestern side. Its relation to the defense wall could not

be determined due to time constraints and will be examined in the future. According to A. Wodzińska, a few potsherds could provisionally date the filling of the silo to the late New Kingdom period.

In the southern part of square Y250/X270, two partly preserved structures were noted in the southwestern corner, despite serious disturbance by another three *sebbakhin* pits. These were a furnace and a fireplace.

The furnace [Fig. 4; SU 47 in Fig. 2] is about 2.30 m south of the defense wall. It stands on a layer of mud-brick rubble. The mud bricks, of irregular size and shape, may have come from an older silo(s), but the furnace itself seems to have been built to order, without reusing any earlier structures. It is constructed of massive, almost cubic mud bricks, lined on the inside with thin mud bricks and thickly coated with plaster on the outside; thus, the maximum diameter of the oven is approximately 1.30 m and the wall thickness is about 0.35 m. Due to a disturbed archaeological context, the function of this feature — whether a furnace for firing pottery, an oven for

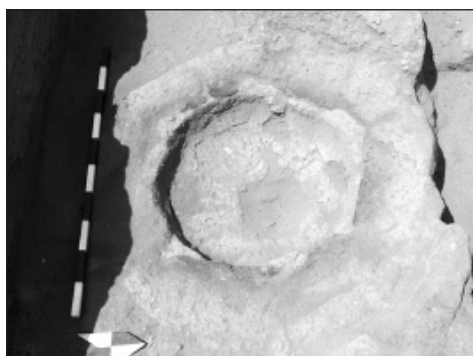


Fig. 4. Mud brick furnace (SU 47) in Area 1 (Photo J. Hudec)



Fig. 5. Silo (SU 62) in Area 1 (Photo J. Hudec)

baking bread or something else entirely — remains purely speculative for now.

The structure was later reused as a fireplace. Deposits inside it consisted of ashes with pieces of ostrich eggshells mixed in together with tiny fragments of bronze, animal bones and ceramics. A low breakwall of piled mud-brick rubble stood to the north and northeast. Two vertical hollows, left by wooden poles or plant roots (?), were discovered under these bricks. The pottery deposited under and beyond (north of) this breakwall has been dated provisionally to the late New Kingdom.

A fireplace made of mud-brick rubble adjoined the oven on the southwest. It was shielded from the southwest by a large potsherd. It formed an irregular feature, approximately 0.60 m x 0.64 m, and was filled with ash deposits. The functional relationship, if any, between the oven and the fireplace needs to be further examined.

Square Y255/X265 covered the southeastern quadrant of Area 1. Here, too, *sebbakhin* digging removed most of the upper strata. A small section in the southwestern corner of the square appeared relatively untouched. Some mud-brick structures were found here. About 0.10 m below the ground surface there was a mud-brick platform made of one layer of bricks of a different color and size. In the southwestern corner of the platform/square, the edge of a recent excavation pit with a virtually vertical side was traced; this cut was filled with fine, light yellow sand.

Running roughly north–south under the eastern edge of the platform was a mud-brick wall consisting of four irregular stretcher courses of bricks. Its maximum length was 2.20 m, maximum height approximately 0.45 m and width approximately 0.50 m to 0.70 m. East

of the wall, at a depth of approximately 1.10 m, another mud-brick silo was traced [Fig. 5; SU 62 in Fig. 2]. This structure was of a slightly irregular shape, with a diameter of approximately 2.40 m, wall thickness of about 0.20 m and a later fireplace in the center. The feature was best preserved in its northwestern part. The wall retained three courses of mud bricks (measuring approximately 10 x 20 cm each; third dimension not measured) laid in stretcher bond on a broader foundation.

Finds from this area came mainly from the *sebbakhin* pits. They included a clay seal with four cobras (S227), a terracotta figure (S224) and faience beads of various shapes, as well as a small stylized amulet of bluish-white faience [Fig. 6], depicting a dwarf which could be identified as either Bes (Page-Gasser 2001: 113–116) or Pataikos (Herrmann 2002: 27); dimensions: length 2.15 cm; maximum width 1.4 cm; thickness 0.9 cm. The head is missing. Amulets representing protective and/or creative dwarf-demons were fairly popular in this part of the site. Petrie had found at least eight Bes amulets (Petrie, Duncan 1906: Pls XXXIV tomb 29, XXXIVC) and more or less the same number of Pataikos amulets (Petrie, Duncan 1906: Pl. XXXIV tombs 4, 29, Pl. XXXIVA tombs 18, 24, Pl. XXXIVB tombs 9?, 17, 31?). Amulet S 86 was found in a *sebbakhin* pit (SU 15) in square Y255/X265. It bears some similarity with the headless amulet from tomb 29 (probably Pataikos, accompanied by two amulets of Bes in the same tomb context) dated by Petrie to the Twenty-second–Twenty-third Dynasty (Petrie, Duncan 1906: 32). Being not fully convinced as to the correspondence between Petrie's understanding of these dynasties and

recent chronologies, we prefer to date the amulet to a more broadly defined Third Intermediate Period.

Finds also included altogether nine round-shaped stones of similar size (approximately 5 cm in diameter) made of quartzite (except for one made of flint and another probably magnetite) [Fig. 7]. Five similar objects had been found on the surface in 2007 and another five came this season from Third Intermediate Period layers in Area 2. Some of these objects are similar to pounding stones published by Petrie (Petrie, Duncan 1906: Pl. XXXVIC, Nos 37, 39). Their function as sling loads should be taken into consideration, considering the military function of the site. The sling was known in Egypt despite the fact that its ancient name still escapes

researchers (*LÄ* V: 656; Bonnet 1926: 115–117). Thus, it is quite possible that sling stones made of hard quartzite, flint and ore, weighing from 125 g to over 300 g, were in use at a military installation such as Tell el-Retaba.¹

[JH]

AREA 2

Three squares 5 x 5 m were partly excavated. In all of them, mud-brick walls were found, some preserved to a height of more than 1 m [Figs 8–10]. All seem to have belonged to a single, apparently phased building. Its domestic function is beyond doubt, considering the discovery of loom weights and fragmentary bone spatulas, which could have also been used for weaving or netting. Fishbones and mussels



Fig. 6. *Faience amulet depicting a dwarf (S86)*
(Photo S. Rzepka)



Fig. 7. *Sling (?) stone (S167)*
(Photo S. Rzepka)

¹ Another object of the *militaria* class originating from Tell el-Retaba is a sickle-sword (*khpesb*; British Museum EA 27490, see Griffith 1890: 57, Pl. XIX).

were frequent in the occupational layers, unlike mammal bones which occurred only sporadically. Fish thus seems to have been a staple food of the dwellers of this house. There could have been fishermen among them — a small, bent piece of lead can be interpreted as a netsinker. Papyrus Anastasi VI, 51-61 (Gardiner 1937: 76-77) informs of “pools” or “ponds” located in the vicinity of Tell el-Retaba; Shasu Bedouin were said to water their flocks there (for a discussion of this passage, see Goedicke 1987). The dwellers of the settlement in Tell el-Retaba could have caught their fish there. The pottery evidence from the house established the date of the structure with all its phases in the Twenty-first through Twenty-second Dynasty.

Once abandoned, the ruins of the buildings served as a dump for large amounts of ash. Most of the interesting small finds came from these ash deposits. The following selection (a small part of the collection consisting of almost 200 objects) illustrates the occupations and habits of the dwellers of the house (or its immediate neighborhood, as some of the objects come from layers deposited already when the building had been abandoned and was being used as a dumping ground). Apart from the pieces catalogued below one should also mention faience amulets in the form of the god Bes (S120) and an unidentified seated goddess (S60), a large number of faience beads, a fragment of a scaraboid (S123), fragments of faience rings (S63, S139) and numerous pieces of worked stone.

Cartouche plaque. Molded plaque of green-glazed faience [Fig. 11:S59],

decorated on one side with a hieroglyphic inscription reading *wsr-m3't-rꜥ stp-n-rꜥ* inside a cartouche ring. Dimensions: length 2.9 cm, width 1.5 cm, thickness 0.3 cm. The plaque is damaged; originally there must have been two feathers at the top of the cartouche.

The name is the throne name of Ramesses II. However, the plaque was found in a layer which can be dated by the pottery to the Third Intermediate Period. If it is indeed the cartouche of Ramesses II, the plaque must have been in use as an amulet for several generations. Since such cartouche-plaques are also found in foundation deposits,² it is possible that the plaque was part of a foundation deposit from a royal Ramesside building destroyed during the Third Intermediate Period. Another possibility is that the cartouche contains the name of a ruler from the Third Intermediate Period. Three kings of the Twenty-second Dynasty:

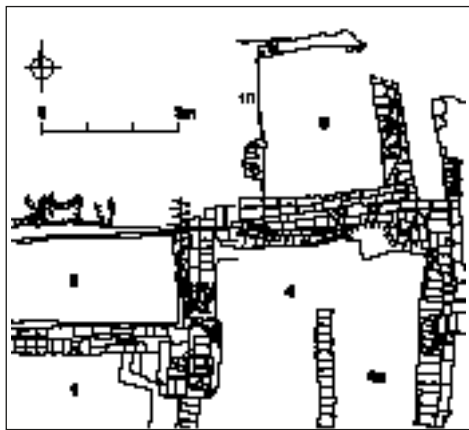


Fig. 8. Plan of the Third Intermediate Period house (Drawing L. Jarmužek)

² E.g. foundation deposit from Tell el-Retaba containing cartouche-plaques of Ramesses III, see Petrie, Duncan 1906: Pl. XXXVIB: 53-55.



*Fig. 9. General view of Area 2, looking south
(Photo S. Rzepka)*



*Fig. 10. Excavated part of the Third Intermediate Period house. Rooms 1 and 2 are visible in front,
room 4 in the background (Photo S. Rzepka)*

Osorkon II, Sheshonq III and Pemu, used *wsr-mꜣt-rꜥ stp-n-rꜥ* as their throne name (Beckerath 1999: 186–191), apparently following the example set by Ramesses II. Considering the chronological context in which the plaque was found, this interpretation seems to be the most plausible.

Iron blade. Leaf-shaped iron blade [Fig. 11:S62] flat, without mid-rib; tang oval in section. Inv. no. S62. Dimensions: length 11.2 cm, width 2.1 cm, thickness 0.6 cm. The tip of the blade and part of the tang are broken off. Found in a stratum dated to the Twenty-second Dynasty.

Considering that iron did not start to play a dominant role in the production of tools, weapons and objects of daily use until the reign of the Ptolemies and that the first evidence of iron smelting in Egypt comes from the Greek colony at Naukratis where it has been dated, with some reserve, to the 6th century BC (Waldbaum 1978: 22, 36, reviewing the early history of iron in Egypt), there can be no doubt that the blade from Tell el-Retaba was imported. Its shape finds some close parallels in material known from Israel. In the typology of weapons of the Israelite monarchy (Emery 1999) our blade falls into the “light spearhead” category, that is, a weapon used either for thrusting or throwing (contrary to the “heavy spearhead” which was used only for thrusting). Less probably, it was a very large arrowhead and even less probably, a double-edged knife. Similar spearheads were found in Tell Far’ah South (10th century BC, see Petrie 1930: Pl. 50:598), Ashdod (10th–8th century BC, see Dothan, Porath 1982: Pl. 15:12), Lachish (8th century BC, see Tufnell 1953: Pl. 39:4), Megiddo (8th–7th century BC, see Lamon, Shipton 1939: Pls 80:24, 80:32) and Tell Sa’idiyeh (8th–7th century

BC, see Prichard 1985: Figs 172–175). Consequently, it seems probable that our iron spearhead was produced in Palestine.

Scarab. Made of white steatite with no traces of glazing [Fig. 11:S61]. Inv. no. S61. The back of the scarab is decorated with double girdle lines; three vertical lines are incised on the *elytra*; vertical lines are also incised on the head and the *chlypeus*; the legs are not marked. The body is pierced along the axis. The base of the scarab is decorated with an incised image of a king kneeling on one knee. A uraeus is marked clearly on his forehead. His arms are bent at the elbows and his hands, both holding flails, are placed on the chest. The object on the king’s left hand resembles a cobra. A single line acts as a frame around the representation (see also Gromadzka, Rzepka 2011).

The scarab was found in a stratum dated to the Twenty-first–Twenty-second Dynasty. The modeling of the scarab suggests a much earlier date, in the Nineteenth–Twentieth Dynasty (Rowe 1936: Pls XXXII–XXXIII; Wiese 1990: 92); the nearest parallels to the decoration on the base come from the Ramesside period (Newberry 1907: 119, Pl. VII [CG 36472]; see also Keel, Schroer 1985: 340, Pls 6–8). The decoration has one rather unusual feature: the two flails held by the king instead of the regular crook and flail.

Terracotta figurine [Fig. 11:S138]. Inv. no. S138. Height 4.5 cm. The figurine is made of Nile silt, modeled by hand. It was fired quite carelessly, in an oxidizing atmosphere; the upper part is light red, the lower one gray (possibly the figurine was fired together with pottery vessels, having been put inside one of them). The features of the face are reduced to a beak nose. Modeling of the body is very schematic: hands, waist, hips and buttocks are not

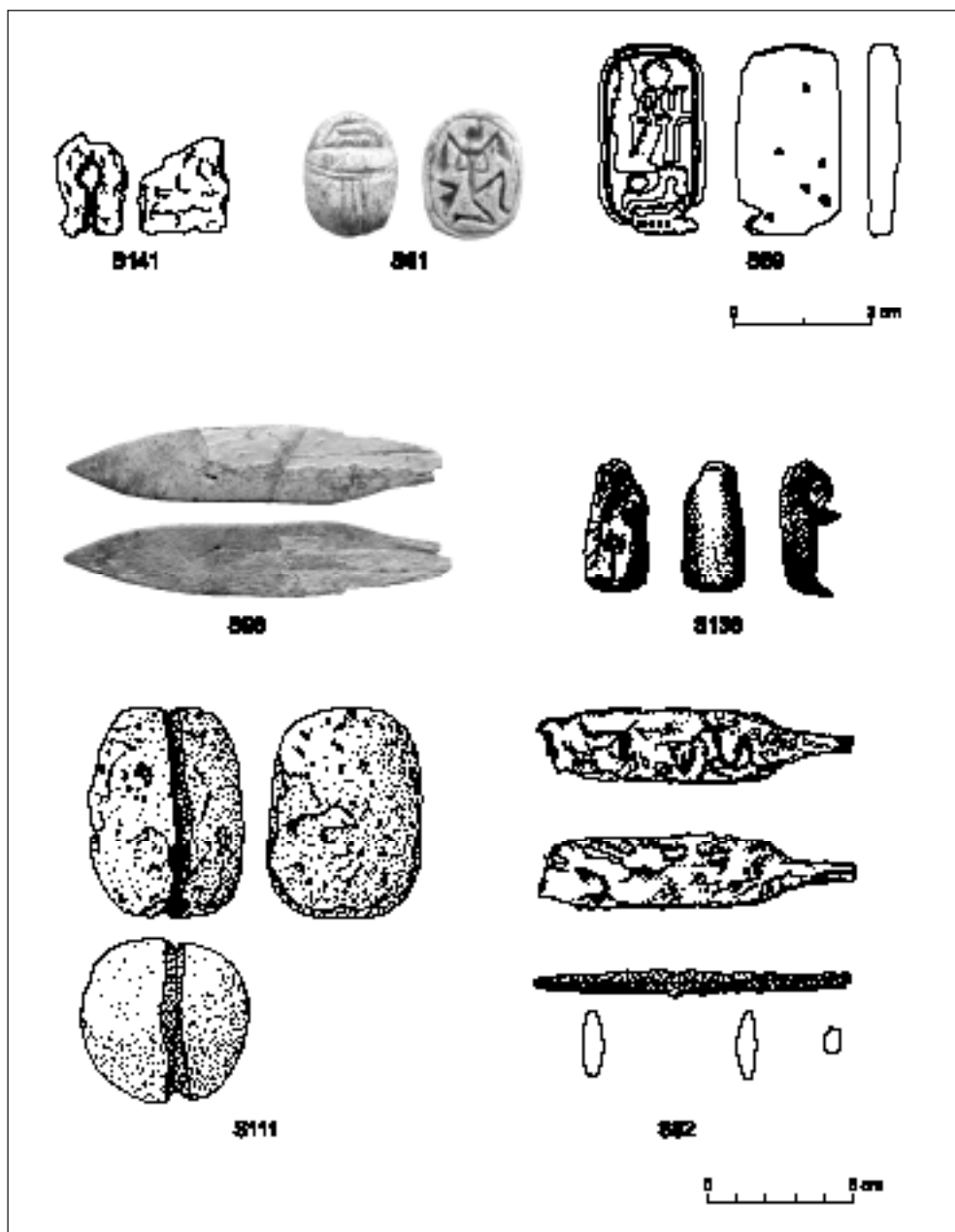


Fig. 11. Selection of finds from Area 2: lead net-sinker (S141), scarab (S61), faience cartouche-plaque (S59), bone spatula (S98), terracotta figurine (S138), limestone loom weight (S111), iron blade (S62) (Drawing S. Gromadzka, Ł. Jarmużek; photo S. Rzepka)

marked. The most distinctive feature is just one conical breast, the left; the other one never existed. The legs are separated by a vertical groove and the toes are marked in rudimentary fashion with short engraved lines. The feet are very small and the figurine could not stand unsupported. The pubic hairs are marked by incised dots arranged in a circle. All these details were made with a sharply pointed tool. No traces of paint are visible. Found in a stratum dated provisionally based on pottery evidence to the Twenty-second Dynasty.

Small figurines showing nude females are usually called “fertility figurines” (Pinch 1993). This interpretation was recently modified and nuanced by E. Waraksa (2007; 2008), who emphasized the magical function of the figurines rather than their link with fertility (preferring also “female figurines” as a more neutral designation). The figurines should have played some role in magic healing rituals and they are mentioned in this role in magical papyri. This interpretation is especially tempting in the case of our figurine because of the missing right breast. Perhaps it was used during some kind of healing ritual for a disease which affected a woman’s breast (see also Jarmużek, Rzepka 2010).

Bone spatulas³. Inv. nos S97, S98 [Fig. 11:S98], S178. Dimensions: S97 length 5.1 cm, width 2.6 cm, thickness 0.5 cm; S98 length 12.8 cm, width 2.7 cm, thickness 0.3 cm; S178 length 2.7 cm, width 1.3 cm, thickness 0.3 cm. The relatively well preserved S98 has a relatively long and

narrow “blade”, pointed at one end (the other end is broken off). This implement was apparently made of an animal rib, of which one surface and the bone matrix was removed. The remaining part was naturally smooth on one side and porous on the other. The porous side was smoothed, but the textural remains of the bone matrix are still visible. The “blade” is not flat, but naturally curved like the rib it was made of.

Spatulas of this kind are known from various periods (from the Neolithic through Roman times) and from various regions in the Mediterranean (Ariel *et alii* 1990: 127–134). They were well known in Egypt during the New Kingdom.⁴ Their function remains controversial and it is also doubtful that they were always used for the same purpose in all the periods and places where they have been found. Various authors have interpreted them as knives for cutting, forks for eating, tools for grinding drugs to powder, for hairdressing, incising designs on pottery before firing, leatherwork, net-making and weaving, and as styli for writing.⁵ The latter is surely not true of spatulas found in Egypt; other interpretations are more or less probable, but can be neither proved nor disproved. Interestingly, the spatulas from Tell el-Retaba were found in a house where weaving and netting have been evidenced (see below for loom weights and lead net-sinker).

Loom weights of limestone. Inventory nos S111 [Fig. 11:S111], S112, S113, S115, S116. Dimensions: S111 length 7 cm, width 5.5 cm, thickness 5.2 cm; S112

³ More on these and other bone implements from Tell el-Retaba in K. Braulińska in preparation.

⁴ “Bone knife” from Amarna, now in the Liverpool Museum, 56.21.911, cf. <http://www.globalegyptianmuseum.org/record.aspx?id=4072>; Petrie found such objects (which he called “netters”) in Gurob and commented that “such netters abound in sites of the 18th and 19th dynasty”, see Petrie 1917: 53.

⁵ For a list of theories with bibliographical references, see Ariel *et alii* 1990: 129.

length 6.4 cm, width 4.8 cm, thickness 3.2 cm; S113 length 7.5 cm, width 6 cm, thickness 3.9 cm; S 115 length 6.6 cm, width 5 cm, thickness 2.9 cm; S116 length 8.5 cm, width 5 cm, thickness 3.2 cm. All the weights have an ovoid, elongated, slightly flattened shape. A small incised groove for fixing a thread runs around the circumference on the long axis.

All the weights were found on the floor of room 1. They are quite uniform in size and shape, and clearly form part of a loom set. Single loom weights, similar in material and shape, were also found in other contexts (S163, S166, S199) and by Petrie (Petrie,

Duncan 1906: Pl. XXXVIC, 44, 45, 46.). The objects have also been interpreted as net-sinkers (Jarmużek 2010).

Net-sinker of lead [Fig. 11:S141]. Inv. no. S141. Dimensions: length 1.6 cm, width 1.4 cm, thickness 0.9 cm. A strip of lead sheet folded in two. Heavily corroded. Possibly attached to a fishing net and used as a sinker. Petrie found similar objects in Tell el-Retaba, identifying them as net-sinkers (Petrie, Duncan 1906: 33, Pl. XXXVB), but giving no details of the context, and making no attempt to date them.

[SR]

GEOPHYSICAL SURVEY

Following geophysical prospection in 2007 using dipole electromagnetic profiling (DEMP) for horizontal mapping of structures and electrical resistance tomography (ERT) for vertical imaging (Rzepka *et alii* 2009: 248–249), the site of Tell el-Retaba was surveyed with the magnetic method.

The magnetic method has already been proved the most effective in mapping mud-brick architecture (Herbich 2003). The geological conditions of the site favored its application in Tell el-Retaba. The underlying layers here consist of sand and gravel, both characterized by low magnetic susceptibility (usually less than $0.3 \times 10^{-3} \text{SI}$); the same material is the main constituent of layers filling and covering mud-brick structures. Mud-brick is on the other hand a material with considerable magnetic susceptibility (approximately $2 \times 10^{-3} \text{SI}$). In view of this substantial difference between the magnetic properties of the material used for construction and

the surrounding deposits, the magnetic method promised to give good results, even in the face of the considerable destruction of the site by numerous archaeological and civil building excavations, not to mention *sebakhin* digging, which lowered the clarity of the magnetic images.

Fluxgate-type gradiometers by Geoscan Research, model FM 256 of 0.1 nT resolution, were used for the purpose. The measurement grid applied was 20 m x 20 m, with points every 0.25 m along traverses set 0.50 m apart. The measurement density of this grid (8 measurements per square meter) guaranteed the recording of even small-size structures (e.g. walls that were no more than 0.20 m wide). The measurements were carried out in parallel mode (the equipment was moved along the measuring lines in one direction only); sensors were adjusted at the reference point after completing each grid.

The grid used was intentionally shifted with respect to the geodetic grid, the purpose being explicitly to carry out the

survey along lines that would cut across the known orientation of ancient structures on the site (established in Petrie's excavations) at an angle of approximately 45 degrees. The traverses followed a SW-NE orientation.

Two areas, marked A and B, covering a total of 4.28 ha, were surveyed: area A covering 24,000 m² in the western part of the site, and area B covering 18,800 m² in the eastern part [Fig. 12]. The ground between these two areas corresponded to a depression created by the laying of a water pipe and to the part of the site cleared during earlier archaeological excavations.

The course of the northern and eastern section of the wall enclosing the settlement was mapped precisely. On the magnetic map this wall appears as an anomaly characterized by fairly uniform intensity of the magnetic field, from 10 to 12 m wide, stretching between squares F1 and P14 (northern section) and squares P15 and M17 (eastern section).

The magnetic results appear to disprove Petrie's idea about only one wall running around the settlement on the east (marked as "wall 2") [see Fig. 1]. The presence of a second wall parallel to the first one is suggested by a less than distinct anomaly approximately 10 m wide, noted between the southern corner of square R15 and the northern corner of N17. The evident gap in the anomaly (in the northern part of O16) could correspond to a gate, but it could equally well reflect a trench by some early excavator, cutting across the wall at right angles (there is a depression in the ground at this point). Nothing on the magnetic map as much as hints at the presence of another, outer wall on the north side of the site.

The survey mapped a number of structures enclosed within the walls.

In Area A, the clearest image is that of a structure corresponding approximately to the southwestern corner of the temple excavated by Petrie (the southern fragment of a feature oriented E-W can be seen on the surface). Sets of linear anomalies arranged rectilinearly with an amplitude of changes typical of mud-brick architecture at a shallow depth were observed in squares C7-D7, C4, F4, G7-G8. Five rectangular anomalies in the northern corner of G4 and the western corner of H4, arranged in two rows and forming a rectangle measuring 10 m x 8 m, correspond to ash-filled interiors of a building. On this spot the ground is slightly elevated and the soil inside the purported rooms has ashes clearly mixed in.

Area A also features a number of anomalies with lowered magnetic field intensity compared to the surroundings. Sets of linear anomalies in F8 and at the joining of G7 and G8 could be a reflection of walls raised of bricks with considerable amounts of sand temper in the clay. Anomalies of an oblong shape correspond to features of a larger size: an anomaly approximately 4 m wide and 50 m long, observed between the southern corner of C3 and the northeastern edge of D5, could reflect a street running from east to west. This interpretation is supported by the nature of the structures on the northern and southern side: anomalies which are clearly the image of walls would correspond to the street edge. In the case of a similar anomaly (same width, 35 m long) recorded between B4 and A5, running along an N-S line, the magnetic prospection registered no traces of any features parallel to its edges. In all likelihood, this anomaly should be interpreted as a trench; on a plan published by Naville, it corresponds with

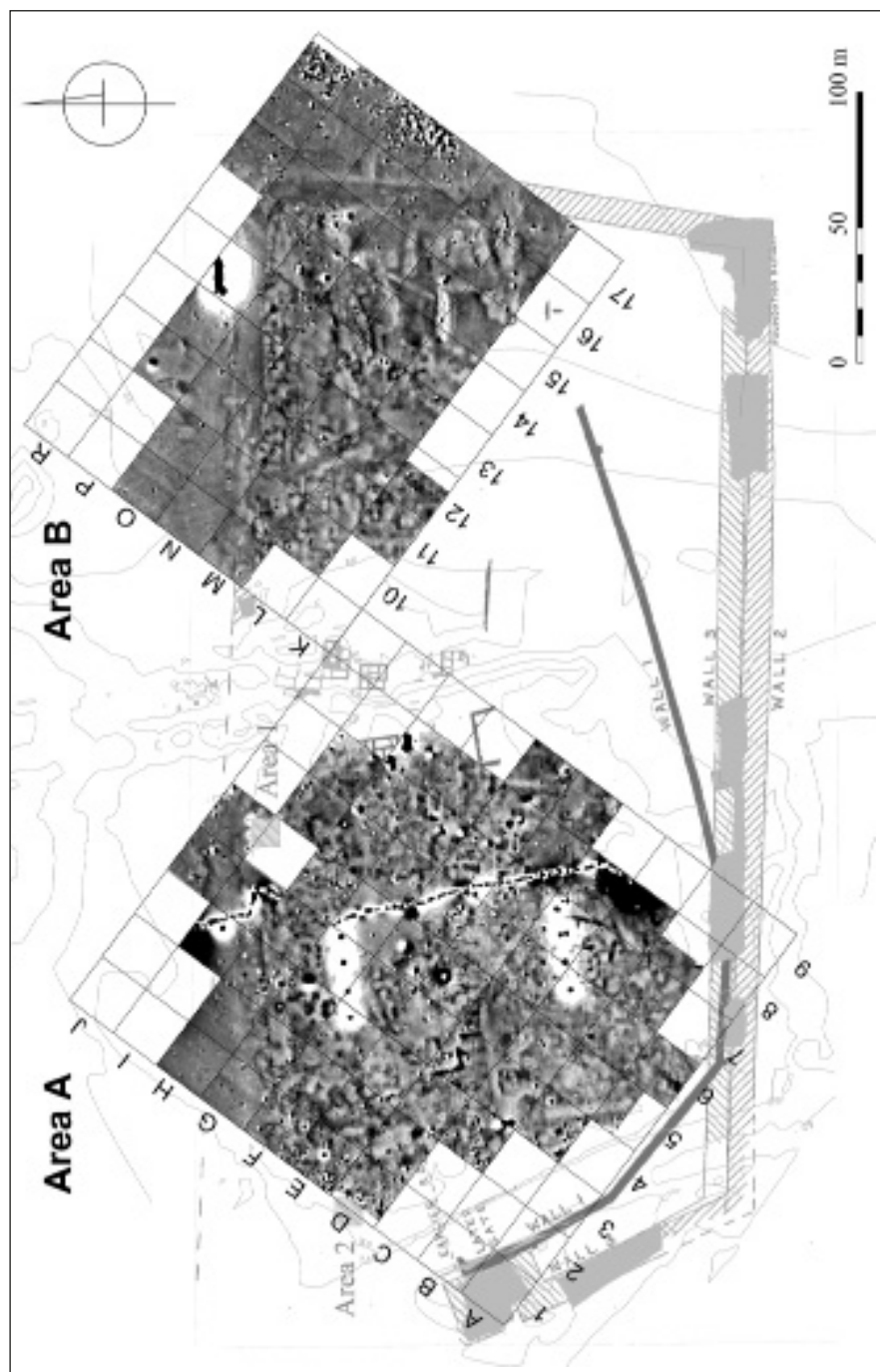


Fig. 12. Magnetic map superimposed on the archaeological map of the site. Fluxgate Geoscan Research FM256 gradiometers. Sampling grid 0.25 m by 0.50 m, interpolated to 0.25 m by 0.25 m. Low pass filter: Dynamics -4.2 nT (white)/ $+6.4 \text{ nT}$ (black). Grid lines every 20 m (Processing T. Herbich)

his excavation trench of practically the same size and orientation (Naville 1887: Pl. 11).

In Area B, anomalies typical of mud-brick structures occupy a strip of land measured at 20 m wide, adjoining the northern section of the defense wall

(between the northern part of M11 and O13). Structures can be seen also in a strip, which is up to 40 m wide, along the western border of the area and near the northeastern corner of the site, in square N14 and its nearest neighborhood.

[TH]

CONCLUSIONS

The 2008 season of fieldwork by the Polish–Slovak Archaeological Mission in Tell el-Retaba has contributed significant new information about the site. The position of the northern defense wall of the Ramesside fortress was traced with the use of geophysical methods; a fragment of this wall was also excavated. Two gates were located by geophysical methods,

one in the northern and the other in the eastern defense wall. Remains of residential structures dating to the Third Intermediate Period were excavated. Other remains, observed on the surface and traced with geophysical methods, prove that Petrie was wrong in assuming that most of the area inside the fortress had been left empty.

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