

# AN INDUSTRIAL SITE AT AL-SHAYKH SAʿĪD/WĀDĪ ZABAYDA

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## 1.1 INTRODUCTION

Since 2002 Leuven University has been conducting archaeological fieldwork at Dayr al-Barshā.<sup>1</sup> The principal research aim is to understand the spatial organisation of the cemeteries at the site, which date mainly to the Old Kingdom, the First Intermediate Period, and the Middle Kingdom. In this way we hope to gain a clearer understanding of the social stratification of the community buried there, at least insofar as this reflects itself in burial practices.

An important segment of the population buried at Dayr al-Barshā originated from the nearby provincial capital at al-Ashmūnayn/Hermopolis; at least that city is repeatedly referred to in tomb inscriptions. However, it is often assumed that some inhabitants of this town were buried, not at Dayr al-Barshā, but at al-Shaykh Saʿīd (see Fig. 1), where a large OK elite cemetery exists, as well as a number of others about which hardly any published information exists. It seemed therefore that the inhabitants of al-Ashmūnayn had a choice between two burial sites. In order to facilitate comparison of the use life of the two cemeteries, a surface survey was carried out in al-Shaykh Saʿīd during the 2007 season.

The various burial grounds there are indicated in Pl. I. Apart from the OK rock tombs for which the site is renowned (A),<sup>2</sup> a series of small cemeteries at the mouth of the Wādī Gamūs (B), a small

one behind the rock knoll separating A from the Wādī Zabayda (C), and the large, but thoroughly rifled cemetery inside this wadi itself (D), was visited, as well as the area of the wall (E) at the foot of the hills where cemetery A is located.<sup>3</sup>

During a walk from the latter area to cemetery D, we crossed a low hill at the northern edge of the mouth of the Wādī Zabayda, where a peculiar object of red granite caught our attention. It was rounded on both sides, and showed horizontal striations around its circumference (Fig. 2). A cursory inspection soon revealed that the entire hill was littered with these stone artefacts, which are certainly drills<sup>4</sup> for hollowing out stone vessels. Also, numerous pottery shards were found, as well as a finely carved limestone relief fragment in Amarna style, showing the upper legs and hips of a woman wearing a long, transparent dress (Pl. IVE). Although we did not realize this at first, similar observations had already been made before. In his account of the al-Shaykh Saʿīd tombs, N. de G. Davies remarks:

“On the last slopes of the hills towards the mouth of the wady, a pile of stone *débris*, drill cores and grinders, marks the site of a small settlement of workers in stone and alabaster. As the wady leads to the alabaster quarries of Het-nub, the presence of these relics is not surprising.”<sup>5</sup>

Although it had apparently escaped Davies’ notice that the Hatnub quarries had been discov-

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<sup>1</sup> Transcriptions of Arabic toponyms follow the *International Journal of Middle East Studies* except where a well established English rendering exists (like Giza).

<sup>2</sup> N. DE G. DAVIES, *The Rock Tombs of Sheikh Saïd*, ASE 10, London, 1901.

<sup>3</sup> For the wall, see already B.J. KEMP, in: J. FAIERS, *Late Roman Pottery at Amarna and Related Studies*, EES Memoir 72, London, 2005, 37–38. Our survey determined that the masonry contains Late Roman ceramics.

<sup>4</sup> The difference between a borer and a drill is that a borer is propelled by hand and a drill mechanically. Although as yet we have no clear idea of how the stone objects were used, it seems likely that the more or less parallel striations are the result of a mechanically driven instrument. We therefore opt for the term ‘drill’.

<sup>5</sup> DAVIES, *Sheikh Saïd*, 5; cf. IDEM, *The Tomb of Rekh-mi-Re’ at Thebes I*, New York, 1943, 49. Stone vase drills from the site are also referred to by W.C. HAYES, *The Scepter of Egypt II*, New York, 1959, 216.

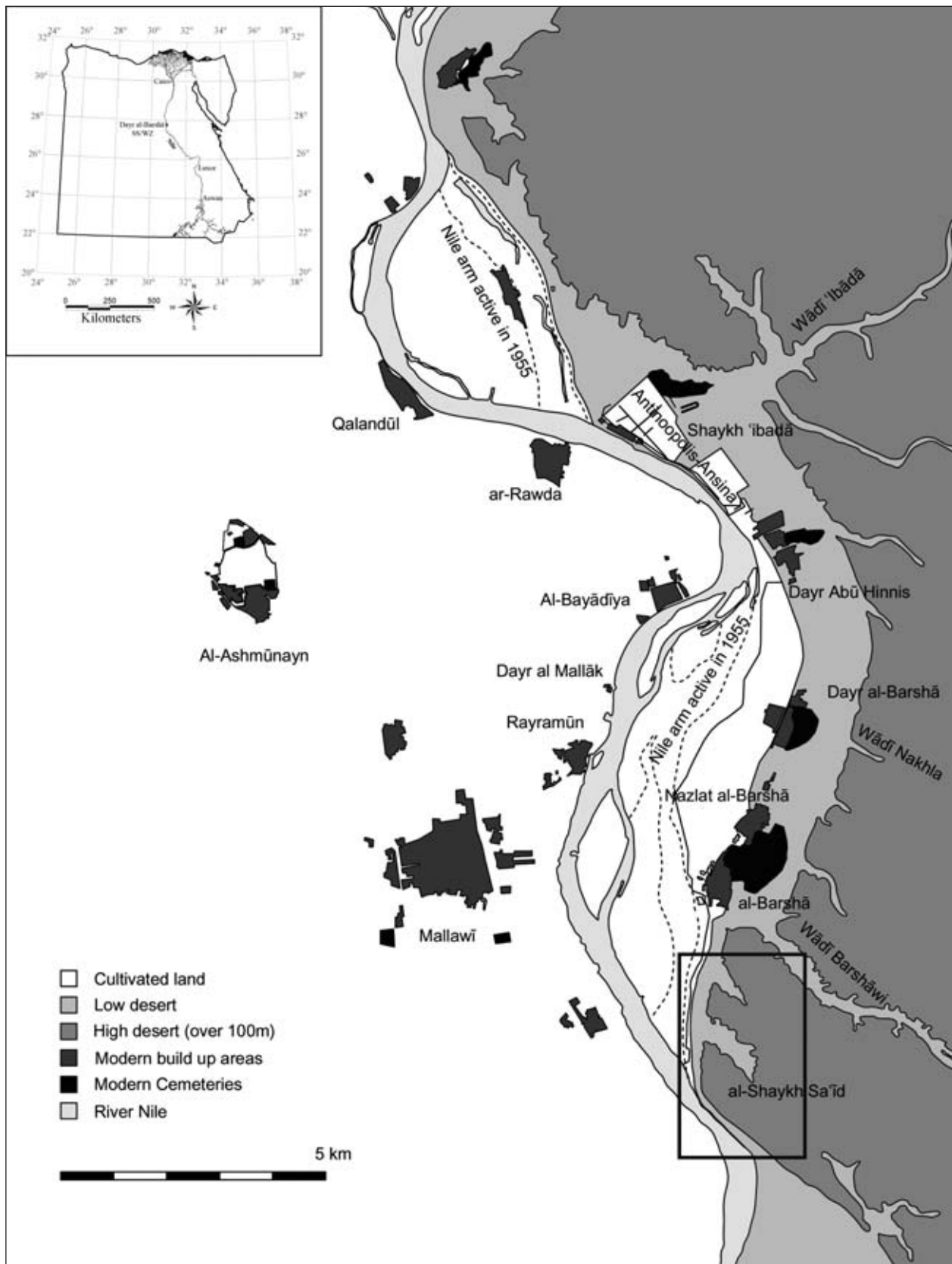


Fig. 1 Plan of the region of al-Ashmūnayn, Dayr al-Barshā, and al-Shaykh Sa'īd (plan Chr. Peeters).  
 The area covered by the frame near al-Shaykh Sa'īd is rendered at a larger scale in Pl. I

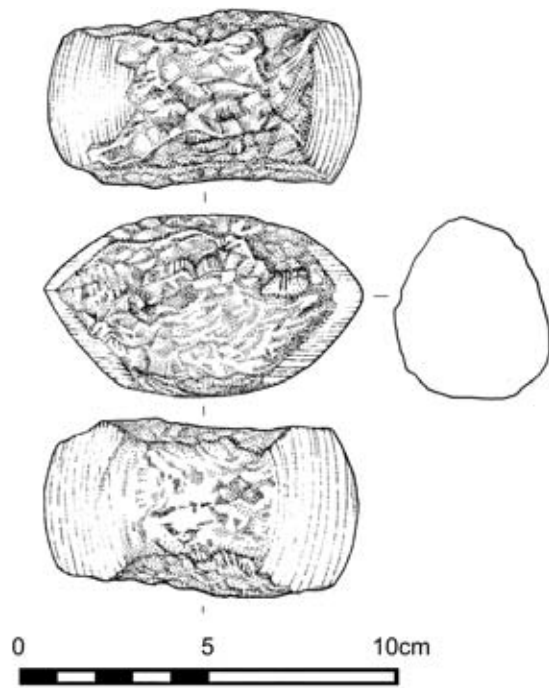


Fig. 2 Pink granite vase drill with traces of use on two sides (Z1/10). Drawing Ann Van den Broeck

ered by Newberry at an entirely different location some 15 km SE of al-Amarna,<sup>6</sup> the rest of his account is basically correct, as will be seen below.

As stated before, the site is situated at the north slope of the mouth of the Wādī Zabayda. It lies about 300 metres N of the ruined shrine of Shaykha Zabayda, which is itself located on the opposite, southern flank of the wadi. The area in between is a flat desert surface, of which the western end disappears under the cultivation at the

edge of the floodplain. Immediately to the west the site is bounded by an irrigation canal running south-north. To the north there is another, rather small wadi, which runs east (see Pl. II–III A). In this article the site will be designated as al-Shaykh Saʿīd/Wādī Zabayda (or SS/WZ), as it is located at the point where the wadi reaches the Nile Valley in the archaeological region of al-Shaykh Saʿīd.<sup>7</sup>

The site has hardly ever been mentioned in the literature, but D. Kessler did discuss a number of archaeological features in the region.<sup>8</sup> Like Davies, he refers to a quarry (the Maghāra Abū ʿAzīz) at the eastern end of the Wādī Zabayda, adding to this a few remains S of the wadi mouth and inside it. He mentions:

1. a (probably XVIII<sup>th</sup> dynasty) cemetery of uncertain location mentioned by A. Kamal;
2. a NK cemetery S of the wadi mouth, which is perhaps identical with 1;
3. a large cemetery about 1 km into the wadi, located on its southern side (this is cemetery D referred to above [see Pl. I]);
4. a post-NK cemetery in the hills SE of the OK elite tombs published by Davies (our cemetery C [see Pl. I]).

These loci have produced a number of finds, although it is in most cases unclear from where they derive exactly. Kessler mainly discusses items of XVIII<sup>th</sup> and XIX<sup>th</sup> dynasty date, which, perhaps not insignificantly, include ‘alabaster’<sup>9</sup> shabtis. The names on some published stelae suggest their owners were foreigners, according to Kessler “nach Mittelägypten abkommandierte Soldaten”.

<sup>6</sup> See F.L.L. GRIFFITH, P.E. NEWBERRY, *El Bersheh II*, London, 1894, 2; 47–54. The quarries referred to by DAVIES had already been mentioned before by W.M.F. PETRIE (*Tell el Amarna*, London, 1894, 4, quarry G).

<sup>7</sup> The toponym al-Shaykh Saʿīd is an egyptological invention, as no settlement of the name exists. Egyptologists use it to designate the late OK elite tomb group A, which is, however, locally known as the tombs of al-Barshā, after the village located some 2 km further north. To add to the confusion, most Egyptologists incorrectly use the latter name for Dayr al-Barshā. The name al-Shaykh Saʿīd was chosen by Davies because of the presence of a (now ruined) shaykh’s tomb of that name more than a kilometre south of tomb group A.

<sup>8</sup> D. KESSLER, *Historische Topographie der Region zwischen Mallawi und Samalut*, Wiesbaden, 1981, 104–106.

<sup>9</sup> Some scholars prefer the term ‘travertine’ instead of ‘alabaster’ (J.A. HARRELL, *Misuse of the Term “Alabaster”*

in *Egyptology*, *GM* 119 (1990), 37–42; B. ASTON, J. HARRELL, I. SHAW, *Stone*, in: P.T. NICHOLSON, I. SHAW (ed.), *Ancient Egyptian Materials and Technology*, Cambridge, 2000, 21–22 (in the following *AEMT*), arguing that the term ‘calcite’ is a mineralogical, not a petrological term. This has been criticised by R. KLEMM, D. KLEMM (*Calcit-Alabaster oder Travertin? Bemerkungen zu Sinn und Unsinn petrographischer Bezeichnungen in der Ägyptologie*, *GM* 122 (1991), 61–69), who propose the term ‘calcite alabaster’. The term ‘alabaster’ is at any rate scientifically confusing as it can refer both to gypsum or calcite. Our samples could not be scratched with a fingernail (hardness 2.2 on Mohs’ scale), ruling out that the material is gypsum (hardness 2). The hardness of the stone in al-Shaykh Saʿīd corresponds with that of calcite (Mohs 3). P. Degryse determined that the quarries in the Wādī Zabayda only produced limestone and calcite, no gypsum. We will therefore speak of ‘calcite alabaster’.

A royal stela found in the same region designates Ramses II as an “opener of stone quarries”. Kessler associates this information with a mention in the Onomasticon of Amenemope 376 of the settlement *Pr-šs*, ‘the House of Alabaster’, which should lie south of al-Ashmūnayn. This he relates to information based on earlier publications and personal observation that a settlement might have existed S of the wadi mouth.

He further speculates on the analogy of other sites in Middle Egypt that a pharaonic settlement may have existed on the fan of wadi deposit W of Wādī Zabayda.<sup>10</sup> This point is not unproblematic, for no such fan now exists. Rather, there is a depression here: the cultivated area already discussed (see Pl. II–IIIA). The field owners, who work land that has been held by their family for many generations, told that the agricultural field is old, and definitely not the result of recent irrigation projects. According to them their ancestors built a dam to prevent Nile floods from reaching the area, a measure that only makes sense if this occasionally happened. The depression is thus unlikely to be the result of recent agricultural interventions. We will see below that the absence of the – indeed expected – wadi fan may be highly significant for understanding the archaeological context.

It should be added that a field walk undertaken in March 2008 produced no trace of the second of the four cemeteries referred to by Kessler, nor of the settlement S of the wadi. Immediately S of the cultivated area, there is still evidence of stone working, but further S archaeological surface remains cease almost, except near the shrine of Shaykha Zabayda, where some tombs (with Coptic graffiti) and quarries exist. The upshot of all this is that archaeological evidence for human activity in the region concentrates around the axis linking the Maghāra Abū ʿAzīz to the wadi mouth, and particularly N of this axis, near site SS/WZ.

This article will discuss the main features of the site. First the results of a survey carried out in 2007 will be presented, giving an overview of the variety of the material culture encountered. The tool assemblage for stone vase production will be outlined, and the chronological distribution determined on the basis of the ceramic assem-

blage. Next, the results of the 2008–2009 excavations will be outlined. After this, the site will be placed in context, relating it to the quarries that must have supplied it with raw material and to the ancient landscape of the wadi mouth area. This will lead to a synthesis of how use of the site evolved over time.

## 2. THE 2007 SURVEY

### 2.1 Strategy

The extent of the site is relatively well defined. Hardly any drills and associated material are found on the floor and on the southern flank of the Wādī Zabayda, and hardly any appear beyond the northern gully (Pl. II, S1–R15), although occasional finds of drills were made as far north as the Coptic wall (E in Pl. I). The find scatter also has a clear eastern demarcation, although this is not marked by any natural barriers. Only few tools and potsherds were found east of the line of measuring points with the digit 13 (see Pl. II).

Despite signs of intensive and prolonged use, no clear surface traces of architecture were observed. In most places only a thin layer of stone chips and artefacts covers the bedrock. Only the far thicker depositions in the S, roughly S of the M-line in Pl. II, may conceal *in situ* remains. Evidence for this was observed only on the southern fringe of the hill, where use of the track into the Wādī Zabayda has carved out a roughly vertical edge displaying a clear stratigraphic sequence (Pl. II, between grid points J6–7). Further E along the J-line, some mud bricks were observed, suggesting the presence of buildings in this area. No other *in situ* anthropogenic remains were noted, except on a rock spur near grid point N7. On this spot, which provides a comfortable seat, some shallow depressions had been hollowed out, which may have served as *zīr* emplacements, or have been used during the production of the vases.

For the survey the site was subdivided in 10 × 10 m squares (Pl. II). The grid fits into the general system used in the Dayr al-Barshā project,<sup>11</sup> within which it occupies the area between 4,750–4,845 m on the N–S axis, and between 7,610–7,740 m on the E–W axis, thus a rectangular stretch of land roughly covering 95 × 130 m (12,350 m<sup>2</sup>). The grid

<sup>10</sup> *Op. cit.*, 106–107.

<sup>11</sup> See H. WILLEMS, M. DE MEYER, D. DEPRAETERE, CH. PEETERS, S. HENDRICKX, T. HERBICH, D. KLEMM, R. KLEMM,

L. OP DE BEECK, M. DEPAUW, Preliminary Report of the 2002 Campaign of the Belgian Mission to Deir al-Barsha, *MDAIK* 60 (2004), 248–250.

points of the survey are designated by a combination of capital letters (used to indicate positions on the N–S axis) and numbers (used to indicate the E–W position). In Pl. II the grid points have been plotted on the topographic plan of the site.

On 13–15 March 2007, surface material was collected. The sampling strategy aimed at collecting material in a way that would permit a statistical analysis of possible distribution patterns of the various kinds of objects across the site. To this end, all surface material was collected that occurred within a circle with a 1 m radius centred on pins placed on the grid points (dogleash method). The material was collected in bags marked with the code of the pertinent grid point (e.g. M8). All surface material on a total surface of 390 m<sup>2</sup> (or 3.14 %) was gathered. Interesting material was also picked up between the grid points (e.g. tool types not sampled by means of the dogleash method). Since only selected objects were picked up here, no statistical relevance can be attributed to the latter find collection. These finds were collected in bags that received a different code: the designation of the SW grid point followed by the word 'square' (e.g. 'M8Sq').

H.W.

## 2.2 The Ceramic Assemblage<sup>12</sup>

2376 potsherds were collected around the 124 measuring points, but of these, only 116 were diagnostic, i.e. on average less than one diagnostic sherd was collected per grid point. A statistically more relevant result could have been attained if potsherds would have been gathered over larger surfaces around the grid points, but when the survey was carried out it was expected that the amount of sherds was so large that this would be unnecessary. Also this would have put the capacities of the pottery team under strain. The situation being as it is, the statistics are based on far fewer sherds than anticipated, and the results should be interpreted with caution. Nevertheless, some conclusions are clear.

Visual inspection on the spot confirms at a glance that sherd density increases sharply as one descends the slope. The density is greatest in the wadis north and south of the hill, and particular-

ly on the S slope. This must be due mainly to material being washed down.

The oldest ceramic material dates to the OK. It is hardly encountered across most of the site, but some sherds of this date were picked up in the northwestern area, in squares P3, R2, R3, S3, and Q5, and at other isolated spots. The southern concentration at grid points L5 and J7, and within squares J5–6, J8, K5–6, and L5 is more important. The sherds here were conspicuous by their size and good preservation. They include fragments of bread moulds and Maidūm bowls. The 2008–2009 excavations allow a better insight in the material (see 3.2).

Some of the pottery dates to the XVIII<sup>th</sup> dynasty. A few blue-painted ceramic sherds can be attributed to the Amarna period. Considering that the northernmost habitations of Amarna (including the North Riverside Palace) are only 2 km away, it would in fact be astonishing if no ceramics of that era would occur here at all. The relief fragment in Amarna style (Pl. IVE) points in the same direction. The amount of pottery from this period is however limited.

The diagnostic surface material is overwhelmingly (80 %) of late NK and Third Intermediate Period date. Such sherds are spread all over the site. Moreover, non-diagnostics made of fabrics in current use in the late NK and TIP dominate the picture in the higher ranges of the hill, suggesting that the entire site was occupied then. The pottery assemblage consists for the most part of large storage jars. Most of the vessels are covered with a thick cream slip which has been burnished to make the vessels less porous, allowing them to store liquids.

XXV<sup>th</sup> dynasty sherds are sparsely attested. Interestingly they include a few sherds of kegs made in an oasis fabric.<sup>13</sup> Finally there is Ptolemaic, Roman and Byzantine pottery, but this is fairly exceptional. FIP and MK ceramics are conspicuous by their complete absence.

S.V., S.H., J.B., P.F., Z.K.

## 2.3 The Tool Assemblage for Vase Production

The stone material collected at the survey consists of more than 1000 artefacts. Many (about 40% of

<sup>12</sup> The ceramics collected during the survey was analyzed in 2007 by S. Vereecken; in 2008 all the material was studied by J. Bourriau, P. French, S. Hendrickx, and Z. De Kooning (Z. DE KOONING, *The Ceramological Corpus of*

*the Surface Survey Carried out in al-Shaykh Sa'īd South in 2007* [MA thesis Leuven 2008]).

<sup>13</sup> C. HOPE, *Kegs and Flasks from the Dakhleh Oasis*, *CCÉ* 6 (2001), 189.

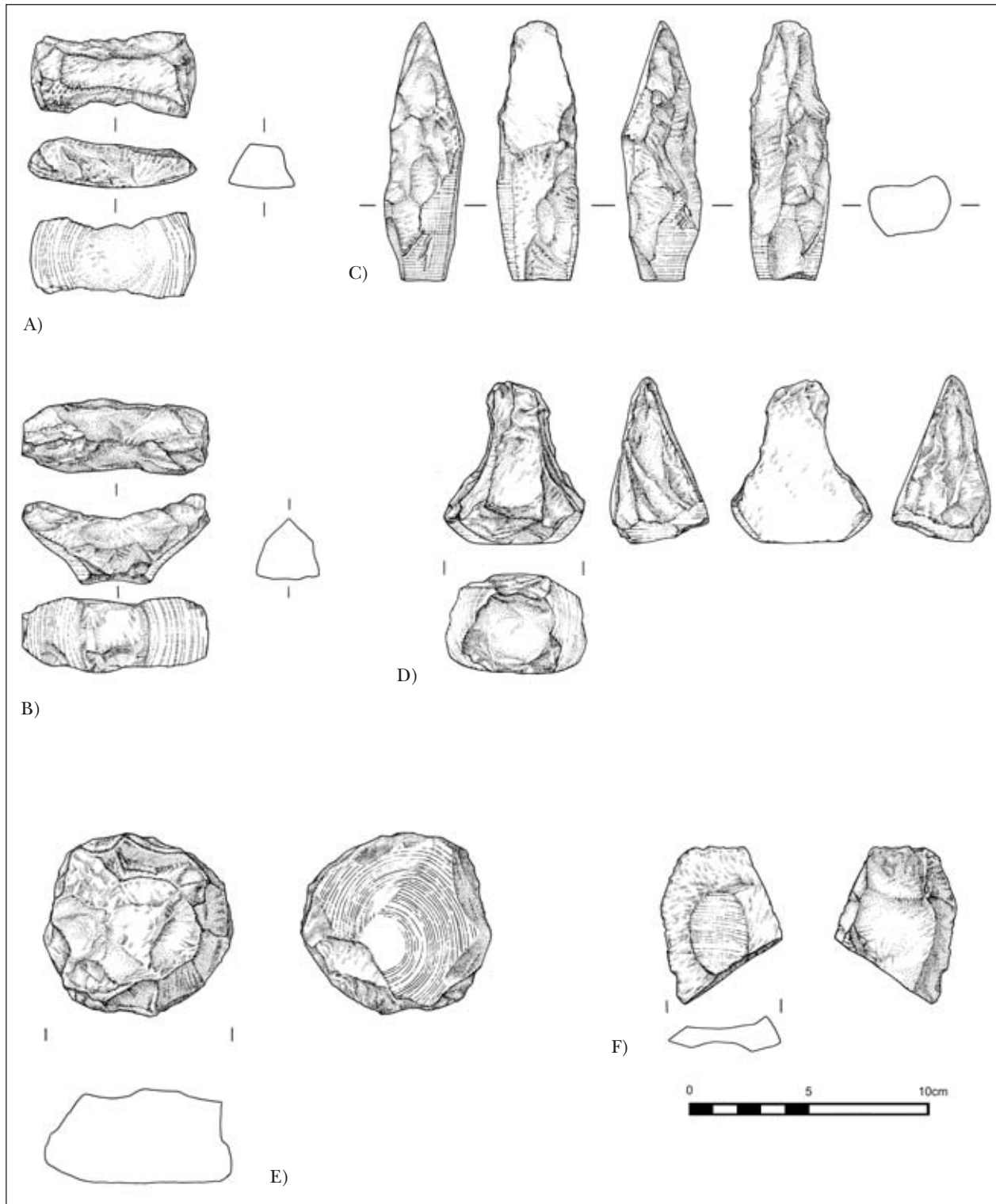


Fig. 3 Drill types collected during the survey. Drawings by A. Van den Broeck



the total amount) show striations due to wear. These tools were most likely used as drills to hollow out calcite alabaster vessels. Fragments of such vessels in all forms and stages of manufacture were in fact scattered about in the same area. Based on

the amount of material a workshop for alabaster vases must have been established here. Vase production clearly took place all over the hill.

The material is still under analysis, but we are already able to provide a preliminary overview of

its variety. The vast majority of the stone drills are made of (probably locally gathered) silicified limestone. Different forms of drills can be recognized (Fig. 3).

1. One form resembles what Petrie designated as the 'hour-glass borer' and what Davies compared to a 'figure-of-eight shield'<sup>14</sup> (Fig. 3A). These drills are horizontally oblong with an almost flat underside and a more or less flat top side. All other sides have been knapped like flint. Both the long sides show a slight concavity. The striations are mainly at the underside, where they show a concentric pattern. Occasional striations at the short sides are horizontal. The length of the about 20 drills of this variety varies between 5.2 and 11.6 cm.

These drill heads were placed in a forked wooden steel (see signs  [OK] and  [NK] for 'craft, art').<sup>15</sup> They have been found at several places in Egypt, for instance the predynastic and early dynastic vase production sites at Hierakonpolis and Abydos, the workmen's settlement at Giza, or in the V<sup>th</sup> and VI<sup>th</sup> dynasty levels in the Satet temple at Elephantine.<sup>16</sup>

2. Drills which are horizontally oblong like type 1, but with a concave upper side. No term seems yet to have been coined for this type. We will designate it as the 'boat-shaped drill' (Fig. 3B). The long sides have been knapped. The underside can be round as well as flat. The striations are located on the short sides and sometimes at the underside. On the short sides the striations are horizontal; when seen from below they are concentric. The length of this type of drill varies from 4.2 to 14.7 cm. Sixty-five complete boat-shaped drills were found.

3. Vertically oblong drills. These drills, being longer than wide, were knapped like flint to an axial shape. Lateral striations due to use exist at the proximal part.<sup>17</sup> One side is partly or completely flat. This side has a slanting angle relative to the striations. The drill head can be round as

well as flat in section. This proximal part either has a completely circular profile with continuous striations or only a more or less oblong central part (Fig. 3C) with the striations only occurring at the ends. The flat underside of a drill can have striations, but this is not always the case. If the drill head is round in section it usually also is round in profile. The total amount of complete drills found is about 170, most being made of silicified limestone. Within this category great variety exists. The variability ranges between two extremes:

*a: long and thin* (Fig. 3C)

The length of the drill is at least twice its width. The length of the part with striations vacillates in this group between 1.9 and 8.3 cm, the total length of the drills varying from 7.4 to 12.7 cm. Of the about 60 drills three consist of calcite alabaster instead of silicified limestone.

*b: long and broad*

The proximal part of this drill is broader than its distal part. The drill head can be so broad that the tool assumes an 'anchor-shape' (30 of the 110 artefacts of this group) (Fig. 3D). The width varies between 3.4 cm (with a total length of the drill of 6.8 cm) and 11 cm (with a total length of the drill of 11.3 cm). In general the width (diameter) does not exceed 8 cm. Only 6 out of 110 are broader; one of these belongs to the 'anchor-shaped' variety. Eight drills of the total amount are made of a type of rock different from the local silicified limestone.

4. More or less discoid stones with a flat underside (Fig. 3E). The upper part and the sides of these artefacts (of which about 10 were picked up) have been knapped. Concentric striations are only located on the flat underside. Some of these objects show traces of earlier use in stone vase production, demonstrating that at least this class of objects could be produced by

<sup>14</sup> W.M.F. PETRIE, *Tools and Weapons*, ERA 22, London, 1917, 45, pl. LII (73); DAVIES, *Rekh-mi-re* I, 49; D.A. STOCKS, *Experiments in Egyptian Archaeology. Stoneworking technology in Ancient Egypt*, London, 2003, 142.

<sup>15</sup> A.H. GARDINER, *Egyptian Grammar*, Oxford<sup>3</sup>, 1957, 518–519 (U24–25).

<sup>16</sup> J.E. QUIBELL, F.W. GREEN, *Hierakonpolis II*, ERA 5, London, 1902, 49; pl. LXII; W.M.F. PETRIE, *Abydos I*, EEF

memoir 22, London, 1902, 25–26, pl. LIII; A. TAVARES, *Small Finds, Big Results. Inconspicuous Stones a Key to an Ancient Industry*, *Aeragram* 9.2 (2008), 4–5; G. DREYER, *Elefantine VIII. Der Tempel der Satet*, AVDAIK 39, Mainz am Rhein, 1986, 86–87; pl. 44 (350).

<sup>17</sup> The proximal part is the part closest to the drill head; the part farthest from the drill head is the distal part.

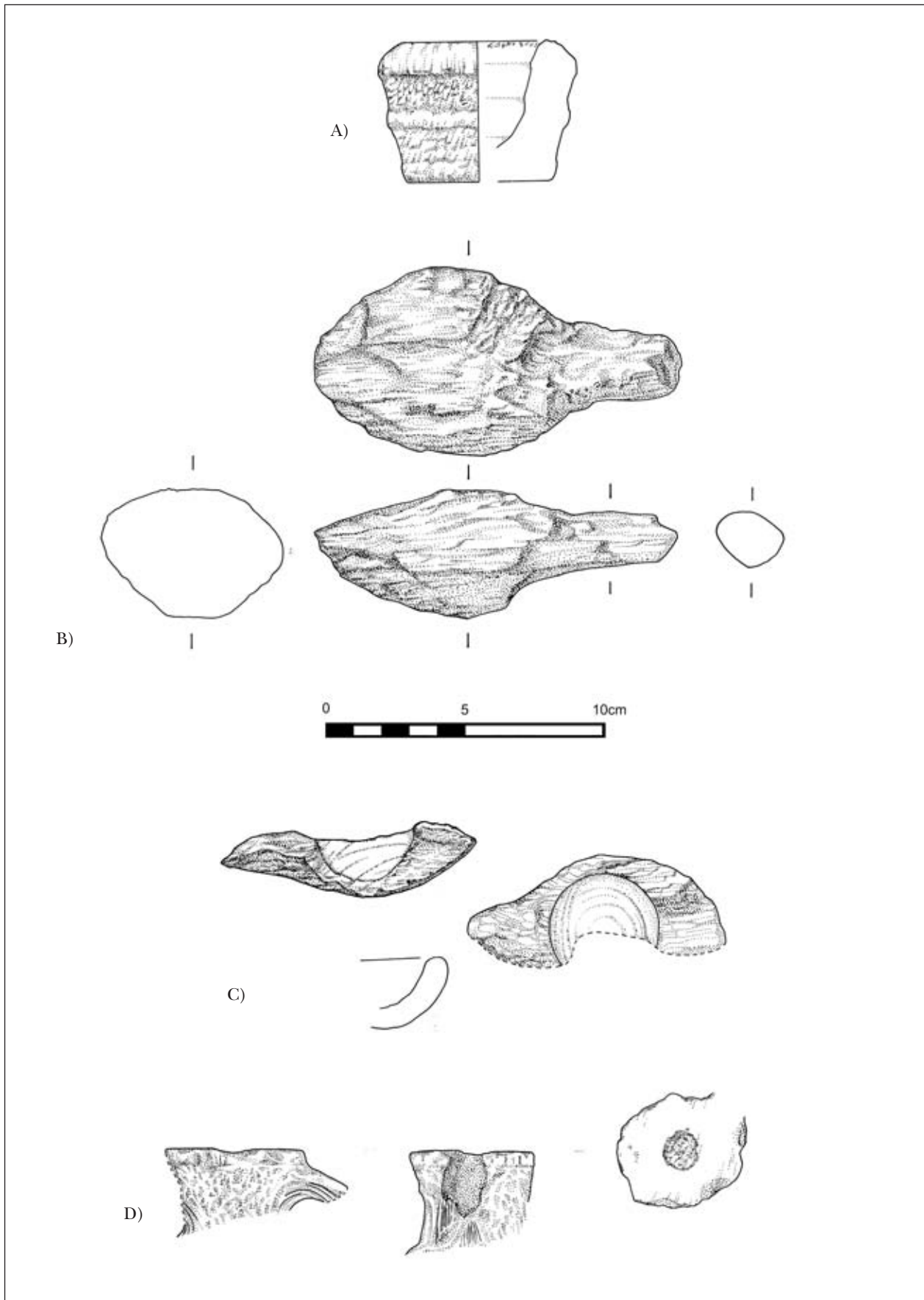


Fig. 4 Examples of unfinished calcite alabaster vessels. Drawings A. Van den Broeck



remodelling old tools. The earlier traces point to a first use as stone drills or as the kind of objects to be discussed next (5). The diameter of the instances found vacillates between 2.6/2.8 cm and 7.3/7.7 cm. Their height varies as well, and does so independently of the diameter. Thus one artefact with a diameter of 4.4 cm has a height of 1.7 cm, while the height of another, with a diameter of 5.5/5.6 cm, is 4.1 cm. Hitherto no parallels for this type of tool seem to be known. The closest analogy we have come across was found at Tall al-Far'īn (Buto), but here the striations continue on the sides. This material dates to the II<sup>nd</sup>–III<sup>rd</sup> dynasties.<sup>18</sup>

5. Stones with shallow hollows (Fig. 3F). In general these tools are more or less flat. The shallow hollows, which are only some millimetres deep, are mostly elliptical, show striations, and vary in size between 2.1 × 1.5 cm and 5.9 × 5.4 cm. Sometimes several overlapping hollows are present on one and the same stone. Only one of the about 45 objects of this type found by us is not made of silicified limestone, but of granite. Stones like these have been found in Tall al-Far'īn (Buto)<sup>19</sup> (II<sup>nd</sup>–III<sup>rd</sup> dynasties) and in the Step Pyramid.<sup>20</sup>

The above listing gives an overview of the main formal categories recognized in the material. However, there are also drills of other forms. An instance is the one rendered in Fig. 2, which was first used on one side and then on the other. It is not yet clear whether or not these objects constitute a separate category.

Most of the recorded drills hitherto known from the literature are the hourglass drills and the crescent-shaped drills. The other drill forms found at site SS/WZ are (almost) completely absent. Until now no site with so many different types of stone drills, in such quantities, was known. In terms of variety, the most closely com-

parable site is Tall al-Far'īn (Buto), where, on a total of only twenty drills, no less than four of the SS/WZ drill categories are attested (an 'hourglass drill', a variety of the discoid drills; a stone with shallow hollows; crescent drills).

#### *Tools made of other kinds of rock*

More than 30 rounded black granite artefacts may have been used as hammers.<sup>21</sup> Also a modest number of silex tools were found. The 'crescent-shaped drills', of which more than 200 were picked up during the survey, constitute the largest group.

The front- and the backsides of these drills have been knapped, part of the cortex occasionally still remaining on one of the sides. Between the two extremities, the top is mostly concave. Tools like these have been found in large quantities for instance in a gypsum vase-maker's workshop in Umm al-Sawwān,<sup>22</sup> and at the Step Pyramid.<sup>23</sup> On the basis of about 2000 pieces, Caton-Thompson and Gardner subdivided the crescent-shaped drills in the following shape categories:<sup>24</sup> a) shield-shape, b) crescents, c) rods and d) dwarf drills.<sup>25</sup> These crescent-shaped drills date to the OK.<sup>26</sup> Most of the tools of this type found in al-Shaykh Sa'īd belong to the crescents (category b). The size of crescent-shaped drills in al-Shaykh Sa'īd varies between 2 × 2 × 0.9 cm and 7.8 × 4.1 × 2 cm, which implies that some are dwarf drills.<sup>27</sup>

#### *Calcite alabaster*

The c. 200 pieces consist of both recognizable parts of vessels and waste. The former group enables one to discern different stages of the production process: from total roughlings to fragments with polished surfaces. Recognizable forms belong to *i.a.* vessels and beakers; small round pots with three ribs<sup>28</sup> (Fig. 4A); 'spoon formed', round bottomed objects;<sup>29</sup> both as roughlings and in more advanced stages of manufacture (Fig. 4B;

<sup>18</sup> K. SCHMIDT, in: T. VON DER WAY, *Tell el-Fara'īn – Buto: 3. Bericht*, *MDAIK* 44 (1988), 302; 304.

<sup>19</sup> K. SCHMIDT, *MDAIK* 44 (1988), 300; 303.

<sup>20</sup> C. FIRTH, J.E. QUIBELL, *The Step Pyramid*, (ERA, 4–5, Le Caire, 1935, I, pl. 28; II, pl. 93 (6).

<sup>21</sup> Cf. D. ARNOLD, *Building in Egypt; Pharaonic Stone Masonry*, New York, Oxford, 1991, 262.

<sup>22</sup> G. CATON-THOMPSON, E.W. GARDNER, *The Desert Fayum*, London, 1934, 105.

<sup>23</sup> FIRTH, QUIBELL, *The Step Pyramid* I, 125/6; II, pl.93 (4). They thought the crescent drills were used to dress wall

blocks down; the crescent drills of this group seem to be somewhat larger than the Umm al-Sawwān ones.

<sup>24</sup> CATON-THOMPSON, GARDNER, *The Desert Fayum*, 124.

<sup>25</sup> Also called 'pygmies' and 'pygmy drills' (CATON-THOMPSON, GARDNER, *Op. cit.*, 115; pl. LXIX [31–41]).

<sup>26</sup> CATON-THOMPSON, GARDNER, *The Desert Fayum*, 129.

<sup>27</sup> CATON-THOMPSON puts the limit for a dwarf crescent at about an inch in width (= 2.54 cm) (*op. cit.*, 131).

<sup>28</sup> B.G. ASTON, *Ancient Egyptian Stone Vessels. Materials and Forms*, SAGA 5, Heidelberg, 1994, 87; 150.

<sup>29</sup> ASTON, *Ancient Egyptian Stone Vessels*, 159.

4C); a neck with two handles belonging to a pilgrim's flask<sup>30</sup> (Fig. 4D); and an artefact with two hollows. These items can be dated to the NK and TIP. In view of the diameter of the drills, mainly small vessels and pots must have been produced.

How stone vases were made is not entirely clear. Stocks<sup>31</sup> offers a reconstruction of the production technology based on scenes in tombs and mostly of his own experiments. He argues that, from c. 3600 B.C. on, when the Egyptians had mastered the process of melting and casting copper, the first hole in a lump of hard stone was drilled out with the help of a copper tubular drill. This drill was attached to a stick weighted with stones. In case of a bulbous vase, further hollowing out was achieved by using increasingly large hourglass stone drills. Evidence for the use of copper tubular drills are inner cores of hard stone. It is highly remarkable that such cores were not found in the survey material. During the 2008 excavations two small broken calcite alabaster cylinder cores were found, but considering the enormous amount of drills and (fragments of) stone vases, drilling out inner cores with copper tubular drills was clearly exceedingly rare at the site.

L.K., A.v.d.B.

## 2.4 Conclusions and Research Questions

The chronological interpretation of the survey results mainly rests on the pottery material. This suggests an OK occupation mostly in the southern parts of the site (area A) and more sparingly in the northwestern part, an abandonment between the late OK and the late MK or even the SIP, and a phase of reuse spanning the NK and particularly the TIP. In this period, evidence for use is found all over the site. It is likely that cemetery D in the Wādī Zabayda reflects this period of use.

Formally, the discarded fragments of unfinished stone vessels seem to date predominantly to the NK and the TIP. The generalised spatial distribution of vase production tools and stone vase fragments parallels the equally wide distribution of late NK and TIP ceramics. Arguably, therefore, stone vessels were only, or predominantly, produced here in this period. This would be highly significant, as stone drills of such a late period were hitherto unknown. Another implication is that the OK site must have had another purpose than stone vase production.

Although the OK evidence retrieved during the survey was not rich, it derived from an area with *in situ* strata, and its spatial distribution was much less generalised than that of the NK and TIP evidence. An important feature of the OK ceramic material is, however, that one of the fabrics (see p. XXX) is tempered with crushed calcite alabaster, a strong indication that the pottery was made locally, and at a period when stone objects were being produced here. The abundance of ashes in the OK strata, coupled with the presence of bread moulds, suggests that the bread consumed by the workmen engaged here was produced nearby.

The survey thus suggests, that calcite alabaster was worked at the site both in the early OK and in the NK and TIP. However, since it did not produce evidence for early vase production, the possibility is that the vase production toolkit dates mostly or entirely to the later periods of occupation. This has important consequences. It would for the first time provide us with a vase production site of such a late date; and the fact that several of the tools encountered here differ from those already known may reflect this chronological development. More significantly, however, some tools (like the hour-glass drills and the crescent-shaped drills) are not so different at all from the early OK instances that were already known. This raises the possibility that some elements of the vase production technology were remarkably resistant to change (or, of course, that vases were produced here in the OK after all). Finally, the fact that evidence for tubular drills is almost completely absent suggests that this technology was less widespread than is commonly believed.

S.H., L.K., C.P., B.V., S.V., H.W.

## 3. THE 2008–2009 EXCAVATIONS

### 3.1 Description of the Field Work

During the 2008 campaign, four trenches were opened N of the Wādī Zabayda track to obtain clarification on the issues just raised (Pl. II). The location of sector 1 was determined by the fact that an OK ash layer with bread moulds was observed here in 2007. Sector 2 was opened some 50 m further east, because the presence of mud bricks suggested there might be preserved architecture here. When the excavations in sector 1 produced indications that remains related to

<sup>30</sup> ASTON, *Ancient Egyptian Stone Vessels*, 88; 157.

<sup>31</sup> STOCKS, *Experiments in Egyptian Archaeology*, 139–168.

food production increased towards the east, sectors 3 and 4 were opened in this area. Work in these sectors continued in 2009.

In sector 2, only mixed surface depositions occurred, with pottery mostly of mid-NK (Amarna Period) through the TIP date. This material will not be discussed here. Sectors 1, 3 and 4 offer more information on the evolving use of the site. These sectors are located on the NE flank of the Wādī Zabayda track and are orientated roughly perpendicularly to it. For easy reference, the road side of the trenches will here be designated as the 'south', the baulk farthest from the road as the 'north' baulk, and those on the left and right as the 'western' and 'eastern' baulks. Wherever correct astronomical orientations are vital this will be made explicit.

All sectors have a length of 5 m. as measured from the edge of the track (i.e. from 'south' to 'north'). Sector 1 is a 5 × 5 m square. It is separated from sector 3, to its E, by a 0.60 m. baulk. Sector 3 had a width of 2.30 m, but it was later expanded eastwards by a 3 × 0.50 m. strip because the foot end of a burial extended below the eastern baulk. Further E is sector 4, with an initial width of 2.5 m E-W. To this, a N-S strip (2.6 × 0.60 m) was later added, also to facilitate the excavation of a burial.

The archaeological features recognised during excavation received a feature number composed of the letter S (for al-Shaykh Sa'īd) followed by a serial number. Occasionally feature numbers were split up in units distinguished by letters. For instance, S54 was initially used as a designation for a deposit covering the whole surface of sector 4, later to be subdivided in a southern part S54A, a northern part S54B, and a southeastern part S54C. During later analysis it appeared that some of these distinctions have real stratigraphic significance. S54A, which first emerged in the southwestern corner, in fact continues below S54/S54B in the north, and it covers S54C. Conversely, the difference between features originally distinguished is not always clear. Thus, S117 and S122 are very similar, and in the final analysis could not be kept apart very well, even though deposits labelled S122 emerged later during the excavation, and thus lay mostly below S117. Feature S5 in sector 1 presented itself as homogeneous during excavation, but later analysis of the baulk suggests it actually consists of two subsequent depositions corresponding to S111–112 in sector 3 and S51–52 in sector 4. S6 was collected in the field as one deposit, but the designation actually conceals a top layer we now

designate as S6A and a lower layer S6B. The stratigraphy of the sectors is schematized in Fig. 5.

Work in sector 1 soon revealed that the topsoil consisted of thick accumulations of heavily mixed material (potsherds, bone, stone drills, calcite alabaster chips) none of which was *in situ*. Not knowing whether it would be possible to continue excavating here in subsequent seasons, we decided to save time by swiftly removing the topsoil to a depth of some 0.35 m in the rest of this sector and in sectors 3 and 4. Near the northern edge of the latter, where the thickness of the mixed top layer suddenly decreased, this has led to some loss of information. As shown in Fig. 7, topsoil feature number S110 near the N baulk of sector 3 effectively designates three layers, the corresponding feature number S50 in sector 4 four. This distinction is indicated in Fig. 5 and 7 by a Roman numeral added to the feature number (e.g. S50–II).

#### Phase 1

The stratigraphy builds up on the rock substrate, which was not yet reached everywhere in sector 3. The rock surface slopes down from N to S and also somewhat from W to E. It is topped by an almost sterile sandy layer (S60 in sector 4, S132 in sector 3. In the somewhat higher sector 1 the deposit did not occur). Although the soil looks like a natural deposition, a few OK potsherds were found, suggesting a degree of human intervention, perhaps for creating a plane surface.

Phase 1 represents a period of early OK settlement activity. Its most notable feature is wall S130 in sector 3, which stands immediately on sand layer S132 (see Fig. 6). No foundation trench was observed. The structure is built of rough limestone blocks, is about 0.60 m thick and still about 0.30 m high. It is carefully orientated to the astronomical north. Part of the 'eastern' baulk of the trench and the desert track 'south' of sectors 3 and 4 were partly excavated in 2009 to determine the continuation of the wall. Although it continues in the baulk, no certain remains were found under the road, suggesting that parts were removed at a relatively recent date to even the track. In its northern part the stone wall decreases in height as the rock surface rises until it stops altogether near the NW corner of sector 3.

Wall S130 separates two activity zones A and B. The former lies east of the wall and covers sector 4 and the part of sector 3 east of the wall. Activity zone B lies west of it, occupying sector 1 and the part west of the wall in sector 3.

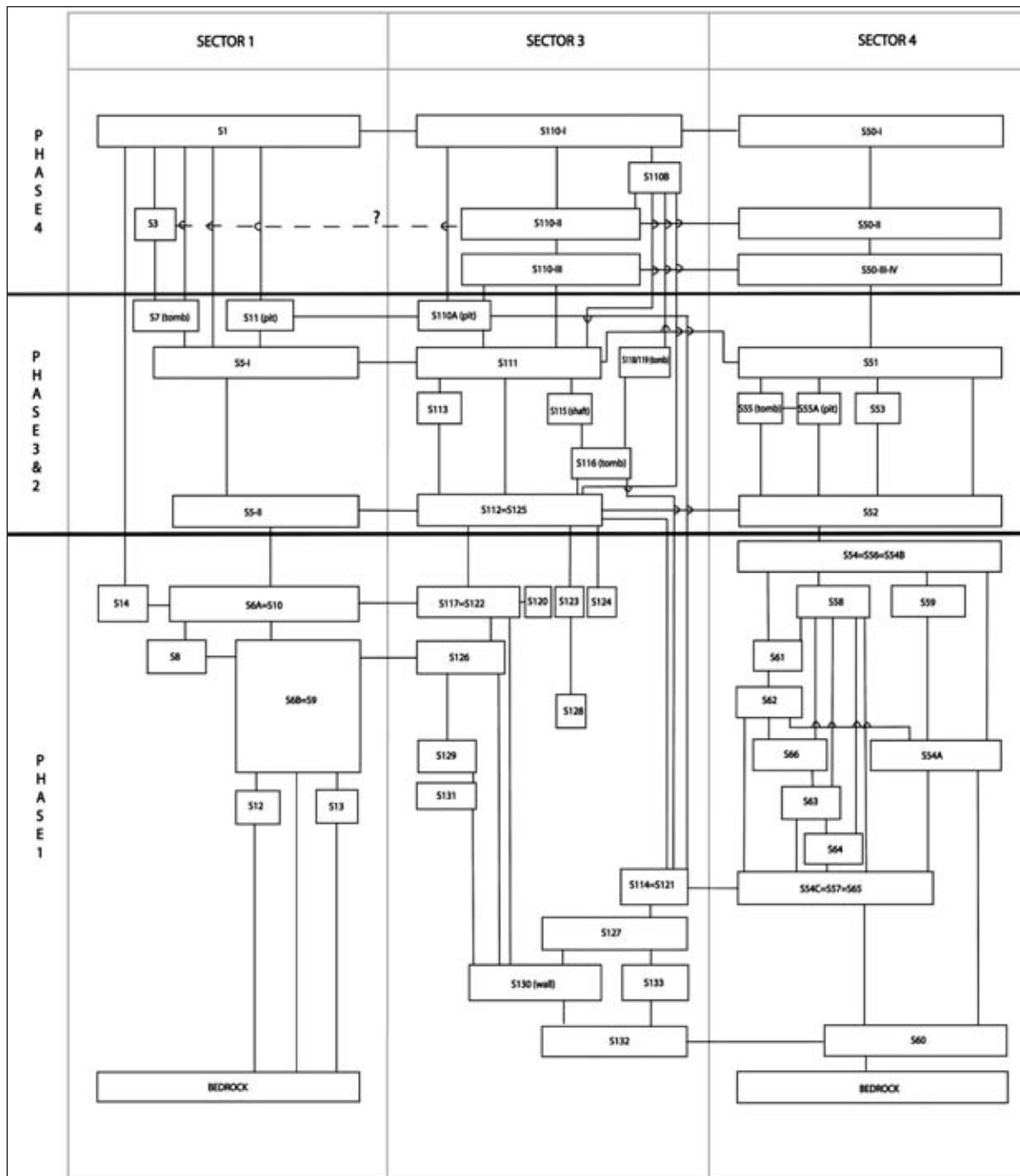


Fig. 5 Harris matrix of sectors 1, 3 and 4

In activity zone A a large group of *bd3* bread moulds were found standing upside down almost immediately on top of S60, and thus at the same level as the bottom part of wall S130. One of these bread moulds is visible in the section in Fig. 7 (24). Most bread moulds were still almost complete, but all showed at least cracks or missing rim fragments, rendering them unfit for use. The moulds were not simply thrown away, but placed upside down. In several cases as many as three were placed one

atop the other. They were arranged in two irregular E–W rows that seem to demarcate surface areas, perhaps separated by a path (see Fig. 6).

When the bread moulds were lifted, all appeared to be filled with burned vegetal remains, ashes, charcoal, burned bone and sand. Usually, the most heavily charred material was found uppermost, and the sand (often the same as S60) below. In view of the similarity of their fill, the bread moulds were clearly deposited in the

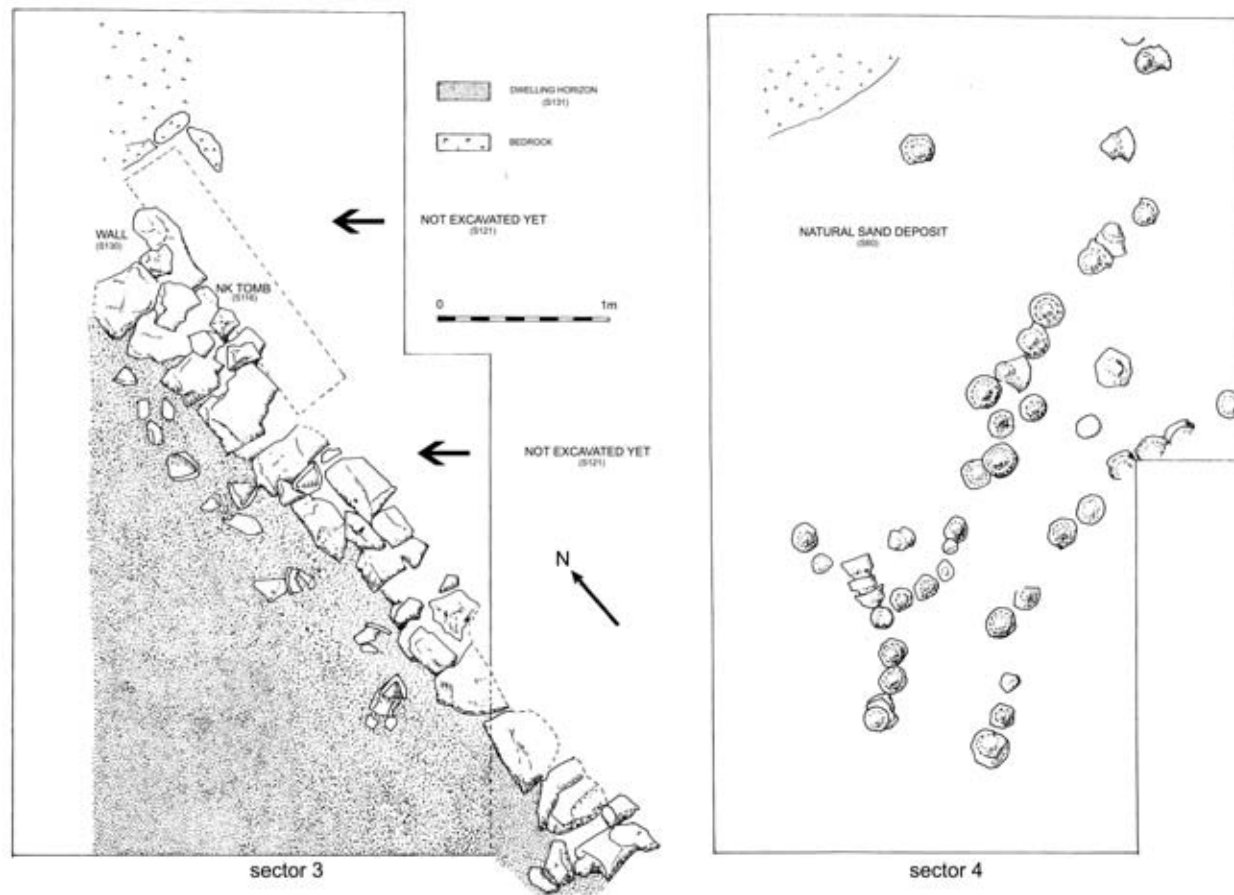


Fig. 6 Phase 1: wall S130 and in situ discarded bread moulds

course of a single action, having been used to scoop out nearby fireplaces where food had been prepared upon the sand.

East of wall S130 there is a large deposit of burned material, some of which has become very hard (S127). It includes large amounts of ashes, red burned ceramic, large potsherds, bone, and so on. This may have been a fireplace, or a deposition of smouldering material taken from a nearby fireplace and thrown against the wall. Although later burials have disturbed the contact area of S127 and the wall, the E–W upward slope of S127 (see Fig. 7 [9]) suggests it rested against the wall.

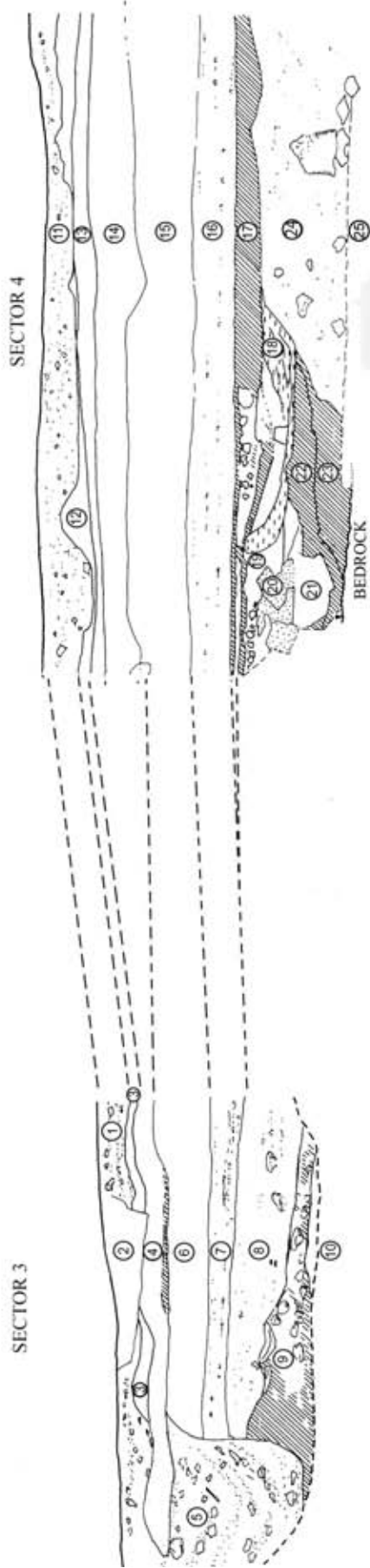
In a next stage, a thick garbage deposit was heaped up, covering most of activity zone A (Fig. 7 [8]; [24]). It consists of dirty, coarse sand mixed with chunks of ceramic (predominantly *bd3*-bread moulds), large bones, vegetal remains, pieces of limestone and sandstone polishers. In sector 3,

this deposit (S114 = S121) lies on top of S127, in sector 4 it covers the rows of bread moulds just discussed (S54C = S57 = S65). In the southern part of sector 4 this heap markedly decreases in height, leaving a large depression from the bottom of which the earlier rows of bread moulds still emerged. This pit was later filled with similar garbage as in S65, although it was now heavily burned (S54A). Huge amounts of bread mould sherds, bones, and jar stopper fragments (some with seal impressions) occurred here. In the SW corner of sector 4, deposit S54A steeply rises to a height of some 70 cm. Since this is close to the southern end of wall S130, S54A was apparently heaped up against the wall just like S127.

In the northern part of sector 4, a large pit was dug in S65, in which a whole series of successive fireplaces were created (S64, S63, S58). On top of S65 and S54A, a further fireplace S59 appeared.<sup>32</sup>

<sup>32</sup> Still later, much of the area of sector 4 was covered with a mixed layer with many ash and charcoal inclusions (S54), which, however, does not continue westwards

into sector 3. The fireplaces to which S54 must be linked, were probably located further E.



- 1= Feature S110-I: topsoil (mixed material: pottery [OK, NK, TPI], drills, calcite alabaster fragments, bone; the finds make up most of the matrix. Soil colour: greyish brown). Corresponds to S1 in sector 1 and S50-I in sector 4
- 2= Pit within S110-I, filled with similar material.
- 3= S110-II: Very fine wadi deposit, sterile. Corresponds to S50-II in sector 4 and perhaps to S3 in sector 1.
- 4= S110-III: dark-grey mud-like layer; some charcoal and sherd inclusions. In lower part a dense concentration of charcoal. Corresponds to S50-III-IV in sector 4
- 5= Pit 110A: pit dug before deposition of S110-III, but of same composition and consistency as S110-I.
- 6= S111: light brown/yellow, very fine wadi deposit with few small pebbles. S51 displays internal horizontal layering. Corresponds to S5-I in sector 1 and S51 in sector 4.
- 7= S112 = S125: fine greyish-yellow wadi deposit with very numerous limestone chips which dominate the matrix. Corresponds to S5-II in sector 1 and S52 in sector 4.
- 8= S114 = S121: dirty, coarse, yellowish/brownish sand mixed with large chunks of ceramic, large bones, vegetal remains, and pieces of limestone. Corresponds to S54A = S57 = S65 in sector 4.
- 9= S127: depositions of very mixed material (bone; large potsherds, some reddened by fire; pockets of ashes). Much of the deposit was very hard.
- 10= S133: Yellow and sandy deposit with red zones. Includes many pebbles. Since so far no finds have been made.
- 11= Sector 4: S50-I = S110-I (see 1).
- 12= S50-II = S110-II (see 3).
- 13= S50-III = S110-III (see 4). S50-III is clearly differentiated from S50-IV by its darker grey colour. This differentiation is not clearly in evidence in sector 3/S50-III.
- 14= S50-IV = S110-III (see 4). S50-IV is clearly differentiated from S50-III by its lighter grey colour. This differentiation is not clearly in evidence in sector 3/S50-III.
- 15= S51 = S111 (see 6).
- 16= S52 = S112 = S125 (see 7).
- 17= S54 = S54B = S56. Fine grey dust with lots of ashes and charcoal inclusions, mixed with small stone inclusions, animal & fish bones, and great quantities of OK sherds. This layer has the same top level as S114 = S121 in sector 3, but is of a different composition.
- 18= S58: round fireplace built of muna and its fill.
- 19= S61: Brown dust with minor stone inclusions, some minor small charcoal inclusions, OK sherds, bones & organic material; mud brick fragments.
- 20= S62: similar to S61 but very hard. Includes two in situ mud bricks set in a muna surface.
- 21= S66: fill rich in limestone particles, pottery, bone, charcoal, wood contained within
- 22= S63: basin in very hard muna mixed with charcoal and pottery sherds with a fill of pottery, bone, charcoal, wood.
- 23= S64: pitfill containing many ashes, small pot sherds, and small fish bones.
- 24= S54A = S57 = S65. This corresponds to S114 = S121 (see 8).
- 25= S60

Fig. 7 Section drawings of the northern baulks of sectors 3 and 4

Apparently, after having been used as a garbage heap, activity zone A saw a second phase of use, during which it served for heating food or other things. In view of the large amount of bread moulds and bone remains here, food preparation seems the most likely option. It is improbable that large fireplaces and garbage existed inside buildings. Activity zone A must therefore have been open to the air.

In activity zone B, the lower levels of the fill were much more homogeneous, consisting of greyish sand interspersed with some large pottery fragments (S126; S129 in sector 3; connected to S6B = S9 and S8 in sector 1<sup>33</sup>). Feature S8 is a small part of a hard, greyish sand floor with a series of shallow holes (Pl. IIIC). Considering that this was a bakery area, the holes were probably emplacements in which hot bread moulds could be placed before being filled with dough. The context reminds one of the much better preserved bakeries recently found in the workmen's settlement at Giza. These bakeries are fairly small, rectangular, stone-built chambers containing, in one corner of the room, two vats for mixing dough, and along one of the long sides, two rows of depressions in which bread moulds could be placed.<sup>34</sup>

Above the top level of wall S130 sector 3 contained a very mixed fill, with parts of *bd3* bread moulds, but also bread trays, beer jars, and Maidūm bowls, types of ceramic that were less strongly in evidence in sector 4. Also, a large amount of broken mud bricks were found (sector 1: features S6A = S10; S14; sector 3: feature S117 = S122). These features overwhelmingly consist of material that also characterizes the garbage heaps in sector 4.

The most conspicuous items in phase 1 are bread moulds. As noted before, in sector 4 these were often neatly stacked upside down. In other areas the deposition is more chaotic. Even where the moulds were well preserved, not a single one was entirely intact. Apparently, moulds that were beginning to show cracks or of which small parts were broken off, were discarded in a fairly organized manner.

Interspersed between the bread mould sherds, large quantities of animal and vegetal remains were found, probably for consumption (see 3.4–5).

The garbage disposed in the area was frequently burned. Evidence for this is found in the form of ash layers, and of localised fire spots where small, but intense fires led to the remains being charred. Perhaps the fires should be interpreted as a measure to reduce nuisance in the form of stench and animals. This, in its turn, may suggest there were habitations nearby.

Besides extensive evidence for food production, many clay sealings of jars and containers closed by ropes were found. Several bore seal impressions, which will be dealt with in 3.3.

Much evidence for stone production emerged during the excavations in the form of chips of calcite alabaster, many of which showed traces of being worked. Evidence for vase production, however, remains scant and uncertain.

#### Phase 2

The layers of phase 1 were topped by two consecutive depositions of light yellow wadi sediment with small stone inclusions (feature S5-I and II; S111–112, S51–52; see Fig. 5–6), which contained hardly any archaeological remains. The fact that these natural deposits differ in texture, and that a clear horizon separates them, suggests two successive periods of wadi activity. For the date of these events we will first look into the evidence for phase 3.

#### Phase 3

Four tombs were discovered: one in sector 1 (S7), two in sector 3 (S116; S118/S119) and one in sector 4 (S55 and S55A, the latter being apparently the tomb pit). Tomb S7 was cut through both of the natural deposits of phase 2 (S5I–II). In sector 4, however, the uppermost of these deposits (S51) covers the mouth of tomb S55, which has been dug through the second natural deposit S52. In sector 3, tomb S116 seems to be covered by the topmost natural deposit S111, but not by the second, S112.<sup>35</sup> Since the higher layer of wadi deposit covers at least some of the tombs, whereas it is

<sup>33</sup> In sector 1, fireplaces S12 and S13 lie below these deposits. Their stratigraphic link to sector 3 is not yet clear.

<sup>34</sup> M. LEHNER, 'Introduction' in: M. LEHNER, W. WETTERSTROM (eds.), *Giza Reports. The Giza Plateau Mapping Project I. Project History, Survey, Ceramics, and Main Street and*

*Gallery III. 4 Operations* (Boston, 2007), 24–27; 32; M. LEHNER, *Pyramid Age Bakery Reconstructed, Aeragram* 1,1 (Fall 1996), 6–7.

<sup>35</sup> The second tomb in sector 3 may be more recent than S111, but the stratigraphy is disturbed by a later pit.

dug through by at least tomb S7, it seems certain that it was deposited at a time when the cemetery was in use.

All tombs are orientated exactly N–S, with the head in the north, and all contain rectangular, plastered, but undecorated wooden coffins. No burial goods can be confidently attributed to these burials. A strong dating argument derives from sector 4. Here, a tomb was dug through S52, a fairly sterile layer which, however, included one NK bead mould. A NK blue painted jar fragment was also found in stratum S5-I through which tomb S7 was dug. The natural event that led to the deposition of S5-I, S111, and S51 is thus datable to the NK.

There are indications that the orientation of the tombs is due not so much to a religious urge as to conditions at the site at the moment the dead were committed to the earth. Two burials (S116; S118/119) have pits that fit snugly against wall S130 (one is shown in Fig. 6). This suggests that the tombs were dug deliberately against it, and therefore that at least ruins of the building must still have been visible, jutting out of the lowermost layer of wadi deposit (S112).<sup>36</sup> Since excavations revealed no *in situ* remains of a wall in S112, it seems that, when the tomb pit was excavated, the higher parts of the wall were removed and that the other OK remains in the area were also displaced. This also explains the confused state of the layers immediately above what now remains of the wall. In S117 = S122, numerous pieces of broken mud brick were found, none of them *in situ*. Arguably, the higher parts of wall S130 were made of this material, and were dismantled when tombs were made here in the NK.

#### Phase 4

On top of these layers a thick level of topsoil covered all excavated sectors (S1 in sector 1, S110 in sector 3, S50 in sector 4). Most of it is a densely mixed greyish/brownish matrix filled with calcite alabaster chips, vase drills and other lithic artefacts, bones, and large amounts of ceramics. This material includes pottery from various phases, although mostly of NK and TIP date. Part of the topsoil was carefully excavated in sector 1. After enough material had been collected to gain an

impression of its nature, most of the remainder was removed without further inspection. As was pointed out above, this has led to the removal of some stratified layers in the northern parts of sectors 3 and 4. We hope to be able to define the nature of these layers in the course of future excavations. Clearly, however, the layering in the lower parts of S110 and S50 must correspond to a period of use of some duration. In sector 3, a large pit was dug through S111, S112, S114 = S121 and S127 before the lowermost layer of S110 was deposited (see Fig. 7 [4]). Later on, a second pit was dug, most of which is located in the baulk and in sector 1, but which just abuts on sector 3. Its fill is indistinguishable from the very mixed material that litters the surface everywhere at the site, and which, on the basis of the survey results, seems to date to the period spanning the Amarna Age and the TIP. In sector 3 this pit *i.a.* produced a finely carved piece of Amarna relief to be published elsewhere. This find affords a reliable *terminus ante quem non* for the pit.

L.K., B.V., H.W.

### 3.2 The Interpretation of the Phase I Ceramic Assemblage

Among the most characteristic elements of the material are Maidūm bowls, bread moulds, flat bread trays and bowls with internal ledge-rim. A remarkable common element is the presence of white inclusions as temper in Nile fabrics. Under magnification, the particles have a shining appearance and can be identified as calcite alabaster from the nearby quarry Maghāra Abū ʿAzīz, implying that the great majority of the pottery was locally made. This temper is the most characteristic element for the ceramic assemblage from site SS/WZ. The inclusions vary greatly in size and quantity. Their distribution is uneven within the paste and the particles are generally angular, showing that it concerns beyond doubt an intentional addition.

Although relatively rare compared to the huge amounts of bread moulds, several fragments of Maidūm bowls have been found. They occur in a variety of fabrics (Nile A, B1, B2, Marl A-2) but the majority is made in a fine Nile silt

<sup>36</sup> Poor NK burials against earlier walls are well known (e.g. M. BIETAK, J. DORNER, P. JÁNOSI, Ausgrabungen in dem Palastbezirk von Avaris. Vorbericht Tell el-

Dab<sup>c</sup>a/ʿEzbet Helmi 199–2000, *Ä&L* 11 (2001), 68–69, Abb. 24–25).



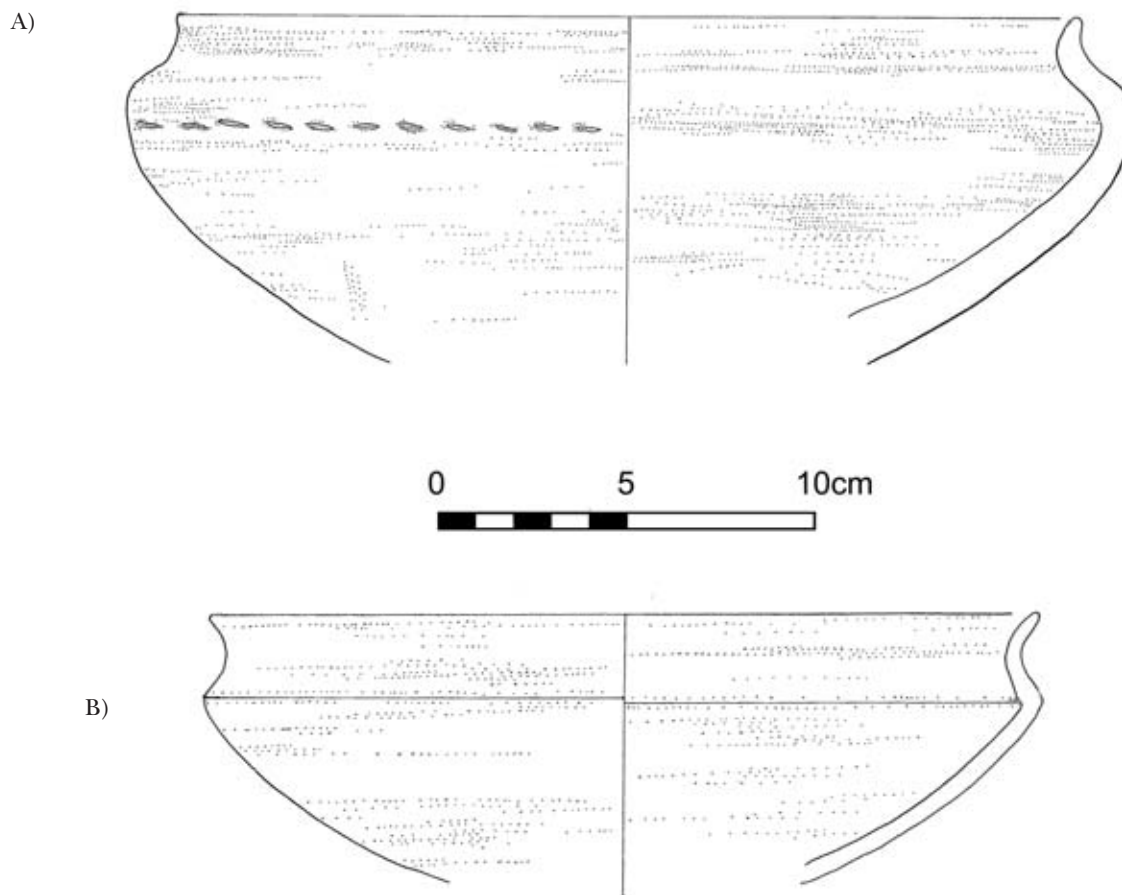


Fig. 8 A) round-shouldered Maidūm bowl; B) sharp-shouldered Maidūm bowl. Drawing R. Naebers

(Nile A, B1) tempered with fine calcite alabaster. Although hardly any complete vessel shapes of these bowls could be reconstructed, it is clear that examples of both the sharp-shouldered type A1 and the round-shouldered types B1 and B3 occur.<sup>37</sup> The round-shouldered ones have deep shapes as was already common before the IV<sup>th</sup> dynasty (Fig. 8A).<sup>38</sup> Other fragments belong to sharp-shouldered bowls with the maximum diameter at the shoulder, a typical feature for Maidūm bowls of the IV<sup>th</sup> and V<sup>th</sup> dynasties (see Fig. 8B).<sup>39</sup> This chronological position is corroborated by the fact that the rims are never wider than the

shoulders. There is a close resemblance with early and mid-IV<sup>th</sup> dynasty bowls at al-Tārif<sup>40</sup> and al-Kāb.<sup>41</sup> But the best parallels are from Giza<sup>42</sup> and Elephantine, where both round-shouldered and sharp-shouldered Maidūm-bowls are also attested.<sup>43</sup> It is to be noted that the finest Maidūm bowls, as indicated by their very thin wall and high grade polish, are not made in the local calcite alabaster tempered fabric. For their production, a fine Nile A or Marl A fabric was used and this pottery can be considered elite imports. Another elite element is a fragment of a large pentagonal bowl with lobes, made in a fine but

<sup>37</sup> Types according to L. OP DE BEECK, Possibilities and Restrictions for the Use of Maidum-Bowls as Chronological Indicators, *CCÉ* 7 (2004), 239–280.

<sup>38</sup> OP DE BEECK, *op. cit.*, 249–253.

<sup>39</sup> OP DE BEECK, *op. cit.*, 260; 268.

<sup>40</sup> B. GINTER, J.K. KOZŁOWSKI, M. PAWLKOWSKI, J. SLIWA, H. KAMMERER-GROTHAUS, *Frühe Keramik und Kleinfunde aus el-Tārif*, AV 40, Mainz am Rhein, 1998, 81, Abb. 41,5–6.

<sup>41</sup> OP DE BEECK, *op. cit.*, 250, fig. 3,31 and 3,33.

<sup>42</sup> A. WODZINSKA, 'Preliminary Report on the Ceramics,' in: LEHNER, WETTERSTROM (eds.), *Giza Reports I*, fig. 11.19 CD6A (A1); fig. 11.20.CD6B (B1); fig. 11.21.CD7 (B3).

<sup>43</sup> D. RAUE, *Ägyptische und Nubische Keramik der 1.–4. Dynastie*, in: W. KAISER *et al.*, *Stadt und Tempel von Elephantine*. 25./26./27. Grabungsbericht, *MDAIK* 55 (1999), 184, Abb. 39,1 and 2; Abb. 40, 1, 2, 6.

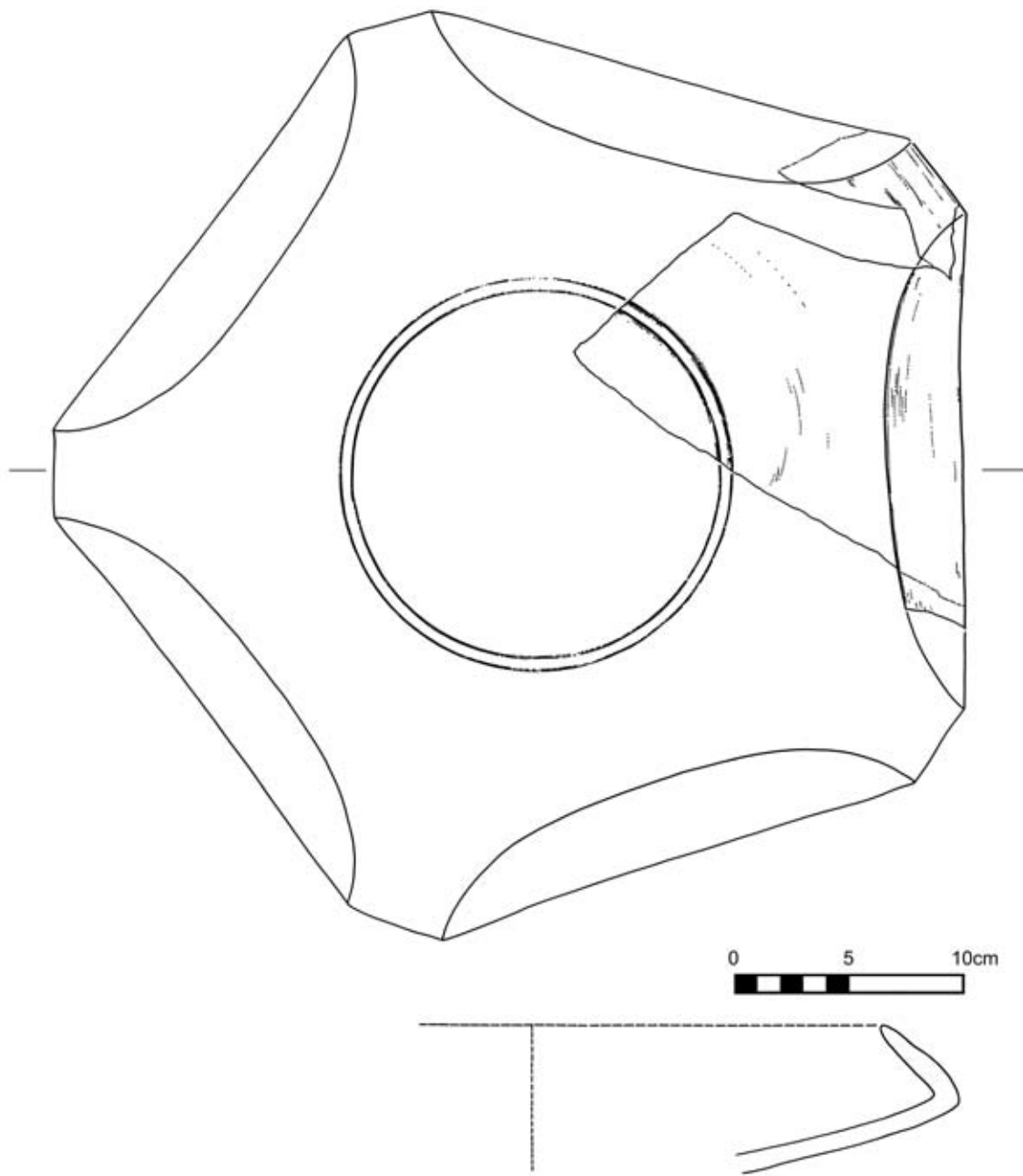


Fig. 9 Fragment and reconstruction of pentagonal bowl imitating stone vessels (S9/79.9 + S9/125.19)  
Drawings M. Eyckerman

rather low fired Nile silt (Fig. 9). This bowl imitates a common OK stone vessel type,<sup>44</sup> but only few parallels in pottery are known: one fragment from the so-called Valley Temple of Snofru at Dahshūr,<sup>45</sup> and another fragment found in the settlement debris at Giza.<sup>46</sup>

Even more limited in number than the Maidūm bowls, but chronologically also very significant, are the shallow bowls with internal ledge-rim and flat bottom (Fig. 10). All are made in a coarse Nile B2 and were left uncoated. This type of pottery is known from the early I<sup>st</sup> dynasty

<sup>44</sup> ASTON, *Ancient Egyptian Stone Vessels*, 115, no. 61.

<sup>45</sup> W.K. SIMPSON, in: A. FAKHRY, *The Monuments of Sneferu at Dahshur II*, Cairo, 1961, 118.

<sup>46</sup> K. KROMER, *Siedlungsfunde aus dem Frühen Alten Reich in Giseh. Österreichische Ausgrabungen 1971–1975*, ÖAW. Denkschr. d. Gesamtk., 136: Wien, 1978, 63; Taf. 25, fig. 4.

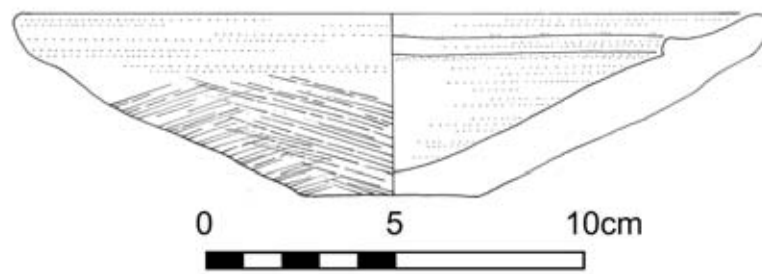


Fig. 10 Bowl with internal ledge-rim (S1/1.517 + S1/27.10). Drawing R. Naebers

onwards but no longer attested after the IV<sup>th</sup> dynasty. Their typo-chronological evolution is well documented for Elephantine<sup>47</sup> and characterized by the broadening over time of the internal rim while the vessels tend to become shallower.<sup>48</sup> The SS/WZ examples compare well with bowls found at Giza<sup>49</sup>, characterized by a shallow shape and broad internal ledge-rim. This bowl found at site SS/WZ represent a step subsequent to the typo-chronological evolution attested at Elephantine for the period up to the early IV<sup>th</sup> dynasty.<sup>50</sup> It occurs no longer after the IV<sup>th</sup> dynasty but is apparently the predecessor of a more open V<sup>th</sup> dynasty type.<sup>51</sup>

The large majority of the pottery is related to the production of bread. The most characteristic type is the clock-shaped *bd3* bread mould (Jacquet-Gordon's type A1)<sup>52</sup> (Fig. 11A). As is normal for bread moulds, they are made from Nile C, but all examples are tempered with crushed calcite alabaster. The *bd3* moulds of which complete profiles were preserved are characterised by a flaring shape and a very prominent, sharp 'ring'

around the base. Although such 'rings' occur for V<sup>th</sup> and VI<sup>th</sup> dynasty bread moulds,<sup>53</sup> our examples differ by their concave transition between base and 'ring', and by the deeper base. Similar 'rings' are found in late III<sup>rd</sup> dynasty bread moulds from Elephantine,<sup>54</sup> but the best parallels are the mid-IV<sup>th</sup> dynasty examples from the workmen's settlement at Giza.<sup>55</sup> All of the latter are shaped over a hump and have both base 'rings' and deep bottom cones. The parallelism between the two sites is confirmed in a remarkable way by the presence at both sites of very large bread moulds with flat internal base, up to now only attested for the site of Giza. (Fig. 11).<sup>56</sup>

Besides the *bd3* moulds, many of the flat bread trays are likewise made from Nile C fabric tempered with calcite alabaster (Fig. 11C–F). These *pr.t* trays have a flat bottom on to which one or several thick rolls were added, resulting in trays with lower and higher flaring sides. Both round and oval shapes occur.<sup>57</sup> According to shape and size, four different types are distinguishable, similar to the types that were discovered at Giza.<sup>58</sup>

<sup>47</sup> RAUE, *op. cit.*, 173–190.

<sup>48</sup> RAUE, *op. cit.*, 183 („tieferer Ansatz der Innenleiste“); A. OP DE BEECK, S. HENDRICKX, Deir al-Barsha Pottery Survey, *BIFAO*, in press.

<sup>49</sup> A. WODZINSKA, *op. cit.*, 304, fig. 11.30: CD32A; Z. HAWASS, A. SENUSSI, *OK Pottery from Giza*, Cairo, 2008, 244, no. 176, 211, 238–239 Nazlet el-Samman A24; 244 no. A62; A74; C47; H32–23; H43.

<sup>50</sup> RAUE, *op. cit.*, 173–190.

<sup>51</sup> OP DE BEECK, HENDRICKX, *op. cit.*; see already: G.A. REISNER, *A History of the Giza Necropolis II*, Cambridge, Massachusetts, 1955, 84, fig. 75, no. 69 (type D-XXXIXC) and fig. 115.

<sup>52</sup> H. JACQUET-GORDON, A Tentative Typology of Egyptian Bread Moulds, in: DO. ARNOLD (ed.), *Studien zur altägyptischen Keramik*, Mainz am Rhein, 1981, 11–12 and fig. 2.

<sup>53</sup> D. FALTINGS, *Die Keramik der Lebensmittelproduktion im Alten Reich. Ikonographie und Archäologie eines Gebrauch-*

*sartikels* SAGA 14, Heidelberg, 1998, 130–132 (fig. 9a, nos. 20–24).

<sup>54</sup> S.J. SEIDLMEYER, Die staatliche Anlage der 3. Dynastie in der Nordweststadt von Elephantine. Archäologische und historische Probleme, in: M. BIETAK (ed.), *Haus und Palast im alten Ägypten. Internationales Symposium 8. bis 11. April 1992 in Kairo*, UZK 14, Wien, 1996, 201, Abb. 4; Kaiser et al., Stadt und Tempel von Elephantine 25./26./27. Grabungsbericht, *MDAIK* 55 (1999), 173–189.

<sup>55</sup> WODZINSKA, *op. cit.*, 298 and fig. 11.38.F2B.

<sup>56</sup> WODZINSKA, *op. cit.*, 298 and fig. 11.38. F2C; J. NOLAN, Tales from the Crypt: the 1999 Season, *Aerogram* 3, no. 1 (1999), 1–13.

<sup>57</sup> FALTINGS, *op. cit.*, 83–88.

<sup>58</sup> WODZINSKA, *op. cit.*, 298, F1; fig. 11.36–37 (F1A, F1C); HAWASS, SENUSSI, *op. cit.*, 237 (126); 191; 237.

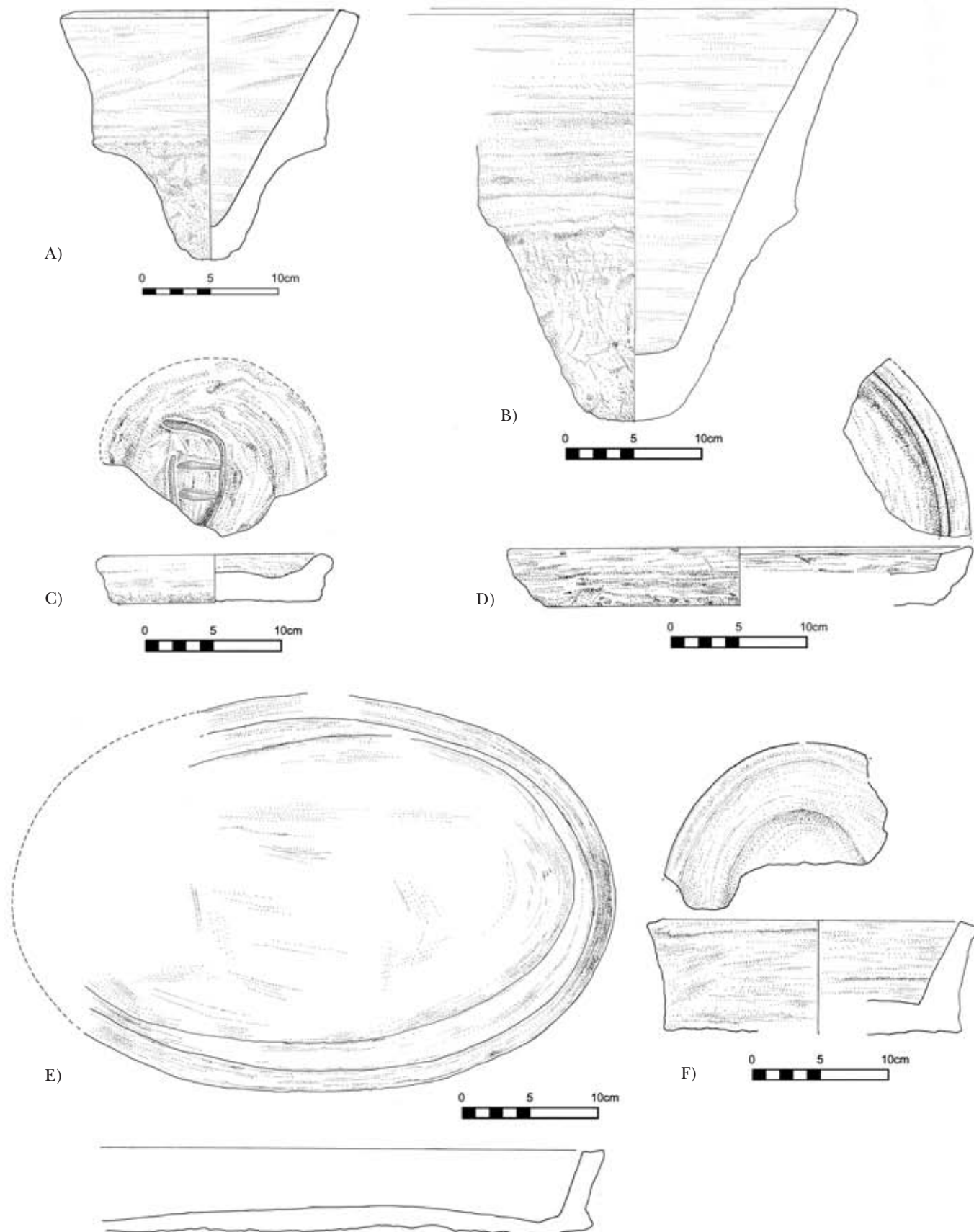


Fig. 11 A) *bd3* bread mould (S50/17.5); B) *bd3* bread mould (S54A/183.1); C) bread tray (S122/9.5); D) bread tray (S1/1.519 + S1/1.160); E) bread tray (S9/36.1 + S9/122.1 + S9/178.4 + S9/48; F) bread tray (S54A/64.31)

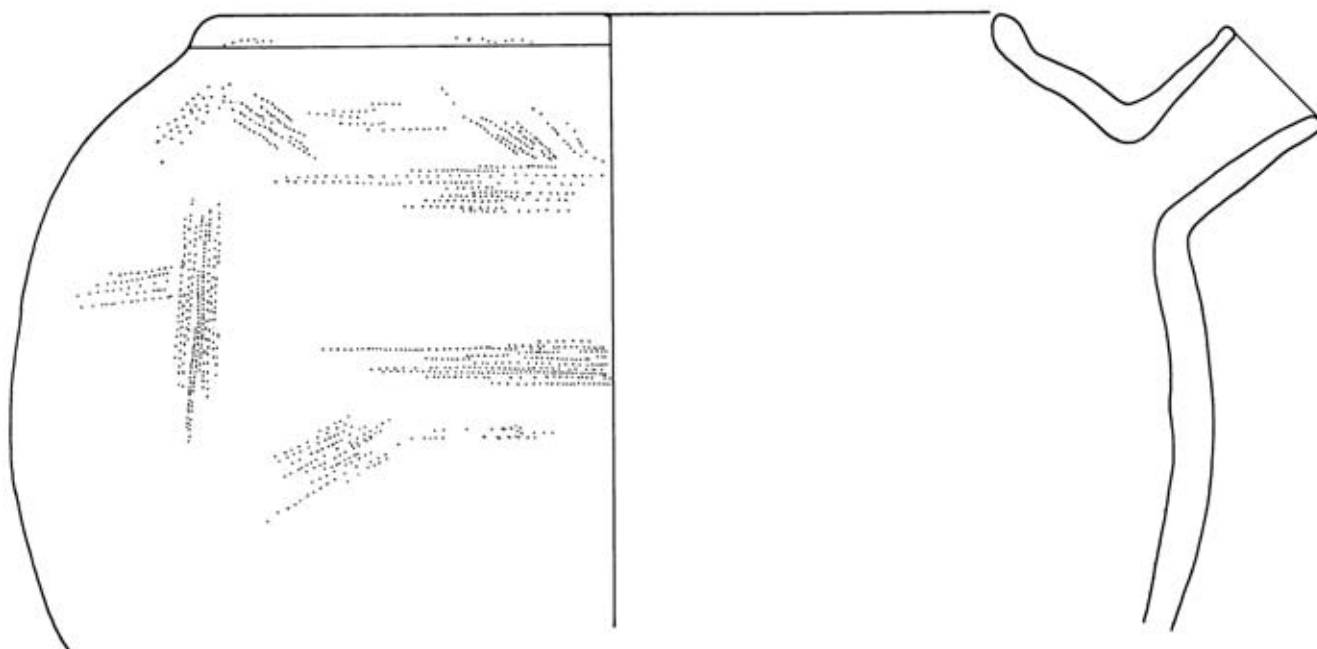


Fig. 12 vat S9/197.36, inside eroded. Drawing R. Naebers, scale 1:2

A final element of the bread production at the site are large vats used for the preparation of dough (Fig. 12).<sup>59</sup> These vessels, that were not easily transported, confirm the production of bread at the site itself.

In ancient Egypt, the trades of bread and beer production were intimately linked, but only few beer jars were found. The work force inhabiting the site must nevertheless have received the habitual beer among its rations. The almost complete absence of beer jar fragments suggests that the brewery must have been located at some distance from the part we excavated.

S.V., S.H., J.B., P.F., M.E., S.M., Z.K.

### 3.3. Seal Impressions

The excavations produced dozens of (mostly fragmentary) seal impressions. They occur on clay jar stoppers, clay seals with fibre impressions on their backs that must have been used to seal textile bags closed with a rope, and seals with flat backs used to seal wooden objects (chests; doors). Some seals bear hieratic signs inscribed with a stylus

when the clay was still wet, but this is of rare occurrence. All other marked seals and stoppers bear the impressions of cylinder seals, and in one case of a stamp seal.<sup>60</sup>

One has the impression of a cartouche ending in a bird-like sign which perhaps reads  $\text{𓏏}$  *w*, in which case the royal name must have been either that of Snofru or Khufu. Another seal bears the Horus name  $\text{𓏏}$  *Mddw* (Pl. IVA). This is the Horus name of Khufu, confirming the impression already gained from the pottery that the excavated area was used in the early IVth dynasty. On the seal, depictions of a king and columns of hieroglyphs flanked the Horus name. Although the texts can no longer be read, this is likely to have been a so-called 'institutional seal' used in official administration.<sup>61</sup>

Other seals are of the kind designated by H.G. Fischer as 'cylinder seals for the lower classes'.<sup>62</sup> These display an iconography depicting for instance animals or human beings in a style that does not follow the rules of the classical Egyptian art canon. In many cases they do not include




<sup>59</sup> FALTINGS, *op. cit.*, 115–121.



<sup>60</sup> The seals depicted in pl. IVA, B and D were recorded with the help of the Leuven Camera Dome System (<http://www.arts.kuleuven.be/assyriologie/cuneiform.htm#Barsha>).


<sup>61</sup> U. DUBIEL, *Amulette, Siegel und Perlen. Studien zu Typologie und Tragesitte im Alten und Mittleren Reich*, OBO 229, Fribourg, Göttingen, 2008, 126–127.

<sup>62</sup> H.G. FISCHER, *Old Kingdom Cylinder Seals for the Lower Classes*, *MMJ* 6 (1972), 5–16. P. KAPLONY, *Die Rollsiegel des Alten Reiches I*, *Mon. Aeg.* 2, Bruxelles, 1977, 21–35, calls these seals 'Figuresiegel'.

hieroglyphic writing. When hieroglyphs do occur, it often seems as though the seal cutter had little or no scribal competence. Often, for instance, the signs are arranged in symmetric groups that cannot really be ‘read’. Perhaps they were merely imitations of real texts. In some cases, royal names in somewhat better style can be added to these seals.

The seal in Pl. IVB is a good instance. It contains depictions of mammals and birds. In a number of impressions we encountered figures of seated ‘dogs’. The one depicted in Pl. IVD shows the legs, tail, back and neck of such an animal.<sup>63</sup> Some seals contain symmetrical arrangements of groups of hieroglyphs. A recurrent pattern, of which the best preserved instance is reproduced in Pl. IVB, contains two facing -signs. Between the two, there is a , and a  is also written over the backs of both animals.

Another inscription found on several seal impressions contains the word   (Pl. IVD). Perhaps this is the term *di.w* ‘delivery’, although it is hard to understand the round sign at the end. Moreover, the signs are again symmetrically arranged and may not be real writing.

Some seal impressions are also remarkable because, after they had been applied, a hieratic inscription was written over it in black ink. One impression, showing the back of a recumbent dog, carries a hieratic jotting including a sign probably depicting a crouching dog () (Pl. IVC; this seal resembles the one shown in Pl. IVD). One wonders if it is mere coincidence that the seal impression depicted a crouching animal as well. Was the same sign intended? Although the signs are in most cases illegible, the addition of hieratic notes to existing seal impressions suggests that the administration not only required that product containers were sealed, but that, at some later stage of the process, another administrator added a further text. This may be a variant of the procedure of applying ‘counter-seals’

Early OK seals and seal impressions have been found at many sites in Egypt,<sup>64</sup> and in recent years they are fortunately being increasingly presented within their archaeological context. A huge amount found over the years on Elephantine Island have now been published by J.P. Pätznik.<sup>65</sup> The sealings found at this important settlement span the period between the IInd and the VIth Dynasties, an era when the state repeatedly interfered here, witness the presence of an early dynastic fortress, the late IIIrd dynasty miniature pyramid of king Huni, and the IVth-VIth dynasty governor’s residence. Seal impressions are also appearing in great numbers in the planned settlement at Giza, which gave shelter to the work force involved in building the IVth dynasty pyramids.<sup>66</sup> A small group of impressions was recently found at desert site Chufu 01/01, about 60 km SW of the Dākhlā Oasis.<sup>67</sup> This was an expedition site that may have been exploited to obtain minerals used as paint. The presence of royal inscriptions at the site indicates that those engaged here were sent by the central administration.

Of these sites, the workmen’s settlement at Giza offers the closest analogy, for (other than at Elephantine and site Chufu 01/01) both institutional and figurative seals seem to have been in current use here. It is true that the Giza team has thus far only published a few seals, all of which are ‘institutional’, but Nolan also points out that some of the Giza material is “informal”. This, he explains, means that “the layout of the design – either textual or representational – does not conform to a strict template.”<sup>68</sup> He also indicates that the informal seals are apparently more frequent and in a better state of preservation than the formal ones. Unfortunately, not a single ‘informal’ seal impression with representations is depicted by him. Still, it seems likely that this material is similar to the seals with non-hieroglyphic ‘signs’ found at al-Shaykh Sa‘īd. Since both sites also share the presence of royal name seals and incised seals, it

<sup>63</sup> The seal closely resembles a Vth dynasty one from Abū Sīr (H.G. FISCHER, *MMJ* 6 [1972], 6).

<sup>64</sup> See KAPLONY, *Rollsiegel*. In this book, the archaeological context is in most cases not very clear. *Rollsiegel* I, 347–374 does discuss some contexts, but those of the IVth dynasty are not very informative.

<sup>65</sup> *Die Siegelabrollungen und Rollsiegel des Stadt Elephantine im 3. Jahrtausend v. Chr. Spurensuche eines archäologischen Artefaktes*, BAR IS 1339, Oxford, 2005.

<sup>66</sup> J. NOLAN, in: LEHNER, WETTERSTROM (eds.), *Giza Reports* I, 179–181; 271–275.

<sup>67</sup> F. FÖRSTER, Preliminary Report on the Seal Impressions Found at Site Chufu 01/01 in the Dakhla Region (2002 Campaign), *GM* 217 (2008), 17–25.

<sup>68</sup> J. NOLAN, *op. cit.*, 273. Emphasis H.W.

would seem that they have more in common with each other than with the two other sites.

Institutional seals could be read, and were therefore useful in a nationwide administrative system: even administrators who did not know each other because they worked in distant areas would understand what the seal impressions meant. It is assumed that the figurative seals also served an official purpose, but that they were for local use only. It is not certain what they mean precisely, but they may have designated persons with regional responsibilities in a graphic way. These 'logos' would have been meaningful locally, but not to officials elsewhere in Egypt. Therefore, the figurative seals are thought to have belonged to members of provincial elites who may not have formed part of the network of state administrators, but whose responsibilities at the local level were nevertheless very real.

In many recent studies it is argued that the figurative cylinder seals emerged in the course of the Vth dynasty and that they were succeeded in the late OK by 'stamp seals'.<sup>69</sup> The evidence presented above offers crucial new information in this debate. Firstly, we have seen that figurative cylinder seals did not emerge in the late OK, but that they were already widely in use at al-Shaykh Sa'īd and probably Giza in the early OK. Moreover, our 2009 season produced incontrovertible evidence that stamp seals with mock-hieroglyphs were also in existence already then. This shows that the chronological development needs to be reconsidered. Also, the probable existence of similar seals in the workmen's community at Giza casts doubt on the idea that such material is representative of provincial culture only.

H.W.

### 3.4. Archaeobotanical analysis

The garbage heaps excavated at site SS/WZ offer good opportunities to study the plant economy and diet of the workmen living at the site. In an initial study 4 flotation samples were taken into consideration. The sample taken in 2007 derives

from the section north of the track into the Wādī Zabayda. Material was collected in 2008 in sectors 1 and 4, in the higher levels of the undisturbed OK deposits. The studied plant assemblages were retrieved by means of manual flotation using sieves with meshes of 1 and 0.3 mm. The average sample size taken for flotation ranged between 5 and 10 litres. The plant macrofossils are preserved mainly in charred form. In one of the samples, dominated by melon (*Cucumis* cf. *melo*), mineralised material was preserved as well. Wood charcoals and some pieces of desiccated wood were also found. The studied material represents various plant macrofossils derived from cultivated plants, their weeds and the wild flora around the site.

The samples are very rich in identifiable seed/fruit remains. In one of them the concentration of plant materials reached 164 identifiable items per litre. In all of the plant assemblages emmer (*Triticum dicoccum*; Pl. VA; C) and hulled barley (*Hordeum vulgare*; Pl. VB) occur. Emmer generally prevails over barley and in some samples is the main component of the cultivated cereals. The pulses are represented by single seeds of pea (*Pisum sativum*; Pl. VD), grass pea (*Lathyrus* cf. *sativus*; Pl. VE) and 18 seeds probably of faba bean (cf. *Vicia faba*; Pl. VF). Together with them also about 30 badly preserved and almost unrecognisable large leguminous seeds were found. One of the samples is dominated by seeds most probably of melon (427 seeds, Pl. VH), in another one dock (*Rumex* sp.) prevails with c. 230 seeds counted. Numerous caryopses of *Lolium* sp. (small caryopses of "Group 1" according to Nesbitt<sup>70</sup>) are available in the samples. Together with it, possible weeds frequently found in Egypt since Predynastic times<sup>71</sup> like *Phalaris* sp., *Steratia verticillata/viridis*., *Chenopodium* cf. *murale*. etc. were also present. Some of them, as well as some small leguminous seeds determined as *Medicago/Trifolium*, and the seeds of *Acacia* sp. might originate from dung fuel.

The typical OK cereal crops emmer and barley<sup>72</sup> are represented both by grain and, to a much less-

<sup>69</sup> FISCHER, *loc. cit.*; KAPLONY, *Rollsiegel* I, 21–35; A.B. WIESE, *Die Anfänge der ägyptischen Stempelsiegel-Amulette*, OBO SA 12, Fribourg, Göttingen, 1996, 3–91; B. KEMP, *Ancient Egypt. Anatomy of a Civilization*, London, New York<sup>2</sup>, 2006, 141–143; DUBIEL, *op. cit.*, 131.

<sup>70</sup> M. NESBITT, *Identification Guide for Near Eastern Grass Seed*, London, 2006, 54–55.

<sup>71</sup> A. FAHMY, Evaluation of the weed flora of Egypt from Predynastic to Greco-Roman times, *Vegetation History and Archaeobotany* 6 (1997), 244.

<sup>72</sup> A.M. MURRAY, Cereal production and processing, in: NICHOLSON, SHAW (eds.), *AEMT*, 209.

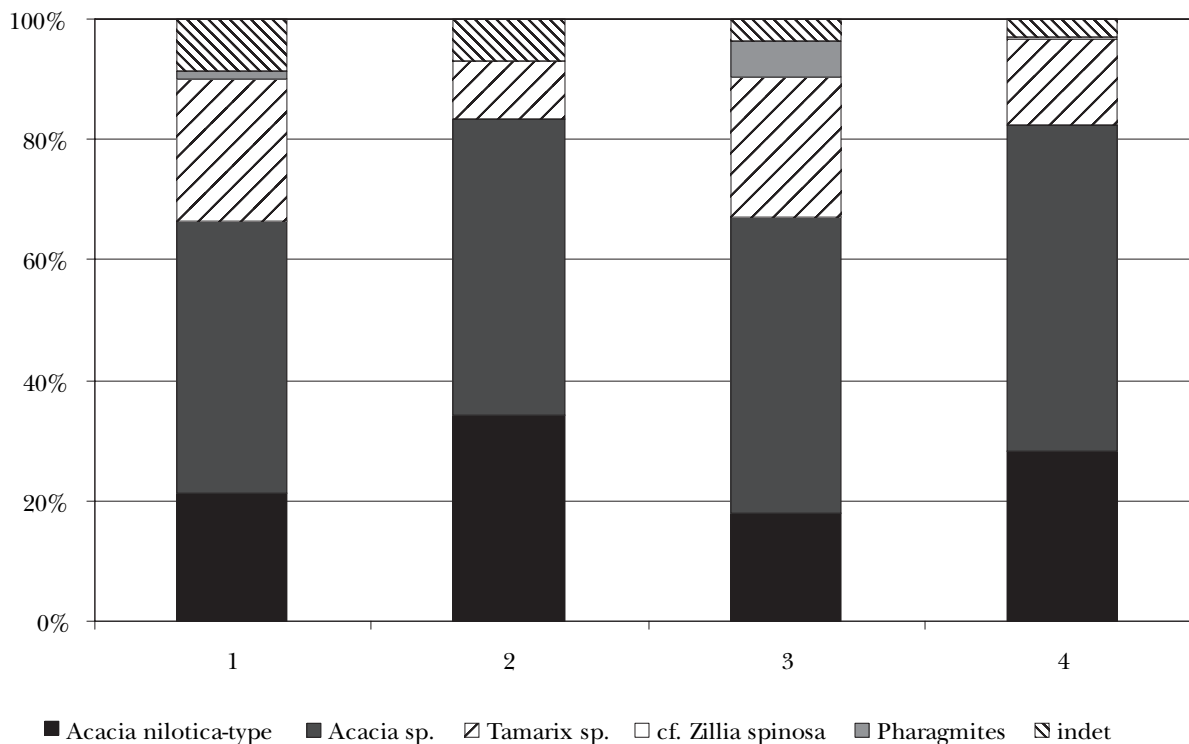


Fig. 13 Proportions of the wood charcoal taxa found in the four studied samples

er extent, by chaff remains. The cereal grains are the most numerous remains and they probably originate from the preparation of food. This is especially true for the emmer caryopses which seem to have been charred in a dehusked state (c. 90 % of the studied grains). This is indicated by the absence of chaff traces on the grain surface, making them at first sight resemble naked wheat. Chaff traces usually remain when the caryopses are charred in their hulls. Another indication for dehusking is the generally rough “wavy cross rippling” surface typical for charred naked grains. The fact that the emmer was found in a dehusked state suggests the grain remains were prepared for human consumption.

The possible find of *Vicia faba* at site SS/WZ provides the earliest known macrofossils of this cultivated plant in Egypt, although slightly later mac-

robotanical evidence is known from a Vth dynasty tomb at Abū Sir.<sup>73</sup> The many large leguminous seeds (some identifiable as cf. *Vicia faba*) may represent a pulse crop used at the site. The poorly preserved, indeterminable large leguminous seeds could represent a taxon other than *Vicia faba*, but they likely belong to the faba bean too. It should be recalled that large-size pulses tend to preserve badly in the archaeobotanical record as, due to their size, they easily fragmentize, losing important morphological features.<sup>74</sup> Another reason for the bad preservation and “invisibility” of the faba bean in the archaeobotanical record could be that the seed coat was deliberately removed in order to reduce its toxicity.<sup>75</sup> It should be noted that palynological evidence suggests an even earlier occurrence of this plant around 3000 B.C. at the site of Mendes in Lower Egypt.<sup>76</sup>

<sup>73</sup> R. GERMER, *Flora des pharaonischen Ägypten*, SDAIK 14, Mainz am Rhein, 1985, 81.

<sup>74</sup> A.M. MURRAY, Fruits, Vegetables, Pulses and Condiments, in: NICHOLSON, SHAW (eds.), *AEMT*, 638; K. TANNO, G. WILLCOX, The origins of cultivation of *Cicer arietinum* L. and *Vicia faba* L.: Early finds from north west Syria (Tell el-Kerkh, late 10<sup>th</sup> millennium BP), *Vegetation History and Archaeobotany* 15 (2006), 203.

<sup>75</sup> G. JONES, P. HALSTEAD, An Early Find of ‘Fava’ from Thebes, *Annual of the British School at Athens* 88 (1993), 103–104.

<sup>76</sup> S.M. AYYAD, K. KRZYWINSKI, Archaeopalynological thoughts on *Vicia faba* type pollen from ancient Mendes (Tel-Robca Area, Egypt), *PACT-Journal of the European Study Group on Physical, Chemical, Biological and Mathematical Techniques Applied to Archaeology* 2–4 (1994), 25–36.



The isolated finds of pea and grass pea can neither confirm nor exclude their use at the site, as ethnographic observation in the Mediterranean shows that most of them (especially *Lathyrus*) can also represent arable weeds.<sup>77</sup> Such single finds are common at predynastic and early dynastic sites<sup>78</sup> and in many cases are considered as weeds. But in the contemporary settlement of the Giza pyramid builders there is clear evidence for their consumption.<sup>79</sup>

Although known since the predynastic period with finds of single seeds,<sup>80</sup> melon is uncommon in the archaeobotanical record.<sup>81</sup> The hundreds of seeds found at our site are not necessarily indicative of the importance of the plant as the seeds could originate from accidental burning and one fruit alone produces more seeds than the amount we found. It is impossible to identify the variety of melon (sweet or not) on the basis of seeds only. The not sweet chate melons are eaten like cucumbers. OK tomb scenes suggest the use of the chate melon.<sup>82</sup> Melon seeds at site SS/WZ also occur in mineralized form, possibly indicating dump disposal.

All four samples were very rich in charred wood fragments. The few desiccated wood fragments were so badly preserved that no determination was possible. From each sample c. 200 charred wood fragments were studied. Their general composition is very homogeneous (Figure 13). All are dominated by *Acacia nilotica*-type and *Acacia* sp., followed by *Tamarix* sp. Since both taxa need good underground water supply, this shows use of wood resources close to the Nile. In two of the samples grass stems (Poaceae) with diameters up to 4 mm and some fragments of reed stems (*Phragmites australis*) were found. The reed remains identified in two of the samples speak for this too. The seed/fruit record of the wild flora

(*Carex* spp., *Cyperus* spp. *Scirpus* spp.) likewise indicates the presence of reeds and swamps close to the site. The occurrence of the stems of reed could be connected with the use of the plant as building material or for matting.

In general the plant macrofossils assemblage fits well in the picture for the Early Dynastic plant economy known until now, but also it affords new insights in the use and importance of faba bean and melon for this period.

E.M.

### 3.5 The Animal Remains

The standard procedure for retrieval of the fauna consisted of hand picking in the excavation trench, followed by dry sieving of all sediment through 4 mm meshes. Wet sieving of in total about 10 litres of sediment for archaeobotanical sampling, using fine sieves with 0.3 and 1 mm meshes, yielded some additional, smaller remains that allow to some extent to correct for the loss when using only a 4 mm mesh. Thus far approximately 15,000 animal remains have been analysed of which about 5300 could be identified. They are mainly from activity zone B, where some features interpreted as bakery floors were found (S8, S6B=S9), as well as from activity zone A. The latter seems to have been an open-air waste-disposal area, part of which yielded a large concentration of bread moulds (S54A), and where also some circular fire places were made (S58; S59). Although differences can be noted between the fauna of the two activity zones, both are considered together in this first report.

Despite a long tradition of archaeological research in Egypt, only few publications exist on faunal remains, especially from settlement contexts. OK settlements of which faunal data have been published are Buto,<sup>83</sup> Kawm al-Ḥisn,<sup>84</sup> Tall

<sup>77</sup> G. JONES, P. HALSTEAD, Maslins, mixtures and monocrops: on the interpretation of archaeological crop samples of heterogenous composition, *JAS* 22 (1995), 112–113.

<sup>78</sup> H. KROLL, R. PASTERNAK, XVII. Untersuchungen der Botanischen Funde, *MDAIK* 61 (2005), 134.

<sup>79</sup> A.M. MURRAY, Feeding the Town: New Evidence from the Complex of the Giza Pyramid Builders, *General Anthropology* 12 (2005), 7.

<sup>80</sup> W. VAN ZEIST, G. DE ROLLER, Plant remains from Maadi, an Predynastic site in Lower Egypt, *Vegetation History and Archaeobotany* 2 (1993), 10; A. FAHMY, Palaeoethnobotanical studies of Egyptian Predynastic cemeter-

ies: new dimensions and contributions, in: K. NEUMANN, A. BUTLER, S. KAHLHEBER (eds.) *Food, fuel and fields. Progress in African archaeobotany*, Acta Praehistorica 15, Köln, 2003, 99–100.

<sup>81</sup> A.M. MURRAY, in: NICHOLSON, SHAW (eds.), *AEMT*, 634–635.

<sup>82</sup> GERMER, *Flora des pharaonischen Ägypten*, 129.

<sup>83</sup> A. VON DEN DRIESCH, Tierreste aus Buto im Nildelta, *Archaeofauna* 6 (1997), 23–29.

<sup>84</sup> R.J. WENKE, P. E. BUCK, H. HAMROUSH, M. KOBUSIEWICZ, K., KROEPER, K., R. REDDING (eds.), Kom el-Hisn: Excavation of an Old Kingdom settlement in the Egyptian Delta, *JARCE* 25 (1988), 5–34.

Ibrahīm Awad,<sup>85</sup> Giza,<sup>86</sup> Elephantine<sup>87</sup> and Abydos.<sup>88</sup> The assemblage from site SS/WZ represents a large new dataset.

As indicated in the species list (Fig. 14), fish are very common at the site. Almost 2000 remains have been identified. These include 15 taxa, indicating that the fishing gears used allowed capturing a large part of the available spectrum. It is likely, however, that the species proportions suggested by the table are biased because of the lack of systematic fine sieving, i.e. on meshes of 2 mm or smaller. The bones from the archaeobotanical samples yielded far higher proportions of fish with very small bones, like *Alestes/Brycinus*. Yet, even taking into account a degree of bias, the abundance of Nile perch remains striking (approx. 1200 specimens, or about 60%). The species is caught in the deep parts of the Nile and also the *Bagrus* and *Synodontis* catfish are deep water fish.<sup>89</sup> Because of their large size, the cyprinids may also belong to this category. Clariid catfish and tilapia, two typical floodplain dwellers, are far less common at al-Shaykh Saʿīd. They represent less than 15% of the fish bone assemblage. Certainly in the case of clariid catfish, which have sturdy bones and which can attain sizes of up to one metre, this is not an effect of sampling bias or poor preservation chances. The low numbers of floodplain fish can either mean that during the OK the floodplain near the site was not used for fishing, that people were not around during the flood season – when these fish are most easily captured – or that there was simply no or only a small floodplain nearby. For the moment, the last pos-

sibility seems most plausible in view of the results from geomorphological work carried out so far. Size reconstructions have indicated that 40% of the Nile perch bones are of very large specimens, of 1–2 m standard length. They must have been caught in particularly deep parts of the Nile, since the average size of Nile perch caught increases with depth. Possibly, the high proportion of large Nile perch indicates that such big fish could be easily obtained. If the water inlet near the site already existed during the OK (see 4.2), this would have made it easy to access the main Nile, and may have facilitated fish landings as well. The provisioning of the workers with large fish may also have been a deliberate choice.

Over 3000 mammal remains, nearly all of domestic animals, have been identified. Over 2000 bones of sheep/goat, and 1150 of cattle were counted. No pig remains have been found at all, except some in the NK levels. The absence of pig is unparalleled in the other OK sites mentioned above. The sheep, goat and cattle remains include many young animals. About 10% of the cattle were newborn to about half a year old, implying that they were probably derived from herds that were kept in the neighbourhood. The high proportion of young animals may be indicative of high quality food, in this case tender meat. At Giza the cattle included a large proportion of 1–2 year old males that are supposed to have been brought in on the hoof.<sup>90</sup> Wild mammals are uncommon at site SS/WZ. Low numbers of game are normal at post-Neolithic Egyptian sites, but here numbers are particularly low.<sup>91</sup> The only species present are

<sup>85</sup> J. BOESSNECK, A. VON DEN DRIESCH, Weitere Tierknochenfunde vom Tell Ibrahim Awad im östlichen Nildelta, in: E. C. M. VAN DEN BRINK (ed.), *The Nile Delta in transition: 4<sup>th</sup>–3<sup>rd</sup> millennium B.C. Proceedings of the seminar held in Cairo, 21–24 October 1990*, Tel Aviv, 1992, 97–109.

<sup>86</sup> M. KOKABI, Tierknochenfunde aus Giseh/Ägypten, *Annalen des Naturhistorischen Museums* 83 (1980), 519–537. A.M. MURRAY, *General Anthropology* 12 (2005), 1–9. R. REDDING, Main street faunal remains, in: M. LEHNER, W. WETTERSTROM (eds.), *Giza Reports I*, 171–178. R. REDDING, Gallery III.4 Faunal Remains, in: LEHNER, WETTERSTROM (eds.), *Giza Reports I*, 263–269. R. REDDING, ‘Treasures’ from a high-class dump, *Aerogram* 8,2 (2007), 6–7.

<sup>87</sup> J. BOESSNECK, A. VON DEN DRIESCH, *Tierknochenfunde der Ausgrabungen des Deutschen Archäologischen Instituts Kairo auf Elephantine. Studien an subfossilen Tierknochenfunden aus Ägypten*, München, 1982.

<sup>88</sup> J. WEGNER, V. SMITH, S. ROSSEL, The Organization of the Temple *Nfr-K3* of Senwosret III at Abydos, *Ä&L* 10 (2000), 83–125; S. ROSSEL, Food for the dead, the priests and the mayor: looking for status and identity in the Middle Kingdom settlement at South Abydos, Egypt, in: S.J. O’DAY, W. VAN NEER, A. ERVYNCK (eds.), *Behaviour behind Bones. The Zooarchaeology of Ritual, Religion, Status and Identity*, Oxford: 2004, 198–202; IDEM, A tale of the bones. Animal use in the temple and town of Wah-Sut, *Expedition* 48 (2006), 41–43.

<sup>89</sup> W. VAN NEER, Evolution of prehistoric fishing in the Egyptian Nile Valley, *Journal of African Archaeology* 2 (2004), 251–269.

<sup>90</sup> A.M. MURRAY, *op. cit.*

<sup>91</sup> V. LINSELE, W. VAN NEER, Exploitation of desert and other wild game in ancient Egypt: the zooarchaeological evidence from the Nile Valley, in: M. HERB, F. FÖRSTER, N. PÖLLATH, H. RIEMER, Desert Animals in the

	Activity zone A	Activity zone B	Total
<b>Shells</b>			
Fossil shell	1	1	2
Large bivalve	0	1	1
<b>Fish</b>			
<i>Polypterus</i> sp.	0	2	2
<i>Alestes/Brycinus</i>	1	2	3
<i>Hyperopisus bebe</i>	3	4	7
Mormyridae	14	1	15
Cyprinidae (min. 2 species)	31	29	60
Distichodontidae/Citharinidae	0	1	1
Catfish 1 (Clariidae) (min. 2 species)	42	80	122
Catfish 2 ( <i>Bagrus</i> sp.)	19	22	41
Catfish 3 ( <i>Synodontis</i> sp.) (min. 2 species)	118	182	300
Catfish 4 ( <i>Auchenoglanis</i> sp.)	1	0	1
Nile perch ( <i>Lates niloticus</i> )	755	424	1179
tilapia (Tilapiini)	74	75	149
Unidentified fish	843	458	1301
<b>Softshell turtle (<i>Trionyx triunguis</i>)</b>	1	1	2
<b>Wild mammals</b>			
Hippopotamus ( <i>Hippopotamus amphibius</i> )	13	6	19
Hartebeest ( <i>Alcelaphus buselaphus</i> )	0	1	1
<b>Domestic mammals</b>			
Sheep ( <i>Ovis ammon</i> f. aries)	7	49	56
Goat ( <i>Capra aegagrus</i> f. hircus)	35	99	134
Sheep or goat	647	1185	1832
Cattle ( <i>Bos primigenius</i> f. taurus)	671	464	1135
Unidentified mammal	3726	3661	7387
Carnivore dropping	1	0	1
Sheep or goat dropping	0	5	5

Fig. 14 Animals identified in OK deposits at site SS/WZ (numbers of identified specimens, NISP) (collected by hand and through dry sieving on 4 mm meshes only)

hippopotamus and hartebeest. Hippo was probably hunted in the Nile or in the grassland close to it.<sup>92</sup> In the latter also hartebeest could be found, although the animal must have been rare in Upper Egypt since the end of the Palaeolithic.<sup>93</sup>

Almost all of the animal remains analyzed should be considered as food waste. Some have butchery marks that confirm this. The diet of the workers appears to have been of high quality (cf. large Nile perch, young domestic animals), but the range of animal species that provided pro-

teins was relatively small compared to contemporary settlements. Intrusive animals, such as mice, rats or other rodents, are completely missing in the excavated deposits. Carcasses of animals such as dogs, that were not eaten after their death, are absent as well, except in topsoil. It is unclear whether the hippo remains are also food waste, or if their presence must be explained differently. Many of the bones are burned. This is particularly true for feature S54A where at least 40% of all bones are burned. They usually have

Eastern Sahara: Their Position, Significance and Cultural Reflection in Antiquity, in: *Proceedings of an International ACACIA Workshop held at the University of Cologne, Germany. December 14–15, 2007* (in press).

<sup>92</sup> R.D. ESTES, *The behaviour guide to African Mammals. Including hoofed mammals, carnivores, primates, South Africa, 1997, 222.*

<sup>93</sup> V. LINSEELE, W. VAN NEER, *op. cit.*

a brown or black colour and only few are grey or white, colours associated with high temperature burning. A simple camp fire must have been sufficient to obtain the burning observed.<sup>94</sup> Often the bones are burned entirely, which means there was little or no meat on them, or that the meat was destroyed completely by the fire. Rather than being related to food preparation, it is possible that these fires were intentionally lit and maintained in areas like S54A to prevent animal pests and stench (see page xx). In general, gnawing marks of carnivores and rodents are rare on the bones, which also fits this scenario. Yet, some droppings of carnivores (and of sheep or goat) were found, showing that these animals visited the waste disposal areas. The deposits yielded several sets of articulating bones. In combination with the observations above, this points to waste deposits that were, apart from fires, little disturbed after their initial deposition.

V.L., W.v.N.

#### 4. THE SETTING OF THE SITE

##### 4.1 The Quarries at the End of Wādī Zabayda

It has been shown that calcite alabaster was worked at site SS/WZ in the early OK and from the mid-NK to the TIP, when the site's main purpose seems to have been vase production. The most likely reason why calcite alabaster objects were produced at such a scale precisely here, is that the *hinterland* of the site contained the extraction area of the rough material. In 1894, W.M.F. Petrie already pointed out the existence of a large quarry, the Maghāra Abū ʿAzīz (Pl. I and IIIB), remarking:

“Turning next to the northern quarries, one already noticed by Wilkinson is at the head of two valleys running opposite ways, quarry G. This is an open pit of alabaster, of large width, but not deep. It is approached by a sloping trench from the W., and some niches for tablets occur in the sides, and traces of a tablet now illegible; from the style it looks early, not later than the XIIth dynasty.”<sup>95</sup>

J. Harrell recently made the significant point that this quarry (his number 3) not only produced calcite alabaster (or ‘travertine’, as he prefers to call it), but also limestone.<sup>96</sup>

Not all of Petrie's remarks are apt. The quarry is indeed wide, but it is also very deep (in some places certainly more than 10 m.), and although recent illicit quarry exploitation has sorely affected the site, the high vertical edges are in many cases definitely ancient. Also, the cut out road to the W observed by Petrie is not the only of its kind: a second one, departing from the SE end of the quarry, gives access to the wadi leading to the North Tombs in Amarna, suggesting that the quarry was in use in the Amarna era. However, the presence of OK bread mould fragments suggests that stone extraction in the area began long before.

Near the quarry, a rock spur facing the beginning of the quarry track still shows the remains of the stela niches Petrie referred to (Pl. IIIB). Several, which contain no traces of decoration, were simply niches into which loose stelae were cemented. The easternmost stela, however, was carved in the living rock (see Fig. 14). Its lower part still contains remains of a scene showing two standing male figures facing a third person on the right. Behind the leftmost figure are traces of the text [...] *di (?)* [...] *nb mi R<sup>c</sup> d.t.* The righthand column, which is even more damaged, had the same text. Although there are occasional traces of other signs, none are legible. At the top of the left jamb of the panel, there are still the remains of the Horus name of a king, whose name unfortunately remains illegible.

The entire emplacement strongly recalls the situation at the calcite alabaster quarries at Hatnub. Here also, the quarry is a crater reached by a road carved out of the living rock, and here also the sides (and particularly the S side) contains rectangular stelae. As far as the remains permit a judgement, these date to the OK. Horus names occur here as well, and one has a text ending with the same words as the one under discussion.<sup>97</sup>

All of this suggests that the Maghāra Abū ʿAzīz may date back to the OK, and that it remained in

<sup>94</sup> LYMAN, R.L., *Vertebrate Taphonomy, Cambridge Manuals in Archaeology*, Cambridge, 1994.

<sup>95</sup> PETRIE, *Tell el Amarna*, 4 and pl. XXXIV; see also the remarks by DAVIES (n. 5) and KESSLER (n. 8).

<sup>96</sup> J. HARRELL, *Ancient Quarries near Amarna, Egyptian Archaeology* 19 (2001), 36–38.

<sup>97</sup> R. ANTHES, *Die Felseninschriften von Hatnub*, UGAÄ 9, Leipzig, 1928, Taf. 5 (Inscr. VI; date: Merenre).



Fig. 15 Sketch of remaining decoration on the eastern stela in the Maghāra Abū 'Azīz (H. Willems)

use at least until the Amarna period. It is tempting to assume that the quarry and site SS/WZ form two ends of one industrial complex.

H.W.

#### 4.2 Landscape reconstruction of the wadi mouth: an ancient harbour site?

During the 2008 and 2009 seasons, the flat cultivated area at the mouth of the Wādī Zabayda (see Pl. II; IIIA) was subjected to a geomorphic survey in order to reveal the landscape evolution of the area. 27 manual sediment corings were made in the cultivation with an edelman coring device. Their depth ranges between 1 m – where large angular stone fragments prohibited further coring – and 6 m. Complementary to these corings, five 2D-electrical resistivity profiles were run: two are oriented W-E, *i.e.* parallel to the axis of the wadi, while three ran N-S, perpendicular to the wadi. Electrode spacing equalled 2.5 m. and the average depth of penetration was approx. 15–20 m. (for the locations of the corings and the resistivity profiles, see Pl. II). Just before the 2009 season, the owner exploited part of the cultivated area as a quarry, removing the soil matrix up to a depth of 1 m in the northern part and up to 2 m

in the southeastern part of the wadi mouth. The newly exposed quarry faces were measured in 2009 at several locations, offering more detailed stratigraphical information.

The resistivity profiles showed that coarse deposits typical of wadi origin are the main type of sediment in this area. This was confirmed by most of the sediment corings. The quarry faces showed that these wadi deposits are layered horizontally, layers with yellowish coarse angular fragments alternating with smaller gravel layers, but also with thin layers of dark-brown fine-grained sediments typical of floodplain deposits. The latter units increase in thickness towards the W, pointing to an increasing interfingering of Nilotic and wadi influence in this area. However, in the central part of the cultivated area, an anomaly of lower resistivity values was observed in the N-S profiles, pointing towards an area of much finer deposits. Corings showed that sediments here are dark brown and poorly sorted. Dominant texture ranges from fine sand and small gravels to silt and clay. However, several small and larger angular rock fragments are incorporated. Moreover, at several depths, ceramic fragments were retrieved from the corings. Most are too small for diagnostic analysis, but

some sherds indicate dates in the NK and later. This sediment unit is also rich in fragments of organic debris and charred plant remains, however, mostly too small to be determined to species level. At the top of this unit, coarse-grained wadi sediment prevails again. We interpret this sediment unit as a non-natural depositional mixture of **1)** fine-grained Nile sediment (silt and clay), **2)** fine-grained wadi sediment (sand and small gravel), and **3)** anthropogenic debris (organics and ceramics; single large angular rock fragments embedded in thick fine-grained sediments). This unit is about 15–20 m wide and has a depth of at least 6.40 m. Three AMS dates were performed on charred plant remains recovered from this sediment unit. One sample, situated immediately below the wadi deposits that cover this sediment unit and 1 m below the modern surface, returned an age of 980–1150 cal. A.D. Two samples situated at depths of 2.6 and 4.4 m. (at two different coring locations), *i.e.* in the middle of the sediment unit, returned ages of cal. B.C. 1430–1260 and cal. B.C. 900–790, respectively. These ages are in agreement with datings obtained from the ceramics. In the northern part of the cultivation, all cores were limited to a depth of 1–2 m. Sediments here are characterised by a matrix of coarse material that is more angular than typical wadi deposits, suggesting a local origin. Moreover, high concentrations of ceramic fragments were found. In one quarry face in the NW-part of the cultivated area, part of a IV<sup>th</sup> dynasty bread mould was identified 1 m below the modern surface. One AMS date on charred plant remains from a nearby core at a depth of 1.2 m returned an age of 2890–2620 cal. B.C. Here we have to take into account the usual problem that <sup>14</sup>C date ranges for this period are generally higher than conventional dating: the latter usually just fit at the most recent end of the radiocarbon date range.<sup>98</sup> Our dates, in fact, exactly fit a simulated <sup>14</sup>C date corresponding to a ‘historical date’ of 2587 ± 50 B.C. for the reign of Khufu.<sup>99</sup>

Based on the sedimentological evidence found so far, we interpret the anomalous sediment unit that is nowadays buried in the central part of the

cultivated wadi mouth as an ancient harbour inlet that was once connected with an active Nile channel running close by, and that is nowadays completely infilled. Based on all the evidence, a palaeogeographical reconstruction of the harbour channel is indicated on Pl. II. At present, the Nile runs 600 m W of the site, but CORONA satellite imagery from 1970 indicates that at that time a secondary channel was situated immediately W of the site, on the other side of the present-day irrigation channel (Pl. I–II). No information on the first use of this harbour is available as the bottom of the sediment fill was not reached with the manual coring devices and thus could not be dated. The harbour channel eventually has been filled up gradually by a combination of processes. First of all, anthropogenic debris fell from the shore into the channel, deliberately or accidentally. Not only ceramic fragments ended up here but also the larger, angular rock fragments that are so typical for the surface near stone production sites, as well as large amounts of charred remains. Secondly, floodwaters from the Nile brought in fine-grained sediment giving the typical dark brown colour to the sediment matrix. And finally, episodic wadi floods delivered fine-grained gravel and sand to the channel. The top of the sediment unit is dated at approximately 1000 A.D. Charred plant macroremains in the top of this layer, such as *Zilla spinosa* (L.) Prantl, belong to the typical wadi vegetation. Finds of *Raphanus sativus* L. in the same layer could point towards the same age as this crop was widely cultivated in this area only from the Coptic period onwards (approx 7<sup>th</sup> century A.D.).

G.V., V.D.L., E.M., H.W.

## 5. GENERAL CONCLUSIONS

Sections 4.1–2 show that the stone production facility at site SS/WZ forms the core of a large geographical region that can be coherently interpreted as an industrial site. Limestone and calcite alabaster were extracted in the Maghāra Abū ‘Azīz, transported down the wadi to the hill at al-Shaykh Sa‘īd to be transformed into vases and other commodities, and shipped elsewhere from the harbour in the water inlet just south of the hill.

<sup>98</sup> See S.W. MANNING, Radiocarbon Dating and Egyptian Chronology, in: E. HORNUNG, R. KRAUSS, D.A. WARBURTON (eds.), *Ancient Egyptian Chronology* (HdO I, 83: Leiden, Boston, 2006), 338–350. Of importance here are the shape of the calibration curve for this period and

the use of ‘old wood’ in the contexts from which material was sampled (the latter factor cannot, of course, have had much impact on our sample).

<sup>99</sup> Corresponding to a 1σ date range of 2880–2620 BP; based on OxCal 3.9; see S.W. MANNING, *op. cit.*, 342.

The OK activity is dated firmly to the early IV<sup>th</sup> dynasty on the basis of ceramics, a seal impression mentioning king Khufu, and a radiocarbon date for a charcoal sample. Possibly the harbour was already in existence at this early date. It is at any rate clear that, already then, calcite alabaster from the Maghāra Abū 'Azīz was worked here, but the nature of the industry remains somewhat obscure. The stone vase drills that litter the site include crescent drills for which close parallels are known from other early OK quarry sites. In the OK levels at site SS/WZ, however, none of these were found in contexts that are securely dated to the early OK. To explain the absence of this kind of material it could be argued that the OK levels in sectors 1, 3, and 4 were primarily used for food production, and that drills were deployed elsewhere. However, the greatest density of drills encountered during the survey occurred precisely around sectors 1–4, so that their near absence in *in situ* OK levels can hardly be coincidental. Moreover, remains related to the production of stone items other than vases are frequent here, proving that stone production waste *did* end up in the OK strata of sectors 1, 3 and 4. Quite an amount of fragments with smooth surfaces (and sometimes edges) suggest that the stone objects made here were carefully dressed and polished architectural elements, and also that the site did not produce raw material (or at least not only that), but rather (nearly) finished products. Unfortunately the kinds of object concerned as yet cannot be determined.

The narrow early IV<sup>th</sup> dynasty date range suggests a connection with the grand building projects undertaken by Khufu (and perhaps his predecessor Snofru). It stands to reason that some of the calcite alabaster may have gone into the royal pyramids of the time, into the sepulchres of high officials, or into other major structures located near the residence.

It is still too early to estimate the extent of the early OK settlement. An indirect indication is afforded by the sheer quantity of bread moulds discovered. Future analysis will enable us to make a rough estimate of the number of bread moulds discarded in the small excavated area (approx. 50

m<sup>2</sup>). It is already clear that this number will be very high, and of course the excavated sectors represent only a part of the actual waste disposal area. An indication of its total size is afforded by the find of well preserved bread mould fragments linked to an ash layer at the western end of the excavation made by the local farmer after the end of our 2008 campaign, some 75 m. from the eastern side of sector 4. Apparently the strata with charcoal and bread moulds continued as far as here. This suggests that the food production area was spread out over an E–W distance of at least some 80m. It cannot be ruled out that the total bread production area extended even further east and west. Bread production must thus have been going on here at a vast scale. Another point of interest is that, in Egypt, the production of bread and beer usually took place in adjacent facilities, but that only few beer jars were encountered in sectors 1, 3 and 4. The breweries must therefore have occupied another part of the site, and may have had dump areas elsewhere. In any case the garbage heaps linked to the production units for bread and beer were extensive. Since their period of use seems to have been only brief, a sizeable work force must have been sheltered here.

The macrobotanical and archaeozoological analysis has shown that this population lived on a diet with rather limited variation, but high in quality. It consisted of emmer made bread, and probably beer, pulses, vegetables, fish (mainly Nile perch), and (often young) sheep, goats and cattle. The predominance of these animals may indicate large-scale, centrally controlled, food provisioning. This picture is similar to that seen for the higher status workers at the Giza settlement of the pyramid builders, which is only slightly later.<sup>100</sup>

Another similarity to the latter settlement is the occurrence of an exceptional type of bread mould. These very large pots have distinct typological traits that were hitherto known only from the settlement of the pyramid builders at Giza.<sup>101</sup> Our evidence suggests that this type of ceramic may have been used specifically for bread production in the framework of rationing large work forces.

<sup>100</sup> R. REDDING, *Aeragram* 8,2 (Fall 2007), 6–7. MURRAY, *op. cit.*; R. Redding, pers. comm. also suggests that the large Nile perch at Giza were used predominantly by higher status workmen.

<sup>101</sup> A. Wodzinska therefore remarks that these bread moulds are specific for the town at Giza (WODZINSKA in: LEHNER, WETTERSTROM (eds.), *Giza Reports* I, 306–308).

The activities of such contingents must have been coordinated by a group of administrators. Indirect hints to the presence of an elite are afforded by the pottery evidence. Although this consists overwhelmingly of rough, locally made, utilitarian vessels, some of the Maidūm sherds are of an exceedingly fine quality (see p. 308f.). One dish (see Fig. 9) definitely does not belong to the pottery assemblage commonly used in daily life either. It is a luxury item imitating a stone plate. It is unlikely that ordinary quarrymen surrounded themselves with such a material culture. It would rather seem to belong to the apparel of a fairly high elite. The seal impressions found at the site that belong to the category of the institutional seals, demonstrate that a form of administrative control was in force. The exceptional pottery items just mentioned may reflect the lifestyle of those exerting that control.

Few parts of the settlement have so far been found, but it must have existed nearby. It probably included a brewery, pottery kilns, and an administrative centre. Although only a single wall has so far been found (S130 in Fig. 6), it has an interesting story to tell. It is built of rough field stones, has a thickness of about 60 cm, and is orientated exactly to the N. Walls in organically grown settlements of the period tend to be thinner, are built of mud brick, and have no fixed orientation.<sup>102</sup> This is different in planned workmen's settlements near early OK pyramids. The best known example is the workmen's settlement in south-eastern Giza recently excavated M. Lehner. Interestingly, the eastern fringe of the excavation has exposed an organically grown settlement, but the planned workmen's settlement with its barracks, bakeries, and official buildings are strictly orientated north, are built in field stones, and have walls of a thickness that compares well to those at site SS/WZ.<sup>103</sup> A similar settlement with the same type of walls was found near the Menkaure pyramid. Some walls here were built of 'alabaster', suggesting that this precious material, that must have been imported

from Middle Egypt, was lying about in huge quantities here.<sup>104</sup> Finally, a comparable early IVth dynasty structure was found near the red pyramid in Dahshūr.<sup>105</sup> Although we have thus far excavated only a minute part of the settlement at site SS/WZ, the best comparanda are clearly these workmen's settlements around the pyramids, which obviously were a state initiative.

It is concluded that site SS/WZ must have been a fairly populous settlement of which the base of subsistence was not agriculture and animal husbandry (as was probably the rule in rural Upper Egypt), but the production of stone items. This, the similarities with the contemporary Giza settlements of the pyramid builders, and the presence not only of workmen but also of an elite, suggests we are facing the remains of a state institution. In the early OK such establishments in the provinces are well known: they are the so-called royal domains (Egyptian *hw.t*). A contemporary iconographic rendering of the nationwide network of domains is preserved on the walls of the so-called valley temple of king Snofru at Dahshūr. In keeping with the feminine gender of the word *hw.t*, the domains are here depicted as a procession of ladies carrying the *hw.t*-sign on their heads. Inside the sign occurs the name of king Snofru. Each lady was thus designated as *hw.t-Snofru*, 'domain of Snofru'.<sup>106</sup> In lists like this, each lady personifying a domain is depicted carrying products: a symbolic rendering of how the produce of the domains is channelled to the residence. This transfer of commodities from the provinces to the capital must have been one of the foundations of the royal economy of Egypt.

Domains must have existed all over Egypt.<sup>107</sup> Although this leaves no doubt as to their importance for the economy of OK Egypt, little is known about their structure and functioning. Archaeological evidence of only one was hitherto known. It concerns the late IIIrd dynasty domain at Elephantine,<sup>108</sup> of which parts were excavated by S.J. Seidlmayer. Unfortunately only a few enig-

<sup>102</sup> This is the case, for instance, for the OK settlement at Elephantine (M. ZIERMANN, *Elephantine XXVIII. Die Baustrukturen der älteren Stadt (Frühzeit und Altes Reich)*, AVDAIK 108: Mainz am Rhein, 2003; IDEM, *MDAIK* 55 (1999), 78; also the parallels cited by N. MOELLER, *The Development of Provincial Towns in Ancient Egypt from the End of the Old Kingdom to the Beginning of the Middle Kingdom*, Diss. Cambridge 2003.

<sup>103</sup> E.g. the bakery walls at Giza depicted in LEHNER, *Aerogram* 1, no. 1 (Fall 1996), 6–7.

<sup>104</sup> ABDEL AZIZ SALEH, Excavations around Mycerinus Pyramid Complex, *MDAIK* 30 (1974), 131–154.

<sup>105</sup> For all these sites, see ZIERMANN, *Elephantine XXVIII*, 108–112.

<sup>106</sup> FAKHRY, *The Monuments of Sneferu at Dahshur II*, 17–58.



matic walls still exist here. Seidlmayer suggests they saw two phases of use. During the second, according to him, a platform was created on which an important building was erected. The fill consists of waste dating back to the first period of use, and includes huge amounts of pottery and seal impressions, the latter suggesting the presence of an administrative elite. There are also indications that written records were kept in old beer jars, the inscriptions on some of which suggest they were secondarily used for document storage (an ‘archive’). The material culture of this phase is startlingly similar to what is encountered at site SS/WZ: massive amounts of flat and deep bread moulds, Maidūm bowls, seal impressions, and (in Elephantine) beer jars. The Elephantine domain also includes a small step pyramid. Although its exact purpose is not clear, it must have served a form of royal cult.<sup>109</sup>

Perhaps the Elephantine domain produced commodities made of Aswān granite. If so, it would have been of a kind comparable to the one in al-Shaykh Saʿīd. Other domains of this kind may have existed. A likely candidate is the Hatnub quarries. In layout, the large Hatnub quarry is reminiscent to the Maghāra Abū ʿAzīz. Both are reached by a quarry road from the Nile valley, of which the last part was artificially carved out in the rock. In both, royal stelae were carved in the southern side of the entrance road (in Hatnub a few also occur in the northern face). No settlement has been found to accompany Hatnub, but some OK sherd material was found in Amarna south, close to where the Hatnub road must have ended up in the valley.<sup>110</sup> Interestingly, the earliest royal inscriptions at Hatnub date to the time of

Khufu.<sup>111</sup> Perhaps the creation of the facility at al-Shaykh Saʿīd formed part of a more encompassing regional programme of calcite alabaster exploitation.

The material culture so far unearthed is very homogeneous, and fits uniformly to the early IVth dynasty. It is as yet unclear whether and how it relates to the monumental tombs for which the site is most reputed (at A in Pl. I). All of these date to the later Vth and VIth dynasties, so that there is no chronological overlap with the site described in this article. However, some tantalizing indications exist that there is a connection nonetheless. The first concerns the landscape. Nowadays, visitors normally arrive from the north, and ascend the steep cliffs to the decorated tombs from the modern ghafir’s hut (left of the letter A in Pl. I). A longer, but far easier access also exists, however. From the stone production site, close to where we surmise the existence of a harbour, the ground slopes gently upwards so that it is easy to walk to the tombs. It seems more likely that the funerary equipment was brought up this track than that the steep tourist track was used. If this path was really used, it is likely that some form of occupation still existed near the stone production site in the Vth dynasty.

The second indication is that Serefka, a Vth dynasty provincial administrator buried at al-Shaykh Saʿīd, claims the title *im.y-r hm.w-nṯr Ḥwi=f-wi*, ‘overseer of the priests of Khufu’ among the functions listed in his tomb.<sup>112</sup> It has been suggested that this reflects his involvement in Khufu’s pyramid cult at Giza,<sup>113</sup> but this is not the only possibility. OK kings established cult places for themselves throughout Egypt.<sup>114</sup> The far earli-

<sup>107</sup> H. JACQUET-GORDON, *Les noms des domaines funéraires sous l’Ancien Empire égyptien*, BdE 34, Le Caire, 1962; J.C. MORENO GARCIA, *Hwt et le milieu rural égyptien du III<sup>e</sup> millénaire. Economie, administration et organisation territoriale*, Paris, 1999.

<sup>108</sup> A wall at Sharūna has also been attributed to a royal domain, but its context is very unclear (L. GESTERMANN, F. GOMAA, B. HEILIGMANN, P. JÜRGENS, W. SCHENKEL, al-Kōm al-Ahmar/Šarūna 1991, *GM* 127 (1992), 92–94.

<sup>109</sup> S.J. SEIDLMEYER, Die staatliche Anlage der 3. Dynastie in der Nordweststadt von Elephantine. Archäologische und historische Probleme, in: M. BIETAK (ed.), *Haus und Palast im alten Ägypten*, UZK 14, Wien, 1996, 195–214; IDEM, Town and State in the Early OK. A View from Elephantine, in: J. SPENCER (ed.), *Aspects of Early Egypt*, London, 1996, 108–127.

<sup>110</sup> Information kindly supplied by PAUL NICHOLSON.

<sup>111</sup> R. ANTHES, *Die Felseninschriften von Hatnub*, 13 (Inschriften I–II).

<sup>112</sup> N. DE G. DAVIES, *The Rock Tombs of Sheikh Said*, 11 and pl. VI.

<sup>113</sup> Thus M. PARDEY, *Untersuchungen zur ägyptischen Provinzialverwaltung bis zum Ende des Alten Reiches*, HÄB 1, Hildesheim, 1976, 131–133.

<sup>114</sup> E. LANGE, Die Ka-Anlage Pepis I. in Bubastis im Kontext königlicher Ka-Anlagen des Alten Reiches, *ZÄS* 133 (2006), 121–140. Note also the *hwt.t-nṯr n.t Snfrw* ‘temple of Snofru’ mentioned in Papyrus Gebelein I, D1 (P. POSENER-KRIÉGER, *I papiri di Gebelein*, Torino, 2004, pl. 3). The same king had other ‘temples’ elsewhere in the country, as the high official Metjen claims to have been the *hk3* of such an institution (*Urk.* I, 7,3).

er miniature pyramid of Huni at the Elephantine domain may illustrate the same phenomenon, as may the other miniature pyramids of the late III<sup>rd</sup> and early IV<sup>th</sup> dynasties.<sup>115</sup> Such branches of the royal cult must have been run by regional elites. If this is what Serefka is referring to, a functioning cult place for Khufu may have survived into the late V<sup>th</sup> dynasty. It stands to reason that this cult would have been founded when Khufu's domain at site SS/WZ was created.

If this hypothesis is correct (and for the time being, it is of course not more than that), it must be relevant that Serefka in the same inscription claims the similar title 'overseer of the priests of Userkaf', while his son Werirni was an 'overseer of the priests of Niuserre'.<sup>116</sup> Did these kings also have cult places in al-Shaykh Sa'īd? If so, it is likely that the OK occupation there lasted much longer than the archaeological remains thus far unearthed suggest. Of course the near absence of later OK material in our excavations does not support the idea, but the excavation sectors cover only a very small surface, and the settlement may have developed into other parts of the site. The situation at Elephantine is again suggestive. The III<sup>rd</sup> dynasty domain on the 'Western Island' was apparently only in use for a short period of time, but in the early IV<sup>th</sup> dynasty, a probably state-run production site for granite commodities (including an administrative building and bakeries) emerged on the 'Eastern Island'. Although there is as yet no evidence that something similar happened at al-Shaykh Sa'īd/Wādī Zabayda, the possibility exists. Speculating further, the continued presence of such a settlement may help explain why the late OK nomarchs chose al-Shaykh Sa'īd as their last resting place.<sup>117</sup>

After the OK, evidence for activity in the excavated area ceases. The OK levels (phase 1) are covered by almost sterile wadi deposit (phase 2). Remains datable to the FIP, the MK, and the SIP are conspicuous by their absence. The site was reactivated only in the course of the XVIII<sup>th</sup> dynasty. In phase 3, it was used as a cemetery. Since some of the tombs are covered by the ster-

ile wadi deposit, while others were dug through it, the wadi material must have been deposited at a time the area was already in use as a cemetery, i.e. in the NK. This suggests a major natural event (or series of major natural events) probably in the early NK.

No *in situ* remains have been found in the topsoil, which is very mixed. It nevertheless seems to provide consistent evidence for a continuous phase of use that at least includes the Amarna period and continues into the TIP.

The Amarna evidence includes two relief fragments (see Pl. IVE) and indications for the production of faience beads. It is likely that the site was an outlier of the town of Amarna. But most of the material is of later NK and TIP date. Inscriptional evidence testifies to quarry activity under Ramses II. On the basis of material excavated in the neighbourhood (and particularly in cemetery D in the Wādī Zabayda), Kessler assumed there must have been a sizeable settlement here in the Ramesside Period, which would have been preceded by a smaller settlement in the Amarna Period. This cemetery is so large that it must indeed be linked to a settlement of some consequence, and most likely the industrial site at SS/WZ.

The spatial distribution of the vase drills and other tools used for working calcite alabaster is the same as that of the NK and TIP pottery. This, and the fact that no such tools were found in the OK levels, suggests that the toolkit is characteristic for the later period of use. Although several production sites for stone vases are known, all have been attributed to the late Predynastic and the early OK. However, some of the tools we found (and most notably the crescent drills) fit well into Caton-Thompson's typology of OK drills. This suggests that this component of the material culture remained in use for a very long period of time without noticeable evolution, a result that warrants for caution in dating other quarry sites. On the other hand, the remaining range of drill types does differ from the early toolkit (although some still resemble the hour-glass drills).

<sup>115</sup> G. DREYER, W. KAISER, Zu den kleinen Stufenpyramiden Ober- und Mittelägyptens, *MDAIK* 36 (1980), 43–59. On their cultic role, see SEIDLMEYER, in: *Haus und Palast*, 207–210.

<sup>116</sup> N. DE G. DAVIES, *op. cit.*, pl. XIII.

<sup>117</sup> Note that several of them directed royal domains of Pepi (I) and Teti (see M. DE MEYER, *Old Kingdom Rock Tombs at Dayr al-Barshā. Archaeological and Textual Evidence of their Use and Reuse in Zones 4 and 7*, Dissertation Leuven University, 2008, 75–81).

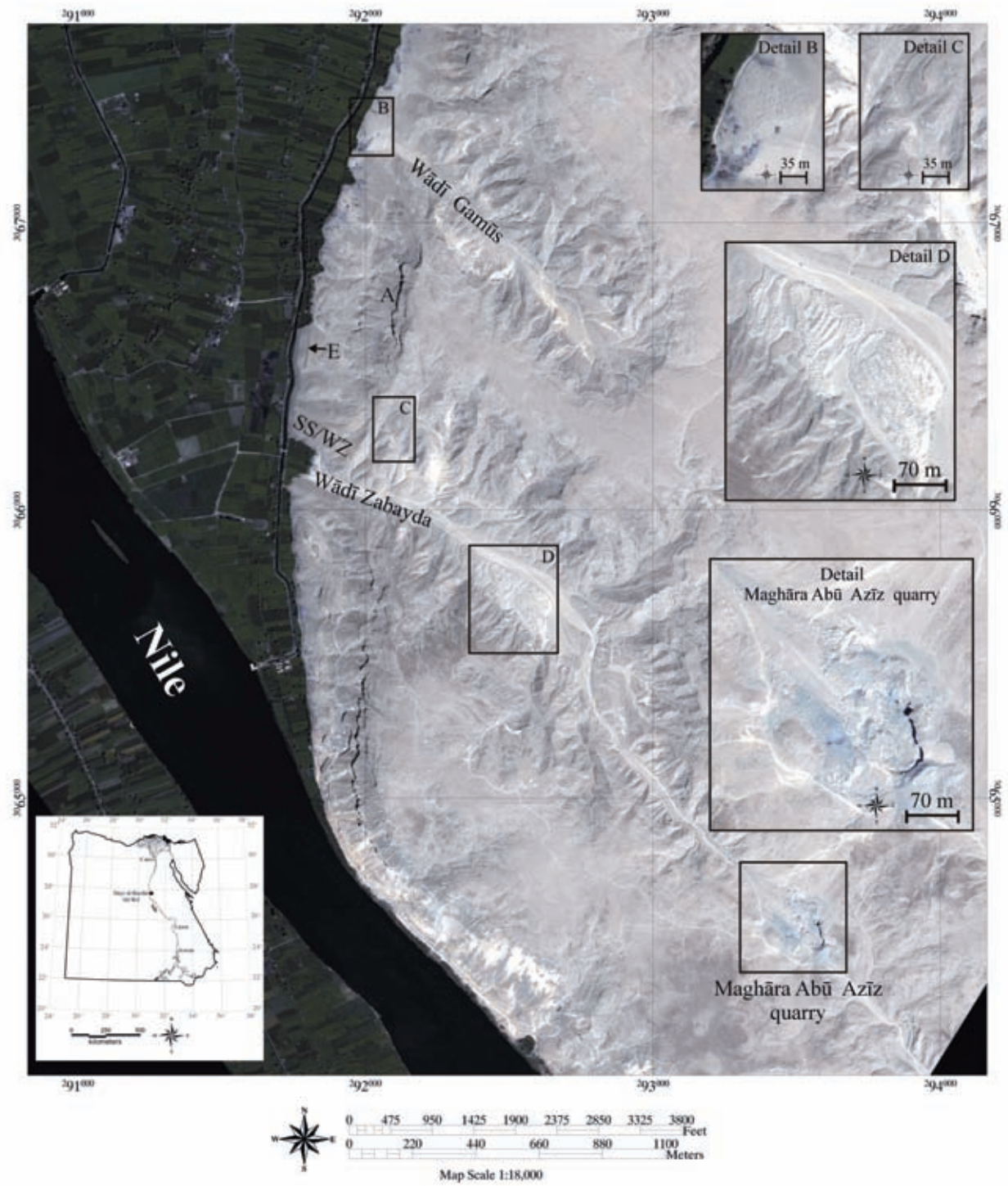


Plate I Cemeteries in the al-Shaykh Sa'īd area. The production site discussed in this article is situated at area SS/WZ (for al-Shaykh Sa'īd/Wādī Zabayda). The excavations that will be reported upon below are concentrated around 30°53'19,0" N, 27°42'15,3" E, 49,4 m. a.s.l. (plan V. De Laet)

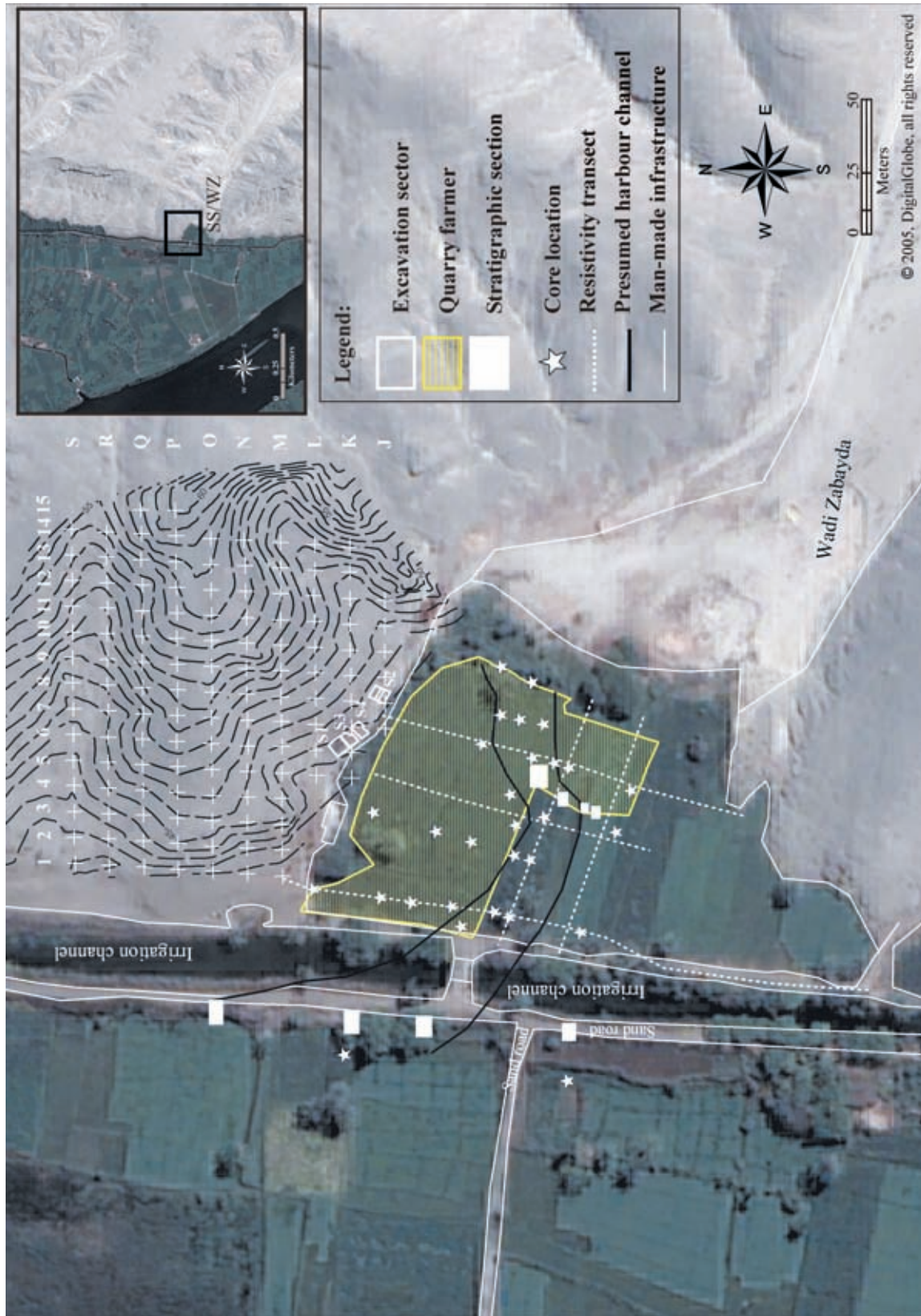


Plate II Plan of the site at the mouth of the Wādī Zabayda (V. De Laet). The hill of SS/WZ with its survey grid is depicted at the top; the excavation sectors S1, S2, S3, and S4 are designated at the southern foot of the hill. Further south is the agricultural field, with indications of positions of augerings, traverses of electric resistivity imaging (2008) and stratigraphic sections (2009). In the area indicated as 'quarry farmer', a large amount of earth was removed by the owner of the field between the 2008 and 2009 seasons



Plate IIIA View upon site SS/WZ from the SE in March 2008. The Wādī Zabayda enters the picture from the lower right-hand corner, disappearing under the cultivation in the centre. Site SS/WZ lies on the rock spur behind the cultivation  
Photo B. Vanthuyne



Plate IIIB The Maghāra Abū ʿAzīz from the west. In the foreground the quarry road to site SS/WZ, in the background the quarry itself. The steep rocks to the right of the end of the quarry road contain the stela niches



Plate IIIC Bakery floor S8 in sector 8 (photo L.D.R. Kuijper)

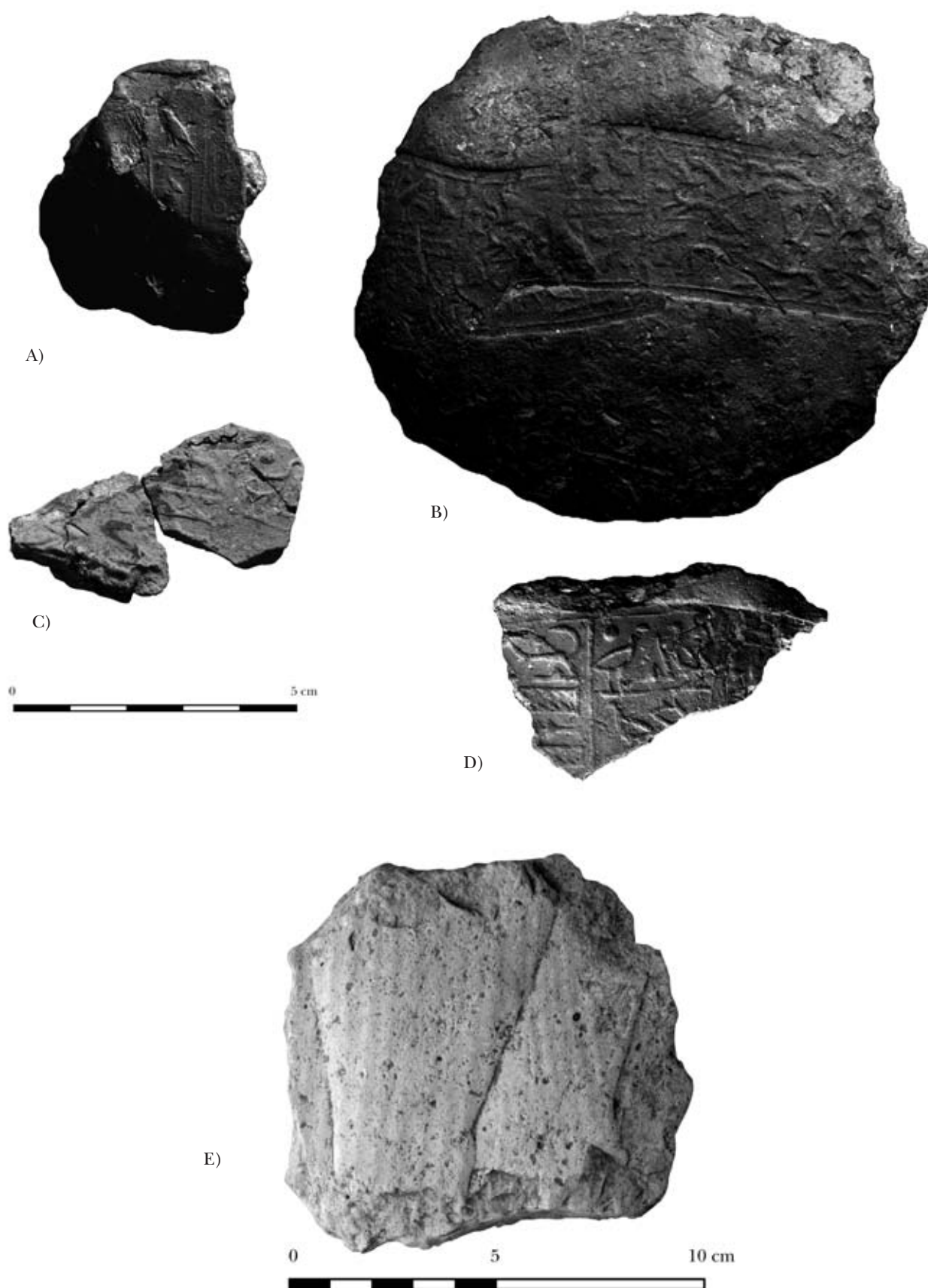


Plate IV A) Institutional seal impression displaying the Horus name *Mdd.w* S13/26; B) Figurative Seal impression S54A/116; C) Figurative seal impression S121/6A with hieratic note; D) Figurative seal impression S54A/135 (photos H. Hameeuw [A, B, D] and H. Willems); E) Fragment of raised relief in Amarna style, depicting the upper legs and hips of a woman wearing a transparent dress. Photo H. Willems

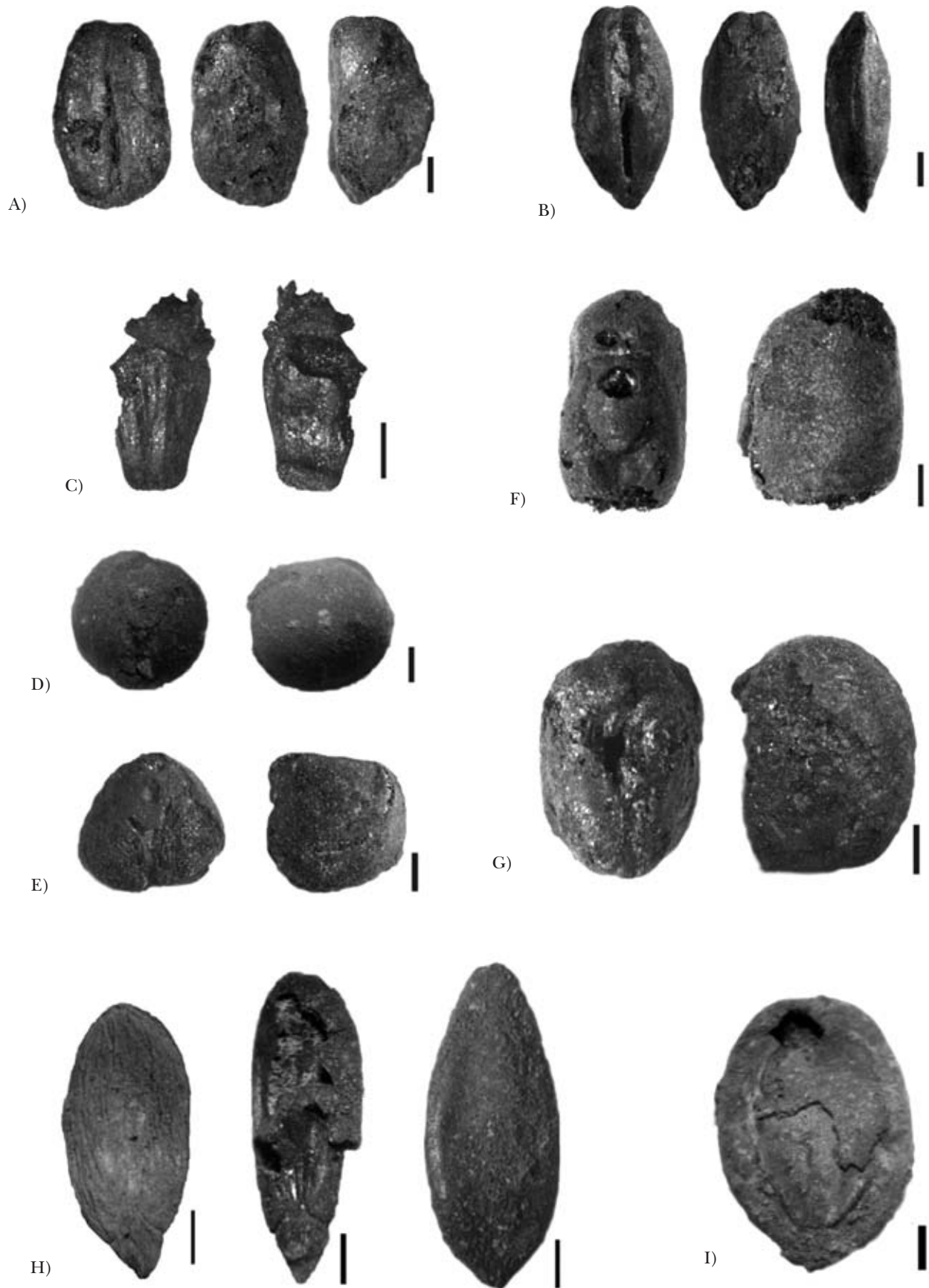


Plate V Charred plant remains found at al-Shaykh Sa'īd. A) emmer – *Triticum dicoccum*; B) barley – *Hordeum vulgare*. C) emmer, rachis fragment – *Triticum dicoccim*; D) pea – *Pisum sativum*; E) grass pea – *Lathyrus cf. sativus*; F) possibly faba bean – cf. *Vicia faba*; G) Large Leguminous-indet. H) probably melon – *Cucumis cf. melo*; I) *Acacia* sp.

