

VOR DER KASERNE: EXTERNAL SUPPLY AND SELF-SUFFICIENCY AT ZAWIYET UMM EL-RAKHAM

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Abstract

This paper has two major aims. The first is to attempt to place the site of Zawiyet Umm el-Rakham in its historical and geographical context. The second is to provide an overview of the various classes of evidence from the site which might be used to develop an understanding of the varied means by which this major fortress-town was provisioned. Although a number of possibilities will be suggested, much of the evidence relates to ongoing research into a series of related areas of investigation which can, essentially, be concentrated into one simple question; to what extent was Zawiyet Umm el-Rakham a self-sufficient entity?

1. EGYPT AND LIBYA – THE BROADER HISTORICAL CONTEXT

To an Egyptian official who lived at the time of Egypt's greatest imperial power – the Eighteenth Dynasty – and who was concerned in any way with the operation of that empire as a soldier or administrator, the Libyan west would have appeared to be perhaps the least significant of Egypt's immediate neighbours. The deserts to the west of the Nile valley did not offer opportunity as an area ripe for economic exploitation, nor was it a potentially rewarding conduit to regions beyond. But neither did it contain a realistic threat to the security of the Egyptian state itself, although some form of punitive action against the long-known¹ Tjemeh/Tjehenu Libyans to restrain raiding of Egypt's western border may have occasionally been necessary.² As an area devoid of both opportunity and threat – in contrast to the Lev-

ant and Nubia which had historically provided plenty of both – Libya was therefore of little interest and certainly unworthy of expensive investment in the form of military conquest and the creation of the colonial infrastructure of administration.

This is certainly the impression given by the most important classes of evidence from Egypt itself which address her foreign contacts at this time, since they refer to Libya and the Libyans in a rather cursory or formulaic way. Libyans make up the least important third of the triad of conventional foreign enemies of Egypt – Nubians/Asiatics/Libyans – and, unlike the other two, do not appear in contexts where suggestions of the reality of historical contact might be seen, such as accounts of foreign conquest on royal temples or scenes of exotic tribute-bearers in private tombs.³

This situation changed considerably in the period from the reign of Amenhotep III to that of Ramesses II. In that period Egypt made more conventional use of Tjemeh/Tjehenu Libyans as royal booty⁴ and offering bearers,⁵ but also came into contact with new Libyan groups, especially the Meshwesh and Libu, recognised the threat posed by these people, and undertook military action against them (under Seti I) either as a defensive action, a punitive raid or as necessary precursor to the establishment of an Egyptian imperial presence far to the west of what had been achieved before.⁶ During the reign of Ramesses II significant progress had been made in the provision of new fortifications for Western Delta desert-edge towns including Tell Abqa'in,⁷ Kom Firin⁸ and Kom el-Hisn, and in the creation of a system of forts/fortress towns

¹ For pre-New Kingdom contacts between Egypt and Tjemeh/Tjehenu Libyans see the summary in OSING 1980; HÖLSCHER 1937, 12–32.

² As suggested in Sinuhe (R12–15), whose story begins with Senwosret campaigning against the Tjemeh/Tjehenu Libyans, and returning with both captives and cattle.

³ However, for problems associated with this material, particularly in relation to tribute/trade in the late Eighteenth/early Nineteenth Dynasties, see SNAPE forthcoming (a).

⁴ See Amenhotep III's reference to seizing Tjehenu as labour to build his memorial temple at Thebes (*Urk.* 1656, 13–17),

a foreshadowing of Setau's similar activity for Ramesses II at Wadi es-Sebua (BARSANTI and GAUTHIER 1911).

⁵ See the ostrich-product-bearing (admittedly unidentified) Libyans from the Year 12 *darbar* of Akhenaten in the tomb of Meryre II at Amarna (DAVIES 1905, pl. 37).

⁶ For a review of the New Kingdom evidence the reader is referred to the papers of KITCHEN and O'CONNOR in LEAHY 1990.

⁷ THOMAS 2000b.

⁸ SPENCER, N., 2008 *Kom Firin I: The Ramesside Temple and the Site Survey*. London.

along the Marmarican coast;⁹ the purpose of the former appears to be defensive - possibly as a reaction to the early recognition of Libyan population movements which would reach a crisis for Egypt in the reigns of Merenptah and Ramesses III - while the latter is capable of a number of explanations.

2. THE FUNCTION OF ZAWIYET UMM EL-RAKHAM

The best known site of the Marmarican chain is the fortress-town of Zawiyet Umm el-Rakham (henceforth ZUR - for location see Fig. 1) which was founded early in the reign of Ramesses II, or possibly in that of Seti I.¹⁰ It seems to have been abandoned during, or shortly after the reign of Ramesses II, as no royal names

apart from that of Ramesses II have been found at the site. The most likely scenario for the end of Zawiyet Umm el-Rakham as a fortress-town is an abandonment by the Egyptian garrison as part of a developing situation which came to a head with Merenptah's Libyan war of his Year 5.¹¹ There is no evidence to date from the site which suggests Egyptian re-occupation in the post-Year 5 period, nor during the reign of Ramesses III.¹² There is, however, clear evidence of a short-lived 'squatter' occupation of the fortress which is most likely to be evidence of Libyan groups passing through this area, and making use of the fortress and whatever it still contained, on their way to Egypt in Merenptah's Year 5 (or earlier?).¹³

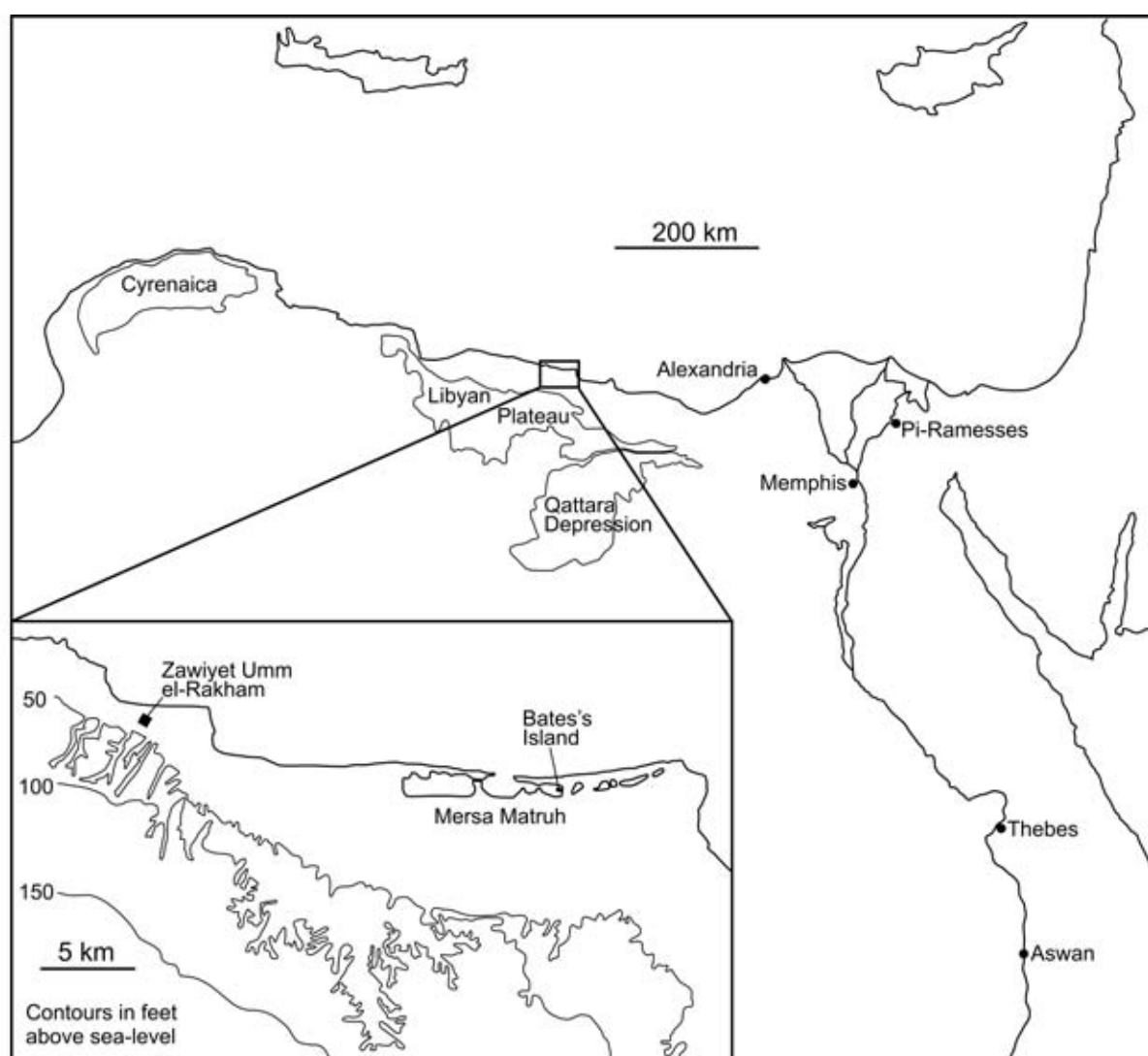


Fig. 1

⁹ Including, perhaps el-Alamain and Gharbaniyat; HABACHI 1980.

¹⁰ See the discussion in SNAPE and WILSON 2007, esp. 129.

¹¹ For an alternative view see MANASSA 2003, 30.

¹² For an alternative view see MANASSA 2003, 50 n. 277.

¹³ For a detailed study of this evidence see SIMPSON 2002.

ZUR was discovered by chance in 1948, was investigated by HABACHI in the 1950s, and has been the subject of a major fieldwork project directed by the present author for the University of Liverpool since 1994.¹⁴

The specific function of ZUR, and indeed that of the Marmarican chain itself – which appears superficially similar to the North Sinai ‘Ways of Horus’ system – is not absolutely clear, but evidence from the excavations of the Liverpool University Mission, which has been working at the site since 1994, taken with evidence from earlier work at the site, suggest a number of possibilities. Inscribed doorjambs from ZUR make reference to the ‘trampling’ or other forms of destruction of enemies of Ramesses II; recovered examples refer to the Tjemeh, Tjehenu and Libu (Fig. 2), but to no other groups. It is therefore unlikely that (*contra* HABACHI 1980) the main reason for the foundation of ZUR was not a defence against the perceived danger from the Sea-Peoples (despite a campaign in the Delta by Ramesses II against a Sherden incursion in his year 1), but against Libyan groups, perhaps especially ‘new’ Libyan groups such as the Libu and Meshwesh. This evidence can be combined with that of significant quantities of imported Aegean/Levantine pottery at ZUR,¹⁵ probably arriving from southern Crete¹⁶ as part of the great Eastern Mediterranean maritime trading circuit. I have argued elsewhere¹⁷ that the main function of ZUR was not primarily to act as a shield against a major Libyan invasion from Cyrenaica nor, given its scale, to simply act as part of an early-warning system for such an invasion, but to protect this part of the North African coast as a secure and vital element of this East Mediterranean maritime circuit.

The perceived threat to the integrity of this circuit was not primarily the Sea-Peoples, but those groups of ‘new’ Libyans with their likely increased levels of activity in Marmarica, well to the east of their (probable) homeland in/around Cyrenaica. It may well be that these new Libyan groups were a threat to, rather than a participant in, the East Mediterranean circuit, in a way which was not the case with the ‘old’ Tjemeh/Tjehenu groups, which seems to be indicated by local participation in exchange with maritime traders at Bates’s Island at Mersa Matruh in the late Eighteenth Dynasty.¹⁸ The insertion of an Egyptian presence into a region where none existed earlier



Fig. 2

should probably be seen in the context of a need to protect the *status quo* – i.e. unimpeded access for arriving mariners – in response to a threat to an

¹⁴ For a full account of work at the site up to 1994 see SNAPE and WILSON 2007, 1–7.

¹⁵ The function of ZUR as essentially concerned with LBA trade routes was noted in SNAPE 1998.

¹⁶ Kommos is an obvious candidate, see WATROUS 1992.

¹⁷ The relationship between the garrison and ‘local’ Libyans is discussed in SNAPE 2003a and SNAPE 2003b. See also below, section 7.

¹⁸ See WHITE 2002 and refs. cit.



a)



b)

Fig. 3

emerging threat. Whatever the purpose it was clearly a significant one; even if ZUR was the westernmost and by far the largest in the Marmarican chain, its foundation 280 km west of the Nile Delta clearly shows serious intent on the part of the Egyptian state.

3. THE SITE IN ITS PHYSICAL CONTEXT

The situation is discussed in some detail by Hounsell.¹⁹ What follows is a summary of the most salient aspects of the physical and environmental context of the site.

The site of ZUR is located on the coastal plain of the Maryut Coast, a distinct and individual geological/climatic unit.²⁰ This plain runs, with an average width of *c.* 20 km, between the high *reg* desert of the Libyan Plateau and the Mediterranean Sea, and is typified geomorphologically by the presence of two/three ridges of soft oolitic limestone which run parallel to the coast.²¹ The Maryut Coast can be divided into a series of sub-regions;²² ZUR lies immediately to the east

of the transitional boundary between, to the east, the relatively wide coastal strip of the Ras Alam el-Rum/Ras Umm el-Rakham region and, to the west, the narrower coastal strip of the Ras Umm el-Rakham/Sollum region. From ZUR westwards, the presence of significant wadis cutting into the Libyan Plateau is very apparent, and these constitute important environments in their own right, providing agricultural opportunities in the alluvial fans at the wadi mouths (Fig. 3a) and along the wadi beds (Fig. 3b).

At ZUR, as is typical of the Maryut Coast, the plain between the calcareous tableland of the Libyan plateau and the sea is composed of 'alluvial fans, composed of mixed calcareous loam and rock fragments'²³ and oolitic limestone ridges which run parallel to the coastline, some very near to the surface, filled with the same calcareous loamy deposits. Soils in this area often display 'lack of structure, clay content and eventually organic material'²⁴ (Fig. 4). This alkali soil, a narrow stratum sit-



Fig. 4

¹⁹ HOUNSELL 2002, 1–23

²⁰ ABU AL-IZZ 1971, 226.

²¹ ZAHRAN and WILLIS 1992, 17.

²² ABU AL-IZZ 1971, 228–229

²³ BARTH and SHATA 1987, 49.

²⁴ BARTH and SHATA 1987, 50.

ting on top of the soft limestone, and subject to heavy annual downpours, is extremely prejudicial to the survival of organic material

The most important point to note regarding the climate of the Maryut Coast is that it is the wettest region of Egypt. Annual rainfall at Mersa Matruh has been recorded as 144 mm.²⁵ Although summers are dry, the rainfall is concentrated in the winter season from October/March, with a particular concentration in the period January/February. This rainfall is important for seasonal crops, but can also be stored to provide a year-long supply through water harvesting; the collection of rainwater run-off into cisterns, is a well-known recent technique in the region, sometimes using low rubble walls, *gishgish*, to direct the flow into the mouth of a cistern.²⁶ This is especially important for water supply on the Libyan Plateau itself, where access to the local aquifer is impossible. The same water-harvesting technique may well have been practiced at ZUR, or so the evidence of drainage channels in the temple would suggest.²⁷ It is also likely that this heavy rainfall provided not only water to be stored, but was also a problem to be controlled.

In 2004 a geomagnetic survey carried out at ZUR by Christian Schweitzer revealed, among other things, an enormous ditch running immediately south of, and parallel to, the southern enclosure wall of the site (Fig. 5). This ditch was, in essence, at the foot of the slope running off the Libyan Plateau down to the coastal plain. It could have served several functions, some deliberate and some a fortunate side-effect; as a drainage ditch preventing the water cascading from the plateau from washing directly against the southern wall of the fortress,²⁸ as a major trap for short-term water-harvesting which could be especially useful to extra-mural (agricultural?) activities, as a defensive feature on the southern side of the site,²⁹ and as a convenient source for limestone used within the fort itself. It should be noted that the southern wall of the fortress, as it survives and has been investigated by the Liverpool team, does not give any indication that it contained a gate, at least not in its visible final phase of building. The use of this ditch as a convenient rubbish-

dump might also be assumed, although a test-excavation across a section of the ditch in 2005 produced no archaeological material whatsoever.

The main modern source of water for agricultural activity, and presumably the main ancient source of all non-harvested water, was a local aquifer which is found at *c.* four metres below the surface of the coastal plain. This aquifer is derived from 'Mediterranean Calcarenes ... form an important watertable aquifer [which] floats on a saline water wedge resulting from the intrusion of sea water.... The aquifer is replenished through the direct infiltration of local precipitation.'³⁰ This aquifer was exploited at ZUR by means of wells dug into the soft limestone (see Section 6, below).

4. AN OVERVIEW OF THE SITE

From work carried out to date we know that the core of the fortress-town was a square, 140 metres along each side, with a massive mudbrick wall enclosing an area of 19,600 square metres. This enclosure wall, although now largely degraded down to its lowest courses, was 4.5–5 metres thick, which probably indicates an original height of *c.* 8–10 metres. Thus the construction of this wall was a massive undertaking in itself, requiring the manpower and material to produce a volume of mudbrick in the range 19,440–27,000 m³. The bricks used are consistent in being the large 'Ramesside public building' size of 42 cm long and 21 cm wide, with a varying depth of between 15–17 cm (i.e. each has a volume of *c.* 0.013–0.015 m³). If one assumes the deeper brick size as constant, and ignoring the effect of the binding mortar, the enclosure wall of the fortress contained between 1.3–1.8 million bricks, before one even considers the number of additional bricks required for the towers flanking the Main Gate. The scale of this one task alone gives an indication of the requirement for deployed manpower and resources and the seriousness of the venture. It is also difficult to imagine this task being carried out in an area where the local population was not pacified, absent or, perhaps most likely of all, compliantly participatory (see Section 7 below).

ZUR contained a group of impressive buildings which offer further support to the suggestion of

²⁵ Data from the 1960 *Climatic Normals of Egypt*, tabulated in ZAHNAN and WILLIS 1992, 19.

²⁶ COLE and ALTORKI 1998, 144–148; another form of water harvesting is the partial damming of wadis (see Fig. 3b).

²⁷ SNAPE and WILSON, 2007, 28.

²⁸ In much the same way as the Liverpool Mission has constructed a barrier from spoil from the site to divert the winter rain wash around the site rather than over it.

²⁹ There is evidence that the northern enclosure wall, at least, was provided with a plastered glacis.

³⁰ BARTH and SHATA 1987, 55.

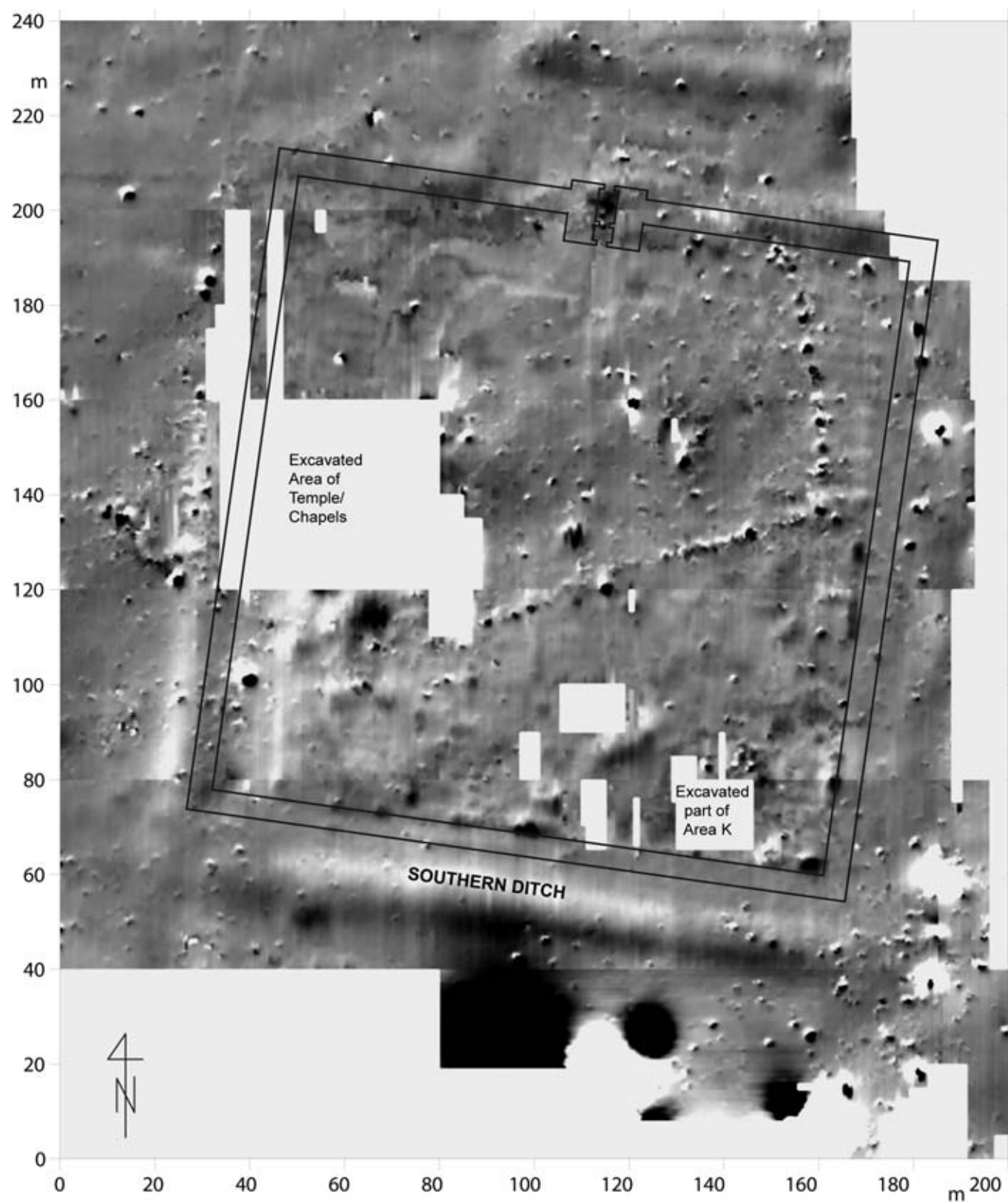


Fig. 5

intended long-term and active occupation of ZUR. The most important of these structures are:

1. A Temple, constructed of substantial slabs of limestone, which bears comparison with contemporary Ramesside temples in both Nubia and Egypt itself.³¹ Although largely anepigraphic – presumably because of the rainfall – the temple was used for the display of stelae recovered, *in situ*, by Habachi.³²
2. A group of Chapels,³³ located immediately to the (local) south of the temple. Further stelae were placed here.
3. A row of nine magazines, with entrances facing east, which fill the space between the temple and the northern wall of the fortress in its northwest corner.
4. A Main Gate complex in the middle of the northern wall, composed of two now-denuded towers of mudbrick, originally with at least some external limestone cladding, and with a central corridor lined and floored with substantial blocks of limestone (shown in outline on Fig. 5).
5. A ‘Northern Extension’ to the original square fortress, which can be detected on the ground in the form of the limestone cladding of the gate at the eastern end of this structure, and the outline of which is marked on the magnetogram (Fig. 5).
6. A complex multi-roomed structure which may have functioned as a ‘Governor’s Residence’. This structure is only partially excavated, but to date it includes a private chapel,³⁴ private bedroom/bathroom, storage facilities (including Canaanite amphorae), and an area for technologically unsophisticated (i.e. no pyrotechnology) production of bone points and stelae.
7. The ‘South Building’, a partially-excavated structure which was either constructed for, or came to house, a series of limestone monoliths.
8. Area K – a relatively large area of interconnected structures, which seems to have acted as the main area for food production at the site (Figs. 6–9). The evidence for this comes in the form of the recovery from here of virtually every structure of piece of apparatus required for the production of bread and beer (see Section 6, below).

Three basic techniques were employed for the construction of these buildings. One was the use of ‘official’ mudbricks, as described above, for the external enclosure wall. The magazines to the north of the temple were also constructed using this method and probably also had vaulted roofs, although the current state of survival of these structures makes this a likelihood rather than a certainty, and no sections of collapsed vaulting were found in any of the magazines during excavation. The second method was the use of monumental-sized blocks of locally acquired limestone. This method had limited use, only being deployed in the temple and for the cladding of the main gates to the fortress. The third method was the use of limestone cobbles which were bound together by mud mortar. The cobble-and-mortar method was used for most of the structures excavated at ZUR, presumably not least because of its ease of acquisition, use and adaptation, especially when used by individuals or small groups in creating structures for their own use (e.g. the chapels to the south of the temple). However, it is also the case that a combination of building methods may have been used. Fig. 6 is a view, looking north, over the western section of Area K, showing walls typical of the cobble-and-mud mortar technique. However, it is noticeable that the walls in Area K, as is typical elsewhere on the site, survive to the same height on individual stretches of wall. In part, this may be due to their survival to the present ground level, with anything above that level being denuded away. However, other excavated walls can be seen in Fig. 6 which are well below present ground surface, yet still present an even upper surface. It is difficult not to come to the conclusion that these structures were only partly constructed of the cobble-and-mud mortar technique – i.e. the more vulnerable lower part of the walls – with upper parts of the structures being made of mudbrick. The roofing of these structures is also problematic, given our current state of understanding of available timber sources in the area during the Late Bronze Age. In all parts of the site doorframes made of substantial limestone thresholds/jambs/lintels are the norm, although they vary from large, inscribed versions (e.g. at the magazines) and smaller uninscribed versions (e.g. in Area K).

³¹ The issue is considered in some detail in SNAPE and WILSON, 2007, 69–91.

³² See HABACHI 1980. A fuller account of this material is given in SNAPE and WILSON, 2007, 93–129.

³³ For the excavation of these structures by the Liverpool Mission see SNAPE and WILSON, 2007, 33–68.

³⁴ The source of the statue, naos and stelae of Neb-Re, see SNAPE 2001.



Fig. 6



Fig. 7



Fig. 8

5. The Contribution of Textual Evidence

The first point to note is that all the unambiguous textual evidence relating to ZUR comes **from** the fortress itself, that is to say, there is no textual material which is clearly **about** ZUR from any other sources. This situation might be contrasted with, for instance, the list of Nubian forts in the Middle Kingdom Ramesseum Onomasticon³⁵ or (perhaps more pertinently), the named/illustrated fortresses of North Sinai from the Seti I reliefs on the exterior of the northern wall of the Hypostyle Hall at Karnak. A

good deal of scholarly debate on the Nubian forts of the Middle Kingdom and the North Sinai forts of the New Kingdom has centred on the extent to which known (or assumed) archaeological sites can or cannot be closely matched to named locations from these textual sources.

No such material exists for ZUR. If the fortress was constructed either individually or, more likely, as an integrated defensive network in the reign of Seti I or Ramesses II no temple scenes depict this event, even though, for Seti I a series of scenes showing Libyans defeated and fortresses constructed would have made

³⁵ GARDINER 1947, 10–11.

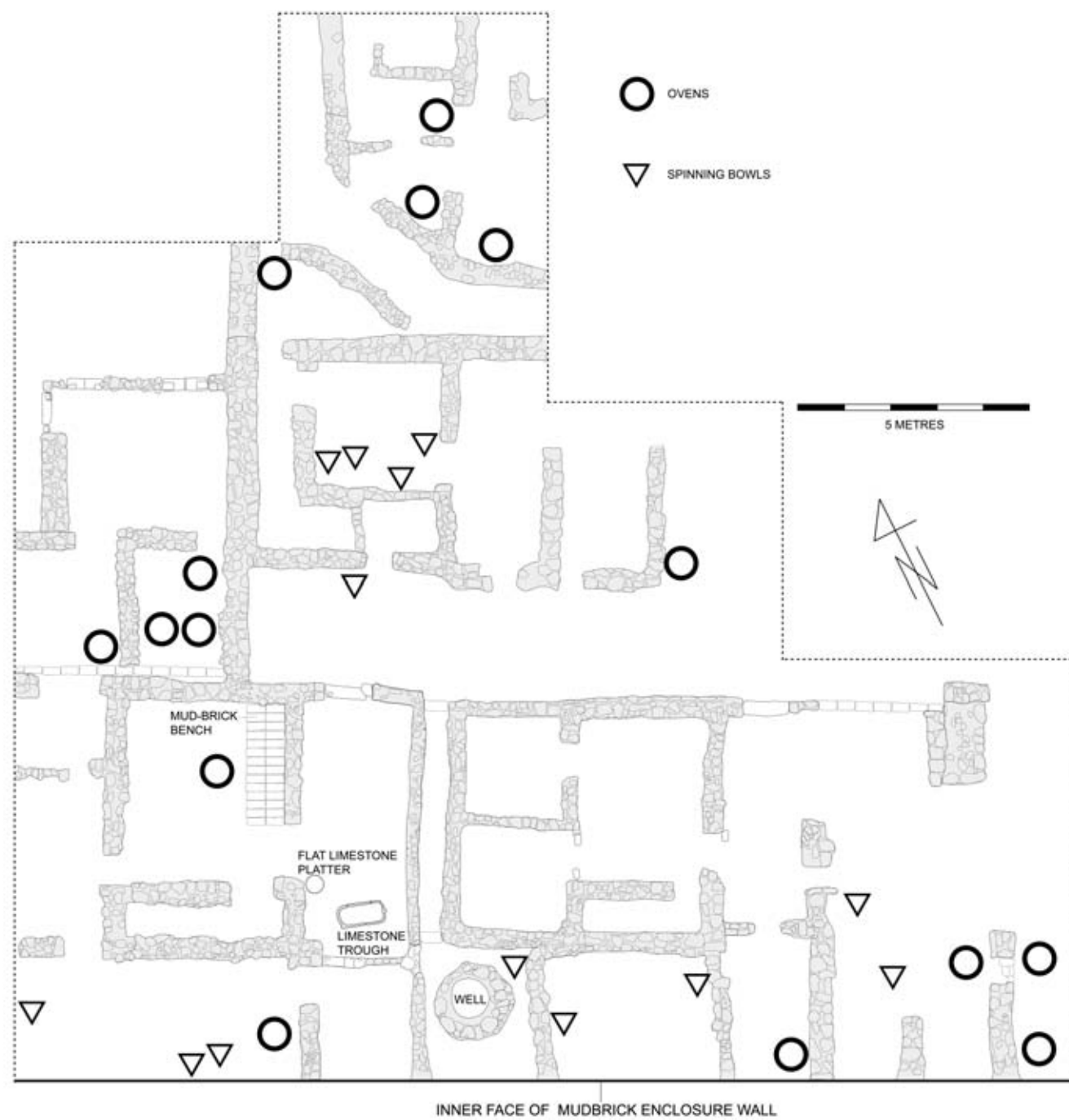


Fig. 9

a neat parallel with the North Sinai scenes and for Ramesses II a western campaign would have also have neatly paralleled his eastern (i.e. Kadesh) scenes. However, one might also argue that for Ramesses II an early foundation of the Libyan forts was overshadowed in monumental terms by the events of Year 5. It might also be argued that any 'historical' content of Ramesseid war-scenes must be subsumed within an overall

theme of royal victory at and on the battlefield – the Seti I North Sinai scenes show the 'Ways of Horus' fortresses as a progress to victory, while any limited smiting of Libyans to establish the Marmarican chain could be illustrated by Seti I and, to a limited degree, by Ramesses II as a demonstration of royal victory over these peoples, but the foundation of fortresses does not seem to be an important royal theme.³⁶

³⁶ SPALINGER 1980; in general see HEINZ 2001.

However, a number of potentially relevant references do exist within the known canon of Ramesside royal texts/scenes which might contribute, to a limited extent, to an overall understanding of the role of ZUR:

i) Ramesses II is shown smiting Libyans at Beit el-Wali.³⁷ The scenes from Beit el-Wali were composed early in the reign of Ramesses II (i.e. pre-Kadesh) and depictions there of Libyan/Syrian conquests have been dismissed by Kitchen as merely symbolic, or perhaps reflective of his participation in his father's campaigns in those areas.³⁸

ii) Ramesses II is also shown smiting Libyans at Abu Simbel.³⁹ The text accompanying the Abu Simbel scene says:

He has placed the Shasu in the Westland and he has settled the Tjehenu on the ridges. Filled are the strongholds (*nhtw*) he has built, with the plunder of his puissant arm/sword.⁴⁰

The word for 'strongholds', *nhtw*, is one usually associated with the processing and housing of transplanted captives; to refer to ZUR-style imperial fortresses in Libya itself, one would expect the word used on the main Gate at ZUR to refer to itself, *mnnw*, a term which Morris has taken to refer to a 'moderately sized fortified population center'.⁴¹

iii) Stela Tanis III (orig. from Pi-Ramesses, temp. Ramesses II) refers to:
'... *mnnw*-fortresses, equipped with everything...'⁴²

Morris believes that a Libyan locus for the *mnnw* is likely, not least because of the sheer achievement in provisioning such structures compared with Nubian *mnnw*.⁴³ It is possible that this is a specific reference to the Marmarican chain, including ZUR.

iv) Merenptah's Karnak Libyan war text refers to Libyan enemies crossing his border 'to rob these *mn(n)w*-fortresses'.⁴⁴ However, although the Merenptah material refers to specific *mnnw*-fortresses by

name, including 'the western *mnnw*-fortress'⁴⁵ which still remained intact after the Merenptah war even though it may have been passed by the Libyans(?), there is no good evidence to link ZUR with any of these named structures, nor those from the reign of Ramesses III.

From ZUR itself there are several classes of textual material⁴⁶ which can contribute in different ways to our understanding of the role and functioning of ZUR. These are:

1) A text on the Main Gate which seems to refer to the site as one of the '*mnnw*-fortresses upon the hill country of the Tjemehu'.⁴⁷

2) A series of limestone doorframes from various 'official' structures excavated at ZUR, especially the magazines and the collapsed superstructure of the northern tower of the main gate. The texts on these doorframe are principally composed of the titulary and neutral epithets of Ramesses II, although a few do contain some site-specific information, especially with regard to the enemies against whom the fortress was directed (see Fig. 2).

3) Stelae erected by member of the garrison in and around the Temple/Chapel area.⁴⁸ The stelae are useful in that they are produced neither by the state nor the official fortress administration. Nevertheless the passing information they contain is of importance, particularly in the assessment of the composition of the ZUR garrison and its wider population. An appraisal of the military titles held by dedicators of stelae at ZUR suggest that the size of the garrison might be assessed as a minimum of 500 men,⁴⁹ at least for part of the fortress' effective life. The main title held – *ḥi šryt*, 'Standard-Bearer' – might suggest the presence and size of 'regiments' (*s3*) at ZUR, but there is no additional information regarding the nature, nor indeed the specific ethnicity of those regiments.

³⁷ HEINZ 259, V.1; for text see KRI II, 196ff.

³⁸ RITANC II, 111–112; SPALINGER 1980.

³⁹ HEINZ 252, I.1; for text see KRI II, 206ff.

⁴⁰ Translation after RITA II, 67.

⁴¹ MORRIS 2005, 627. Note also the apparent interchangeability of the terms *mnnw* and *dmi*.

⁴² KRI II, 292, 8–9; RITA II, 123

⁴³ MORRIS 2005, 628.

⁴⁴ KRI IV, 4, 8–10; RITA IV, 4.

⁴⁵ KRI IV, 7, 3; RITA IV, 6.

⁴⁶ The nature of the soil at ZUR makes it unlikely that papyrus documents will have survived, although other types of inscribed administrative material might; the poor quality of local limestone makes a cache of Deir el-Medina style ostraca unlikely, but docketts on potsherds might have survived. Note the reference to an 'official report'/'communique' (*wsty*) from the 'western fortress' to the palace in the Merenptah Karnak text; MANASSA 2003, 160–16; RITA IV, 6.

⁴⁷ SNAPE 1998.

⁴⁸ SNAPE and WILSON 2007, 93–129.

⁴⁹ The assumptions which underlie this estimate are discussed in SNAPE and WILSON 2007, 127–128.

- 4) A group of monuments created for the fortress commandant Neb-Re – most importantly his standard-bearing statue and a naos containing the figures of Ptah and Sekhmet – found within one of the rear rooms of his private chapel in 2000.⁵⁰ The Neb-Re monuments provide us with more specific information regarding the function and operation of the fortress. This material forms the basis of a major forthcoming study;⁵¹ what follows here is a brief overview of some of the issues it raises in relation to questions of provisioning at ZUR. The most informative of these texts in this regard is that on the statue of Neb-Re, inscribed on the back and sides of its rear pillar with a text which effectively sets out Neb-Re's personal and royally-assigned agenda for his activities at ZUR. Frood refers to the clustering of the floruit of the biographical text as a genre around the reign of Ramesses II, and notes the importance of the Memphite area in this context.⁵² This is particularly the case for texts on statues in this period, rather using the stela as would have been expected in earlier periods.⁵³ The text on the statue stresses Neb-Re's relationship with the divine and the royal, but also personal achievement. Among various aspects of his work at ZUR alluded to by Neb-Re, the provisioning of the fortress-town is dealt with in what appears to be some detail, referring to:

... provisions from the many rooms of grain from the field and from the hold of the *menesh*-ship, ferrying more grain than sand, which is for the district.
Being filled with water,
Filled with plenty of meat, and more wine than water,
The storerooms are full of clothes and ointment of *afet*.

Although there is clearly an element of hyperbole here, and the similarity of the list of goods contained/provided for the fortress to a list of funerary offerings may not be entirely coincidental, this part of the text can, in part, be triangulated with the evidence from the site itself regarding its productive capabilities.

6. ARCHAEOLOGICAL EVIDENCE FOR EXTERNAL SUPPLY AND SELF-SUFFICIENCY AT ZUR

Some aspects of self-sufficiency at ZUR have already been discussed, including that of available building materials in Section 4 which indicates that two major sources were exploited there; local limestone and local mudbrick. Limestone, though not of very high quality, was immediately available – its quarrying in large blocks for the temple, main gate complex, and door-frames might have been carried out in tandem with the construction of other utilitarian features, perhaps especially the 'southern ditch'. Other areas, where the interplay between self-sufficiency and external supply are important to our understanding of the functioning of the fortress need further consideration. However, it should be noted that the distinction between self-sufficiency and external supply is not as clear-cut as might be first imagined. Although it is easy to conceptualise a distant garrison either left to fend for itself or supplied on a frequent basis by the Egyptian state by boat-loads of victuals from the Nile Delta, the situation is probably more complex, with both those situations playing a part and also, perhaps crucially, the participation of 'local' Libyans who could be recruited as part of the provisioning system for the fortress – something which might be considered a grey area in the external supply/self-sufficiency debate.

6a. External Supply

The Neb-Re text seems to suggest that the problem of grain provision was solved by a two-fold approach; by growing crops locally, and by importing grain by ship. In terms of transport the reference to the *menesh*-ship is highly significant since this term refers to a sea-going merchant vessel, produced in Egypt from the reign of Ramesses II onwards, which was of a quite different pattern to basically riverine craft, and possibly influenced by Levantine Ulu Burun-like vessels.⁵⁴ In P. Anastasi III the *menesh*-type is referred to as a troop-ship,⁵⁵ while in the Kadesh 'Poem' Ramesses II addresses Amen, saying 'I directed for you *menesh*-ships on the sea to ferry for you the products of foreign lands'.⁵⁶ The use of the word *menesh*-ship on the Neb-Re statue, as a sea-going vessel capable of transporting significant bulk cargoes, makes perfect

⁵⁰ SNAPE 2001; SNAPE 2004.

⁵¹ SNAPE and GODENHO, forthcoming.

⁵² FROOD 2007, 19–20

⁵³ FROOD 2007, 22.

⁵⁴ SPALINGER 2005, 255; BASCH 1978. For the term see also the refs in JONES 1988, 138.

⁵⁵ GARDINER 1937, 28, 15.

⁵⁶ RITA II, 6, 38:3.

sense.⁵⁷ Indeed it is possible to imagine a situation where the very existence of a distant outpost the Egyptian empire such as ZUR was only possible because of the transport capabilities of these new seagoing craft. The facilities required for the successful docking and unloading of cargoes for the ZUR garrison requires further study.

6a. Self-Sufficiency

Water

To date, two wells have been excavated at ZUR, one close to the Temple/Magazines and one in Area K (Fig. 7).⁵⁸ The temple well is 4.50 deep, averages 75 cm wide and, when cleaned out, allowed removal of water at 180–200 litres per hour. The kitchen well is same depth as temple well and, although it has a narrower mouth, has a wider shaft (averages *c.* 1.00 m). The productive capacity of the Area K well has not been measured. The total amount of water required by the garrison is difficult to assess; in addition to the basic individual requirements of each inhabitant, significant quantities of water would be required for additional activities (most obviously, baking and brewing in Area K), and for the watering of any animals kept within the fortress itself. As has already been noted, the size of the garrison itself is not easy to assess but, as a rough calculation, if we work on a baseline figure of 500 individuals with a basic requirements of 15–20 litres of water per day,⁵⁹ then a figure of 10,000 litres per day is required. This may seem a significant quantity but, based on the productivity of the temple well, if one well is used continuously for 10 hours per day, producing, say, 150 litres per hour, then a single well will produce 1,500 litres per day. Thus no more than seven wells could supply the basic requirements within the fortress, even before the issue of water-harvesting in cisterns, and the possibilities for water supply from outside the fortress are considered.

Food

It is unlikely that any other foodstuff would have replaced grain as the basic staple of the diet at ZUR.

Indeed, the nature of Area K strongly suggests that baking and brewing was a major activity in this part of the site given that it has produced all the necessary apparatus necessary for the production of bread and beer (see Fig. 7 and, especially, Fig. 8⁶⁰ which shows the distribution of mortars, saddle-querns,⁶¹ quern-rubbers/grinders and ovens in this part of the site⁶²). The specific nature and source of the grain is, at this stage of our research, not so easy to define precisely. The Maryut Coast has long been noted for its rain-fed cultivation of barley⁶³ and the coastal plain/wadis in the vicinity of ZUR would have been ideal to grow this crop. The Neb-Re statue text with its reference to ‘*many rooms of grain*’ suggests that the provision of this staple was a major achievement in the administration of the site, although whether they were supplied from local fields or by grain-ship from Egypt remains unclear – the Neb-Re text suggest both.

Immediately to the west of Area K are a set of circular granaries of limestone cobble and mud-mortar construction. This area has only been partially excavated, but it is clear that there are at least four, and likely more, granaries in this area, which may have acted as a distribution point for grain rations, or a convenient supply for the baking/brewing activity in Area K, or both. A brief consideration of the storage capacity of these granaries gives some indication as to their adequacy as a storage facility. The two fully excavated granaries have an average diameter of three metres, and with indications that their original height was at least two metres. These dimensions indicate an internal volume of approximately 14 m³ each, and therefore a total estimated storage capacity of the four known granaries of approximately 56 m³, i.e. 56,000 litres. Calculations as to how many men these granaries could supply with grain are, like the volume of the storage capacities of the granaries themselves, a matter of evidence-based estimation. Janssen suggests⁶⁴ that monthly grain rations to Deir el-Medina workmen of 4 *khar* of emmer and 1.5 *khar* equate to approximately 300 and 150 litres respectively,⁶⁵ although these figures should probably be regarded as an allocation for a family and an indi-

⁵⁷ But note that the grain-transports which Merenptah claims to have sent to help the beleaguered Hitites are referred to as *mkw*-ships MANASSA 2003, 158.

⁵⁸ MORRIS 2006, 159–165.

⁵⁹ UNHCR figures quoted, and discussed, in MORRIS 2006, 4–9.

⁶⁰ Figs. 8 and 9 are greatly simplified versions of the plans of Area K which have been produced by SUSANNA THOMAS as

part of her detailed study of this part of the site, which will be published as a volume in the *ZUR* series.

⁶¹ Cf. GIDDY 1999, 201–205, plate 43.

⁶² A small number of sickle-blades have also been recovered.

⁶³ ZAHRAN and WILLIS 1992, 338; COLE and ALTORKI 1998, 137.

⁶⁴ JANSSEN 1975, 460

⁶⁵ Given a *khar* of 76.88 litres; see JANSSEN 1975, 109.

vidual's average consumption was probably closer to one litre per day.⁶⁶ This figure correlates reasonably well with ration distributions at Uronarti in the Middle Kingdom, where ration dockets indicate a 10-day distribution of 60 units produced from $\frac{2}{3}$ *hekat* of barley and 70 units from 1 *hekat* of emmer; with a *hekat* measuring 4.78 litres, this approximates to 7.5 litres of grain in 10 days and somewhere between 1,458⁶⁷ or 2,136⁶⁸ per day. It should be noted that the Uronarti distributions, although measured in terms of their grain content, are supplied as baked loaves, presumably because of their centrally-supplied military context, i.e. the opportunities for individual members of the Uronarti garrison to carry out their own food-processing opportunities were presumably very limited. Nevertheless, as a rough rule-of-thumb, a garrison of 500 men requiring 7.5 litres of grain each for 10 days is a total of 3,750 litres. The known total grain store of 56,000 litres at ZUR would therefore last for 150 days.

There are, of course, a fair number of arguable variables in the above calculation but, given that more granaries might well be expected to the north of those excavated to date, the best-guess estimates of population and storage capacity of the basic grain-staple (and indeed water supply) seem to be developing towards a workable fit.

A distribution of bread (and beer) seems, on the basis of the concentration of production in Area K, to have been an important aspect of central provisioning at ZUR. Other foodstuffs also had a part to play. Animal bones are one of the few organic materials to survive at the site; their detailed analysis will form an important aspect of future work at the site, but an initial appraisal of the evidence would suggest, perhaps unsurprisingly, the ovicaprids dominate the surviving material, but with some evidence of the presence of pig.⁶⁹ Small numbers of fish bones have been found at the site⁷⁰ as have ostrich egg shells; both offer the possibility of a welcome addition of both variety and protein into the garrison's diet.

Pottery

The question of the extent to which ZUR was self-sufficient in pottery is one of the most important for future research at the site. It is clear that there are some obvious categories of pottery which are imported. One of these is the foreign containers such as the Canaanite Amphorae, Coarse-Ware Stirrup-Jars, and Cypriote Juglets⁷¹ – these are best explained as containers initially of interest because of their contents and then used as convenient containers at the site. The second type of obviously imported vessel are Egyptian marl wares, which are represented at the site by types including Large Slender Amphorae,⁷² Pilgrim Flasks,⁷³ and Ovoid "Meat" Jars.⁷⁴

A more difficult question is that of the vast majority of pottery found at the site which appears similar to Nile silt wares, best represented by Large-Necked Storage Jars,⁷⁵ Funnel-Necked Jars,⁷⁶ Flat-Based Beer Jars,⁷⁷ and a variety of Flat-Based and Round-Based Dishes/Plates/Bowls.⁷⁸ An initial appraisal of the silt-ware pottery at ZUR by VIRPI PERUNKA suggests that there may be several variants of both Nilotic (specifically, Nile silt B2⁷⁹) and local wares present⁸⁰ – this possibility, along with the appraisal of the clay sources⁸¹ will form an important aspect of future work at the site. At present it might be best to say that it would seem more likely that a substantial proportion of utilitarian pottery was produced at the site itself as opposed to the (possibly) less likely scenario of shiploads of such pottery being supplied from the Nile Delta.

Linen

The most important evidence for a linen-production industry at ZUR is the presence at the site of so-called 'spinning bowls',⁸² used to keep flax fibres moist and under tension while they are spun. The distribution of finds of unambiguous 'spinning bowl' sherds in Area K (Fig. 9) suggests that the processing of flax may have been carried out in this part of the site. Objects which might be loom weights (or fishing net weights?) have also been recovered from the site, although no unam-

⁶⁶ JANSSEN 1975, 463.

⁶⁷ KEMP 1989, 128.

⁶⁸ MILLER 258

⁶⁹ I am grateful to SALIMA IKRAM and LOUISE BERTINI for their comments on this material.

⁷⁰ Chiefly vertebrae; an analysis of microfaunal remains at ZUR is being undertaken by Claire Malleson.

⁷¹ SNAPE 2000.

⁷² Cf. ASTON 1998, 506–509.

⁷³ Cf. ASTON 1998, 492–493.

⁷⁴ Cf. ASTON 1998, 478–487.

⁷⁵ Cf. ASTON 1998, 194–195, 306–307.

⁷⁶ Cf. ASTON 1998, 188–193.

⁷⁷ Cf. ASTON 1998, 184–187, 272–273

⁷⁸ Cf. ASTON 1998, 88–91, 322–323, 326–327, 330–331.

⁷⁹ ASTON 1998, 61.

⁸⁰ This work will build on suggestions made regarding the interplay of Libyan and Egyptian ceramic traditions/sources at ZUR in HULIN 2001.

⁸¹ In, for instance, the Wadi Agiba, immediately to the west of ZUR – see HULIN 1989, 4.

⁸² KEMP and VOGELSANG-EASTWOOD 2001, 291 ff.

biguous evidence of weaving has yet been recovered. Given the extreme unlikelihood of flax fibre being transported from Egypt to ZUR, it is probable that flax cultivation and processing was at least attempted at ZUR; the wadis and/or wadi fans, after the most severe winter rains, may have provided the 'fertile well drained loams' and 'temperate climate with ample rainfall' best liked by flax.⁸³ It is also possible to imagine the winter rains, especially in the wadis, being utilised for 'water-retting' of the harvested flax.⁸⁴

Tools and Furniture

Metal objects are especially rare at ZUR. This is hardly surprising given the potential for corrosion in the wet climate and the likelihood of metal objects – especially tools/weapons – being removed from the site by either the departing Egyptian garrison or the incoming/passing by Libyan squatters. In addition, other materials seem to have been clearly brought to the site, such as basalt grinders, which survive in small numbers. The ready availability of poor quality, but soft limestone, seems to have given rise to a cottage industry in the production of domestic items, including headrests. In fact the repertoire of stone objects found at ZUR is, in several respects, remarkably similar to the assemblages from House P46.33 at Amarna and the New Kingdom levels at Memphis, with identical hammer-stones,⁸⁵ flat, rectangular stone tables,⁸⁶ and hemispherical tripod stools⁸⁷

7. INTERACTION WITH LOCAL LIBYANS

A number of factors point firmly in the direction of some level of interaction between the garrison and the indigenous population of the region:-

- 1) A long history of interaction by Libyans with external visitors at Bates's Island.⁸⁸
- 2) Evidence of Libyan presence in the area in the form of sherd scatters which seem to represent campsites on the edges of wadi systems in the vicinity of ZUR.⁸⁹
- 3) The distinction which should be made between the 'local' Tjehenu/Tjemeh (presumably long-standing beneficiaries, at Bates's Island, of the international trade circuit which ZUR may have been designed to protect) and the newcomers – Mesh-

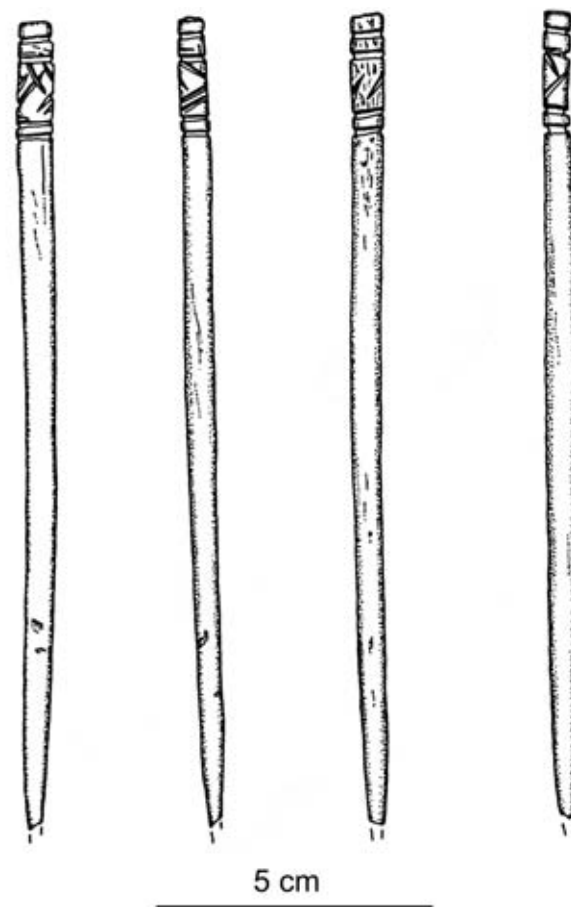


Fig. 10

wesh and Libu – who had no stake in these trading relationships and may have been regarded as antipathetical to it. Possible, and understandable, tensions between the Marmarican Libyans and incoming (Cyrenaican?) Libyan groups may be alluded to in the Merenptah Libyan War text which refers to Rebu descending upon Tjehenu-land.⁹⁰

- 4) The acquisition by the ZUR garrison of ostrich eggs, fish and ovicaprids must (initially at least for the latter) have relied on the intimidation, acquiescence or active co-operation of local Libyan groups. A co-operative relationship may well have been in the latter's interest if it meant the development of an exchange relationship with the technologically sophisticated garrison in order to acquire, for instance, bread, beer, linen, and metal objects.

⁸³ KEMP and VOGELSANG-EASTWOOD 2001, 27.

⁸⁴ KEMP and VOGELSANG-EASTWOOD 2001, 28.

⁸⁵ KEMP 1995, fig. 2.29; GIDDY 1999, pl. 46.

⁸⁶ KEMP 1995, fig. 2.34 (esp. type a.); GIDDY 1999, pl. 31–32.

⁸⁷ KEMP 1995, fig. 2.38; GIDDY 1999, pl. 33–34.

⁸⁸ WHITE 2002.

⁸⁹ HOUNSELL 2002; HULIN 2001.

⁹⁰ MANASSA 2003, 23 (cf. Year 11 text of Ramesses III where it is the Meshwesh who descend upon the Tjehenu – MANASSA 2003, 24).

5) More speculatively, it is also possible to postulate that the presence of a practically permanent garrison might encourage the development of a range of relationships, at a group and individual level, between the garrison and local indigenes. Among other benefits, individual diets at ZUR may have been based on a core of centrally-provided staples (especially bread), with the acquisition/preparation of other elements allowing the

development of more independently constructed 'foodways', in a similar process to that in Nubia, as at Askut.⁹¹ Whether this activity is associated with extramural settlement, and whether objects found at ZUR can be used to hypothesise a female, non-Egyptian presence (Fig. 10) are important issues among the cluster of questions which form the research agenda for future work at ZUR.

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⁹¹ SMITH 2003.

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