

## The Survey of Memphis, capital of ancient Egypt: recent developments

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*The Egypt Exploration Society has been conducting an archaeological survey of the site of Memphis and its surrounding area since 1981. A summary of the aims and achievements of the project appeared in Archaeology International 1999/2000. In the present article the field director reports on the progress made since then and considers some of the contextual aspects of this survey of the ancient Egyptian capital.*

Ancient Memphis, located south of Cairo, was capital of Egypt through much of the Pharaonic period. It has been the subject of survey by the Egypt Exploration Society since 1981;<sup>1</sup> a report on its work appeared in *Archaeology International* 1999/2000.<sup>2</sup> Ten years on, we can report on the progress made since then and consider some of the contextual aspects of this survey of the ancient Egyptian capital.

Memphis was built in a crucial location at or near the head of the Nile delta, 20km south of the centre of modern Cairo. It not only commanded the river approaches from the valley to the delta and the Mediterranean, but also formed the hub of numerous cross-desert routes from the Saharan oases to the Red Sea. It is located in an unusually narrow section of the Valley, which certainly enhanced its ability to control traffic and withstand invasion (Figs 1 and 2).

### Sediment cores and the course of the Nile

A good deal of our best information has come from sediment cores across the floodplain of the Nile Valley. This has proved a simple but very cost-effective way of recording buried deposits, both natural and anthropogenic, and is a vital tool in our attempt to reconstruct the past behaviour of the river and the human response to it (Fig. 3). The coring programme has continued when possible up to the present, and we now have a better idea of the movement of the river. In recent years we have benefited greatly from the presence on the project of a professional geologist (Dr Judith Bunbury of the Earth Sciences Centre at Cambridge) who has extensive experience of both hard rock and sedimentary environments in Egypt; she and her team of colleagues and students are making a leading contribution to our understanding of the past environment of the Nile at Memphis and other important sites.

We are now satisfied that our original model for Nile movement is basically sound: that at the time the city was first occupied (at the beginning of the Dynastic period, c.3000 BCE), the river flowed along the western escarpment, with the settlement on the west side of

the river close to the contemporary elite necropoleis of Saqqara, Zawiyet Aryan, Giza and Abu Rawash; it has subsequently migrated, perhaps erratically, over the past

five thousand years to the eastern side of the floodplain, and today flows close to the older rock and gravel strata of the eastern (Arabian) desert (Fig. 4). The dynamics behind this long-term shift are still not perfectly understood: there are probably multiple causes, such as aeolian sand deposition in the west from the Old Kingdom (2500 BCE) onwards, and the formation of alluvial sand and silt islands as part of the natural Nile regime, perhaps enhanced and augmented by human activity such as the construction of moles and earthworks to protect existing settlements from erosion.



**Figure 1** Satellite image showing the location of Saqqara and Mit Rahina, traditionally thought to be the location of Memphis. Courtesy Google



**Figure 2** Satellite image of the Saqqara necropolis showing the Step Pyramid (centre) and the Abusir pyramids (centre top). Recent work has been concentrated in the valley E of the necropolis. Courtesy Google



Figure 3 Sediment coring in the Nile Valley close to the Abusir pyramids (visible in background)

the Sixth Dynasty (c.2300 BCE), perhaps shifting in response to changing climatic conditions. Only at that time does the location of pyramid sites stabilize, and it is unlikely to be a coincidence that this happens closest to the eventual, later dynastic conurbation at Mit Rahina.

Our attention in recent years has been concentrated on the region just to the north and west of the later dynastic site (Old Kingdom onwards) located close to the western desert edge. Here the sediment cores show episodes of massive sand invasion, probably starting during the Old Kingdom, which cover up to a kilometre of the western edge of the floodplain for a length of at least fifty kilometres from north to south: the same phenomenon has since been recorded to the north at Abu Rawash and to the south at Dahshur. This has important repercussions for the question of pre- and proto-dynastic

**Locating Memphis**

One of the great unknowns at Memphis is where the settlement was at the time that the pyramids were being built: these monster funerary structures are of course world famous, but nothing is physically known of the city that they reflect, apart from new and ephemeral towns built near each of the pyramids to house the workforce and its administrators; the best known of these is the “lost city of the pyramids”, located to the southeast of the Giza pyramid group, and currently being explored by Mark Lehner and his team.<sup>3</sup> The core settlement of Memphis is however truly lost: so far, no *in situ* structures of any date earlier than the Middle Kingdom (2040–1640 BCE) have ever been found in the floodplain. This is no doubt due largely due to the rise in the floodplain caused by the annual Nile flood and its deposition of silt (estimated conservatively at on average a metre per 1000 years), partly also by the changing course of the river and the need for the city to follow its movements.

Ever since the publication of the *Description de l’Egypte*, the colossal scholarly report on Egypt past and present that resulted from the military and cultural invasion of Egypt by Napoleon Bonaparte at the end of the eighteenth century, the received wisdom has been that Memphis was located around the modern town of Mit Rahina, in the middle of the floodplain between Saqqara and the Nile (Fig. 1). We have been led to question whether there need have been a single, nucleated site in the early stages: in view of the narrow strip of land available to the west of the river, and the attenuated nature of the clusters of pyramids, we have proposed that the location of the city might have been relatively fluid before

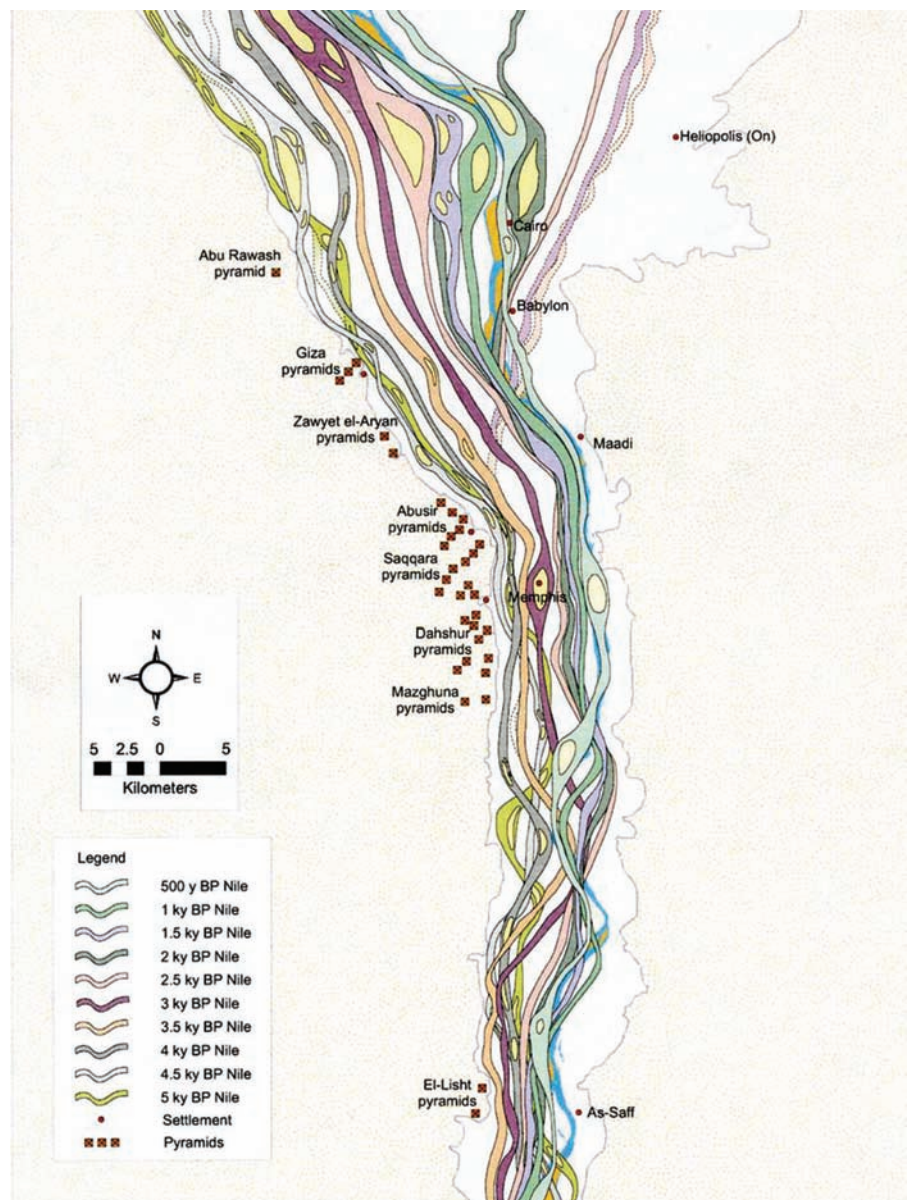


Figure 4 Computer model of Nile movement over the past 5000 years (by K. Tutley, University of Cambridge, Earth Sciences Department)



**Figure 5** Section through the collapse of the Ptolemaic Anoubieion temple wall, showing sand and brick deposits

occupation in northern Egypt, which are conspicuously few or are absent, especially on the west – or are presumed to be so: the possibility that they are simply buried beneath subsequent sand sheets should lead to more attention being paid to these areas.

#### Excavations

To investigate the preliminary findings from local sediment cores, we carried out two pilot excavations at the foot of the escarpment. The first of these showed an unexpected level of activity within the sequence of sand layers that covered the older floodplain, during the Ptolemaic and Roman periods; a nearby core strongly suggests that early dynastic occupation could be expected here at lower depths. The second site, a more ambitious exposure very close to the escarpment, lay across the line of the north enclosure wall of the Ptolemaic-Roman Anoubieion (temple of Anubis), which provided a useful fixed point, a datable structure with which to associate earlier levels (Fig. 5). Good progress was made with this excavation, but dewatering equipment would be needed to allow us to penetrate the deeper deposits which we believe contain the very early occupation. We have already

made one interesting observation here: the Roman and post-Roman structure and deposits lie, in absolute terms, well below the Old Kingdom “valley temple” of the pyramid of Unis (c.2350 BCE) a little further south. Such valley temples (it may be that not all pyramids had them) are usually assumed to be functioning

harbours receiving river traffic, at least during the inundation, but it is difficult to see how this would work in this case. It is perhaps more likely that the temples were approached over dry land from a real riverside mooring further east.

We were intending to make more progress in this area, but in the last few years our programme has been obstructed by the decision of the Supreme Council of Antiquities (SCA) to build extensively at the foot of the escarpment (Fig. 6), with very little opportunity for us to react in time: our main excavation site now lies beneath an access road connecting the tourist entrance to the necropolis with a security and administrative complex to the north. A concrete exclusion wall has been built along the edge of the escarpment, effectively creating an archaeological ghetto of the funerary monuments on the Saqqara plateau, so that the little known and under-explored zone below is now inaccessible. We are therefore forced to turn to other aspects of the site and the region, to carry forward some of the ideas that we have formulated.

#### Interpreting Memphis

At present we are particularly interested in the possibility that the later dynastic centre, around the town of Mit Rahina, was founded on a natural sand dune (*turtleback*). Here our sediment cores show archaeologically sterile coarse sand deposits at a fairly uniform depth of five metres below ground level (15 metres above sea level). If, as we suspect, the area around the modern town became the core of the city for the rest of its occupation history, then a natural sand formation presenting dry land above the floodplain and the reach of floodwaters could have been an irresistible target for settlement as



**Figure 6** View looking north over the Nile Valley towards Cairo, showing new construction

the Nile moved east and older riverbank settlements found themselves marooned. One of the best-known traditions surrounding early Memphis (found in the writings of Herodotus, who visited Memphis in the fifth century BCE) is that the city was founded by a king called Menes, who diverted the river to create dry land on which to build. While the hydrological technology of the Egyptians at this time was probably not up to this kind of manipulation, there may be a kernel of historicity in the account if we suppose a combination of natural processes and human intervention. Certainly in Herodotus's day when Egypt was under Persian domination, and later into the Ptolemaic period, the city was protected by extensive and carefully maintained river defences, and his version of events may well be a projection back in time of existing conditions.

Computer modelling by Judith Bunbury's team of Nile movement over the past five millennia, based on the river's recorded behaviour in the last three hundred years, has now raised many interesting possibilities (Fig. 4). There is a high probability that the delta head, the point where the river begins to split into a distributary formation, was located much further south (upstream) in the past. Today the delta head is in the region of Awsim, some fifteen kilometres northwest of central Cairo; the projections suggest that in the Early Dynastic/Old Kingdom period the river began to split near Memphis, nineteen kilometres south of Cairo, and that the delta head has gradually migrated north since then. This has important consequences for the location of the pyramids: the famous step pyramid of Djoser (Third Dynasty, c.2620 BCE), built at Saqqara at a time when Upper and Lower Egypt (the Nile Valley and Delta) were really being forged into a single political entity, was perhaps positioned to provide views not only over the expanse of the Delta floodplain (which it still does), but also over the ideologically important point at which the river began to part. Similarly, an important temple dedicated to the Nile (and the notional "origin" of the Delta waters) was located in later times on the east bank just to the north of Memphis. Important evidence from beneath the streets of modern Cairo is also providing a fuller picture of how the Nile was behaving in the Roman period, especially at the Trajanic fortress of Babylon.

A more detailed environmental context for the ancient course of the Nile over time has also helped us to explore some of the phenomenological aspects of Memphite topography: we have for

example questioned whether the available intervisibilities between Memphis and Heliopolis (once the centre of the solar cult of Re, and now part of an industrial suburb in north-eastern Cairo) might have determined the locations of some of the pyramids and (in the Fifth Dynasty) their accompanying sun temples. Similarly, we have raised the possibility that changes in pyramid size (for a long time a topic of some contention) was due not so much to the declining fortunes of the rulers of Egypt, but to where they were intended to be seen from: the largest and earliest pyramids (Giza, Dahshur) are also those furthest from the Memphite "core", and the pyramids decrease in size the closer they get to this core. The earliest name for the city, "White Walls" (*Inbu-hedj*) – technically the toponym "Memphis" (*Mennefer*) only refers to the late Old Kingdom site – is usually explained in reference to an Early Dynastic structure, presumably a palace, but our reconstruction of the Early Dynastic landscape suggests that the pristine limestone cliff profile might have suggested the name. Some mainstays of Egyptian literature might also be reconsidered in the light of these new ideas about the local landscape: the well-known story of Sinuhe, for instance, who blunders about the countryside near Memphis in something of a panic, following the death of the king and a political coup; or the siege of Memphis by King Piankhi (or Piye) of Nubia who attacks the city by river.

### Prospects

In many ways Memphis provides a perfect setting for the study of the Nile and its effect on, and interaction with, its dependent population. It is located at the point where the cultures of the Valley and the Delta meet (one of its ancient names was "Balance of the Two Lands": *mekhat-tawy*); it combines monumental and vernacular architecture; it provides an archaeological continuum (one of the longest in Egypt) between past and present; it was a three-way portal between Europe, Asia and Africa, and perhaps the most cosmopolitan of Egyptian cities, with foreign communities and an international port. There is unprecedented interest in Memphis at the moment: we have close informal links with many other projects of various nationalities (Egyptian, British, USA, Russian, Portuguese, Australian, German, French). Our hope is to build on what has been achieved so far in collaboration with these colleagues, and eventually to produce an environmental map of the Nile over the past five thousand years (or more) which will form the basis for informed debate and future exploration.

### Notes

- 1 Interim reports on the Egyptian Exploration Society's work at Memphis can be found in its magazine *Egyptian Archaeology*, and annually in the *Journal of Egyptian Archaeology*.
- 2 D. Jeffreys, "Investigating Ancient Memphis, Pharaonic Egypt's northern capital", *Archaeology International* 1999/2000, 24–7.
- 3 M. A. Murray, "Provisions for the pyramid builders: new evidence from the ancient site of Giza", *Archaeology International* 2004/2005, 38–42.