

# SITTING BESIDE LEPSIUS

Studies in Honour of Jaromir Malek  
at the Griffith Institute

edited by

D. MAGEE, J. BOURRIAU and S. QUIRKE

PEETERS

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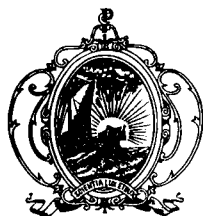
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## SIZE WASN'T EVERYTHING: THE MEMPHITE PYRAMIDS AS SCALE MODELS?

David JEFFREYS

Jaromir has always been interested in, and has contributed importantly to, debate concerning the pyramids of the Memphite area. I have no idea what he will make of this, but I hope it raises a smile at least.

The location and distribution of the Old- and Middle-Kingdom pyramids between Meidum and Abu Rawash have long been a subject of discussion. Some have taken a functionalist line, arguing that the locations were determined by local sources of high-grade building stone and firm foundations; and where failures occurred (e.g. Meidum), this was due to poor-quality materials either in the building fabric or in the preparation of the foundations.

I have proposed elsewhere (JEFFREYS 1998) that the question of the (inter)visibility of the pyramids and other prominent monuments might be another useful aspect to explore: up to the sixth dynasty, the royal burial sites of kings declaring allegiance to the solar cult, or their proxies (sun temples) are placed so as to be visible from the cult centre at Heliopolis, while the others are not. Three pyramid clusters (Giza, Abusir, Saqqara North) show a south-west — north-east linearity, allowing them to be individually seen from Memphis, but aligned in a way that makes them appear a unity from the north-east: the diagonals of the three Giza pyramids actually line up with the Heliopolis obelisk (not exactly, but close enough to produce the illusion from a distance of being a single structure, as observed as recently as the middle of the nineteenth century: by Hek-ekyan in 1852 and Russell in 1869). The two archaeologically known sun temples (Userkaf and Niuserre at Abusir/Abu Ghurab) are orientated west-east like the pyramids, but their causeways and valley temples make a sharp turn north-eastwards. Whether this is due to ideological factors or to the direction of a (much closer?) Nile channel is so far not resolved. Clearly such outsize structures, deliberately built in the most conspicuous locations where they would be visually inescapable for the bulk of the local population, were meant to be seen: but where from?

Recent survey work at Memphis suggests that the river moved away from the west side of the floodplain during the early dynastic to Old



Kingdom periods, partly driven by aeolian sand invasion due to a drying environment, and has continued moving eastwards ever since to its present course on the extreme east side, scouring the paleofan gravels of the Wadis Hof and Digla. As part of the same long-term process the real head of the Nile Delta, where the river split, was probably much further south than at present, at the latitude of the (later) Abusir pyramids (LUTLEY and BUNBURY 2008). A logical place for the identity of the settlement at that time would be just above this point, between the major cemeteries of Saqqara on the west and Helwan/Maasara on the east, and we have proposed that the core of the early dynastic town was within the loop made by the Bahr Libeini, a relict channel of the Nile, where it rounds the escarpment immediately east of the Saqqara necropolis and north-west of the later dynastic site at Mit Rahina. As an experiment I have tried to project how the successive pyramids would have appeared from this theoretical core site of 'Memphis' (although not called *Mennefer* until the end of the Old Kingdom). For this purpose I suggest a viewpoint in the centre of this bay as a test site from which to assess the visible horizon, at N 29° 52' 38", E 31° 14' 17.2", UTM 36R 329847 E, 3306507N.

A conspicuous feature of pyramid development is the way that the largest pyramids appear early in the sequence (Huni, Snefru, Khufu, Radjedef, Khafre) while subsequent pyramid superstructures diminish dramatically in size (Menkaure onwards). A common explanation for this is that the capacity of the ruler to command labour and resources became eroded towards the end of the sequence and the transfer of power was increasingly devolved to the provinces. However there are other factors to be considered: the use of granite and other highly thermodynamic materials in pyramid casings (to an unprecedented extent in the case of Menkaure's pyramid superstructure) and ancillary structures, for example, and the growing trend towards specialised craft-intensive pyramid texts and relief representation from the fifth dynasty onwards. In terms of value and expediture, these additional features may well have replaced sheer bulk in terms of extra value.

### Memphis sites by sequence: measurements

ruler	site	area at base (1000 sq m)	height (m)	volume (1000 cu m)
Khasekhemwy?	Saqqara (SP?)	?	?	?
Zoser	Saqqara (SP)	16.5	60	330

ruler	site	area at base (1000 sq m)	height (m)	volume (1000 cu m)
Sekhemkhet	Saqqara (SP)	14.4	50?	240
Khaba	Zawyet Aryan (SP)	6.2	?	?
Huni	Meidum (P)	21.6	(94)	677
Snofru	Dahshur (2P) N S	48 33.9	(104) [129] (105)	1678 [1458] 1186
Khufu	Giza (P)	52.9	(146)	2575
Djedefre	Abu Rawash (P)	11	(70?)	257
Khafre	Giza (P)	46.2	144	2218
Menkaure	Giza (P)	11	(66)	242
Shepseskaf	Saqqara (M)	7.2	(18)	43
Userkaf	Saqqara (P), Abusir (ST)	5.5	(49)	90
Sahure	Abusir (P)	6.2	(47)	97
Neferirkare	Abusir (P)	11	(70)	256
Shepseskare	Abusir? (P?)	?	?	?
Raneferef	Abusir (P)	4	(30?)	40?
Niuserre	Abusir (P, ST)	6.6	(47)	103
Menkauhor	Saqqara? (P)	2.5	?	?
Djedkare	Saqqara (P)	6.2	(53)	109
Unis	Saqqara (P)	3.4	(43)	49
Teti	Saqqara (P)	6.2	(53)	109
Pepi I	Saqqara (P)	6.2	(53)	109
Merenre	Saqqara (P)	6.2	(53)	109
Pepi II	Saqqara (P)	6.2	(53)	109

### Memphis pyramids: ranking by volume

Snofru N	1678	Dahshur	} (combined volume 3136/2864)
Snofru S	1458/1186	Dahshur	
Khufu	2575	Giza	
Khafre	2218	Giza	
Huni	677	Meidum	
Zoser	330	Saqqara	
Djedefre	257	Abu Rawash	
Neferirkare	256	Abusir	



Menkaure	242	Giza	
Sekhemkhet	240	Saqqara	
Djedkare	109	Saqqara	
Teti	109	Saqqara	
Pepi I	109	Saqqara	
Merenre	109	Saqqara	
Pepi II	109	Saqqara	
Niuserre	103	Abusir	
Sahure	97	Abusir	
Userkaf	90	Saqqara	
Unis	43	Saqqara	
Raneferef	40?	Abusir	
Shepseskare	?	Abusir?	
Menkauhor	?	Saqqara?	

The perceived decline in pyramid building (i.e. decrease in the size of superstructure) occurs however not only in this time sequence but also topographically in the distribution of sites. The largest pyramids are those furthest from the putative 'core site' and become gradually smaller as they approach the core, with one or two exceptions that are discussed below. There is a notable consistency in bulk dimensions (both height and base area, and therefore volume) throughout the Sixth Dynasty, which coincides with a consolidation of location and perhaps with the anchoring of the nearby settlement.

### Memphis sites by location: measurements

Site	distance from Memphis 'core' (km)	Elevation at ground level (m AMSL)	Height of superstructure (m)	Elevation of summit (m AMSL)
<i>Abu Rawash</i>				
Djedefre P	23.3	146	(60?)	(206?)
<i>Giza</i>				
Khufu P	15.1	63	(146)	(209)
Khafre P	15.1	62	144	210
Menkaure P	15.0	66	(66)	132
<i>Zawyet Aryan</i>				
? P	10.9	45	140?	(185?)
Khaba	9.6	48	(?)	(?)

Site	distance from Memphis 'core' (km)	Elevation at ground level (m AMSL)	Height of superstructure (m)	Elevation of summit (m AMSL)
<i>Abusir</i>				
Niuserre ST	5.2	30	(56)	(86)
Userkaf ST	4.5	35	(50?)	(85?)
Shepseskare P	4.3?	?	?	?
Sahure P	4.0	40	(47)	(87)
Niuserre P	3.9	45	(52)	(97)
Neferirkare P	4.0	50	(70)	(120)
Raneferef P	4.0	53	(?)	(?)
<i>Saqqara</i>				
Teti	1.6	57	(53)	(110)
Merikare (or Menkauhor?)	1.4	47	(30?)	(77?)
Userkaf	1.9	48	(49)	(97)
Zoser	2.2	55	60	114
[Sekhemkhet]	?	?	?	?
[Khasekhemwy?]	?	?	?	?
Unis	2.5	57	(43)	100
Pepy I	3.2	40	(53)	(93)
Djedkare	3.4	36	(53)	(89)
Merenre	3.7	36	(53)	(89)
Pepi II	4.8	52	(53)	(105)
Shepseskaf M	4.8	50	(18?)	(68)
<i>Dahshur</i>				
Snofru (N)	8.2	60	(104)	(164)
Snofru (S)	10.1	60	[129] (105)	[189] (165)
<i>Meidum</i>				
Huni/Snofru	54.8	40	(94)	(134)

Of course these raw figures tell only half the story: the natural terrain must be considered too. The valley floor was certainly lower and so less extensive over four thousand years ago; on the other hand many of the visual obstructions encountered today would not have existed: the massive sand dunes that now blanket the western cliff edge, and the high-rise vegetation (palms, acacias, imported eucalypts) that have only been introduced with the modern dams at Aswan and the development of year-round instead of seasonal agriculture. Equally, high-rise architecture, once

confined to the limited potential (perennially dry) areas of settlement, now spreads virtually uncontrolled across the floodplain: by some estimates (e.g. the NASA Earth Observatory) the Nile Valley is one of the world's worst-case scenarios for the loss of viable agricultural land during the last hundred years ([earthobservatory.nasa.gov/Study/Lights2](http://earthobservatory.nasa.gov/Study/Lights2)).

These changes, and the individual circumstances of each pyramid site, merit a more detailed discussion. All completed Old Kingdom royal burial sites with the exceptions of Djedefre (Abu Rawash) and Huni (Meidum) could be seen across the floodplain from the Memphite core. The Meidum pyramid of Huni/Snofru, perhaps the most mysterious of them all, lies far to the south; at nearly 55 km it is surely too remote to have been visible in a straight line from Memphis even under ideal conditions, and today is only just visible from Lisht. Djedefre's was both distant and set back over the high desert, with an approach not from the east but from the north-east. In some cases the pyramid superstructures themselves obstructed the view of others: at Abusir, Shepseskare's pyramid (if correctly identified) and both the archaeologically known sun temples would have been blocked by Sahure's pyramid. Djedefre's lies in a straight line between the two largest Giza pyramids, but would probably not have been visible although it was begun with the steepest angle of any Old Kingdom or even Middle Kingdom pyramid. The largest Abusir pyramid, Neferirkare's, is the most south-westerly standing structure there, and the most likely to have had its view hindered by the North Saqqara plateau and the first- and second-dynasty mastabas there; Raneferef's unfinished monument lies to its south-west and with its smaller plan and lower bulk might not have been seen. (Is it a coincidence that the 'invisible' structures are those that were apparently left unfinished?)

An interesting case study is that of Snofru's two Dahshur pyramids. These are unusual in the sense that only this one ruler, apart from Senusret III in the twelfth dynasty, seems to have contemplated more than one finished pyramid site, and from the similarity of their names the two pyramids were clearly intended to be a pair and would be distinctly seen as such from the contemporary city, with all later pyramids and the mastaba of Shepseskaf located one side or other of the direct lines of sight. The more northerly of the two, the 'Red Pyramid', is the closer and more prominent as seen from our 'virtual Memphis'; the more southerly, the 'Bent Pyramid', is almost identical in structural and apparent visible height in its finished form, but exhibits a unique feature in that its angle changes in the upper half: if continued at its original steeper angle it

would have stood higher than the north pyramid despite having a smaller base area. The angle of the upper section is (coincidentally?) exactly that of the north pyramid. There is uncertainty as to whether this was a deliberate planned feature or not: was this unusual shape intended to mimic the *benben*, a specifically Heliopolitan emblem; or was it part of a modification to correct an overly ambitious design? (LEHNER 1997) An alternative possibility is that the south pyramid was adjusted to present itself as an exact pair to the north one, as viewed from the Memphite core.

One thing that emerges from this brief analysis is that there does seem to have been an incremental scaling-down in pyramid size as burial sites approached the urban centre. The largest superstructures are those furthest from the core: the two largest ones at Giza, are individually the largest by far; the planned dimensions of the Zawyet Aryan pyramid smaller again, but greater than either of the two Dahshur pyramids; and the dimensions of the Abusir and Saqqara pyramids the smallest and lowest of all, but all within the same horopter (roughly equidistant) and all of the same order of magnitude, except for Teti's which like Neferirkare's was slightly larger and may have been partially hidden behind that of Menkauhor/?Merikare (MALEK 1994). The effect is essentially to present all the pyramids as being roughly identical in size when viewed from the core site over their respective distances.

Was this apparent tendency towards control of pyramid height and volume deliberate? We have to assume that the ancient Egyptian planners and engineers who designed these structures were unaware of theoretical concepts of psychological-optical illusion such as size constancy scaling (e.g. GREGORY 1966), but there may have been sufficient competency to allow for a general decrease in size over distance. Since the monuments were necessarily stationary, were viewed from below their horizontal base plane, and appeared on the horizon in an almost two-dimensional aspect, perspective and depth cues would have been virtually non-existent (those viewed to the north would have caught the full sun during daylight hours throughout the year, apart perhaps from cloud shadows passing over them).

A further aspect of this approach is whether changes in the location of Memphis and its suburbs can be inferred from the selection of new pyramid sites. The very fact that the distribution seems to stabilise at Saqqara during the sixth dynasty suggests a new dynamic: no longer do we see the 'leapfrogging' effect of earlier pyramid location. Instead the pyramids seem to relate immediately to the site which was to become the later dynastic centre of the city — with its cult centre to Ptah and

its iconic name *Mennefer* taken from the name of Pepi I's funerary complex — which lies just to the east of the south Saqqara pyramid cluster. Earlier, more apparently random sites may well reflect settlement conditions in the floodplain, but so little work has been done on this that it is almost futile to speculate: the only possible lead at the moment is our finding that the river has been migrating eastwards since the early dynastic period and that new residential sites on the west bank would have been enabled in the process. Another case in point is the group of three pre- and early pyramid enclosures at Saqqara (Zoser, Sekhemkhet and the Gisir al-Mudir) which would effectively have presented themselves only to a view from the north, at the upper end of the Abusir valley. Since there is every reason to suspect that the modern town of Abusir, with its deep buried settlement stratigraphy, was part of the early dynastic core, this apparent discrepancy starts to be more easily understood.

To a certain extent, at this remove in time we can only observe these phenomena: to explain them we would need to know a great deal more about the individual circumstances behind the construction of each of these sites (and by inference or assumption the associated royal residences), the family links of the successive dynasts, the rivalries between them, and the obligations and affiliations of their political supporters. Much has been made (on very slender evidence) of the apparent disruptions in dynastic succession towards the end of the second dynasty, and it is usually assumed that similar intrigues attended other changes of reign and regime. This same approach could be used to examine the later pyramids in the region: those of the twelfth dynasty for example, and the curious case of the possible nineteenth-dynasty pyramid of Khaemwese (YOSHIMURA and TAKAMIYA 2000), built in a prominent position between the Saqqara and Abusir pyramid groupings at a time when the pyramid form was being revived in miniature for elite private tombs, and when restoration work was being performed on some Old Kingdom pyramids. These points can be appreciated by visiting the region on Google Earth.

## Bibliography

- GREGORY, R. L.  
1966 *Eye and brain: the psychology of seeing*. New York
- JEFFREYS, D. G.  
1998 *The topography of Heliopolis and Memphis: some cognitive aspects*, in GUKSCH, H. and POLZ, D. (eds), *Stationen: Beiträge zur Kulturgeschichte Ägyptens. Festschrift für Rainer Stadelmann zur Vollendung des 65. Lebensjahres*. Mainz, 63–71

- LEHNER, M.  
1997       The complete pyramids. London
- LUTLEY, K. and BUNBURY, J.  
2008       *The Nile on the move*, in *Egyptian Archaeology* 32, 3-5
- MALEK, J.  
1994       King Merykare and his pyramid, in BERGER, C., CLERC, G., GRIMAL, N. (eds), *Hommages à Jean Leclant*. 4v, Cairo: IFAO. v4: 203–14
- YOSHIMURA, S., TAKAMIYA, I. H.  
2000       Waseda University excavations at North Saqqara from 1991 to 1999, in BARTA, M., KREJCI, J. (eds), *Abusir and Saqqara in the year 2000*. (= *Archiv Orientalni* Supplement 9) Prague, 161–72