

Some Cognitive Aspects of the Luxor-Karnak Relationship

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Introduction

Two of the most magnificent monuments built in ancient Egypt are located along the eastern bank of the river Nile in today's Luxor: the so-called Karnak and Luxor temples (Figure 1). These temples, by far the most important sacred places of Egypt during the New Kingdom, were both mainly devoted to Amun-Ra (Wilkinson 2003). However, while the role of Karnak is clear in being the main "residence" of the God, that of Luxor, where a "creator version" of Amun was venerated, is more obscure and has generated many "alternative" theories which have little or nothing to do with the ancient Egyptians' religion and way of thinking. In spite of this, today we have a quite good understanding of the role of Luxor in the maintenance and rejuvenation of the royal divine power of the Pharaoh, and the fundamental key to understanding Luxor consists in exploring the Luxor-Karnak relationship. This relationship was mediated by a festival, the so-called Opet, and was realized physically by a straight processional path, today called the Avenue of the Sphinxes.

The limited aim of this paper is to highlight some important cognitive aspects of this relationship that have apparently passed unnoticed up to now.

A Brief Description of the Karnak-Luxor Area¹

After the collapse of the Old Kingdom, Egypt entered a turbulent phase which is usually referred to as the First Intermediate period. Reunification of the country came about with the 11th Dynasty, but the apex of the Middle Kingdom came about with the 12th Dynasty, initiated by Amenemhet I (c.1994 BC – regnal dates in the present paper will be given according to Baines and Malek 1981; discordances of a few years existing between different chronologies will not be relevant here). The name of this king is an homage to the Theban God Amun, and indeed the role of Amun rapidly grew as the main divinity associated with kingship. Amun was a multiform deity. He was originally a creator god, but would soon acquire solar connotations, and, once joined with the Sun God Ra as Amun-Ra, was to become by far the most important divinity of the Egyptian pantheon. His chthonic connotations, however, lingered on; Amun is, in fact, usually invoked as "the hidden one" and also as "the one who hears prayers", with reference to oracular activities carried out in his name (Teeter 2011).

With the progressive importance of Amun and of the political role of his priesthood, the main Theban temple of the god started to grow in importance as well. This is the

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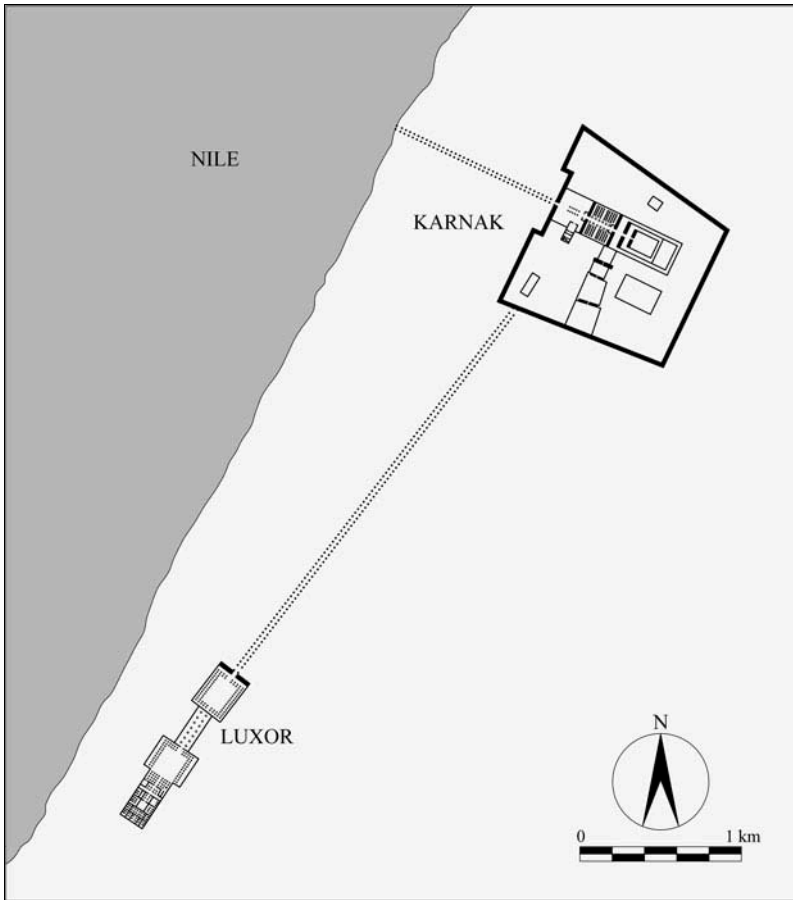


Figure 1. Plan of the Karnak-Luxor area.

60 complex known today as Karnak, on the east bank of the Nile. The site area actually contains a huge complex of
 65 temples and shrines, and was known in ancient times as “the most select of the places”. The founding of Karnak
 probably occurred during the 11th Dynasty, but its establishment as the main cult center of Amun is attributed to
 Amenemhet I's son, Senwostret I (Blyth 2006; Kemp 2005; Sullivan 2010).

70 The Middle Kingdom ended along with the 12th Dynasty. Under the 13th dynasty, the country began to
 split up into two lands, with the foreign Hyksos taking gradual control of Lower Egypt. The process leading to
 reunification was launched again by the Theban rulers, and can be said to have been completed with the reign
 of Ahmose (1550 BC circa), the founder of the 18th Dynasty, and, conventionally, of the New Kingdom.
 75 With the New Kingdom, the Karnak temple received a series of huge, spectacular additions. In particular,
 Hatshepsut (the fifth ruler of the 18th Dynasty) promoted the worship of a “Theban triad” of deities, formed by
 Amun, his wife Mut, and their son Khonsu, whose temples clustered near the main Karnak site (Bryan 2000). It is with
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the Pharaoh-queen that the sacred area of eastern Thebes definitively acquired his second, fundamental element: the so-called temple of Luxor.

85 Luxor is located along the Nile some 3.5 km to the south-west of Karnak. Known in ancient times as the
 “sanctuary of the south”, it was again principally dedicated to Amun, worshipped here as a fertility and creator god,
 Amenemope. The temple was founded probably under Ahmose, but the earliest architectural evidence comes
 90 indeed from Hatshepsut reign, although most of her buildings were subsequently destroyed, and the magnificent
 complex we can see today is mostly the work of Amenhotep III and Ramesses II (Figure 2; Table 1). From
 south to north, the following main stages of construction can be seen. A first stage by Amenhotep III, composed of
 95 the intricate, secluded multi-room complex which stands today at the very end of the temple, perhaps in a place
 already revered as a (or “the”) “primeval mound” (many Egyptian temples shared during the centuries this sort of
 100 pride, for instance Heliopolis and Medinet Habu). A second stage by the same king followed, composed by a
 huge open court and a magnificent access colonnade

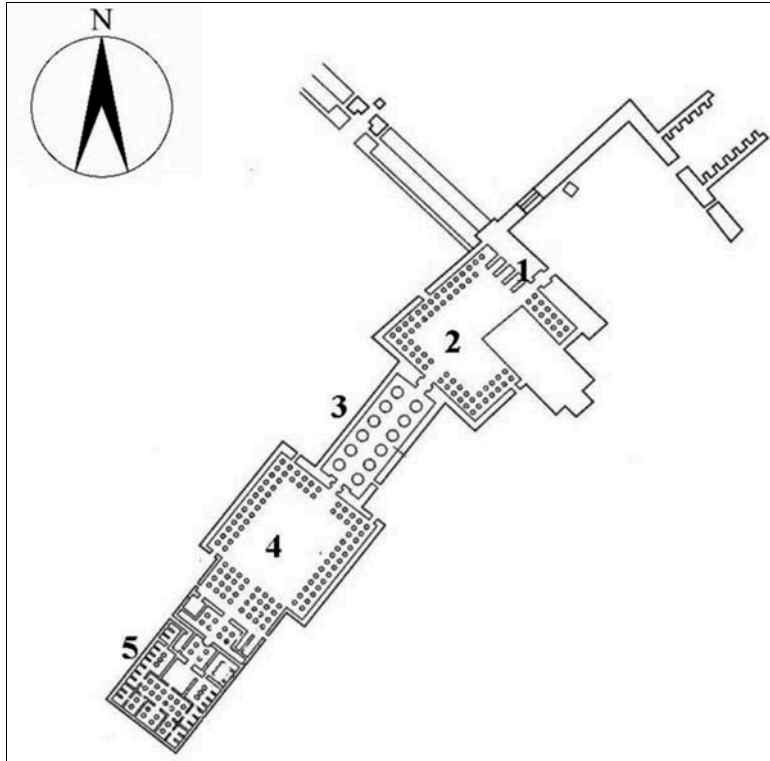


Figure 2. Schematic Plan of the Luxor Temple: (1) Barque stations (2) Ramesses II court (3) Amenhotep III columnnade (4) Amenhotep III court (5) Inner sanctuary.

Table 1. Chronology and azimuths of the main architectural additions to the Luxor complex.

Hatshepsut (1473–1458 BC)	Barque stations, Avenue to Karnak	45°
Amenhotep III (1391–1353 BC)	Court	34°
	Columnnade	35½°
Ramesses II (1290–1224 BC)	Court	42½°
	Pylon	39½°

(completed by Tutankhamon after the Amarna period).
 105 Finally, the part added by Ramesses II, consisting of an entrance pylon with a pair of huge obelisks in front of it, and a further, large pillared court.

110 To complete this short description of the sacred space at eastern Thebes, a third element must be cited. It is a straight road connecting Karnak with Luxor and usually referred to as the Avenue of the Sphinxes because it is flanked by hundreds of sphinxes. The statues – most of which have been brought again to light in very recent
 115 times – are actually a relatively recent addition (fourth century BC). The avenue however is much older and it can be ascribed at least to Hatshepsut times; the Pharaoh-queen is indeed known for the construction of six “barque stations” along it.

The Luxor-Karnak Relationship and the Meaning of the Luxor Temple

At first sight, the foundation and the wide development of Luxor may seem puzzling, as it was dedicated to the very same gods revered at nearby Karnak. Most authors in the past therefore avoided an in-depth examination of this problem, while a huge amount of wide speculation accumulated in the course of the years in controversial publications (see e.g. Schwaller de Lubicz 1957). In spite of this, we can say today that we have a relatively good understanding of the reasons which led to a growing importance
 125 of Luxor, as I will now very briefly review (for a complete treatment see Bell 1985, 1997; for the Egyptian religion during the New Kingdom, see Assmann 2003).
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Our starting point for understanding Luxor is inside Ramesses II's first court, on the right of the entrance. Here a triple shrine can be seen (Figure 3).
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This structure – which replaces the last “station” previously built by Hatshepsut and re-uses stones from it – was used for housing the barques of the Karnak statues of Amun, Mut, and Khonsu. Luxor and Karnak were in fact
 140 connected by a procession festival: every year the statues of the Theban triad “visited” Luxor. The event was known as the *Opet* (Cabrol 2001; Darnell 2010). This festival, together with the Theban “Feast of the Valley” and the feast of Osiris, was the most important of several held
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Figure 3. The “barque stations” inside Ramesses II’s court of the Luxor temple.

yearly in honor of the gods in ancient Egypt. It commenced with the Karnak statues being loaded onto ceremonial barques under which long stakes were inserted. Baldachins were then carried on the shoulders of the priests, and the religious procession moved towards Luxor along the above mentioned avenue. At each “barque station” the cortège stopped and the priests performed ceremonies.²

Renewal was the focus of this feast, and countless offerings of flowers, symbols of this renewal, were brought to the temples. The idea of the renovation of power – both divine and royal – is certainly not new, as it can be traced back to the early dynastic period and the so called Sed festivals, devoted to the renovation of the king’s power. The New Kingdom kings also celebrated Sed festivals, but the yearly feast of the Opet fulfilled a different function, connected to the relationship of the common people with the divine. Public access to temples was generally forbidden, so the idea of circulating the gods’ statues back and forth met the need to have contact, however detached, with the gods. The Pharaoh, in accordance with his divine nature, had of course a key role, for the festival was connected with the renewal of the Ka (the vital spirit) of the king and – by extension – of the population. The Pharaoh himself made a sort of reappearance, having changed his clothes, after the entrance of the procession into the recessed part of the Luxor temple. The secluded rites included a repetition of the coronation, with the king receiving the two crowns in front of the god’s image and presenting special offerings. Also, the gods themselves were “reactivated” in the

festival, to the point that the ceremony known as “Opening of the mouth” was probably performed on their statues. This is a funerary ritual, which is attested since the Old Kingdom and was first performed on statues of the deceased housed in a specially constructed room of the Mastabas (the tombs) today called *Serdab* (from the Arabic word) and, later, directly on the coffin or the mummy. There are many depictions of the ritual, but perhaps the most famous is that featured in the tomb of Tutankhamun in the Valley of the Kings at Thebes (Figure 4). The officiate, using special tools, touches the mouth and the eyes of the subject, magically enabling it to receive food and drink, to breathe, and to see (the magic procedure might have been inspired by real procedures carried out by physicians at birth, such as severing of the umbilical cord and forcing the mouth of the baby to stimulate breathing).

Cognitive Aspects

It is our aim now to explore if cognitive aspects – and in particular orientation and topography – can be of help in understanding the Luxor-Karnak relationship and, as a consequence, the role of Luxor in the sacred space of eastern Thebes. Our starting point is the orientation of the buildings.

It is well known that the Karnak axis is aligned with the winter solstice sunrise (Hawkins 1974, Krupp 1988). This axial orientation, already present in the original building, was carefully respected in all subsequent additions; the front of the temple actually points to the opposite side,



Figure 4. Valley of the Kings. The "Opening of the mouth" ceremony, depicted in Tutankamun tomb.

towards the Nile, but the setting sun at midsummer cannot penetrate the temple, because the horizon is occupied by the Theban hills, which obstruct the view. The astronomical orientation of Karnak to the winter solstice sunrise makes sense, in particular, because this choice must have stemmed from calendrical considerations. Indeed, in the years around the foundation of Karnak the Egyptian "civil" calendar completed one half of its turnaround with respect to the solar cycle, and thus new year's day, started with the summer solstice, coincided with the winter solstice.

Contrary to what transpired at Karnak in the course of more than one millennium, where subsequent additions did not alter the axis' direction (Figure 5), at Luxor at each enlargement a bend of the axis was effected (Table 1).

Two of the bends are almost imperceptible and each one belongs to the same project: the first is between the inner court and the colonnade of Amenhotep III (azimuth 34° and $35\frac{1}{2}^\circ$ respectively) the second between the Ramesses II' court and pylon (azimuth $42\frac{1}{2}$ and $39\frac{1}{2}$ respectively).³ In view of these data, however, it is clear that a macroscopic bend (7°) occurs between the Amenhotep III colonnade and the Ramesses II court. This feature makes a visit to the temple a strange experience: at the entrance, the line of sight along the open hall is perceived at an angle in relation to the front pylon, creating an "odd" effect, and the linear perspective of the

colonnade on the opposite end does not reveal the presence of the further, vast inner court which follows (Figure 6). Curiously enough, as we shall see, a quite different kind of perception – which is, indeed, not "odd" – is that experienced from inside. Anyhow, there is no doubt that the effect was *not* originated by an error of design, so that the fascinating riddle of the Luxor bent axis has been the subject of several unsuccessful attempts at explanation, including the astronomical one. In the nineteenth century, Egyptian chronology was very different from today and had (wrongly) been shifted backwards by many centuries. Using this chronology, Lockyer (1894) associated the changes of axes with the precessional drift of the rising point of the bright star Vega. However, this solution cannot be reconciled with the currently accepted chronology, and, in turn, no other reasonable astronomical target can be individuated with this chronology.

The changes in the axes remain thus unexplained, since they cannot be attributed to topographical reasons either. In fact, the course of the Nile did have a relevant "migration": the early to pre-dynastic Nile is most likely to have run SE of present Luxor, past Medamud. The river then migrated west crossing the area of future Karnak and Luxor, to the point that Karnak was perhaps originally built on an island (Hilliera, Bunbury, and Grahamb 2007; Bunbury, Graham, and Hunter 2008; Ismail, Anderson, and Rogers 2005). However, no local change in the area



Figure 5. The Karnak temple axis at sunset, near midsummer.



Figure 6. The final part of the Avenue of the Sphinxes and the Ramesses II pylon of Luxor. Notice the macroscopic bend of the axis of the columnnade inside.

of the Luxor temple is documented during the New Kingdom, and actually an ancient quay connecting the Nile with the temple is still visible on the riverside.

265 To search for the most plausible reason for the macroscopic deviation of the Ramesses II addition, we analyze first the Karnak-Luxor avenue. The pathway proceeds very straight along its course, so that the azimuth can be estimated quite precisely to be 45° (from Luxor to Kamak; data from the author, averaged on many measures and corrected for magnetic declination, expected accuracy to half a degree). Again, this azimuth was not
 270 constrained by local topography, as the connecting avenue could have been projected within a wide range of

azimuths (the arrival area was a huge open space parallel to the Nile, and the arrival point was chosen hundreds of meters to the north of the existing buildings at that time). Further, this choice is hardly random, as it is an inter-cardinal orientation which is very common in sacred places and buildings in Egypt since the Early Dynastic times. (The first occurrence is in Abydos, where the royal enclosures and the royal tombs of the first two
 280 dynasties at Umm el Qab are all orientated inter-cardinally. Inter-cardinal orientation – or, slightly more general, the idea of adding subsequent monuments along a line which “proceeds” to the south-west – then governs the
 285 topography of the pyramid fields of the Old Kingdom. In

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fact, although the pyramids by themselves are strictly orientated to the cardinal points [Spence 2000; Belmonte 2001; Magli and Belmonte 2009], dynastically-related monuments are usually placed to the south west of the preceding ones. The most famous case is that of Giza, where the south-east corners of the Fourth Dynasty monuments of Khufu, Khafra and Menkaura align on the inter-cardinal direction to Heliopolis. Also the Fifth Dynasty monuments of Sahura, Neferirkara, and Nefererefa at Abusir align each to the south-west of the previous, and finally the Sixth Dynasty pyramids of Pepi I, Merenra, and Pepi II at Saqqara also respect this rule [Lehner 1985, Jeffreys 1998, Verner 2002, Magli 2010]. At Western Thebes, inter-cardinal orientation – this time NW-SE – characterizes also the majority of the funerary temples [Belmonte, Shaltout, and Fekri 2009, Magli 2010].)

From the astronomical point of view, inter-cardinal directions are (and were) out of the solar and lunar range at rising/setting in Egypt, but they generically corresponded to the Milky Way, seen as a relatively wide band in the sky (say 12°), during the course of the three Egyptian kingdoms (approximately 3200–1100 BC). The Milky Way was a very important presence in the ancient Egyptian sky (today, precession has brought the most brilliant part of it under the south horizon). It is mentioned in the Pyramid Texts, where it likely functioned as an analogue of the “shaman's path” for the travel of the pharaoh's spirit in the afterworld sky realm, and was identified as an image of Nut, the sky goddess “bending” over the earth (Wells 1997; for a general discussion see Krupp 1997; Maravelia 2006; Magli 2009).⁴

In our case, we can take as reference date Hatshepsut's accession (around 1470 BC) and fix the observation point at Thebes (Table 2). Then we can see that, unlike what happened with the Luxor temple proper, important astronomical events took place at the time of construction at both ends of the avenue. The two regions of azimuths (close to 45° at rising and close to 225° at setting) were in fact crowded by bright stars: the “northern branch” of the Milky Way with Cygnus, but also Arcturus and Vega, rising to the north; the brightest part of the Milky Way – and in particular, the Southern Cross-Centaurus group – setting to the south. The two centuries or so separating Hatshepsut from Ramesses II were not sufficient for precession to destroy these phenomena so that 200 years later, the spectacle of the northern branch of the Milky Way raising over Kamak as seen at the Luxor end of the avenue, with the southern branch setting behind the Luxor pylon, was still quite effective.

Table 2. Approximate azimuths at rising/setting (with a flat horizon) of bright stars close to the intercardinal direction NE-SW (45°/225°) at Thebes at a reference date of 1500 BC.

Star	Azimuth at rising:
Deneb	48°
Vega	44°
Arcturus	45°
	Azimuth at setting:
Acrux	220°
Rigel	221° 30'
Hadar	223° 30'

The choice made for the orientation of the avenue was therefore deliberate and highly symbolic; it influenced the subsequent topography since in this way the position of the last “barque station” was fixed. The choice was an explicit reference to a pattern of orientation *strictly related to the royal funerary cult*, originated at Abydos more than 1500 years before and repeatedly applied in the course of the centuries. But why?

What is particularly important for us here is the meaning of the axes in the royal necropolises, and especially in the pyramid fields (Magli 2011a, 2011b). In fact, as mentioned above, associated with the axes there is a “movement” of subsequent royal tombs to the south-west (or simply to the south) of the predecessor's tomb.⁵ I thus propose that the general position of Luxor to the south-west of Kamak, strengthened by the strict inter-cardinal, south-of-west orientation of the avenue, was due to an explicit, cognitive reference to the “canonical” position of the tomb of a king with respect to his (ideal, or direct) predecessor. Basing on the above astronomical and topographical observations, the “sanctuary of the south” – where the power of the gods was “re-enhanced” and, in a sense, resuscitated – can thus be seen as a sort of gigantic Serdab, and in fact, as mentioned, the ceremonies held in the most secret part of the temple probably included the Opening of the Mouth of the gods' statues. The relative disposition of the Luxor temple with respect to Kamak – analogue to the “classic”, almost mandatory position for the tomb of the successor to a revered king – thus alludes to the fact that the new king is no one but the “renewed” Pharaoh, who succeeds to himself as well as does the “rejuvenated” Amun of Kamak. Luxor and Kamak, the most sacred places of “Heliopolis of the south” (as Thebes is called in many official documents of the period) therefore shared the same “dynastic” connection which governed the topographical relationship between Giza and Heliopolis some 1000 years before.

375 We now turn to the problem of the macroscopic
bend introduced by Ramesses II. When the king
decided to add a court/pylon complex to Luxor as he
did for Karnak, the topography was the following: the
pre-existing sanctuary was orientated parallel to the
Nile by Hatshepsut, or perhaps before; a huge, open
380 courtyard faced the sanctuary to the north and housed
the structures of Hatshepsut's last barque station, which
served as a monumental arrival point for the avenue.
Amenothep III had prolonged the sanctuary across the
courtyard producing, perhaps involuntarily, a slight bend
385 in the axis. The entrance to the temple was then
marked by the front of the colonnade finished by
Tutankhamon, which had, *directly in axis with it*, the
last barque stations. Then, the architects of Ramesses
decided to impose a strong twist to the west in order
390 to obtain a visually arresting – though not precise –
scenographic alignment with the avenue on the exterior.
We do know that the king decided to dismantle
and rebuilt the Hatshepsut barque stations while con-
395 structing his new pylon; on this occasion, he could very
easily move them a few meters so that the entrance to
the pylon became aligned with the pre-existing axis, but
he declined to do so. Thus the explanation for the
Ramesses II project in a sense is very easy: it was
400 decided to offer a scenographic end to the avenue
from outside without altering the pre-existing perspec-
tive of the temple as seen *from inside*. Again, why?

The first to notice the existence of a visual axis which
connects the barque stations with the inner sanctuary

appears to have been Schwaller de Lubicz (1957); he
405 calls this line "Axis of Amun". However, his interpreta-
tion of it as a solar alignment "to a certain hour of the
day" () is very puzzling. Actually, the existence of the axis
– as mentioned before – has a quite peculiar effect when
observed from inside. In "standard" Egyptian temples, a
410 straight axis leads from the entrance to the final chapel at
the opposite end. This, in particular, occurs at Karnak,
where – as we have already seen – the straight axis was
accurately maintained at each addition. Due to the
Ramesses II project, it actually occurred also in Luxor
415 *for the Karnak statues*, of course only during the Opet,
when they occupied their own stations. In other words,
the project was designed in such a way that Luxor
became every year for a short period a sort of double-
faced temple, with the statues of the Gods – the *same*
420 Gods, but in different aspects – located at both of its
ends (Figure 7).

Discussion

An aura of mystery surrounds the temple of Luxor even
today, as countless publications have tried to assign to it a
425 hidden, esoteric meaning. Indeed we do not know the
details of the ceremonies that took place there, nor can
we imagine the feelings of the devout people who left
inscribed votive shards along the route of the statues'
procession and saw in the solemn march of the gods
430 the reassuring regularity of the life cycle. After the
entrance of the procession into the secluded recesses of



Figure 7. The Luxor temple columnnade seen from the inner court. The visual effect is that of a "standard" Egyptian temple with a straight axis ending in the barque chapels of the gods.

the temple, the common people waited for the king to report on the success of those ceremonies, and in this sense, the secret of the temple really had been kept. 435 Nonetheless, the relationship between Egyptian architecture and symbolism – which is almost glaringly evident during the Old and the Middle Kingdoms – remains far from being hidden or esoteric also in the New Kingdom. So although the fine details of the theological framework 440 were perhaps only vouchsafed to the elite, the feeling of the sacred space, and the way in which buildings were oriented and ceremonial acts were engineered in order to maintain *Maat*, order, was also here apparent to everyone.

445 Sacred space is a simple and natural concept; it is familiar, as Mircea Eliade (1959) once said. This holds also at eastern Thebes: the symbolic relationship between Karnak, the main “house” of Amun-who-hears-the-prayers, and Luxor, the main “house” of 450 Amun as a creator (or re-creator) god, responsible for renovating the Ka of the Pharaoh, was heightened by a series of references to sacred space which would have been quite familiar to all Egyptians capable to read such things.

455 Acknowledgements

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460 Notes

1. In the next two sections, for the ease of the reader, a few basic facts and information about Karnak and Luxor (needed in what follows) are given. The reader should be warned that there exist several delicate Egyptological issues concerning such important monuments. These issues are out of the scope of this paper and so will only be alluded to here.
2. There are, however, documented cases in which the procession appears to have taken place on the river, and therefore with real barques dragged in the upstream direction.
- 470 3. Data from Belmonte and Shaltout 2005, verified independently by the author; accuracy to half a degree.
4. The reader should, however, be advised that the role of the Milky Way in ancient Egyptian astronomy is still debated; see e.g. Krauss 1997.
- 475 5. The same tendency actually occurs in royal Theban tombs of the 17th Dynasty, just before the foundation of the Valley of the Kings (the necropolis of the later dynasties) where the local topography will dominate most of the choices.

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