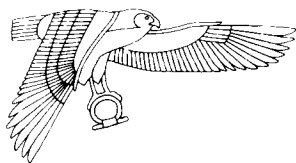


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## GIZA: CAUSES AND CONCEPTS

Hans Goedicke  
Johns Hopkins University

No monuments are as closely associated with the culture of ancient Egypt as the pyramids. The number of structures of this type dating to the earliest period, the Old Kingdom (2665-2155 B.C.), amounts to at least 25 pyramids of kings and this number is not necessarily final. However, when one speaks of the 'pyramids of Egypt', this invariably refers to the group of three pyramids at Giza. They were already the focal point of interest to Herodotus, the first 'modern' tourist to leave a description of his perusal of the Giza pyramids.<sup>1</sup> Considering his background it is not surprising that his interest focused on the material aspects of the structures. From his account it is clear that he asked the accompanying guide, "How many people were involved in the building?"; "how long did it take?"; and "how much did it cost?". Except for the latter the questions have hardly changed over time, just as the answers are still influenced by the responses Herodotus received. The notion that 100,000 men laboured on the construction was not only the response by the dragoman eager to impress his client Herodotus, but has also become a paradigm for ruthless exploitation of the working class thanks to Karl Marx. Most modern tourists are as gullible as Herodotus was, despite the fact that the figure can easily be demonstrated to be fictitious.<sup>2</sup> Anyone who has seen the pyramid area mobbed by a Friday crowd of several thousand knows that there is a limit to the number of people the available space can absorb. As the employ of people eventually leads to a point of counter-production, the actual number working at the pyramids at any one time was in all probability a fraction of the alleged number, a point which is further corroborated by the logistical aspects of mass employment, in particular the difficulties of sustaining crowds.

Due to a complete change in the premises, the economic aspects of the pyramid building are no longer of interest. Typically for the structural orientation of the Western mind, the technical aspects of the building of the pyramids have become the focal point of interest. It commences with John Greaves' work, *Pyramidographica* (London, 1646), and has continued unabated to the very present. Enormous strides have been made in solving the myriad of questions involved,<sup>3</sup> while some still elude satisfactory solutions. It is clear where the stones for building the core-masonry were quarried,<sup>4</sup> and the location of the workmen's camp is established,<sup>5</sup> as are the facilities for bringing in material from outside. The thorny problem, how the blocks were piled up, is much further advanced than it was fifty years ago. A fair amount is known about such things as surveying the construction or the essentials of maintaining the work-force,<sup>6</sup> physically as well as administratively. Efforts made to emulate the techniques of the ancient builders have elucidated some long-held misconceptions.

Despite the repeated aberrations into the realm of pseudo-mystical interpretations,<sup>7</sup> there has been undeniable progress in the understanding of the great pyramids as structures. There is no doubt that the pyramids at Giza served as the burial places of the kings of the Fourth Dynasty. The seemingly complex interior layout has become lucid, including the provisions for those who were to close the pyramid from the inside after the burial was completed.<sup>8</sup> Equally lucid has become the design of the funerary complex of which the pyramid is only one, though the culminating, part. That the four-partite structure of the royal funerary complex is an integrated design of a subdivided road leading from the mundane to a transcendental absolute is a way to make the notions underlying the architectural design transparent for the modern observer.<sup>9</sup> To formulate in this fashion is, of course, the product of modern thinking and it may well be asked how far the ancient Egyptians would have seen it in the same way. As the process of understanding is culturally determined, the question is ultimately academic, because the modern intellectual processes can only be pursued within the prevailing mental setup.

While many of the technological aspects of the pyramid building can be unravelled and there are meaningful ways to interpret the funerary complexes of the Fourth Dynasty kings, there is one aspect concerning the Great Pyramid which has received little, if any, attention. It is the fundamental question of why they are where they are, or, in other words, why the pyramids of Khufu, Khafre and Menkaure are at Giza and not at any other place. The premise of this question is the justifiable assumption that the choice of the site of a structure of the grandeur of the pyramids of Khufu or Khafre is not incidental, but is due to specific ideas. It would seem hard to believe, for example, that King Khufu travelled through the country - presumably by boat - and decided that there was an empty spot on the *gebel* suitable for his funerary monument. There are miles of *gebel* lining the Nile Valley; this is, if nothing else, a valid argument for assuming some kind of compelling notion for the selection of the site of Giza rather than any other. The claim that the location of the king's monument is interrelated with the location of the royal residence<sup>10</sup> has features of the tail that wags the dog. There is no indication available that the kings of the early Old Kingdom (or the later ones as well) continually built their individual residences at different places, which in turn generated the building of the rulers' funerary monuments adjoining them. This objection does not rule out the possibility that there were living quarters adjoining the pyramid site, where the king and his court might stay during an inspection tour of his funerary monument while it was under construction. However, such a situation does not require the king's permanent presence, unless one envisions the Egyptian king as being constantly occupied with his death once he had ascended the throne. The principal royal residence during the Fourth Dynasty was in all probability at the same place where it had been since at least the beginning of the Third Dynasty and where it continued to be for the rest of the Old Kingdom, namely at Memphis. This mundane residence has to be distinguished from the notion of the deceased king permanently residing in

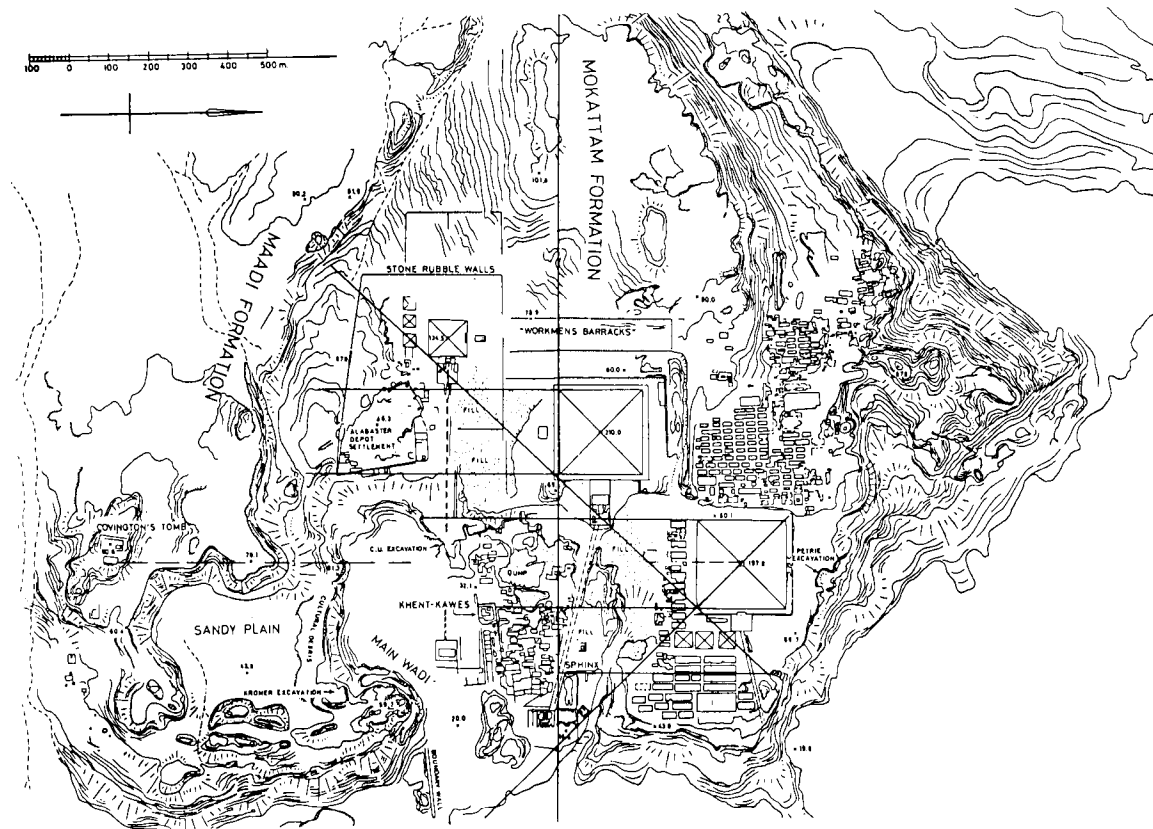


Figure 1. The Site of Giza

his funerary monument, which as such takes on the character of a personal abode for eternity.<sup>11</sup> The development of a city-like status for the funerary monuments and the dwellings attached to them occurred especially after the move of the royal tomb from Saqqara. This, however, does not imply that the king lived there during his lifetime, but reflects only the awarding of a specific legal status to the community dwelling in the shadow of the royal funerary monument which it presumably also served.<sup>12</sup>

If the location of the king's final resting place was not determined by the location of his earthly residence, what were the reasons for the selection of a specific spot to build a pyramid? The answer is in many cases still unknown, which does not *a priori* deny its existence. In the expanse of royal cemeteries of the Old Kingdom from Meidum to Abu Roash, the situation at Giza appears to be the clearest and thus can serve as a model for investigating other sites.

Giza is dominated by the pyramids of Khufu, Khafre and Menkaure, who were the most important rulers of the Fourth Dynasty. The place is 20 kms. north of Saqqara, the principal burial place of the kings of the Third Dynasty, which in its central section was due west of the royal residence at ancient Memphis. In the area between these two points there are numerous locations which could have been used for setting up a pyramid, if the placement was merely a reflection of personal aesthetic choice by a ruler, as is demonstrated by the existence of several pyramid sites between them, such as Abusir and Zawiyet el-Aryan. As Giza was the choice of Khufu, the question to be asked is why.

The Giza area (Fig. 1) comprises two geological formations separated by a wadi, one belonging to the Maadi, the other to the Moqattam formation. It is the latter that carries the pyramids of the three Fourth Dynasty kings, which became the epitome of ancient Egyptian architectural grandeur. At the time Khufu ascended the throne, the Moqattam formation appears to have been virgin territory as far as funerary usage is concerned.<sup>13</sup> Khufu, presumably early in his reign, decided on this place, which was 35 kms. north of Dahshur where his predecessor Snofru had set up (at least) two pyramids.<sup>14</sup> The particular spot chosen for the erecting of Khufu's pyramid was the north-eastern corner of the Moqattam formation.<sup>15</sup> From the point of view of someone ready to set up a colossal structure, as the king's pyramid turned out to be, it was not a convenient spot. To the north and east it was hemmed in by a cliff of up to 21.20m. in height. The south-eastern section had a kind of gentle slope that allowed easy access but, as far as its approach from the Nile Valley is concerned, Khufu's choice was the most inconvenient point of the area. Disregarding the possibility of mental distortions on Khufu's part, it has to be concluded that there were reasons for him to pick this site. In order to make it accessible and to link it with the mundane area it was necessary to build an enormous ramp overcoming the steep drop on the eastern edge of what is now the Giza plateau. In the 1970s only miserable remains of this ramp were still extant, but when Lepsius saw it in the 1840s it was a

formidable structure.<sup>16</sup> The obvious conclusion to be drawn from these gigantic efforts to overcome topographical adversities can only be that the motives guiding the builder were so strong that he was willing to face and overcome major obstacles.

In the north-east section of the Moqattam formation Khufu had built not only a pyramid, but also the additional architectural elements introduced by Snofru. Through these the royal funerary monument was transformed from a self-contained structure into a progressive one, reflecting the notion of a road leading from the edge of cultivation to a point in the infinite distance.<sup>17</sup> The entrance to it, the so-called Valley Temple, was located approximately 120m. from the eastern edge of the plateau. Although its position has finally been located,<sup>18</sup> it has not been possible to trace its layout. Judging from a number of stones which were found reused in the Twelfth Dynasty pyramid of Amenemhet I at Lisht,<sup>19</sup> it was decorated with reliefs whose themes became prototypes for later royal funerary temples.<sup>20</sup> The Causeway overcame the difference in height with the help of the huge ramp already mentioned. What is left of it consists not only of locally quarried blocks, but also some of Aswan granite. What inspired the use of such distant material is not apparent. The Mortuary Temple on the east side of the pyramid, at which point the Causeway ended, is so denuded that it is impossible to establish its plan with absolute certainty,<sup>21</sup> beyond the fact that it had the shape of a pillared court with a recessed niche on its west side (Fig. 2). Khufu's

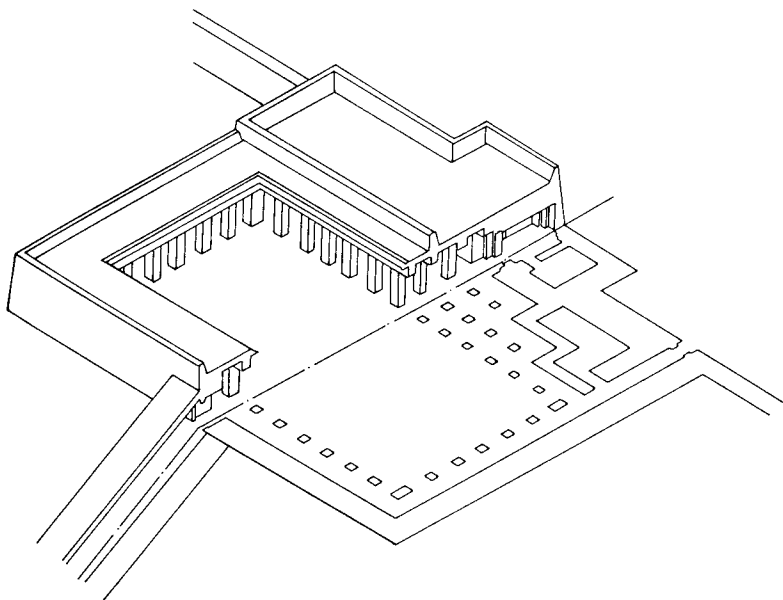


Figure 2. The Mortuary Temple of Khufu



funerary complex also included five pits to contain boats, of which the two at the pyramid's south side survived the vagaries of time.<sup>22</sup> Because of their location it would seem apparent that they were intended for the king's use in the Hereafter, enabling him to journey in the four directions of the Universe.<sup>23</sup> The fifth boat pit, located at the north side of the upper section of the Causeway, I surmise to have held the king's funeral barque, which remained outside the sanctified area of the pyramid complex proper. In extension of the idea of permanent fellowship, which is already reflected in the royal burials of the First Dynasty,<sup>24</sup> the pyramid holding the royal burial is surrounded by the tombs of the king's retinue in three planned cemeteries (Fig. 3). The area east of the pyramid holds the tombs of the king's direct relatives; less clear is the choice of those buried to the south, while in the large area to the west are royal followers and at least one relative.<sup>25</sup> The internal organization of Khufu's funerary complex is fairly transparent, but it does not explain what motivated Khufu to choose Giza as the site of his pyramid.

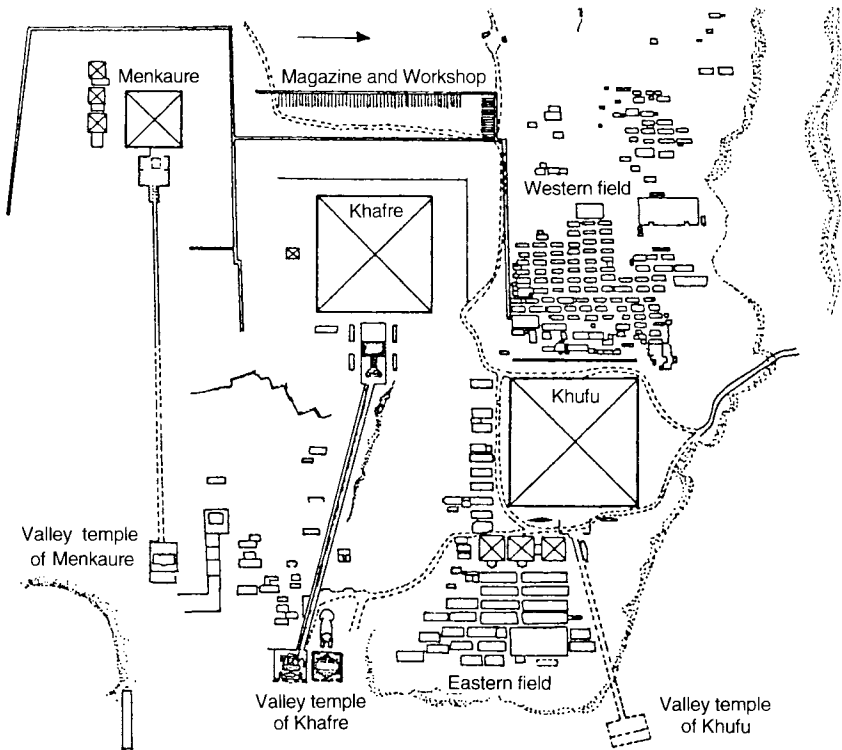


Figure 3. The Cemeteries of Giza

The answer can be found by considering the building activities of the other kings of the dynasty. Khafre, who followed Khufu after the intervening reign of Djedefre who built his pyramid at Abu Roash,<sup>26</sup> laid out his funerary complex somewhat to the south-west of the earlier pyramid. He avoided the need to overcome the eastern cliff of the Moqattam formation and chose the gradual rise from the south-east. His Valley Temple lies at the very edge of the ascending desert (Fig. 1), while that of Khufu had been located quite a distance into the plain at the foot of the *gebel*. The Valley Temple (Fig. 4) has two entrances leading to an antechamber from which a T-shaped pillared area is reached. The core-masonry of gigantic blocks of local limestone is covered with an extremely well-fitted casing of Aswan granite. The entire space is void of any decoration with the exception of statues of the king, portrayals of the building's owner.<sup>27</sup> The Causeway commences at the north-western corner of the building and runs in a north-westerly direction to reach the Mortuary Temple after 494m. The longitudinal emphasis of its plan (Fig. 5) differs considerably from that of Khufu which emphasizes the width. Elements of the funerary architecture of Khufu and Snofru can be found in Khafre's Mortuary Temple, but they are arranged differently. In all cases the open court dominates. However, the recess on the west side of Khufu's temple seems to be emulated in a kind of antechamber, while the quintuple chapels west of the court can be found in Snofru's Valley Temple. New is the passageway behind those chapels leading directly to the wall of the pyramid, a feature which continues in later funerary architecture and reflects the duality of the deceased king's nature as mortal human and as bearer of the authority of monarch.<sup>28</sup>

The third king of the Fourth Dynasty to have his funerary monument constructed at Giza was Menkaure (Fig. 1). He used a wide *wadi* separating the Moqattam formation from the Maadi formation to its south as the approach. The Valley Temple is located 500m. south-west of Khafre's. It has a single access, leading to a central court directed north-south. The access to the Causeway is not in the axis of the building but is reached in a round-about way from the south side. As the Causeway runs straight from east to west to join the Mortuary Temple at its centre, one gets the impression that the link between the Causeway and the Valley Temple is a secondary, makeshift solution, because the elements of the funerary complex were not properly lined up. The Mortuary Temple (Fig. 6) has an open court with a recessed niche in the west wall. Separated from it and adjoining the east face of the pyramid is a self-contained funerary chapel, i.e. a dual arrangement reflecting the double nature of the king.

Of the three pyramids at Giza, that of Menkaure is not only the smallest one, but also the farthest from the plain, the area of the living. Was it only the lack of a more convenient building site or were there other reasons that motivated Menkaure to build his pyramid in this place. Even a casual look at the map of the Giza site (Fig. 3) reveals two things: one is that the three pyramids are precisely oriented, i.e. that their four sides are in harmony with the four points of the compass; the other is that they are not arbitrarily placed

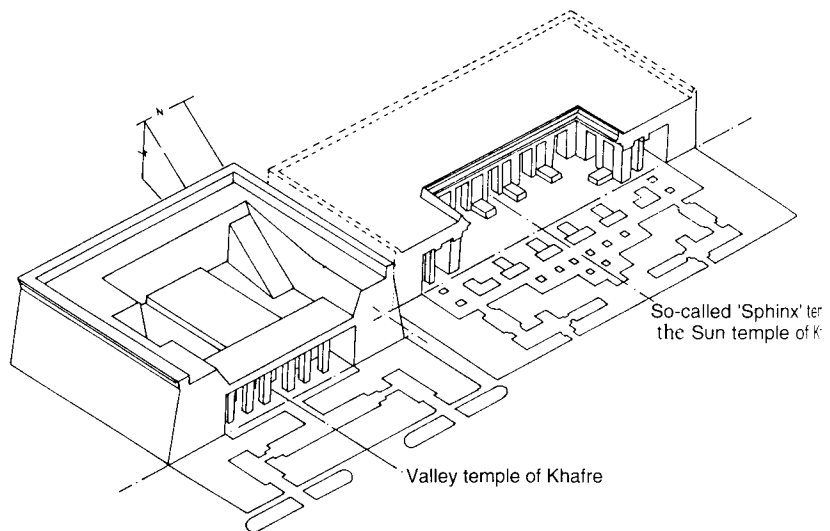
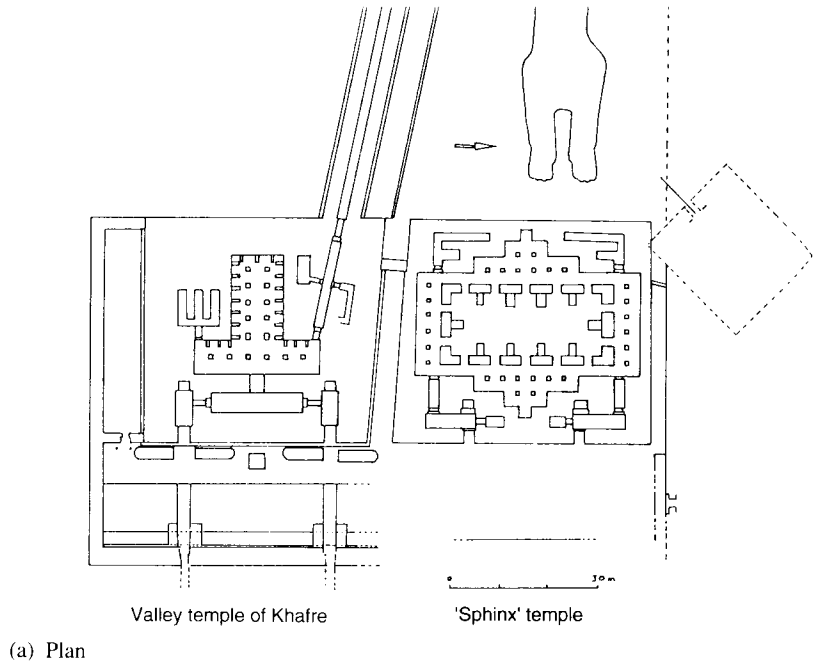


Figure 4. Valley Temple of Khafre and 'Sphinx Temple'

in the area. A more careful survey shows that the south-eastern corners of the three pyramids can be joined in a straight line (Fig. 1). This initially surprising fact becomes transparent when one realizes that only the south-eastern corner of the structures allowed a sighting to achieve such an alignment. To find the three huge structures geometrically coordinated makes it clear that their location, individually and collectively, is not accidental but determined by specific considerations. With the help of the established three points a straight line is determined in space. Extending this line westwards leads into the vastness of the desert; when, however, the line is extended eastwards it leads exactly to the obelisk at Matariyeh, i.e. ancient Heliopolis (Fig. 7). This obelisk was, of course, set up under Sesostri I, but there is sufficient evidence that Heliopolis had been the dominant sanctuary of the sun-cult since at least the Third Dynasty.<sup>29</sup> That the sanctuary was refurbished at the beginning of the Twelfth Dynasty is documented by the Berlin Leather Scroll,<sup>30</sup> which in turn implies that there was already a sanctuary there during the Old Kingdom.

Before proceeding further, the role of Heliopolis has to be recapitulated. The sanctuary was dedicated to the sun-god in his specific name of *Hr-3hty* 'Horus of the (eastern) horizon', i.e. to the rising sun as the source of light for mankind. It is a fundamental experience of man that the sun is not a permanent fixture in the firmament, but that it eventually sets opposite the area where it had risen. This cyclic event, which repeats itself day after day became for the ancient Egyptians not only an existential experience, but also took on an eschatological dimension.<sup>31</sup> The reappearance of the sun in the East each morning after it had set in the West the preceding evening became the cause of hope that the departure from this life was not final but that it could be followed by another rising, i.e. that death is not final but a point of transition. It was at Heliopolis that the entry of the sun into the realm of men was observed and celebrated throughout the ages.<sup>32</sup> Considering the importance of the sun in the thinking of the ancient Egyptians, it would have to strike one as lopsided if only one aspect of the sun's circuit should have been observed. One would expect that the observation of the entry of the sun should have its equivalent in a point of formal observation of the sun's departure from man's realm.

With the help of the line formed by the three pyramids which leads directly to the Re sanctuary at Heliopolis, a number of conceptual features underlying the Fourth Dynasty royal tombs become transparent. First, Khufu's pyramid can be seen as a marker to the setting sun in opposition to the *benben*-stone in Heliopolis which marked the point of the sunrise. Second, in order to render this notion of delineators of the solar circuit, Khufu selected the northernmost promontory from which Heliopolis could be seen. In order to utilize this spot, Khufu was willing to overcome major topographical obstacles for setting up his pyramid there. Third, the name of the pyramid, *3ht-Hwfw*, expresses the underlying concept. Instead of rendering it as 'Cheops is one belonging to the horizon'<sup>33</sup> it has to be taken as '(western) horizon of Khufu'.<sup>34</sup> In denoting the pyramid as 'horizon', its association with the sun-

cult is apparent. Calling Khufu's tomb his 'horizon' implies not only the descending aspect of the sun's circuit but also the innate prospect of renewed appearance. It is the earliest attestation of the word *3ht* 'horizon' as a metaphor for 'tomb'.<sup>35</sup> Fourth, in order to be seen from the other side of the Nile Valley the marker had to have monumental dimensions. Fifth, to use the royal tomb as a marker for the conclusion of the solar circuit, a remarkable degree of self-esteem can be assumed for Khufu. Although it might strike the modern as excessive, it has its parallels in the Western tradition not only of the *roi soleil* but also of the burial of emperors in Romanesque cathedrals. Khufu's intertwining of aspects of the sun-cult with his personal funerary preparations loses some of its aspect of overwhelming self-esteem when one keeps in mind its continuation by Khafre and Menkaure. The fact that two other kings in fairly close succession did the same reduces the individuality of the act in favour of a greater conceptional significance.

With the help of the line formed by the three pyramids at Giza their interrelation with the Heliopolitan sun-cult can be established. This, however, still does not answer the fundamental question of why Khufu selected the site of Giza which required substantial efforts to achieve the intended goals. There were other sites available along the western *gebel* lining the Nile Valley as demonstrated by the Djedefre pyramid at Abu Roash, due west of Heliopolis.<sup>36</sup>

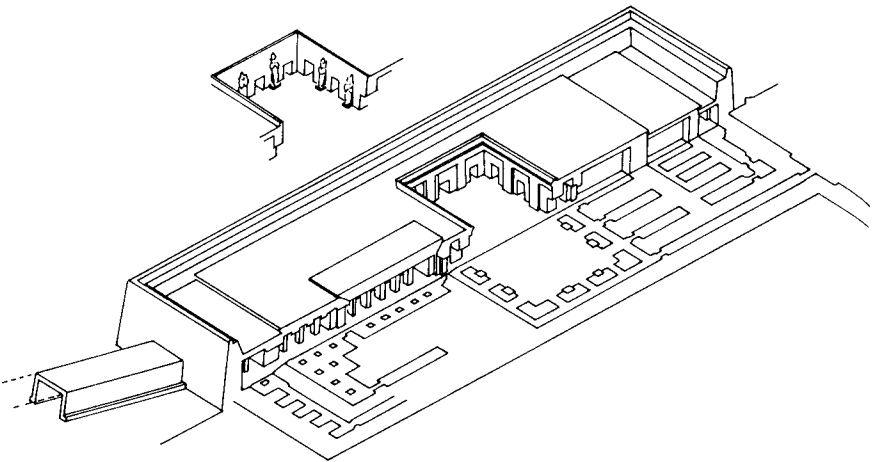


Figure 5. The Mortuary Temple of Khafre

While there are no remains of building activity on the Moqattam formation prior to its use by Khufu for his funerary monument, the situation is different for the Maadi formation adjoining to the south (Fig. 1). This area has a distinct precipice at its north-eastern end which is considerably higher than the plateau on which the pyramids of the Fourth Dynasty were erected. On a particularly high point Dow Covington with the assistance of J. E. Quibell excavated in 1902-3 a large brick mastaba known in the literature as the 'Covington Tomb'. According to the excavator's report<sup>37</sup> 11m. to its east were the "picturesque ruins of a large bluish-grey stone mastaba" which Mariette had excavated. Nothing is known about the latter,<sup>38</sup> which to some extent also applies to a mastaba cleared at this site by Petrie in 1906.<sup>39</sup> In addition to the copy of a fragmentary offering list, a number of jar-sealings can be traced to this site.<sup>40</sup> With the help of the latter, the 'Covington Tomb' can be dated to Dynasty 2 and the reign of Ninetjer/Peribsen, the successor of Re-neb/Hetepsekhemy. Although Re-neb was apparently buried at Saqqara,<sup>41</sup> his association with the worship of Re and thus with Heliopolis, would seem apparent from his name. The situation concerning Ninetjer is less clear, but there is nothing which would indicate a radical change in his orientation.<sup>42</sup> On the basis of this sparse information the hypothesis can be forged that the peak of the Maadi formation, the highest point on the west side in relation to Heliopolis, was used as a burial place in the Second Dynasty. That the cult of

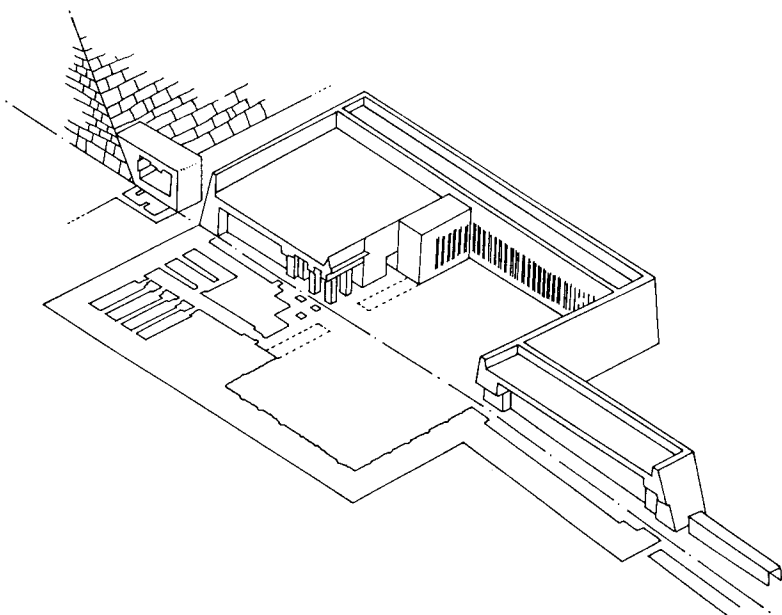


Figure 6. The Mortuary Temple of Menkaure

Re at that very time became significant is most probably not accidental, although impossible to corroborate.<sup>43</sup> Despite all the prevailing uncertainties, it would seem that in the Second Dynasty the promontory just south of the area where the Fourth Dynasty kings built their pyramids was already a burial place instigated by ideas connected with the solar circuit.

As for the Moqattam formation on which the pyramids were constructed, it holds one more monument which has to be included in an attempt to determine the history of Giza. Next to the Valley Temple of Khafre are the remains of another temple behind which, beside but not parallel to the ascending Causeway of Khafre, is the Sphinx. Commonly the two are linked so that the building is denoted as the 'Sphinx Temple'.

The Sphinx, the largest man-made sculpture of ancient Egypt, was hewn mostly from the living rock except for the forepaws of the recumbent lion and some details of the body, which were added in stone masonry to achieve the aspired-to shape. In a recent geological investigation (Fig. 8) it was demonstrated that the Sphinx is not homogeneous in its geological composition,<sup>44</sup> but rather consists of three distinct strata: the bottom, Member I, "is hard, brittle and fossiliferous", while Members II and III "are softer limestone beds intercalated with yellowish softer marly layers". The softness is only too well demonstrated by the impact of wind erosion on the Sphinx below the chin.<sup>45</sup> The head of the sculpture, however, has not suffered the same disfiguration as the body. Two reasons appear to be responsible for this situation: one is the fact that the head is of harder material than the body; the other is the fact that what is now the Sphinx's head had always protruded from the otherwise uniform surface of the plateau, which is slanting in a south-easterly direction.

Let us next turn to the building lying east of the Sphinx at a level five metres lower than the latter. Certainly since the beginning of the Eighteenth Dynasty, and presumably already earlier, the structure was lost in the sand until the Egyptian Antiquities Department, at the instigation of Pierre Lacau between 1925 and 1932, removed the huge accumulation of sand under the direction of Émile Baraize. His work was continued by Selim Hassan, 1935-38, who published a summary report including a plan of the structure. Because of its unsatisfactory nature, the Swiss Institute for Egyptian Architectural History reinvestigated the site in 1966-67 and furnished a detailed report.<sup>46</sup> Unlike the Valley Temple located next to it (Fig. 4), the architecture is in very poor condition. Except for a very small number of granite blocks for the lining, only the core masonry is extant and that to a height less than that of the adjoining Valley Temple. Its plan is a central open court which is approached through two gateways, allowing a comparison with that of the Valley Temple. The court was lined by a perforated wall with five passageways on the east and west side and two on the south and north side, which resembles the open court in the Khafre Mortuary Temple.<sup>47</sup> On the east and west sides of this central court is a recessed niche, which has no outlet in either direction. According to Ricke, in a second building phase the

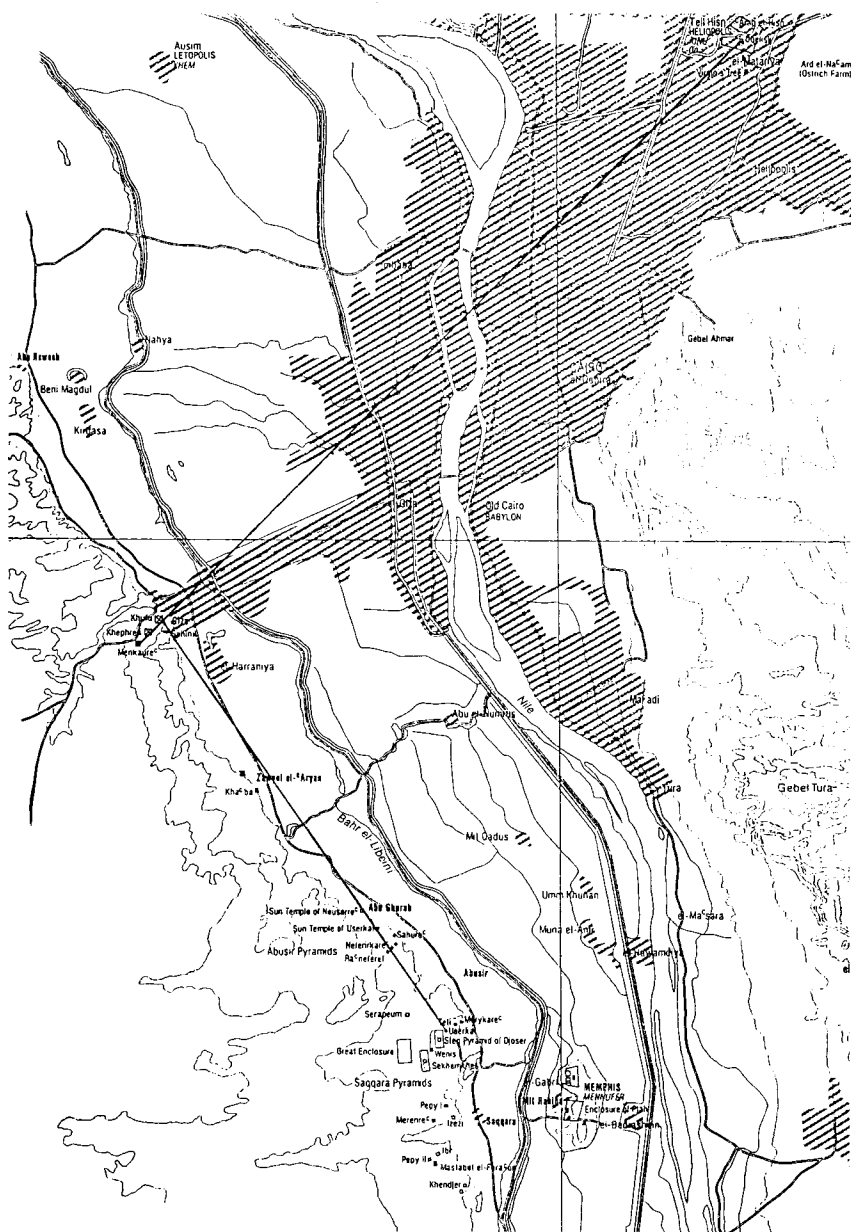


Figure 7. The Royal Cemeteries from Saqqara to Abu Roash



central part was extended on the south and north sides by a passageway supported by six pillars.<sup>48</sup>

Any attempt to define the structure has to commence with the following two features: first, how to explain its state of preservation and second, how to relate it to the Sphinx. As the archaeological evidence indicates, the building was completely sanded up before the beginning of the New Kingdom, but how much earlier than that is impossible to determine. If, however, the sanding-up occurred at a relatively early time, how can one explain its exceptionally denuded state, especially in comparison with the Khafre Valley Temple next to it. Such a situation is all the more puzzling as the granite lining in the Valley Temple is generally well preserved. This raises the question of when and why the stripping of lining blocks should have occurred, especially when one assumes that the building had a more general purpose than the entrance to the funerary complex of an individual ruler.

The other feature is even more disturbing. If one assumes that the structure, unquestionably intended for a religious purpose, was destined for the Sphinx located west of it, why does it lack any discernible architectural connection with the Sphinx; furthermore, why is it not axially oriented to the Sphinx, as is customary in Egyptian architecture? The divergence is 7.35m.,<sup>49</sup> i.e. the structure is that much removed south. Ricke assumed that the structure was secondarily squeezed in the space between the surrounding wall of the Valley Temple and a five metre high carefully dressed cliff on the north side. Considering the ability and willingness of the ancient Egyptians to remove living rock to accommodate their architectural designs, this thesis is hardly satisfying.<sup>50</sup>

Although very little is known about the layout of cult-temples during the Old Kingdom, enough can be inferred from temples designed for the service of the deceased king to conclude that the structure does not have the features of a building corresponding with the requirements of a cult-temple. Rather it has the intrinsic design typical for a sun-cult. Because of the solar nature of the architectural layout, Ricke called it the 'temple of Harmakhis' (*Harmachistempel*), with the Sphinx depicting the god Harmakhis (*Hr-m-3ht*). No pictorial representation of Harmakhis or Re<sup>51</sup> is known before the Eighteenth Dynasty, when Harmakhis became the name of the Sphinx.<sup>52</sup> On the other hand, sphinx statues have been attested since Djedefre,<sup>53</sup> but they depict royalty and not a god. While the lion as a symbolic rendering of the Egyptian king is well attested, there is no indication of its use as a divine symbol.<sup>54</sup> The lion or the sphinx is at best a portrayal of royalty and thus lacks the conceptional nature for being the object of a cult.<sup>55</sup>

All arguments that can be pursued lead to the same conclusion. The building to the north of Khafre's Valley Temple was a sanctuary, but the object of any religious services for which it might have been intended was not the Sphinx.<sup>56</sup> According to the recent survey of the Giza plateau by Mark Lehner and others,<sup>57</sup> a line running through the central axis of the building

and along the southern flank of the Sphinx is in line with the Khafre pyramid at the time the sun sets at the equinoxes. At the time of the summer solstice, the setting sun, when observed from the same point, is exactly between the pyramids of Khufu and Khafre, thus corresponding to the sign used by the Egyptians for depicting the 'horizon' ☉. This orientation makes it clear that the Sphinx was shaped under Khafre, and thus at an advanced stage of the building of the pyramid.

While it can be surmised that the Sphinx was a relatively late addition to the topography of Giza, it leaves open the question of what purpose the sanctuary next to the Khafre Valley Temple was serving. It was clearly not the Sphinx, since it would not have been the recipient of a religious service. This seemingly contradictory situation fosters the need to envisage something other than the Sphinx as the aim for any cult activity, planned or carried out, in the sanctuary north of Khafre's Valley Temple. There is general agreement that its centristic layout suits only solar worship and not the cult of another deity. Such a solar orientation in its plan would accord well with the overall solar orientation of the Giza monuments, demonstrated in particular by their orientation towards Heliopolis. It has been argued earlier that Khufu's pyramid served as the marking point where the sun (possibly at summer solstice when seen from Heliopolis) set, an idea which is additionally expressed in the designation *3ht-Hwfw* 'Khufu's horizon'. Heliopolis became a dominating cult centre presumably in the Second Dynasty, and the presence of some major tombs of the reign of Ninetjer at the highest point of the adjoining Maadi formation agrees with this. It is in the nature of the sun-cult that not only the entry of the sun but also its departure is an aspect of vital interest, deserving demarcation. As far as the point of entry is concerned, it was marked by the so-called *benben*-stone, presumably an orthostat or rock-formation at Heliopolis. A corresponding marking point on the west side would seem necessary to bring the concern for the solar circuit into balance. While the north-eastern peak of the Maadi formation might have provided this point originally, it appears that later on the focal point shifted slightly further north. As mentioned earlier, in the overall topography of the Giza plateau, there was apparently always some protrusion at the south-eastern corner of the Moqattam formation formed by a harder type of limestone than

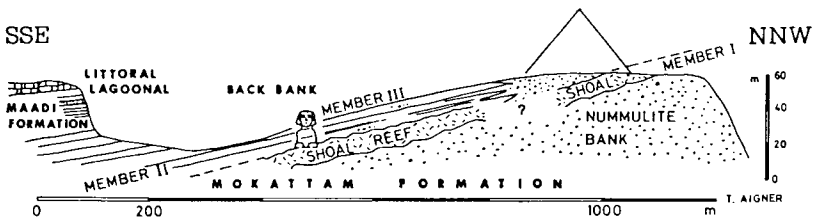


Figure 8. Geology of Giza

the surrounding rock. It is that protrusion which presumably was subsequently shaped into the head of the Sphinx. However, before Giza became the site of Khufu's funerary monument, it appears that this protrusion attracted attention as a counterpart of the *benben*-stone at Heliopolis. It is impossible to determine when this occurred, but it seems likely that it began to receive religious attention prior to Khufu's reign. The likelihood is that Khufu's choice of Giza as his burial site was instigated by the existence at that site of a marking point of the sun's departure from this world. Because of Khufu's grandiose design to make his pyramid-shaped tomb the marker for the setting sun and thus the counterpart to Heliopolis, the older natural marker became obsolete. Nevertheless, Khafre associated his funerary monument with it by placing his Valley Temple next to it. Only at a later point did he incorporate this earlier sun-symbol into his colossal sphinx-shaped sculpture. One could consider it a step to match or outdo Khufu; the latter's pyramid was from then on the marker of the setting sun, but the head of Khafre's Sphinx incorporated the original marker. The cultic function of the old sanctuary to the setting sun was taken over by the royal Mortuary Temple which had basically the same plan as the older structure next to Khafre's Valley Temple. The state in which it was found when it was excavated, which apparently was its first exposure after 3,500 or more years, suggests that it had been disassembled, especially the more valuable parts of the granite lining.

In relation to Heliopolis, the three Fourth Dynasty pyramids at Giza formed a line, the pyramid of Khufu continuing to be the initial point marking the sun's point of departure. During the Fifth Dynasty the royal funerary monuments were no longer built at Giza, yet the distinctive role of Khufu's pyramid continued. The Fifth Dynasty kings had a prevailing interest in the cult of Re, and at least two of them built sanctuaries dedicated to Re on the western *gebel* at Abusir, namely Userkaf, the first king of the group, and Neuserre the sixth. Those sanctuaries are commonly labeled 'sun-temples', but because of their location on the western *gebel* they should be recognized as monuments to the setting sun. Their central point is in both cases an obelisk, i.e. a pyramid placed on an elevating shaft, after an earlier simpler design in the form of a T-shaped marker.<sup>58</sup>

Although it would seem an independent development, the monument of Khufu at Giza continued to be pertinent in its function as marker of the setting sun. Userkaf built his tomb at the north-eastern corner of the Step-pyramid complex.<sup>59</sup> In addition to the pyramid, he also built the sun-temple, *Hnw-R* 'Residence of Re', at northern Abusir.<sup>60</sup> When one draws a line from the pyramid through the 'sun-temple' and extends this line northwards (Fig. 7), it exactly hits the pyramid of Khufu. The same astonishing result is achieved when one links the pyramid of Neuserre at Abusir and the king's sun-temple at Abu Gurob; the extension of this line likewise leads to Khufu's pyramid.


These are three cases where the motives for the location of major royal architecture of the Old Kingdom can, I hope, be made transparent. They are not the only ones, but there are a host of others which thus far defy efforts to reveal the reasons for their location.

### Illustrations

- Fig. 1. M. Lehner, *Archiv für Orientforschung* 32 (1985), p. 143, fig. 8.  
 Fig. 2. After R. Stadelmann, *Die Grossen Pyramiden von Giza* (Graz, 1990), p. 165, fig. 106.  
 Fig. 3. After *ibid.*, p. 105, fig. 54.  
 Fig. 4a. After H. Ricke, *Der Harmachis Tempel Des Chefren in Giseh* (Wiesbaden, 1970), p. 19, fig. 8.  
 Fig. 4b. After Stadelmann, *Die Grossen Pyramiden von Giza*, p. 188, fig. 122.  
 Fig. 5. After *ibid.*, p. 185, fig. 121.  
 Fig. 6. After *ibid.*, p. 204, fig. 133.  
 Fig. 8. M. Lehner, *Archiv für Orientforschung* 32 (1985), p. 137, fig. 1, from T. Aigner in *Neues Jahrbuch Geologisch Paläontologische Abhandlungen* 166:3 (1983), 347-68.

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- <sup>1</sup> Herodotus, *Histories*, vol. II, p. 125.  
<sup>2</sup> Already L. Borchardt, *Die Entstehung der Pyramide* (Berlin, 1928), pp. 16 ff. assumed not more than 10-20,000 workers at the pyramid construction, with which R. Stadelmann, *Die ägyptischen Pyramiden* (Mainz, 1985), p. 224, agrees.  
<sup>3</sup> See Stadelmann, *ibid.*, *passim*; *idem*, *Die großen Pyramiden von Giza* (Graz, 1990).  
<sup>4</sup> M. Lehner in *Archiv für Orientforschung* 32 (1935), pp. 148 ff. against R. Klemm and D. Klemm, *Die Steine der Pharaonen* (Munich, 1981), pp. 12-20.  
<sup>5</sup> It was first established by the Johns Hopkins Excavations at Giza 1973 and will be published in the near future.  
<sup>6</sup> A.-A. Saleh, "Excavations Around Mycerinus Pyramid Complex" in *Mitteilungen des Deutschen Archäologischen Instituts, Kairo* 30 (1974), pp. 131ff. Excavations south of the Khafre Causeway yielding extensive installations especially for making bread unfortunately remains unpublished.  
<sup>7</sup> The spiritual father of the speculations summarized under the label 'pyramidology' was Charles Piazzi Smyth, *Our inheritance in the great pyramid* (London, 1864) but has continued ever since as demonstrated by P. Tompkins, *Secrets of the Great Pyramid* (New York, 1971).  
<sup>8</sup> The material has been collected by R. Stadelmann, *Giza*, which supersedes his earlier *Äg. Pyramiden*; also G. Goyon, *Le secret des bâtisseurs des grandes pyramides, Khéops* (Paris, 1977); I. E. S. Edwards, *The Pyramids of Egypt* (London, 1961); J.-Ph. Lauer, *Le mystère des pyramides* (Paris, 1974).  
<sup>9</sup> See H. Goedicke, "Pfade zur Ewigkeit" in *Kunstjahrbuch der Stadt Linz* (1984), pp. 7-12.  
<sup>0</sup> It is emphasized by Stadelmann, "La Ville de Pyramide" in *Revue d'Égyptologie* 33 (1981), pp. 67ff.  
<sup>1</sup> It could be argued that this notion was introduced by Zoser in setting up his funerary monument as a copy of the mundane residence at Memphis. While in his case the association between the abode during lifetime and in death are very close, the subsequent development of royal funerary architecture does not

warrant the assumption that the funerary and the mundane abode of the king had to continue to be associated.

- 12 This development appears to be rooted in the eschatological concepts of the time, which projects the Hereafter as a continuation of the social structures experienced during life, in particular the association with the king as the central figure of the society from whom all social benefits emanated, and who was also seen as the guarantor of a meaningful afterlife. It eventually evolves in the emergence of a new stratum in ancient Egyptian society. Its basis is the registration in the cadastre (*ḥt*) of the king's funerary establishment, which leads to the designation 'one who is in the township (of the royal funerary estate)', in Egyptian . This group of people, who enjoyed a status different from that of the patriciate (*p't*) and plebs (*rḥyt*), is the matrix from which the bourgeoisie emerged during the First Intermediate Period.
- 13 There have been speculations that the vertical shaft inside the Khufu pyramid belonged to an earlier tomb that was removed, but there is nothing to corroborate this notion.
- 14 In addition to the general publications listed in note 8, see also A. Fakhry, *The Monuments at Dahshur*, 3 vols. (Cairo, 1959-61); Stadelmann, *MDAIK* 38 (1982), pp. 379ff.; idem, *MDAIK* 39 (1983) pp. 225ff.; idem, *MDAIK* 43 (1987) pp. 229ff.
- 15 Cf. M. Lehner, *The Pyramid Tomb of Hetep-heres and the Satellite Pyramid of Khufu* (Cairo, 1985), pp. 45ff.
- 16 K. R. Lepsius, *Denkmäler aus Ägypten und Äthiopien*, vol. I (Berlin, 1949), 20; G. Goyon, "La chaussée monumentale et le temple de la vallée de la pyramide de Khéops" in *Bulletin de l'Institut Français d'Archéologie Orientale du Caire* 67 (1969) pp. 50-69, plan.
- 17 See note 9.
- 18 In addition to the sondages by Goyon (see note 16), paltry remains have been identified in recent years; see Z. Hawass, "The Programs of the Royal Funerary Complexes" in D. O'Connor and D. P. Silverman, eds., *Ancient Egyptian Kingship* (Leiden 1995), pp. 224f.
- 19 H. Goedicke, *Re-used Blocks from the Pyramid of Amenemhet I at Lisht* (New York, 1971), pp. 11ff.; 152. Those blocks are presumably from the Valley Temple and not from the Causeway, as Stadelmann claims (*Giza*, p. 170).
- 20 Because of the paltry remains it is difficult to make many comparisons. However, one conspicuous scene, depicting a group of archers, is paralleled in the Unas Causeway and occurs again at the Monthuhetep temple at Deir el Bahari; see Goedicke, *Lisht*, 74ff.
- 21 J.-Ph. Lauer, "Le temple funéraire de Khéops à la grande pyramide de Guiseh" in *Annales du Service des Antiquités de l'Égypte* 46 (1947) pp. 245-58; idem, *ASAE* 49 (1949) pp. 111ff.; Stadelmann, *Giza*, p. 164f.
- 22 Z. Nour, Z. Iskander and A. Youssef, *The Cheops Boat* (Cairo, 1960).
- 23 The notion of the deceased's travels in the Hereafter is the topic of Pyramid Spells; see H. Kees, *Totenglauben und Jenseitsvorstellungen der Alten Ägypter* (Berlin, 1977), pp. 82ff. The boats are frequently referred to as 'sun-boats' but their four-fold presence points clearly to the cardinal points of the Universe, while the movement of the sun is between East and West.
- 24 For the emerging of this idea and its development during the early period of Egypt's history, see W. Emery, *Archaic Egypt* (Harmondsworth, 1961), pp. 128ff.
- 25 B. Porter and R. Moss, *Topographical Bibliography of Ancient Egyptian Hieroglyphic Texts*, vol. III:2 (rev. ed., Oxford, 1981), pp. 47ff.; Stadelmann, *Giza*, pp. 166ff.

- 26 His pyramid at Abu Roash lies 9 kms. north of Giza and is exactly to the west of Heliopolis (Matariye); see Fig. 7.
- 27 It is not certain how many statues originally stood in the Valley Temple. The one preserved depicts the king in his role as mundane representative of the divine, a relationship that is expressed by a falcon hovering behind the king's head and spreading its wings around it.
- 28 For the double nature of Egyptian kingship, see H. Goedicke, *Die Stellung des Königs im Alten Reich* (Wiesbaden, 1960), pp. 87ff.
- 29 For the earliest remains of building activity there dating to Zoser, see W. S. Smith, *A History of Sculpture and Painting in the Old Kingdom* (London, 1949), pp. 133ff.; Figs. 48-53.
- 30 H. Goedicke, "The Berlin Leather Roll (P Berlin 3029)" in *Festschrift zum 150jährigen Bestehen des Berliner Ägyptischen Museums* (Berlin, 1974), pp. 87-104.
- 31 Kees, *Totenglauben*, pp. 39ff.; S. Morenz, *Ägyptische Religion* (Stuttgart, 1960), pp. 157ff.
- 32 The description of Piye's pilgrimage to Heliopolis (H. Schaefer, *Urkunden der älteren Äthiopienkönige*, vol. III [Leipzig, 1905], pp. 37-40) is the most informative source available; see H. Goedicke, *Pi(ankh)y in Egypt: A Study of the Pi(ankh)y Stela*, publication forthcoming.
- 33 Edwards, *Pyramids*, p. 284.
- 34 W. Helck in *Lexikon der Ägyptologie*, vol. V, p. 6; Stadelmann, *Äg. Pyramiden*, pp. 106ff.
- 35 A. Erman and H. Grapow, eds., *Wörterbuch der ägyptischen Sprache*, vol. I, 17:21. This notion is in itself impressive enough that there is no need to go as far as to surmise "that the reason for the tremendous increase in the form and size of the royal pyramid was the desire to induce the sun-god Re to choose the pyramid area, and the mountain formed by the pyramid itself, as the place to set, thus uniting the king with the universal sun-god and ensuring his continued existence in the afterlife through the eternal cycle of rising and setting." (Stadelmann, *Giza*, p. 108).
- 36 For further on this site, see V. Maragioglio and C. Rinaldi, *L'architettura dei piramidi Menfiti V: Le piramidi di Zedefrà e di Chefred* (Rapallo, 1966), pp. 72-74.
- 37 D. Covington, "Mastaba Mount Excavations" in *ASAE* 6 (1906), pp. 193-218.
- 38 Smith is inclined to date it "as late as Dyn. IV. if not later" (*HESPOK*, p. 141).
- 39 W. F. Petrie, *Gizeh and Rifeh* (London, 1907), p. 7.
- 40 For the former, see Smith, *HESPOK*, p. 141; I tried to have the drawing located in the Museum of Fine Arts, Boston and wish to thank Dr. Rita Freed and her staff for their help. For the jar sealings, see P. Kaplony, *Ägyptische Inschriften der Frühzeit*, vol. I (Wiesbaden, 1963), pp. 151f.; vol. II, pp. 834-836.
- 41 H. G. Fischer, "An Egyptian Royal Stela of the Second Dynasty" in *Artibus Asiae* 24 (1961), pp. 45ff.
- 42 Concerning the king's tomb, see P. Munro, "Einige Bemerkungen zum Unas-Friedhof in Saqqara" in *Studien zur Altägyptischen Kultur* 10 (1983), pp. 278-282 and Stadelmann, "Die Oberbauten der Königsgräber der 2. Dynastie in Sakkara" in *Mélanges Gamal Eddin Mokhtar*, vol. II (Cairo, 1995), pp. 295-307.
- 43 While the possibility exists that archaeoastronomical aspects could be of significance, the ignorance about a possible point of observation stands in the way of pursuing this avenue.

- 44 M. Lehner, J. P. Allen and K. L. Gaurim, "The ARCE Sphinx Project, A Preliminary Report" in *Newsletter American Research Center in Egypt* 112 (1980), pp. 12f.; T. Aigner, "Facies and Origin of Nummulithic Buildups: An Example from the Giza Pyramids Plateau (Middle Eocene, Egypt)" in *Neues Jahrbuch Geologisch Paläontologische Abhandlungen* 166:3 (1983), pp. 347ff.; idem, "Zur Geologie und Geo-archäologie des Pyramidenplateaus von Giza, Ägypten" in *Natur und Museum*, 112: 12 (1982), pp. 377-388.
- 45 K. L. Gaurim, "Deterioration of the Stone of the Great Sphinx" in *Newsletter ARCE* 114 (1981), pp. 35-47; idem, "The Deterioration of Ancient Stone Structures in Egypt" in *Prospection et sauvegarde des Antiquités de l'Égypte* 88 (1981), pp. 13-15.
- 46 H. Ricke, *Der Harmachistempel des Chefred in Giseh (BeiträgeBf 10: Wiesbaden, 1970)*, pp. 1-3.
- 47 S. Schott, *Ägyptische Quellen zum Plan des Sphinxtempels (BeiträgeBf 10: Wiesbaden, 1970)*, pp. 53f., saw the pillars as 'eine Art Uhr für das Ritual'.
- 48 See *Harmachistempel*, figs. 4, 5.
- 49 Ibid, p. 8.
- 50 The dominance of ideas over physical topography is impressively demonstrated by Khufu's choice of a site for his pyramid, which required the construction of an enormous ramp to get there.
- 51 The statue published by H. W. Müller, "Kopf einer Statue des ägyptischen Sonnengottes aus dem Alten Reich" in *Pantheon* 18 (1960), pp. 109-113, dates, of course, to Shabaka.
- 52 The name can be rendered 'Horus in the horizon', i.e. the deceased king, either departing or returning from his place of burial (*Wörterbuch*, vol. III, 123:4).
- 53 É. Chassinat, *Fondation Piot* 25 (1921-22), pp. 64f. One fragmentarily preserved sphinx is painted yellowish which might suggest that it depicts a female, i.e. a queen.
- 54 For the role of the lion, see U. Schweitzer, *Löwe und Sphinx im Alten Ägypten* (Glückstadt, 1948); as for the alleged existence of a pair of lionesses in the Heliopolitan cult, see H. Goedicke, "Rwty und andere Tiergötter" in *Zwischen den beiden Ewigkeiten (FS Gertrud Thausing)* (Vienna, 1994), pp. 35ff.
- 55 In the case of the Giza Sphinx, which is with great probability to be attributed to Khafre, a cult would be particularly unwarranted, as the king would receive funerary service in the building complex next to it. Stadelmann attributes the Sphinx to Khufu, which would make it an isolated work of this king without any association with the king's funeral monument (*Giza*, p. 172).
- 56 R. Anthes, "Was veranlaßte Chephren zum Bau des Tempels vor der Sphinx?" in *Aufsätze zum 70. Geburtstag von Herbert Ricke* (Wiesbaden, 1971), pp. 47-58, emphasizes not only the solar character of the building, but places it in a theological shift from the worship of Horus to that of Re.
- 57 *Archiv für Orientforschung* 32 (1985), pp. 140ff.
- 58 W. Kaiser, "Zu den Sonnenheiligtümern der 5. Dynastie" in *MDAIK* 14 (1956), pp. 104ff.
- 59 Zoser's monument served throughout the Old Kingdom as the centre of kingship and several rulers, in particular those who initiated new dynastic groupings, had their tombs in its vicinity. In addition to that of Userkaf, Unas' pyramid adjoins the south side of Zoser's enclosure, while Teti is at the north side.
- 60 H. Ricke, *Das Sonnenheiligtum des Königs Userkaf*, 2 vols. (Wiesbaden, 1965, 1969).