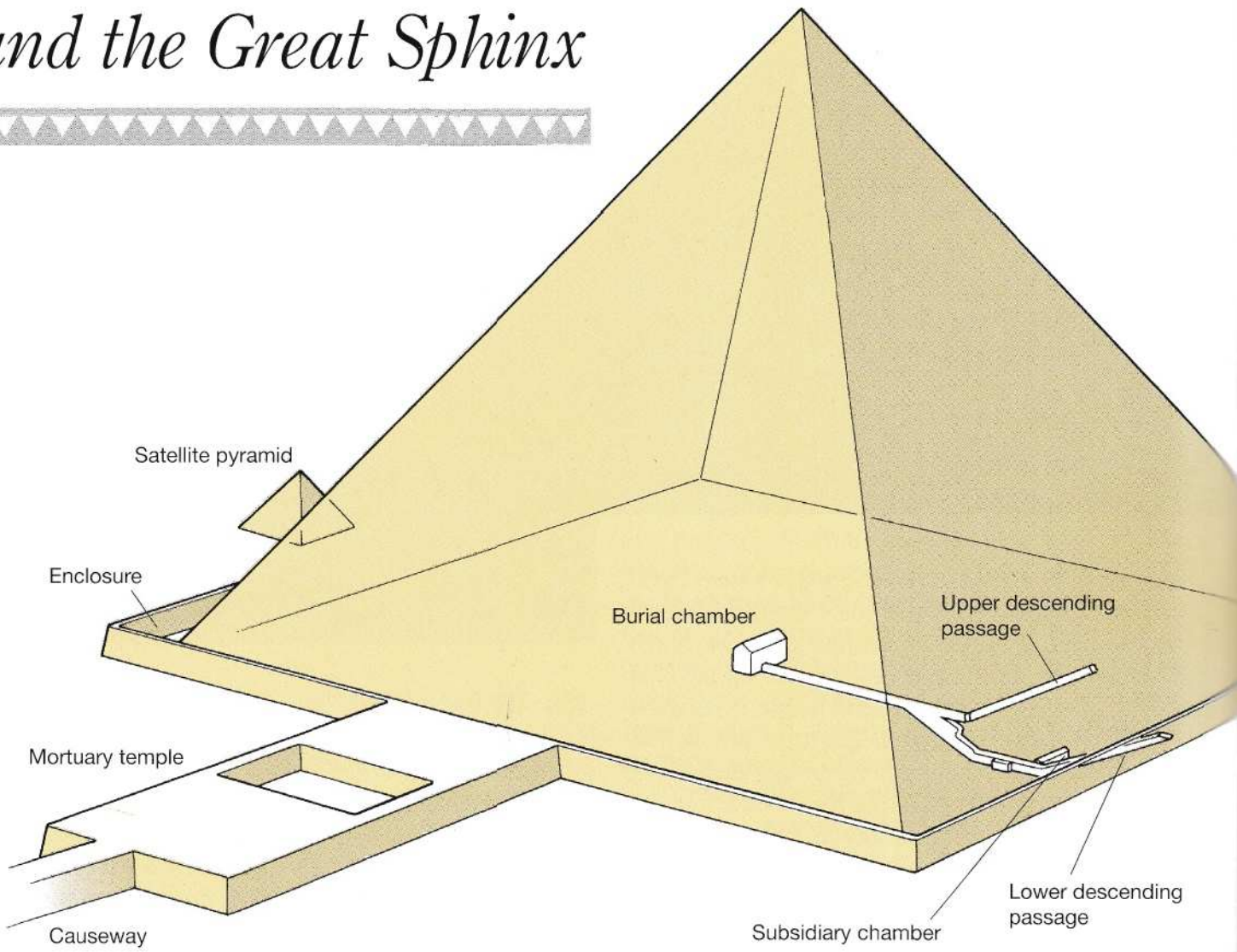
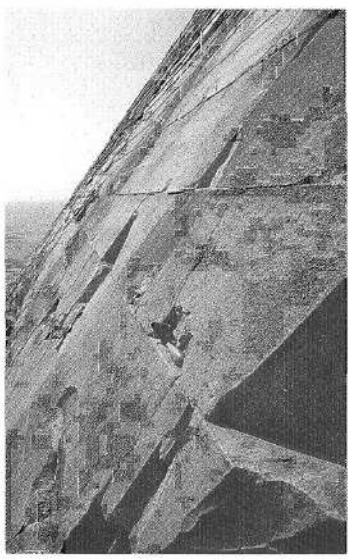
Return to Giza: Khafre's Pyramid and the Great Sphinx

Khafre's pyramid was called 'Great is Khafre'. The simplicity of the chamber and passage system may reflect the builders' experience of problems in building chambers high in the body of the pyramids of Sneferu and Khufu. Its base length was 215 m (705 ft), rising to a height of 143.5 m (471 ft) at an angle of 53° 10'.





The blocks of surviving casing at the top of Khafre's pyramid are not flush, suggesting they were cut to the pyramid's slope before setting. However, the unevenness may be due to settling when lower courses were robbed.

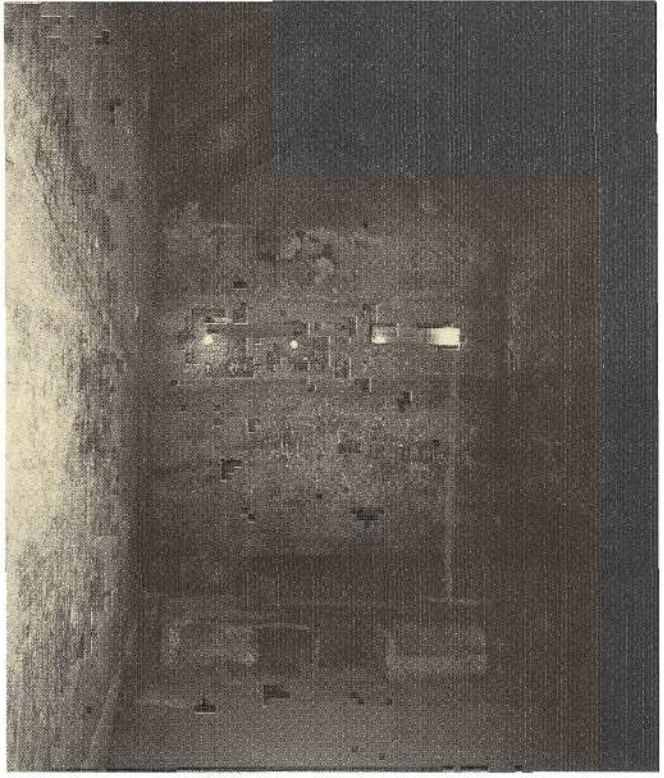
Djedefre was succeeded by Khafre, another son of Khufu. Two older brothers had been in line for the throne before Khafre and we might perhaps imagine him as a rather young man – youth, at least, could account for the extraordinary confidence he showed in laying out a square 215 m (705 ft) to a side, to form the base of a pyramid that stood shoulder to shoulder with his father's. Khafre's pyramid is in fact the smaller of the two, but he disguised this by founding it on bedrock some 10 m (33 ft) higher. It also has a slightly sharper angle of slope, 53° 10' to Khufu's 51° 50' 40". A very slight twist can be discerned at the top, introduced because the four corner angles were not quite aligned correctly to meet at the apex.

The pyramid

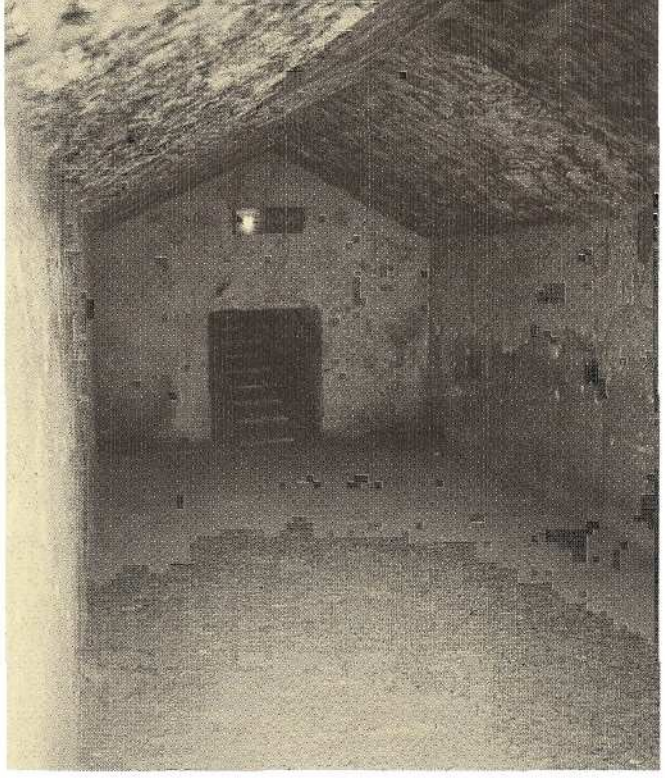
The pyramid was founded on a terrace which the ancient builders cut down by *c.* 10 m (33 ft) below the original bedrock surface to the northwest, but built up with large blocks of masonry at the opposite, southeast, corner. This compensated for the natural *c.* 3–6° slope of the Mokattam Formation. Apart from the bottom course of outer casing in granite, the pyramid was cloaked in Turah limestone. Only the upper quarter of the casing remains – apparently a reflection of the robbers' practice of stripping first the corners and base and then working upwards. Just beneath the lowest surviving course of casing stones, a band of regular stepped core stone is visible. The rest of the surface down to the base – the greater part of the pyramid – consists of very rough, irregular, loose stones.

What is this loose lower band? Is it packing between core and casing, exposed when the casing was torn away? That seems likely until, climbing the corners of the pyramid, one sees that this irregular masonry seems to continue for some depth into the pyramid body. The discontinuity might indicate different building styles, perhaps even a hiatus and then resumption of building. Alternatively, the core masonry may simply have been laid in a more regular fashion towards the top in order to allow the builders greater control (p. 222).

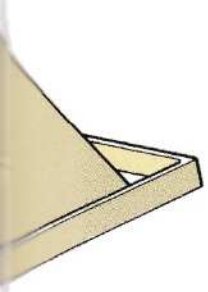
The casing stones at the top of the pyramid are much smaller – about 1 cubit thick (*c.* 50 cm/20 in) – than the casing stones which survive at the bottom of Khufu's pyramid and those of his queens. Their

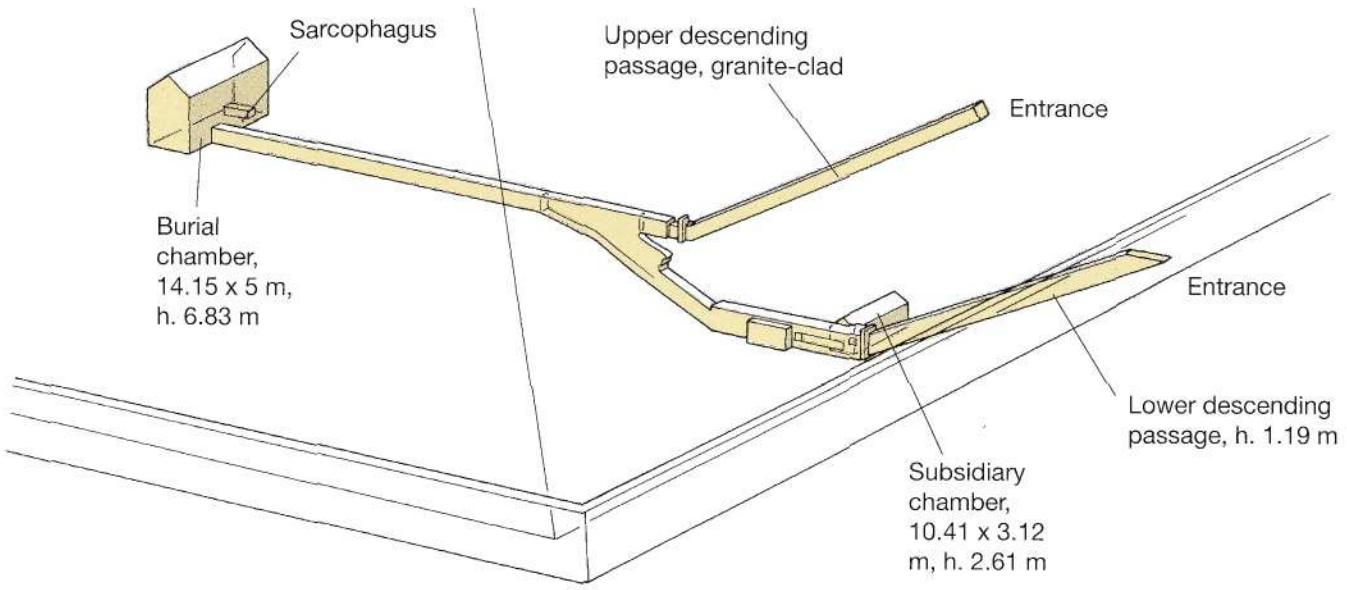


Khafre's burial chamber (left). The black granite sarcophagus was originally sunk into the paving of the chamber. A square hole in the floor at the west end of the south wall probably held the canopic chest.



The lower bedrock chamber (right), with a pented roof can perhaps be seen as the equivalent of the Subterranean Chamber or Queen's Chamber of Khufu's pyramid.





The double entrance passages suggest to some a change in plan from a larger to a smaller pyramid base. Portcullis closure systems were built into the beginning of the lower and upper horizontal corridors.

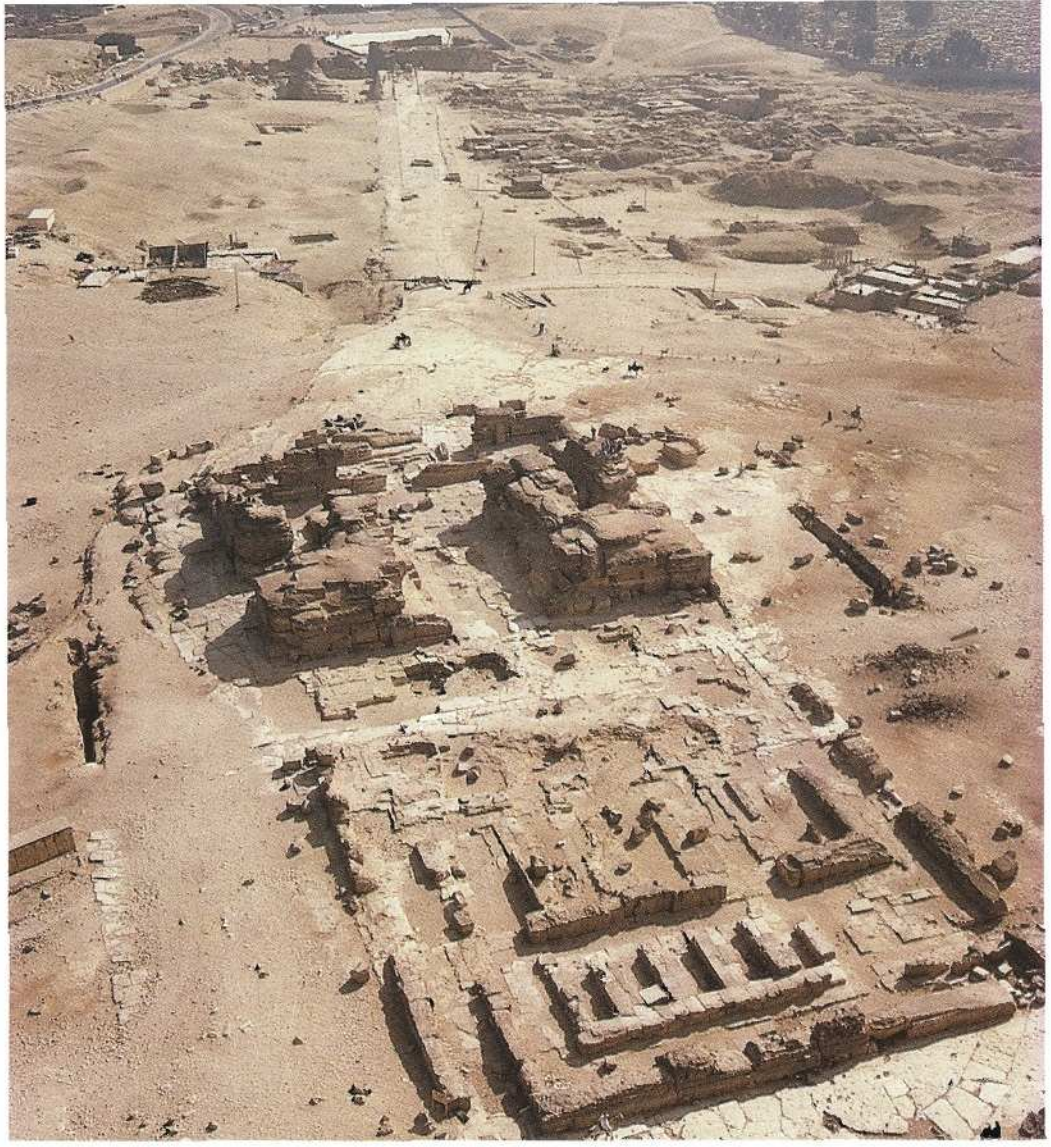
outside faces are often staggered by a few millimetres rather than flush. This might suggest that at this level the outer slope was cut into the blocks before they were laid, due to reduced working space. What we can say with confidence about these masonry variations is that even now – and Khafre's was the fifth of the giant pyramids – pyramid-building techniques were still largely *ad hoc*.

Among its many meanings, the pyramid was conceived as a port from which the voyage to the Netherworld began. The broad terrace to the east of Khafre's pyramid is made of massive limestone blocks weighing up to hundreds of tons. Huge limestone piers project beyond the northeast and southwest corners of the terrace, looking like slipways or giant docks. Five narrow boat-shaped trenches carved into the natural rock extend into the recesses between the two piers and the mortuary temple.

Inside Khafre's Pyramid

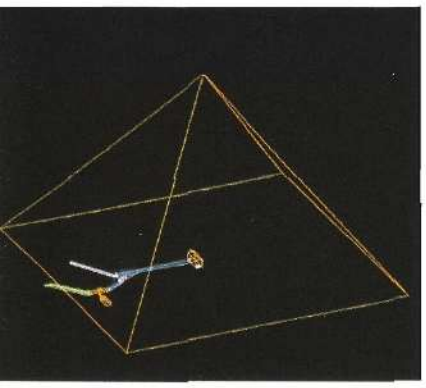
Khafre's pyramid contains two descending passages. One begins in the body of the masonry, about 11.54 m (38 ft) above the level of the base; the other runs from in front of the base line at ground level, near the centre of the northern side. Like almost all pyramid passage systems, its does not align with the centre axis of the pyramid, in this case lying a little more than 12 m (39 ft) to the east. It has been suggested that the pyramid was originally intended to be larger, or that its north base line was first planned to be 30 m (98 ft) further north, so that the lower passage, like the upper one, would have been entirely within the body of the masonry. But it is hard to imagine that there was an earlier plan for a larger pyramid, such is the sculpted unity of the pyramid terrace, enclosure wall and pyramid base. What we are seeing is more likely evidence of a vacillation between two different passage systems in the course of building.

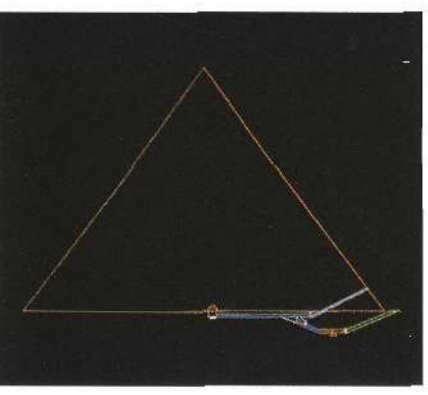
The lower passage descends at an angle to a horizontal corridor, 1.7 m high (*c.* 5 ft 8 in). A subsidiary chamber opens off the horizontal section, cut out of the bedrock and with a pented roof. The purpose of this chamber is not entirely clear. It may have been a *serdab* chamber, equivalent to the misnamed 'Queen's Chamber' in the Great Pyramid.

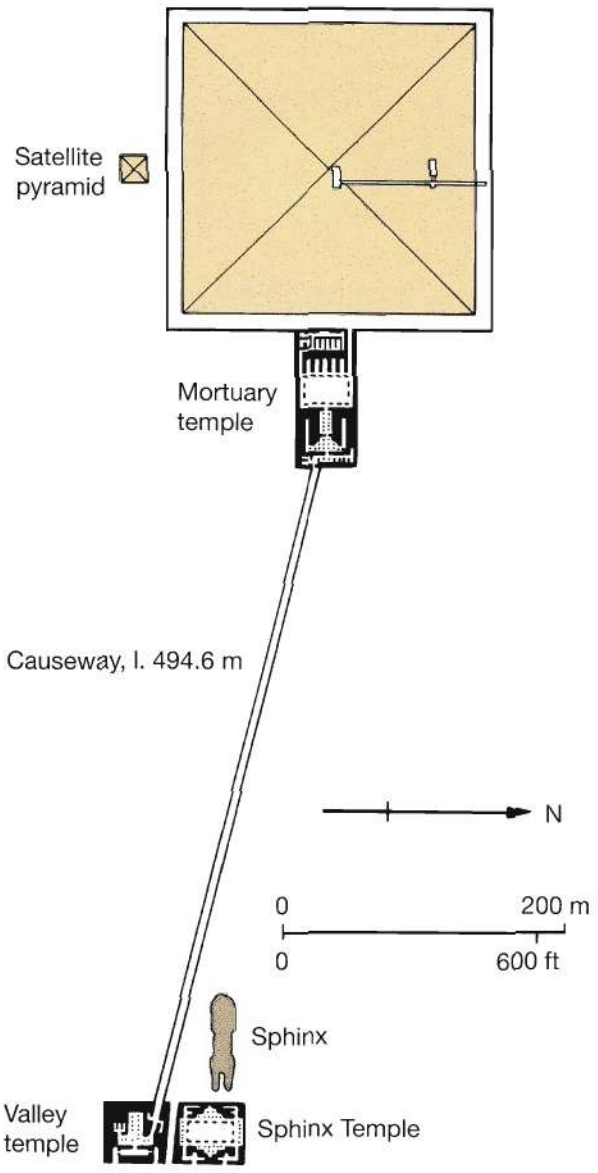


Khafre's mortuary temple, causeway foundation and valley temple are the best preserved of the three Giza complexes. Khafre added the Great Sphinx and its temple.

The burial chamber of Khafre's pyramid must have been built in a pit cut into the bedrock massif.







Alternatively it may have been simply used for storing offerings. At the end of the horizontal section an ascending passage rises, reaching an intersection with the other passage, itself descending to the bedrock from high up in the masonry of the pyramid.

Since the bedrock was left nearly 10 m (33 ft) high in the northwest corner of the pyramid while the tops of the burial chamber's walls are at the level of the pyramid terrace, the chamber must have been built in a pit similar to that in Djedefre's pyramid at Abu Roash, though not as deep. The roof of the burial chamber is composed of pented, limestone beams like the 'Queen's Chamber' and the uppermost of the five relieving chambers above the burial chamber in the Great Pyramid.

The sarcophagus

The burial chamber is at a right-angle to the axis of the passage system, putting the sarcophagus in this case very close to – but not directly on – both the north–south and the vertical axes of the pyramid. Khafre's sarcophagus is of black, hard granite, half embedded in the very thick paving which once covered more of the chamber floor. Its lid lay in two pieces. A pit cut into the floor of the chamber probably held the canopic chest – the first example of this found in a pyramid. Its lid would have been formed by one of the paving slabs of the floor.

Belzoni, having rediscovered the entrance to the upper passage, made his way into this chamber in 1818 but found to his disappointment that he was not the first to enter it in post-pharaonic times. Curiously, bones found in the sarcophagus turned out to be those of a bull. In a much later period bulls were buried as symbols of the pharaoh himself or of Osiris. Rainer Stadelmann has suggested that these bones were probably an offering thrown into the sarcophagus at some unknown later date by intruders, long after the king's body had been robbed and lost.

The Pyramid Complex

The mortuary temple

Khafre's mortuary temple marks a real architectural advance – being both larger than previous examples and for the first time including all five elements that were to become standard. It consists of a fore part, forming an entrance to the main court, and a back part. The fore part was constructed of megalithic blocks of limestone, quarried nearby. The use of huge blocks to form the cores of the walls, which were then encased with finer quality stone, was introduced by Khafre. The inside of his mortuary temple was almost entirely lined with granite.

The causeway enters the mortuary temple near the south end of the front. Immediately to the left

were two granite chambers and at the other end of a corridor running along the front of the temple were four more chambers, lined with alabaster. In the fore part of the temple the entrance hall consisted of two sections, one transverse with recessed bays and the other rectangular. The roofs of both were supported by columns made of single blocks of granite. A long, narrow, slit-like chamber branches off from each end of the first hall. It has been suggested that huge statues of the king once stood at the back of these dim passages.

The reigns of Khafre and to a lesser extent Menkaure saw an explosion of statue making – the size and number of Khafre's statues were unparalleled until the New Kingdom, almost 1,200 years later. But while hundreds of pieces of smaller statues have been found, no fragments of any larger ones remain from the mortuary temple, though there were over 52 in Khafre's complex of life size or larger. This is because they were removed intact by royal order, possibly in the 18th dynasty or by Ramesses II, and recycled for other royal projects.

Next in sequence came the open court, the pillars of which, encased in granite, were so broad that they formed piers around the courtyard. In front of them were 12 granite statues standing in pits or sockets in the white alabaster floor. Hölscher suggested that these were standing statues of the king in the form of Osiris. But Herbert Ricke argued for seated statues of the king wearing the *nemes* scarf. Our excavations of the 'workmen's barracks' west of Khafre's pyramid produced a clue suggesting that we should reconsider the form of these statues. These galleries turned out to be not living quarters but a royal workshop (p. 238). Among the finds was a fragment of a model of the king wearing the crown of the south, with a back pillar painted to imitate granite. The pillar projects in an upside-down 'L' over the crown, as did the colonnade roof over the pillars of the court of Khafre's mortuary temple. Intriguingly, we have a series of striding royal statues wearing the crown of the south, usurped by Ramesses II but made much earlier. Their bases fit closely the sockets around the court of the Khafre mortuary temple. Further study should confirm whether or not these derive from here.

The inner walls of the court may have been decorated with reliefs above a certain height. Beyond the court were five niches, now badly destroyed, for more statues of the king. Behind them are five storerooms, perhaps for the offerings made to these five statues. At the very back of the temple, against the pyramid itself, was the inner sanctuary, probably with a false door niche. A stairway-ramp in the northeast corner of the temple climbed up to the roof, while from the northwest corner of the pillared court a corridor led to the paved pyramid enclosure. Outside the temple were five boat-pits, two on the north and three on the south, and possibly a sixth was planned. They are carved into the rock in a boat shape; two still retain roofing slabs.

The valley temple

Down the causeway Khafre's valley temple, marvellously well preserved, unlike the mortuary temple. Its major chambers are in fact very similar to the fore part of Khafre's mortuary temple. This is not surprising, since, as a gateway or portal to the whole complex, it more or less encapsulates, within a single temple, the architectural pattern of an entrance.

Five Features of Mortuary Temples

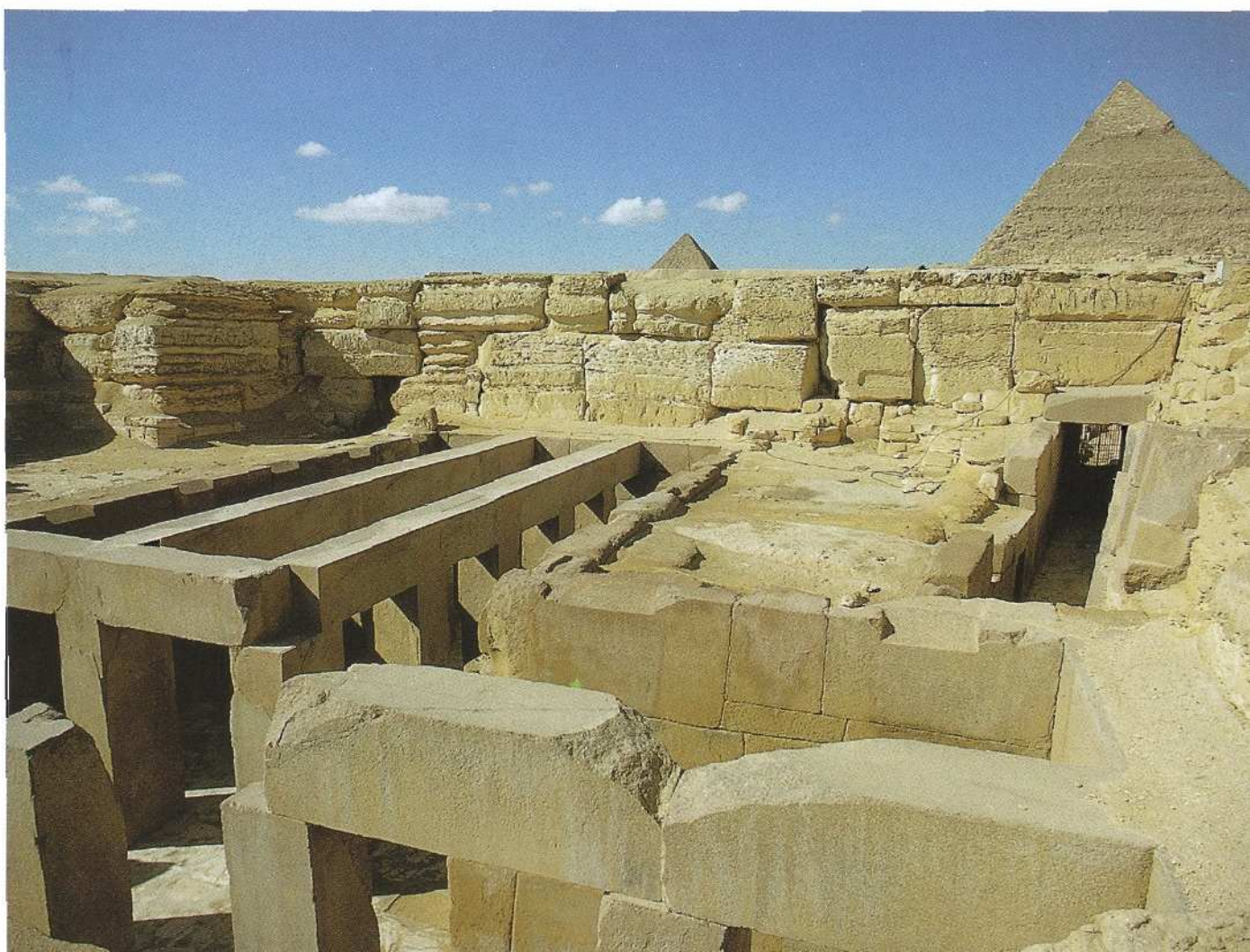
Five standard features of later mortuary temples were first found in Khafre's:

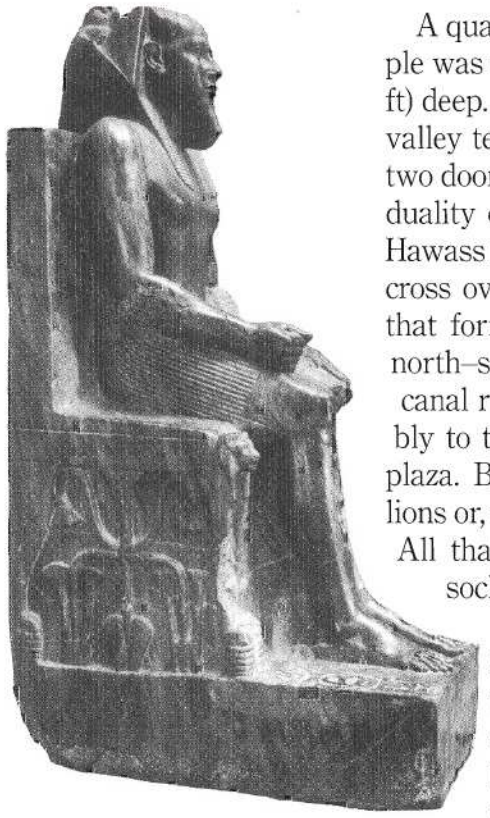
1 *an entrance hall;*
2 *a broad columned court;*
3 *five niches for statues of the king;*
4 *five storage chambers;*
5 *an inner sanctuary – a pair of stelae, a false door or a combination of both.*

The five niches may relate to the completed five-fold titulary of the king, or the five phyles. The Abusir Papyri indicate that in the 5th dynasty, three of the niches held statues of the king as ruler of south and north Egypt, and as Osiris.

A view into the interior of Khafre's valley temple, with granite lining, pillars and lintels intact. The corridor on the right is the continuation of the causeway into the temple.

(Below) Twenty-three statues of Khafre were placed around the T-shaped hall of his valley temple, lit only by narrow slits in the walls at ceiling height.





The diorite statue of Khafre, found by Mariette in the valley temple vestibule. The wings of the Horus falcon are folded around the king's headdress in a gesture of protection. It was one of 23 that originally would have lined the T-shaped hall of the valley temple.

A quay or revetment in front of the Sphinx Temple was revealed by drillings, as much as 16 m (52 ft) deep. It probably continues south in front of the valley temple, from which point ramps lead to the two doors of the temple – perhaps symbolizing the duality of Upper and Lower Egypt. In 1995 Zahi Hawass recleared the area, revealing that the ramps cross over tunnels framed within mudbrick walls that formed a narrow corridor or canal running north–south. In front of the Sphinx Temple the canal runs into a drain leading northeast, probably to the quay buried below the modern tourist plaza. Both entrances were flanked by a pair of lions or, more likely, sphinxes, 8 m long (26 ft long). All that remains are shapes described by lever sockets and the cuttings for the statue bases.

The valley temple was built of megalithic core blocks sheathed in red granite. The temple entrances were closed with huge single-leaf doors, probably of cedarwood. Between the two entrances runs the vestibule. Here the walls were of simple red granite, originally polished to a lustre, and the floor was paved with white alabaster. A door then led to a T-shaped hall, which constituted the greater part of the valley temple. This again was sheathed with polished red granite and white alabaster, and its roof was supported by 16 single-block granite pillars, many still in position today.

A kind of internal cosmic circuit was incorporated into Khafre's valley temple, comparable to the larger symbolic circuit of the pyramid complex as a whole. This circuit began in the cross-bar of the T-shaped hall. Dim and mysterious, the only light came through narrow slits at the top of the walls. Statues of Khafre sat in pits along the walls. There are 23 statue bases, though the one at the centre of the leg of the T-shaped hall is wider and perhaps was counted twice, making 24 in total. Were fumigations and libations performed to a statue of Khafre for every hour of the day and night? Or did the statues represent the deified parts of the royal body, as H. Ricke and S. Schott thought?

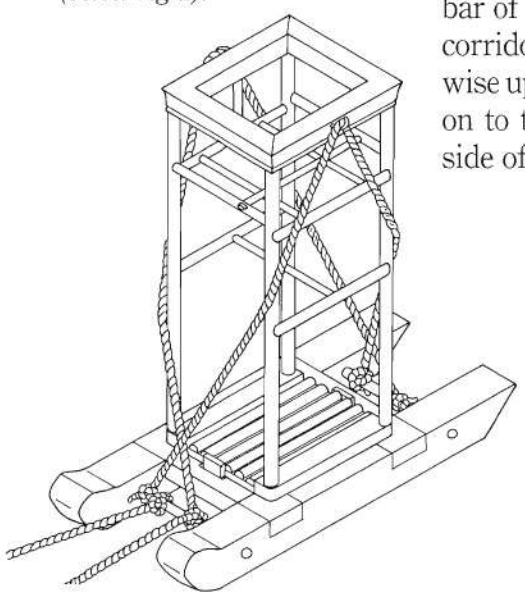
The statue sequence continued along the cross-bar of the 'T' and ended at a doorway leading to a corridor from which a stairway ramp wound clockwise up and over the roof of the corridor and exited on to the roof of the valley temple. On the south side of the roof was a small courtyard, positioned directly over six storage chambers, arranged in two storeys of three, embedded in the core masonry of the T-shaped hall. The court represented an 'above', open to the sun, while the chambers were the 'below', a dark and chthonic aspect of the temple.

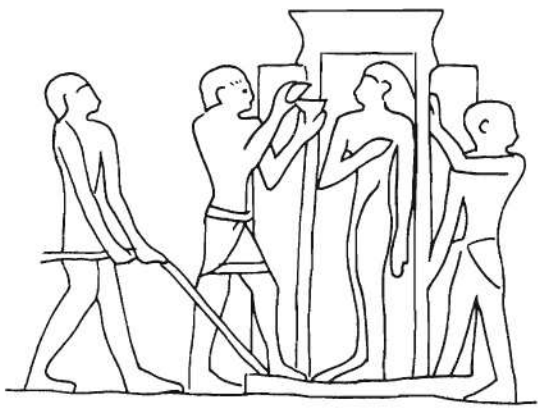
Symbolic conduits lined with alabaster, a material especially identified with purification, run from the temple's roof-top courtyard down into the deep, dark chambers. The statue sequence starts just outside the door to these chambers from the T-shaped hall. The symbolic circuit runs through the entire temple, taking in both the chthonic and the solar aspects of afterlife beliefs and of the embalming ritual, for which the valley temple was the stage according to some Egyptologists (p. 25).

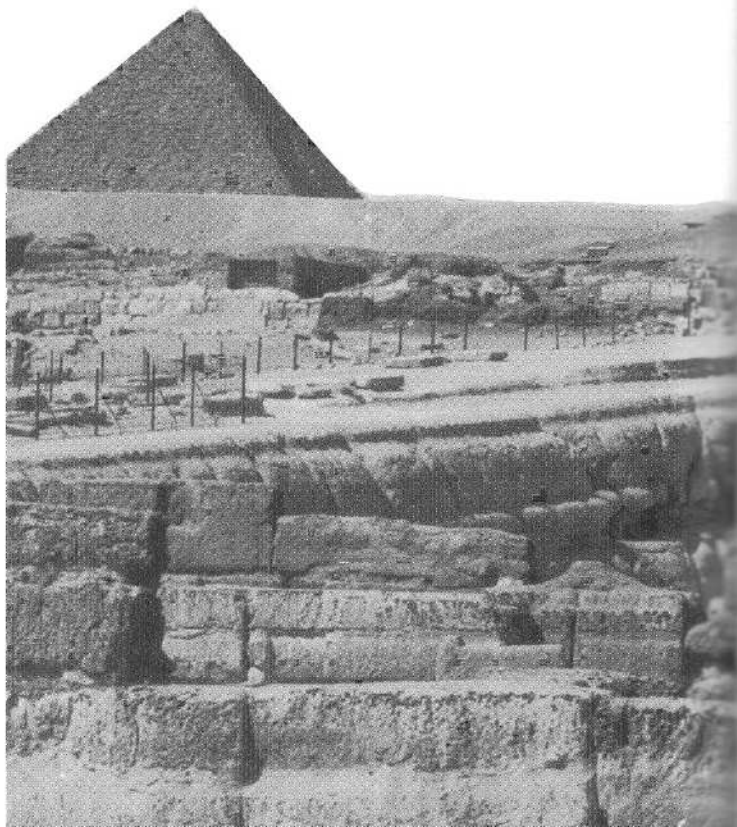
The satellite pyramid

Pyramid GII-a, the satellite pyramid of Khafre, has been almost completely eradicated by stone robbers – only the outlines of the foundations and a few core blocks now remain, positioned on the centre axis of Khafre's pyramid. Satellite pyramids are thought to derive from the south tomb of Djoser and may have been for the burial of statues dedicated to the *ka*, the king's spiritual double and vital force. Khafre's satellite pyramid furnished evidence to support this. It has two descending passages, the second on the centre axis of the pyramid but out beyond its base. This passage extends beneath the pyramid, ending in a dead-end and a small niche. In this niche was a wooden box containing pieces of wood that had once formed an item of furniture. Reassembled by Ahmed Youssef, this turned out to be a frame of cedarwood in the form of a *sah netjer*, or divine booth, which had been deliberately – ritually, it seems – chopped into regular-sized pieces. In tomb scenes, for example one from the tomb of Khufu's granddaughter Meresankh, the *sah netjer* is depicted holding the queen's statue as it is ritually drawn along towards the tomb.

(Below) A reconstruction of the statue-carrying shrine found in pieces under Khafre's satellite pyramid, shown here on a transport sled. A depiction of such a sled and statue shrine is shown in a relief from the tomb of Queen Meresankh III (below right).







The Great Sphinx

The largest of the hundreds of statues built in Khafre's reign, the Sphinx was the first truly colossal piece of sculpture in ancient Egypt. The lion body is carved to a scale of 22:1 and the head 30:1. Egyptians would not carve statues of such proportions again until the reigns of New Kingdom pharaohs like Amenhotep III and Ramesses II, some 1,200 years later.

Location and geology

The Sphinx was carved from the natural bedrock at the very base of Khafre's causeway. The rectangular secondary enclosure wall which surrounds Khafre's pyramid complex would, if extended eastwards, take in the Sphinx. The south side of the Sphinx ditch forms the northern edge of Khafre's causeway as it runs past the Sphinx and enters Khafre's valley temple – the close association of the Sphinx with Khafre's valley temple makes it most probable that the Sphinx was carved for Khafre.

Close study by geologist Thomas Aigner of the geological layers in the Sphinx and the individual stones of Khafre's temples enabled us to unravel the sequence of quarrying and building that created this complex. The valley temple was probably composed of huge blocks quarried from the layers that run through the upper part of the Sphinx body. The standard large core blocks in the Sphinx temple, with a soft yellow band between two harder bands, came from just below chest height in the Sphinx body.

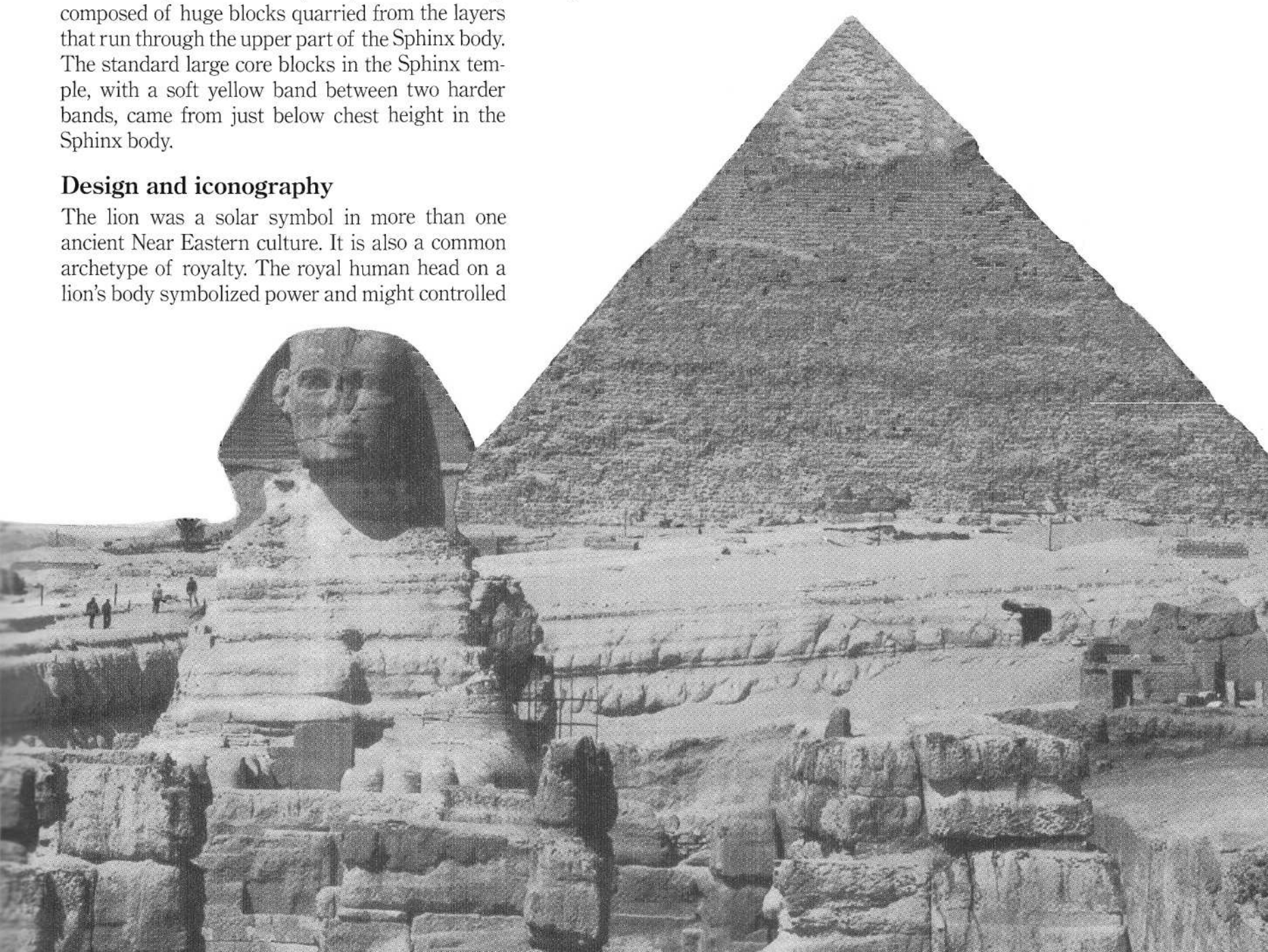
Design and iconography

The lion was a solar symbol in more than one ancient Near Eastern culture. It is also a common archetype of royalty. The royal human head on a lion's body symbolized power and might controlled by the intelligence of the pharaoh, guarantor of cosmic order, or *maat*. The sphinx, in the design achieved by the time of the Great Sphinx, survived for two-and-a-half millennia in the iconography of Egyptian civilization. The *nemes* headdress was the particular way of folding the scarf that was exclusive to Egyptian kings. The flaring sides of the royal *nemes* scarf replaced the lion's mane to bring the human head into proportion with the lion's chest.

The Great Sphinx, however, has a smaller head and headdress in relation to the lion body than in the classic sphinx form, and a considerably elongated body. It is not a question of the head being recarved, and cut down out of proportion; the lion body by itself is too long. The explanation seems to lie in the specific geology of the location. Huge fissures cut through Members I and II – the bottom two of the three geological layers from which the Sphinx is carved (p. 106). The greatest of these fissures runs right across the thinnest part of the Sphinx's body. As they isolated the block of stone that was to become the statue, the Egyptians encountered this serious defect and realized that it would prevent them from finishing off the curve of the rump and the haunches, the hind paws and the tail. It is quite likely that they elongated the body to compensate for it.

Return to Giza: Khafre's Pyramid and the Great Sphinx

The Great Sphinx stands guard before the pyramid of Khafre, for whom this fusion of man and lion was sculpted in about 2500 BC. Towering 20 m (66 ft) above the spectator, it was the first truly colossal royal sculpture in the history of ancient Egypt, seen here looking across the limestone core blocks of the temple dedicated to it. The different geological layers the Sphinx was carved from (p. 106) account for the variation in preservation of its parts. The head was carved from a much better building stone (Member III) than the soft layers of the body (Member II), while the base is carved from a petrified hard shoal and coral reef (Member I).

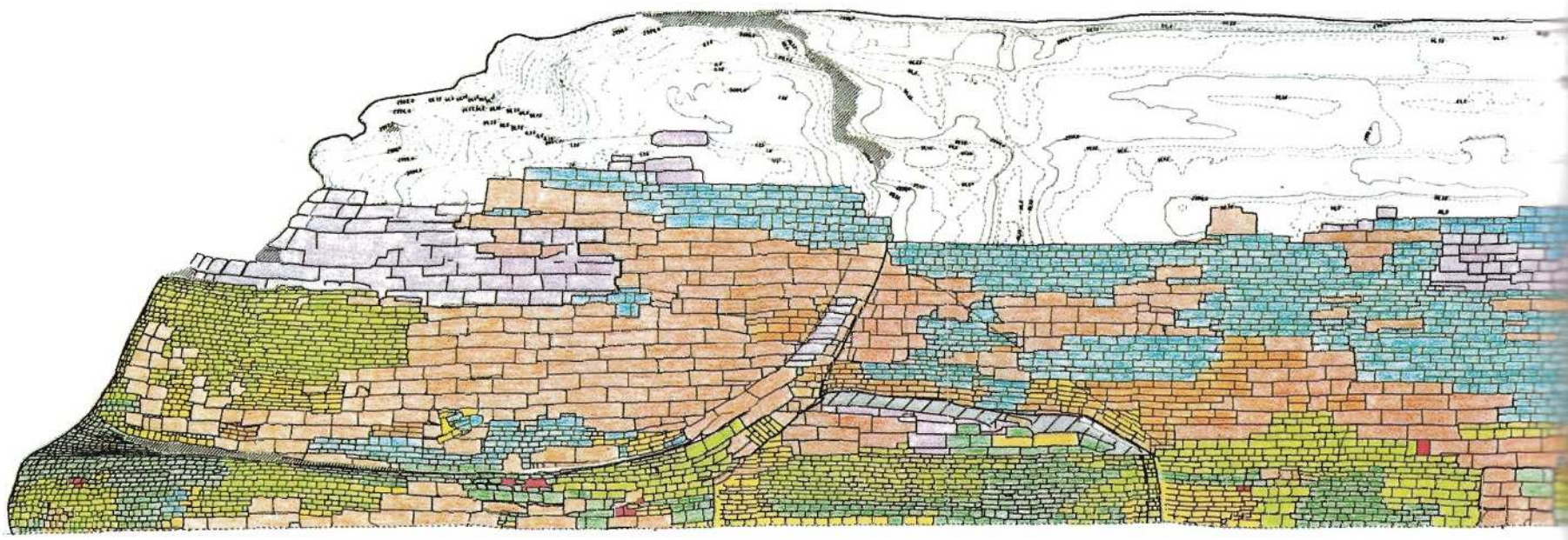


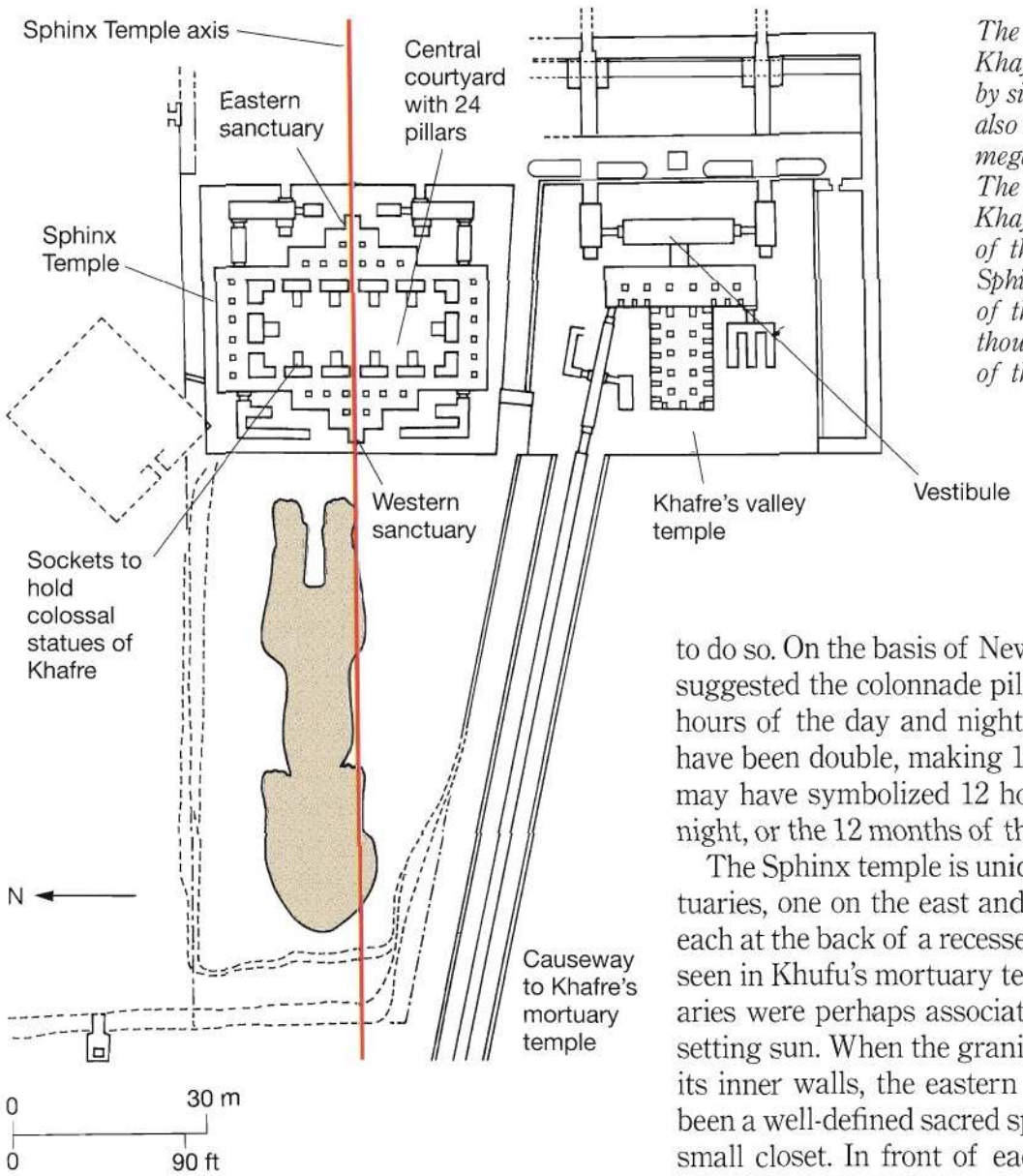
The builders of the Sphinx began by quarrying a U-shaped ditch, then sculpting the lion body from the reserved bedrock block. Stone was removed in the form of colossal blocks which were used to build the core walls of the valley temple (the upper layers) and the Sphinx Temple on a lower terrace to the east.

The Sphinx Temple

The floor of the Sphinx Temple is *c.* 2.5 m (*c.* 9 ft) lower than the Sphinx terrace, cut down into the hard stone of Member I. The temple seems to be specifically dedicated to the Sphinx, but we know very little about it because there are no known Old Kingdom texts that refer to either the Sphinx or its temple. By the time that a cult of the Sphinx was activated in the 18th dynasty, the Old Kingdom temples at Giza had long been abandoned.

Khafre's builders did not complete the Sphinx Temple, leaving the exterior without its intended granite casing, which perhaps explains the absence of priests and priestesses dedicated to its service among the Old Kingdom tombs at Giza – temple service may never have begun. Twenty-four red granite pillars formed a colonnade and ambulatory around a central courtyard. The court is an almost exact copy of that in Khafre's mortuary temple, with colossal royal statues before huge pillars made of core blocks of locally quarried limestone. But here there are 10 rather than 12 statues, perhaps because of limitations of space. The court statues sat in sockets cut in the floor in front of each pillar, bringing the base of the statue flush with the alabaster paving covering the bedrock floor. Each court pillar was encased in red granite to match the statues. We can only make educated guesses about architectural symbolism in a text-less temple. Ricke, who studied this temple (1967–70) was keen

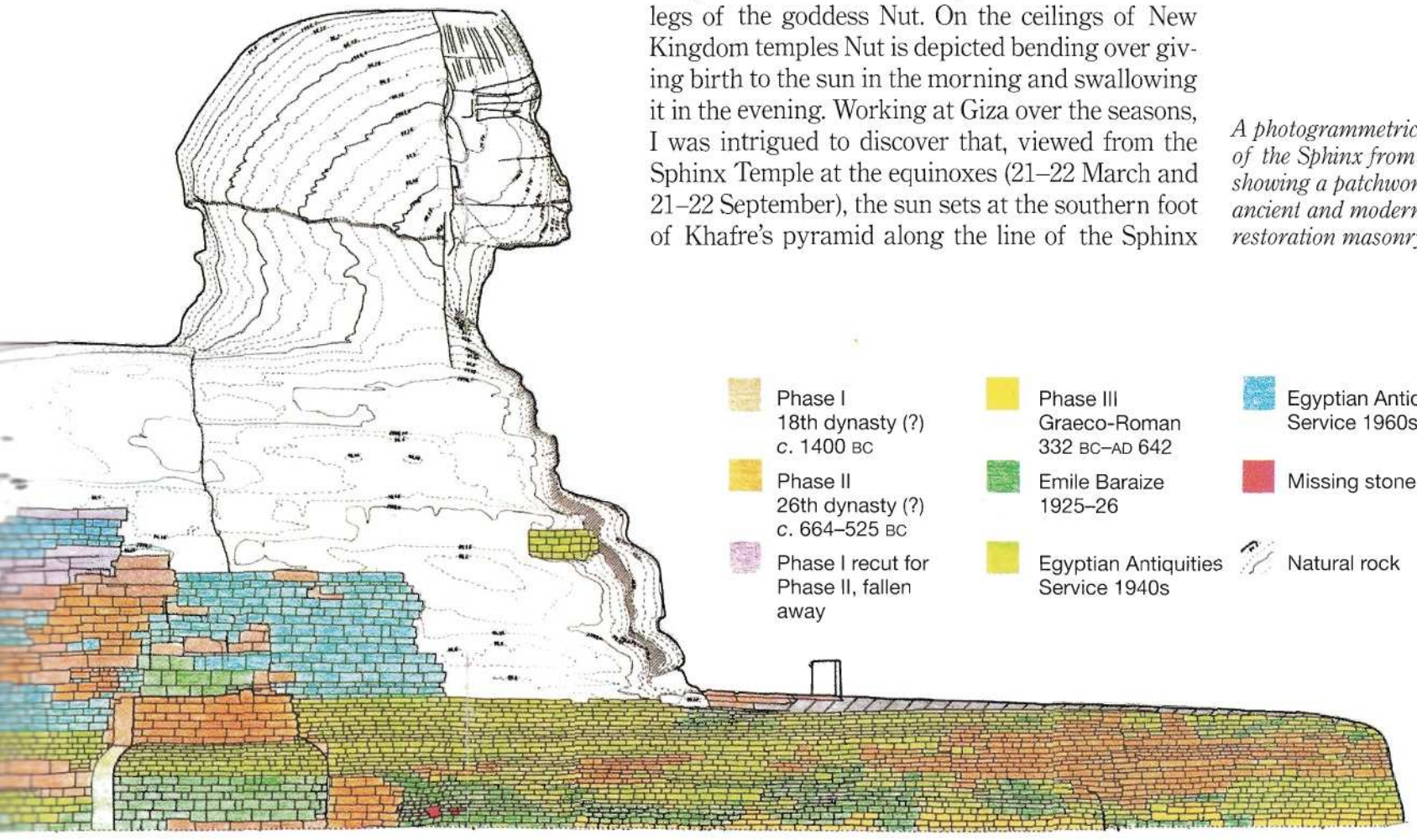




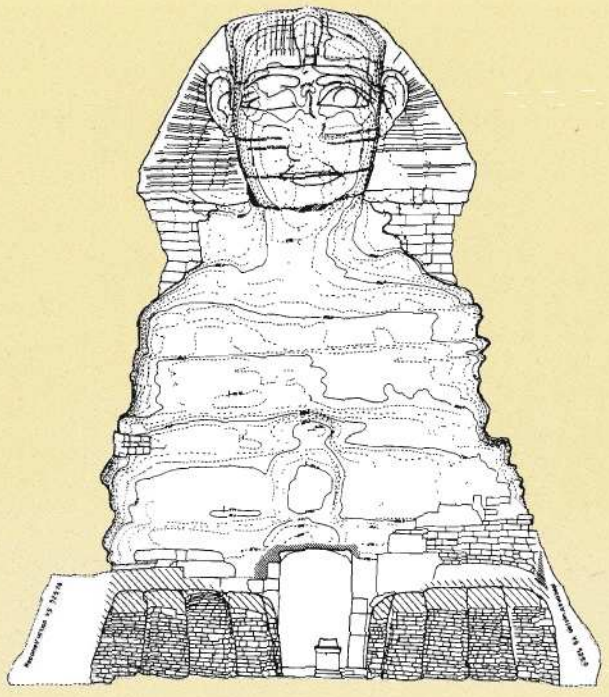
The Sphinx Temple and Khafre's valley temple sit side by side, in a neat line. They also share the same megalithic style of masonry. The north shoulder of Khafre's causeway is the line of the south wall of the Sphinx ditch. These are some of the reasons why Khafre is thought to be the builder of the Great Sphinx.

to do so. On the basis of New Kingdom parallels he suggested the colonnade pillars represented the 24 hours of the day and night. The end statues may have been double, making 12. For Ricke these, too, may have symbolized 12 hours of the day and/or night, or the 12 months of the year.

The Sphinx temple is unique in having two sanctuaries, one on the east and the other on the west, each at the back of a recessed bay such as was first seen in Khufu's mortuary temple. The dual sanctuaries were perhaps associated with the rising and setting sun. When the granite casing was intact on its inner walls, the eastern sanctuary would have been a well-defined sacred space about the size of a small closet. In front of each sanctuary there are two pillars which Ricke interpreted as the arms and legs of the goddess Nut. On the ceilings of New Kingdom temples Nut is depicted bending over giving birth to the sun in the morning and swallowing it in the evening. Working at Giza over the seasons, I was intrigued to discover that, viewed from the Sphinx Temple at the equinoxes (21–22 March and 21–22 September), the sun sets at the southern foot of Khafre's pyramid along the line of the Sphinx



A photogrammetric elevation of the Sphinx from the south, showing a patchwork of ancient and modern restoration masonry.



Computer Modelling the Sphinx

What did the Sphinx originally look like? To find the answer I first spent five years (1979–83) mapping the Sphinx, assisted by Ulrich Kapp of the German Archaeological Institute who produced front and side view drawings with photogrammetry. An overhead view was painstakingly mapped by hand with measuring tape. More recently computers have been brought in to digitize the maps and create a 3-D wireframe model. Some 2.5 million surface points were then plotted to put 'skin' on the skeletal view.

temple axis. In ancient times it would have passed over the western colonnade, across the court and into the eastern sanctuary, possibly illuminating any cult image within. At the very same moment the shadow of the Sphinx and the shadow of the pyramid, both symbols of the king, become merged silhouettes. The Sphinx itself, it seems, symbolized the pharaoh presenting offerings to the sun god in the court of the temple. It was during the brief reign of Khafre's predecessor, Djedefre, that the fifth, 'son of Re', element of the king's name emerged. The first true sun temples were built later, in the 5th dynasty, but the Sphinx Temple must be counted as the first solar-oriented temple associated with an Old Kingdom pyramid complex.

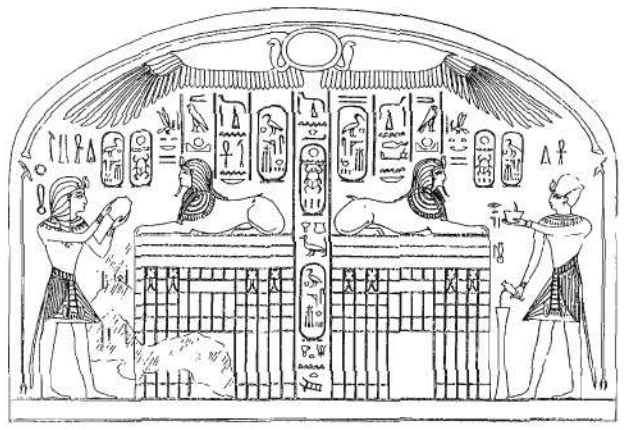
At the summer solstice the sun sets in the same place on the horizon for three days before its setting position begins to move back towards the south again. During those three days, viewed from the Sphinx Temple, it sets mid-way between the two largest Giza pyramids. Whether by chance or by design, the pattern this forms is the hieroglyph for horizon, *akhet*, the sun between two mountains, writ very large indeed across the Giza skyline. *Akh* meant 'to glorify'; *akhet* was 'the place of glorification where the sun sets' and also a circumlocution for 'tomb'. *Akhet*, or horizon, was the name given to the Great Pyramid of Khufu and, in certain textual contexts, also to the entire Giza necropolis.

Restoring the Sphinx

Repair work on the Sphinx began some three-and-a-half millennia ago and has continued throughout the statue's history. The worst deterioration – patches where the masonry flakes and crumbles – affected Graeco-Roman and modern repairs from 1926 to 1988. Major excavations were begun in 1926 under the supervision of the French engineer Emile Baraize. Unfortunately, his 11 years of work were never published and many different phases of architecture around the Sphinx were dismantled without ever being properly documented. Prior to the massive reconstructions of the veneer masonry from 1981 onwards, the Roman restoration consisted of small brick-sized stones, seen for instance on the paws. Baraize reset much of it that he found tumbled. This relatively soft white limestone deteriorated badly. The soundest restoration work dates to the pre-Roman pharaonic period, when the ancient Egyptians chose large limestone slabs (oldest phase of restoration) and in general selected durable masonry which developed a brown protective patina.

What is the date of the oldest repairs? The answer lies tucked between the forepaws of the Sphinx in the shape of the scant remains of a small, open-air chapel built in the 18th dynasty by Thutmose IV. The chapel was excavated by Caviglia in 1816 (p. 48), when it was in a much more

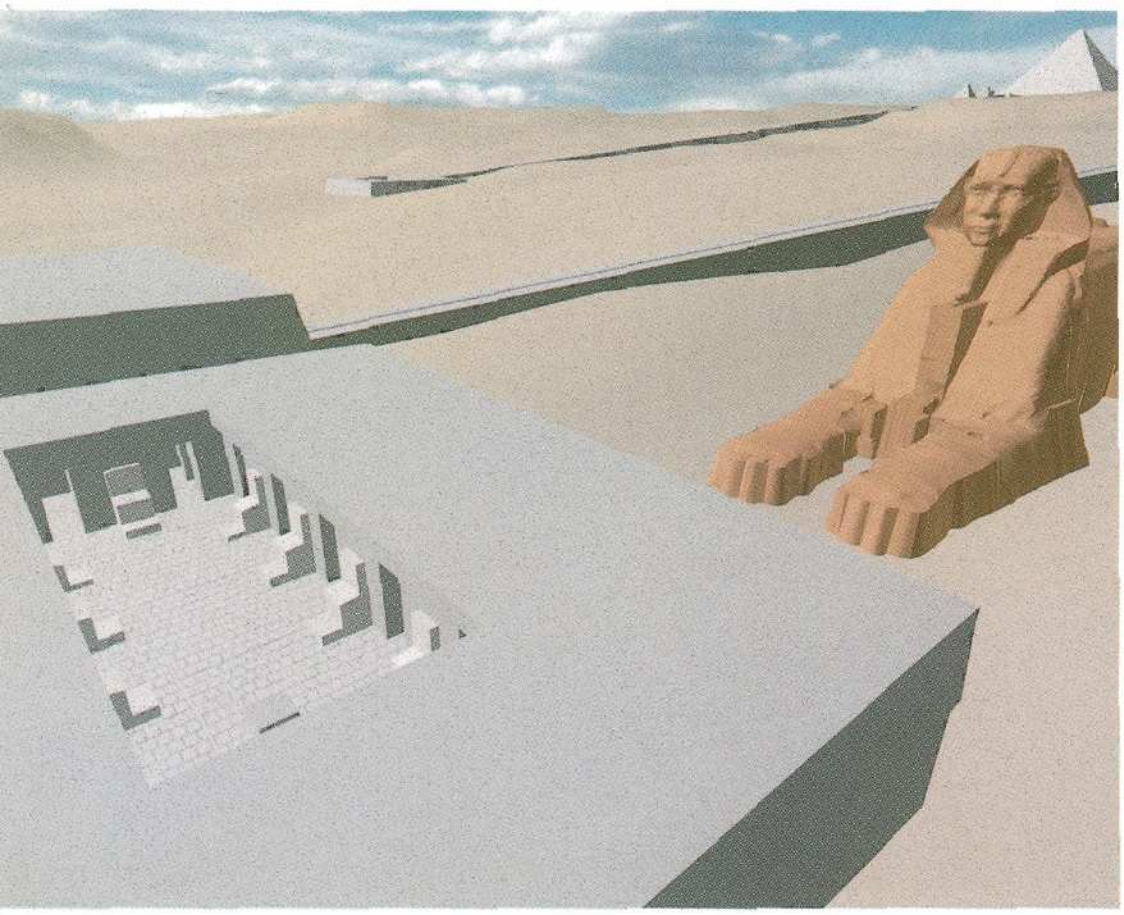
There was no need to add a face to our reconstruction of the Sphinx since it already has one, minus the nose. This single element was added by overlaying an alabaster face of Khafre in the Boston Museum of Fine Arts, whose features closely matched those of the Sphinx. The profile of the nose was taken from the famous diorite statue of Khafre (far left). The computer model was then used to reconstruct the Sphinx as 18th-dynasty Egyptians might have done: they restored the lion body with masonry cladding and very possibly added a statue of a pharaoh, perhaps Amenhotep II. It was his son, Thutmose IV, who carried out the restoration. When he became king he added a granite stela which became the centrepiece of a chapel between the forepaws. We drew the Sphinx over the photogrammetric elevations, then contoured it so the computer could produce a three-dimensional image.



In the upper part of his 'Dream Stela', set up in the embrace of the Sphinx (opposite), Thutmose IV makes an offering to the Sphinx in the form of the god Horemakhet.

complete condition than today. The centrepiece of its back wall is a granite stela, weighing 15 tons and 3.6 m (12 ft) tall, erected by Thutmose IV and dated to the first year of his reign, 1401 BC. Called the Dream Stela, this commemorates his accession to the throne and tells the story of how, as a young prince (though not crown prince) on a hunting expedition in the vicinity of the Sphinx, he fell asleep in the shadow of the statue's head – indicating that sand then lay up to its neck. While he slept, the Sphinx, as the embodiment of the sun (and primeval king) in all its aspects – Khepri-Re-Atum – appeared in a dream and offered him the throne of Upper and Lower Egypt in return for repairing its body and clearing the sand. The text breaks off, but at the top of the stela Thutmose etched a scene of himself giving offerings and libations to the Sphinx. The Dream Stela is compelling evidence for dating the oldest restoration work to the reign of Thutmose IV, about 1,100 years after Khafre, not only because of its story, but because the limestone blocks framing the stele are uniform with the restoration on the Sphinx's paws and chest.

In the New Kingdom the Sphinx was seen as an image of the sun god, and it is possible that this was what was intended also when it was created in the 4th dynasty. Another interpretation is that the Sphinx originally represented the king as a presenter of offerings to the sun god in the open court of the Sphinx Temple.

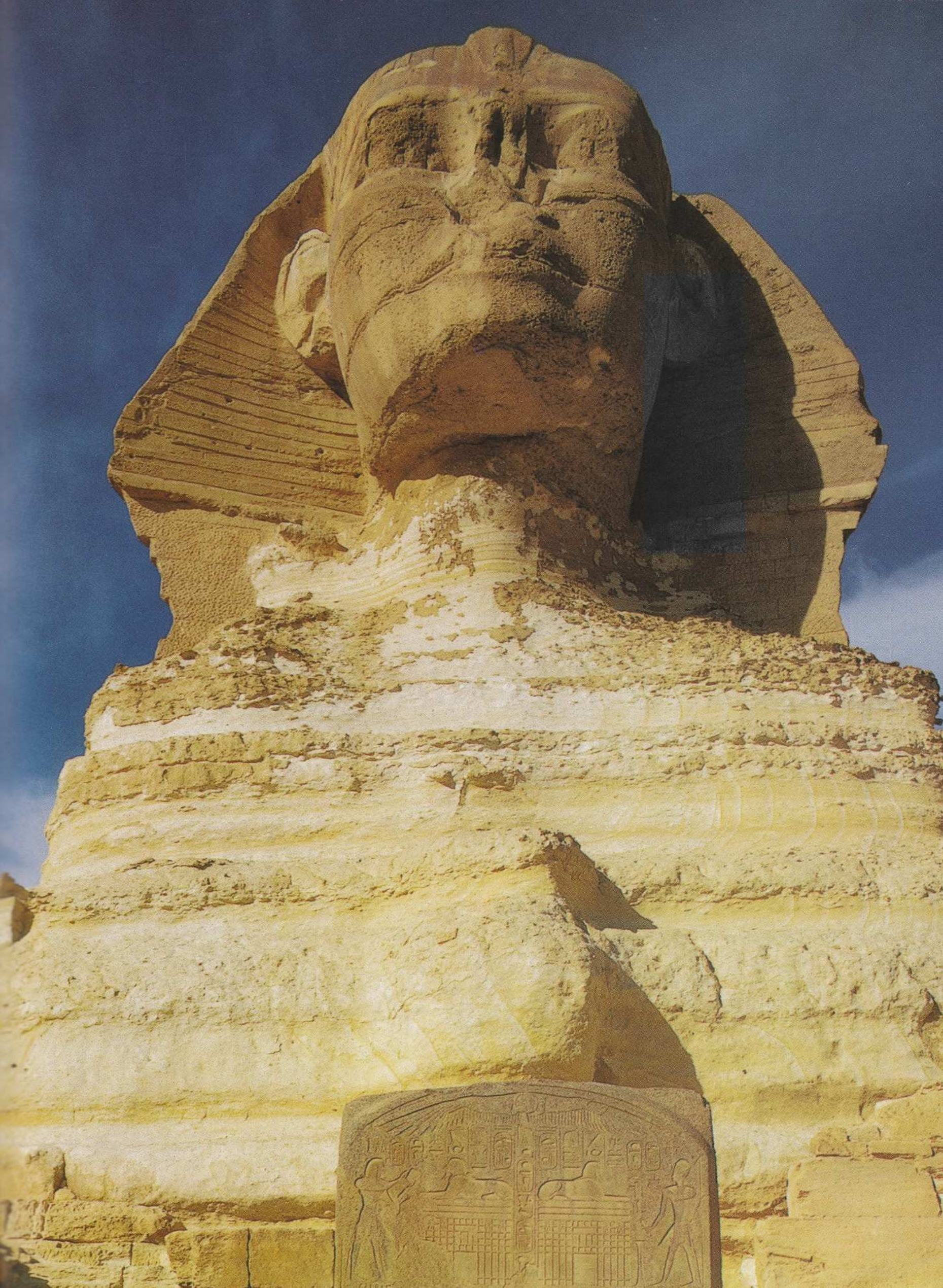


Thutmose's granite stela has made other, less constructive, contributions to Sphinx studies. It depicts the Sphinx couchant upon a high pedestal with a door in the bottom. This is most likely simply an artistic motif to bring the recumbent Sphinx to a height equal with the shoulder and head of the king. However, that has not stopped it nurturing the persistent legend that beneath the Sphinx there is a hidden passage or temple.

In origin, the stela is a reused lintel of a doorway from Khafre's mortuary temple. Given the enormity of the lintel, it probably derives from the temple entrance at the upper end of the causeway. In fact the pivot sockets on the back of the stela match those in the threshold of the temple. Given also the match of the earliest restoration stones to what is left of those of the walls of the causeway, it appears that the masonry of Khafre's complex was stripped in the 18th dynasty. This continued into the 19th dynasty. It may seem strange or unlikely that pharaohs would strip the temples of *Horus-User-ib*, Khafre, to resurrect the cult of the Sphinx as Horus-in-the-Horizon, *Horemakhet*. But since every pharaoh was a new incarnation of the god Horus, perhaps their individual monuments were regarded as simply the communal property of Horus.

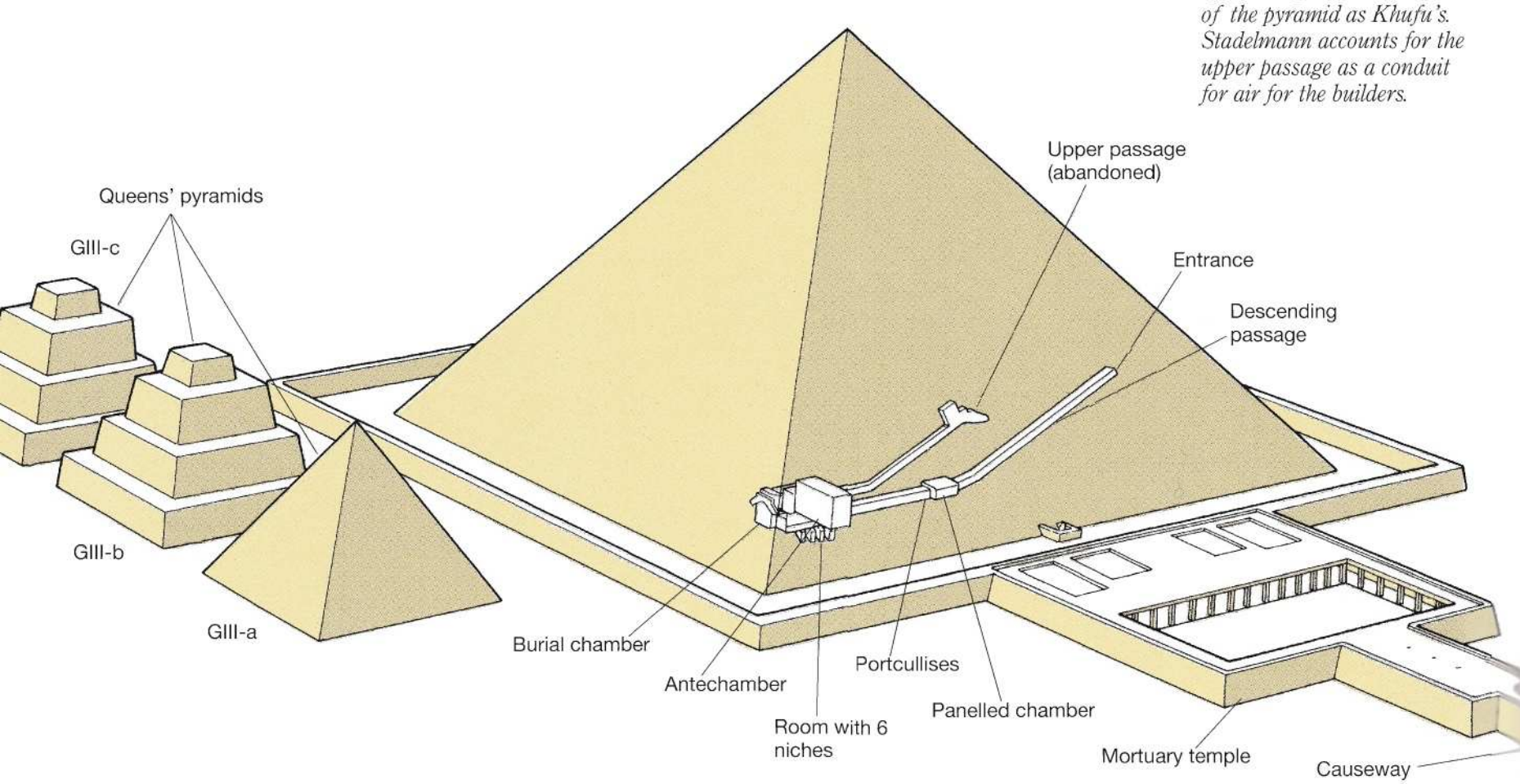
When its cult was reactivated in the 18th dynasty, the Sphinx became the focus of a great mudbrick complex, a kind of royal national park around the ruins of Khafre's 4th-dynasty temples. Amenhotep II built a temple on the higher terrace northeast of the Sphinx in the first year of his reign, dedicated to the Sphinx as Horemakhet. Behind Khafre's valley temple was the resthouse of the pharaoh Tutankhamun and in front there was a typical Amarna-style villa, probably also a royal resthouse. A broad viewing platform and stairway fronted the Sphinx. Scores of stelae commemorate the visits of royalty, princes, kings and commoners during the 18th dynasty and later New Kingdom. Several show a royal statue standing between the paws of the Sphinx, just at the base of its chest and in the protective embrace from the rear. This was a very typical 18th-dynasty configuration. Behind Thutmose's stele, not only is there room for such a statue, but there is a huge block of masonry which could have served as a plinth for a statue 6–7 m (20–23 ft) in height – colossal in its own right.

New Kingdom inscriptions refer to the Sphinx sanctuary as *Setepet*, 'The Chosen'. In their first year of rule, pharaohs came to the chapel between the forepaws to make dedications to the Sphinx and to be ordained and confirmed in their position. In so doing, they participated in a hypostasis of royal power from living pharaoh to the ancestral king of the 18th dynasty (probably Amenhotep II), through ancient kings like Khufu and Khafre and ultimately to Horemakhet, the primeval god-king whose image towered above them in the form of the Sphinx.



Menkaure's Pyramid

Menkaure's pyramid was named 'Menkaure is Divine'. Smaller than his predecessors' pyramids at Giza, its has a base area of 102.2 x 104. 6 m (335 x 343 ft). It rose to around 65 m (213 ¼ ft) at an angle of 51° 20' 25". The two descending corridors may indicate that it was planned to be much smaller, or that a passage had been intended to open as high on the exterior of the pyramid as Khufu's. Stadelmann accounts for the upper passage as a conduit for air for the builders.

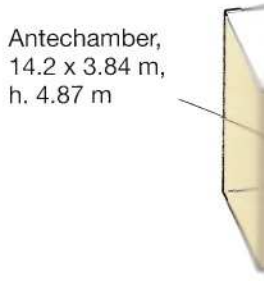


Menkaure's queens' pyramids present some fascinating evidence. The eastern one was finished in granite and limestone casing. It has the T-shaped substructure of a satellite or ka*-pyramid and it lies close to the centre axis of the main pyramid. It did, however, contain a granite sarcophagus and it had an eastern chapel, suggesting it was re-used for a queen's burial (although it has been suggested as the place for the king's mummification). The other two small pyramids were either built intentionally as step pyramids or left unfinished, which suggests that, at least here, core and casing did not rise together.*

When archaeologists drew lots for excavating Giza on the balcony of the Mena House Hotel in 1899, the concession for Menkaure was won by George Reisner. He knew beforehand that, while the smallest of the three Giza pyramids, its temples could provide the richest finds (his assistant, Arthur Mace, had reconnoitered the site). Indeed, Menkaure's pyramid offered a uniquely complete pyramid profile. Reisner, ahead of his time in recording and excavation technique, was able to reconstruct much of the story of this pyramid: he could study the pyramid and its burial chamber, the queens' pyramids, the mortuary temple, the causeway and the valley temple. Because Menkaure died after at least 26 years of rule, leaving his complex unfinished, its remains represent a very revealing 'frozen' moment. The work was completed in mudbrick, apparently in haste, by his successor Shepseskaf.

The upper part of the pyramid was finished in traditional Turah limestone. At the bottom, 16 courses of red granite casing were left undressed,

(Right) The east–west rectangular chamber, hewn from the bedrock, has been seen as an earlier burial chamber, with the niche at its west end for the sarcophagus. Indeed, the niche resembles bed-niches in ancient Egyptian houses. A passage at the back leads to the space above the granite ceiling beams of the lower chamber.



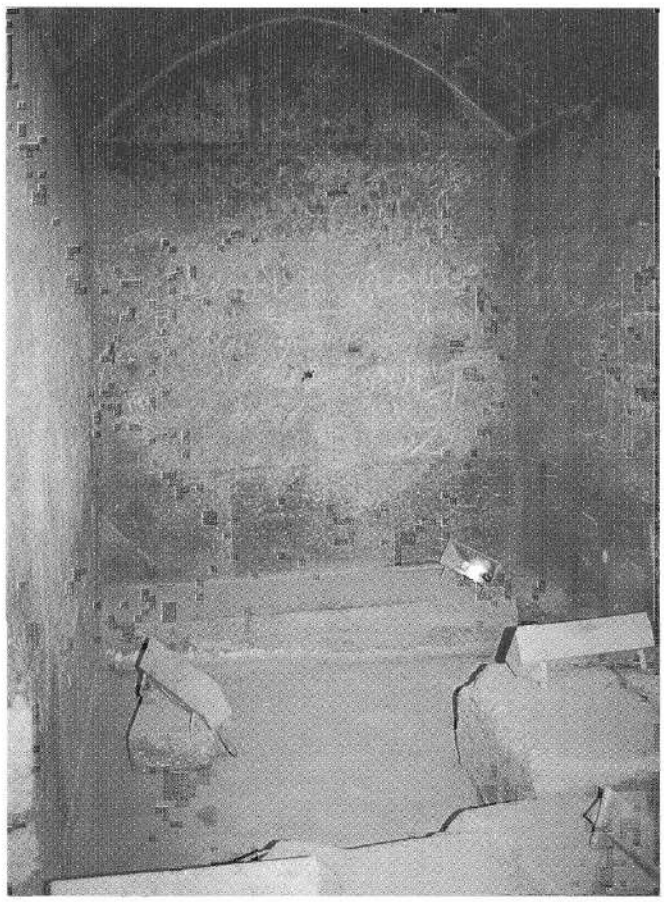
apart from token patches around the entrance to the pyramid and behind the inner mortuary temple. Along with the actual burial, freeing the pyramid face seems to have been an integral part of activating the tomb. Handling bosses are still visible on many of the undressed granite blocks.

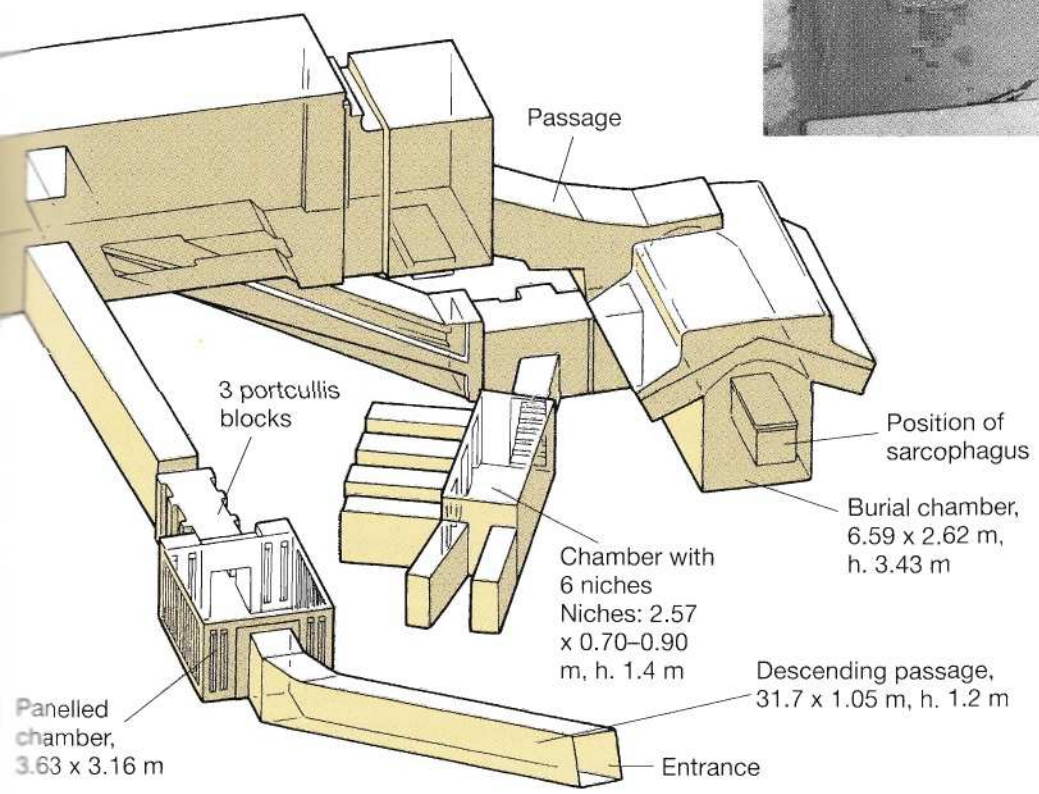
Menkaure's pyramid lies at the far end of the Giza diagonal and on the very edge of the Mokattam Formation, where it dips down to the south and disappears into the younger Maadi Formation. Its

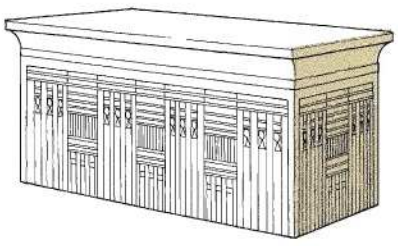
base area is less than a quarter of that of the pyramids of Khafre and Khufu, and with an original height of 65–66 m (213–16 ft), it represents about 1/10 of the building mass of Khufu's pyramid. The ancient builders were perhaps running out of room at Giza for another huge pyramid. However, there were doubtless other forces at work. One speculation is that as the son of the sun god, pharaoh had now to place more emphasis on temples and their endowments, and less on the pyramid as the marker of his personal tomb. In a process already evident in the reign of Khafre – and which continued throughout the Old Kingdom – while the pyramid shrank, the mortuary temple expanded in size and in the complexity and expense of its decorations. In spite of its reduced size, however, Menkaure's complex used a great deal of granite, which was always more costly to quarry and transport than the softer limestone.

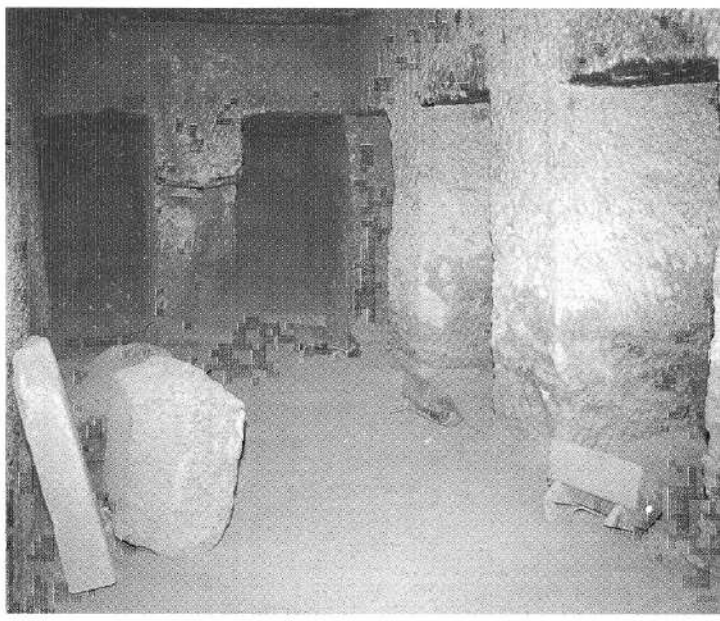
Inside the pyramid

The entrance lies about 4 m (13 ft) above the base of the north side of the pyramid. A descending passage slopes down at an angle of 26° 2' for 31 m (102 ft) to a horizontal chamber, where there is a series of panels carved with a repeated very tall and stylized false door motif. This is the first purely decorative element inside a pyramid since Djoser's. The lintel spanning the entrance to the horizontal passage is carved as a drum roll representing the rolled up reed-mat curtain. A horizontal passage with three portcullises leads from here to a rectangular antechamber, oriented east–west, with the east end









(Below left) The east–west rectangular chamber, which some see as an earlier burial chamber, was probably constructed to help manoeuvre the granite lining of the actual burial chamber (below centre) and to insert the huge granite beams of its ceiling. These were carved in an imitation of a curved vault.

(Below) In Menkaure's granite-lined burial chamber Howard Vyse found his beautiful dark stone sarcophagus, carved with niches and panelling. It was removed to be taken to England, and was lost when the ship carrying it sank.

(Bottom) The rough-hewn 'cellar' with six niches may derive from Khufu's subterranean chamber. It may also may be a precursor of the standard three-niche eastern room in 5th- and 6th-dynasty pyramids. which was probably used to store the food offerings for the royal ka.

directly under the vertical axis of the pyramid. Another passage opens in the wall of the chamber directly above the point where the horizontal passage enters. After a short horizontal section, this passage slopes up into, and stops, in the pyramid core. The upper passage was probably abandoned when the floor of the antechamber was lowered.

A short passage slopes westwards from the middle of the floor of this antechamber, leading down to the burial chamber. On the right of the passage is another chamber with four deep niches in the east wall and two in the north. Similar chambers appear in the later mastaba of Shepseskaf and may be forerunners of the three chambers to the left (or east) in the standardized substructure of 5th- and 6th-dynasty pyramids.

At the end of the passage, the burial chamber was constructed within a rectangular space carved out of the bedrock and entirely encased in granite. Its ceiling has the appearance of a round barrel vault, but it was carved into the undersides of huge slabs of granite laid in the form of a pented roof. Inside Vyse found a beautiful dark sarcophagus with recessed or 'palace façade' panelling. It was empty and its lid was missing, although fragments of the latter were found, along with the bones and wrappings of a male body in the upper chamber. Unfortunately, the sarcophagus was lost at sea on the ship *Beatrice*.

The sarcophagus contained a mystery – a wooden coffin inscribed for Menkaure as though it was the coffin in which he was laid to rest. But its style dates it to the Saite period at the very earliest. Radiocarbon dating has proved that the human bones found in the upper chamber date to the Christian period. Recent radiocarbon dating of mummy parts from Djoser's burial vault show them to be much later than the 3rd dynasty, while female bones from under the Step Pyramid date centuries earlier than Djoser. Such findings suggest that burial practices in pyramids were more complex than we can appreciate.

The queens' pyramids

Three queens' pyramids were built to the south of Menkaure's pyramid. Below the eastern one was a T-shaped substructure, suggesting it was initially begun as a satellite pyramid and was later taken over as a burial place for one of Menkaure's queens, perhaps Khamerernebty II. All three queens' pyramids had mudbrick chapels and presumably all received burials of queens; the body of a young woman was found in the burial chamber of the middle pyramid.

The mortuary temple and causeway

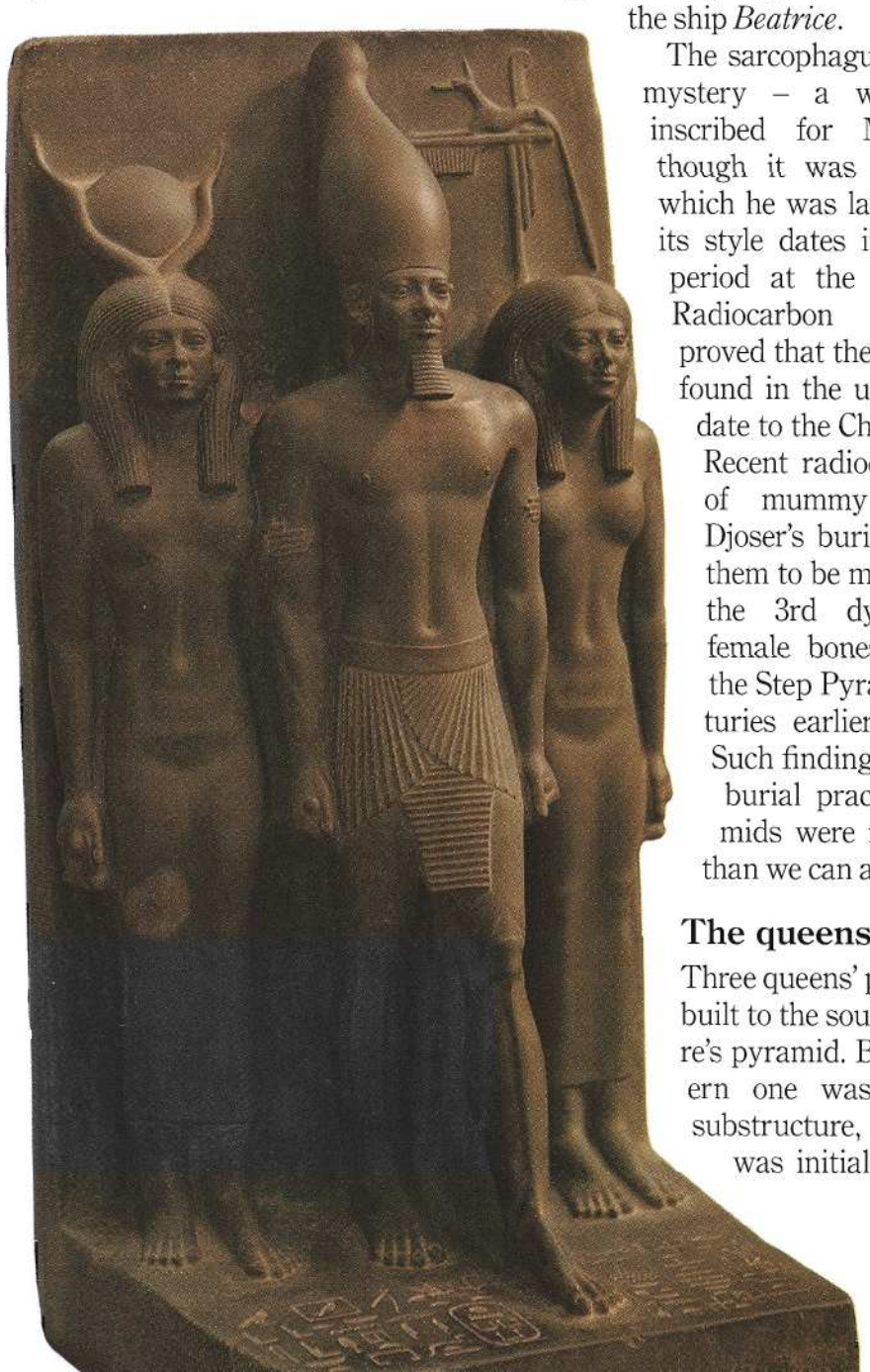
Menkaure began his mortuary temple, as had Khafre, with core blocks of limestone that were quarried locally. The largest of these, found at the northwest corner of the temple, is the heaviest known at Giza, weighing over 200 tons. Archaeological evidence suggests that building in stone ceased abruptly and the entire temple was finished in mudbrick by Shepseskaf, Menkaure's successor. The original intention was to encase the temple in granite. In the north corridor we see very clearly how work was progressing. Menkaure's masons had just started bringing in a series of granite blocks on both sides of the corridor. They were cutting back the large limestone core blocks to ensure that the front faces of the granite blocks were flush. The unfinished granite casing was concealed by a casing of mudbrick which was plastered and whitewashed. Though it has all disappeared today, when Reisner stripped away the mudbrick casing he found bright red paint on these core blocks marking levelling lines, measurements and the names of the work gangs.

Among the finds in the mortuary temple were fragments of royal statues. These included the head, chest, lap, knees and shins of a larger-than-life alabaster statue of Menkaure that must have been the centrepiece of his entire complex. Originally it stood at the back of a tall and narrow east–west hall at the end of the centre axis of the temple. From here, the king looked across the open court, through the entrance hall, and down the line of the causeway to the land of the living. Behind the great statue, on the other side of the back wall of the mortuary temple, at the base of the pyramid, there was probably a false door.

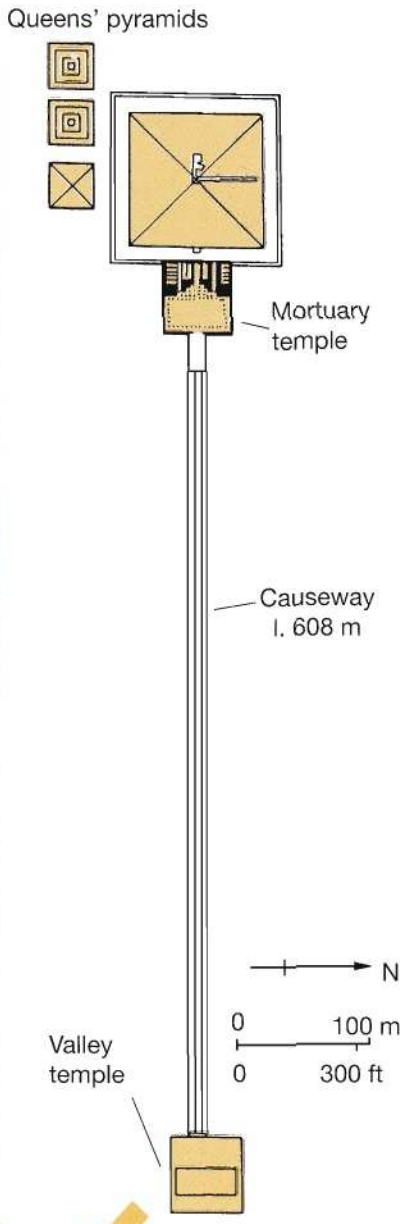
The statue represented the king emerging through the false door, symbolic portal to and from the underworld of the pyramid. There he received the offerings brought to him as head of his household for eternity and projected his divine force through the pyramid complex and out into the Nile Valley for the good of all Egypt.

Had Menkaure's pyramid complex been completed, the causeway would have been walled and roofed and extended all the way down to the valley temple. It is conventionally stated that Shepseskaf completed the causeway, but in mudbrick rather than limestone. However, it does not stretch beyond the point where it meets the west side of the old Khufu quarry. From this point down to the valley temple the causeway was probably never more than a construction ramp for delivering stone.

(Below and opposite) Menkaure's mortuary temple included the five elements that appeared in Khafre's: an entrance hall; broad court; statue niche; storage chambers; and inner sanctuary, though the five statue niches were possibly replaced by a single colossus of Menkaure. In his valley temple Reisner found several very fine statues of Menkaure accompanied by the goddess Hathor and nome deities, and also one (shown with its findspot) with one of his queens.



Menkaure's pyramid, with the great gash in its north face made by Othman in AD 1196. Below it, some intact granite casing is visible.



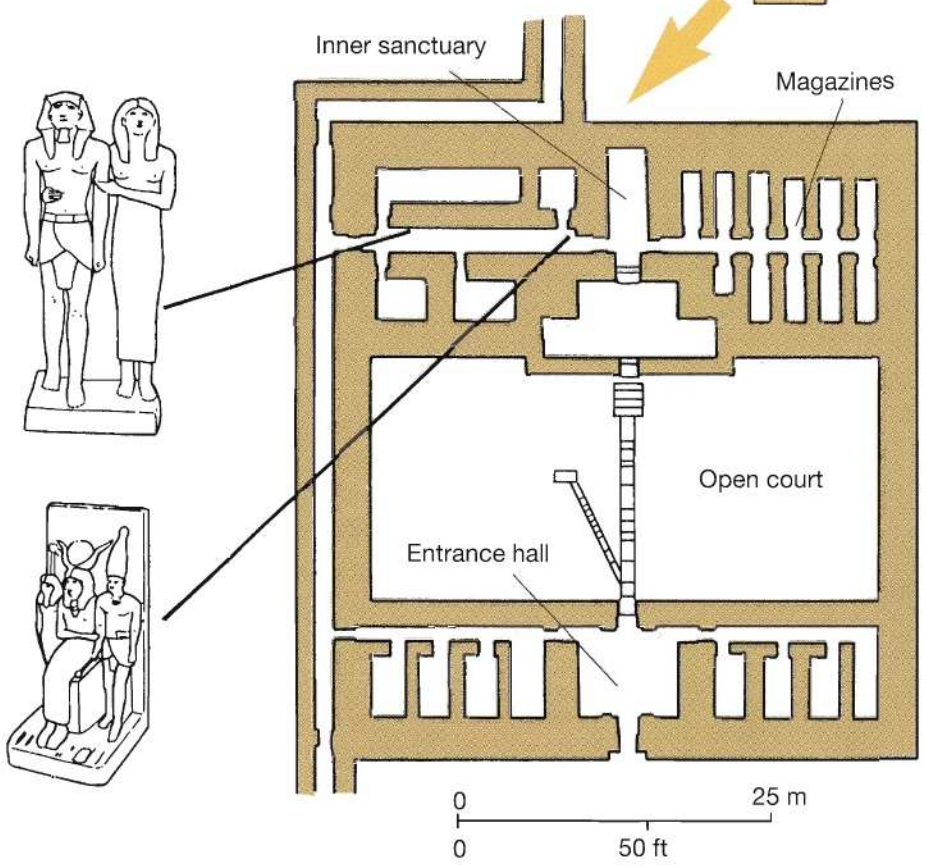
The valley temple and pyramid town

To find the valley temple, Reisner projected the axis of the causeway from the entrance hall of the mortuary temple. His first pit brought to light one of the most marvellous pieces in the entire history of ancient Egyptian art: the dyad of Menkaure striding forth in the embrace of his principal queen, Khamerernebty II.

The valley temple lies at the mouth of the main wadi, closing what had been the principal conduit for construction materials brought to Giza for three generations. Evidently it was clear to Menkaure's builders that this was to be the last of the large complexes at Giza. The temple was built in two phases. First, the foundations were laid out by Menkaure in huge, locally quarried limestone blocks, and later the temple was completed in mudbrick by Shepseskaf. Then, in the 6th dynasty, probably during the reign of Pepi II, it was completely rebuilt after it had suffered grievously from flooding.

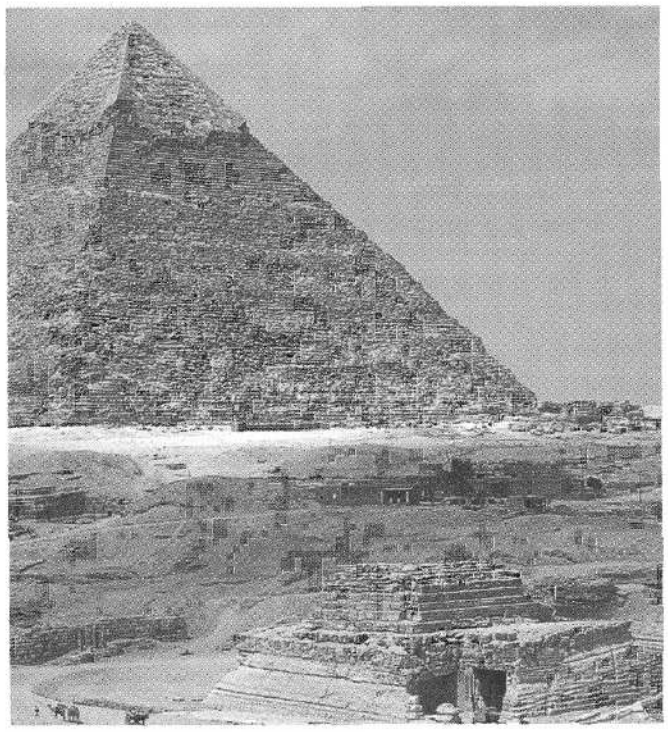
In the temple's small offering space Reisner found the bases of four alabaster statues of Menkaure. Further back in the very inner sanctuary, he found the remains of other statues. And in the magazines flanking the rear central sanctuary were the triads of Menkaure, which also rank among the greatest pieces of ancient Egyptian art. Each of these shows the king wearing the tall conical crown of the south, striding forth in the embrace of two gods, one the goddess Hathor, the other a deity representing one of the Egyptian nomes.

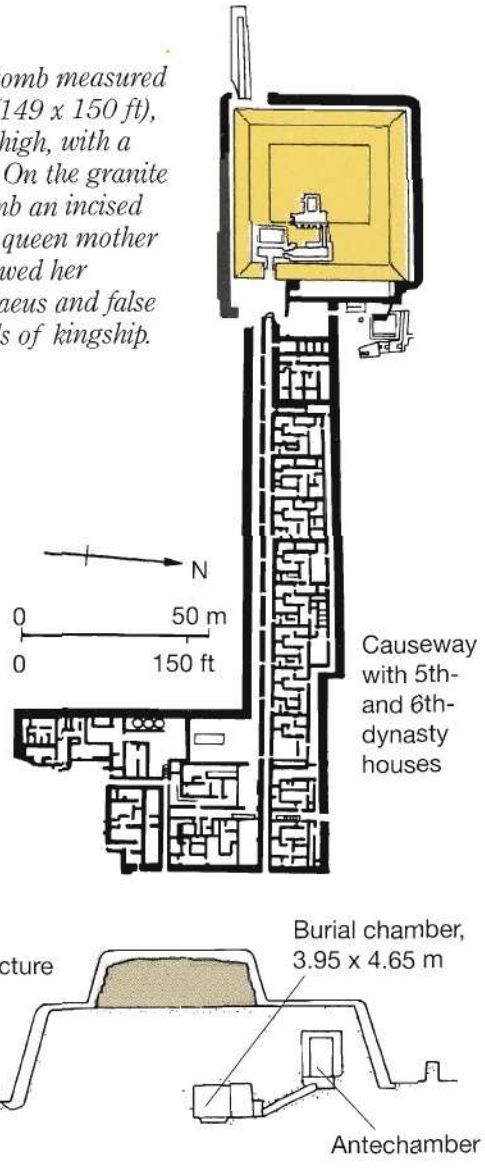
In some of the earliest stratigraphic excavation in Egypt, Reisner retraced the process by which the houses of the pyramid town first crowded up against the front wall of the temple and then began to be built over the wall, invading the courtyard of the temple (p. 232). The pyramid town became a kind of sacred slum, expanding as the numbers of its tax-exempt inhabitants increased. So we begin to detect the discrepancy between royal intention for the pyramid complex and popular reality. At the back of the valley temple Reisner found an offering place still in position with ash from the last offerings made to the few statues kept intact in dark inner chambers.



The Passing of a Dynasty

Khentkawes's tomb measured 45.5 x 45.8m (149 x 150 ft), 17.5 m (57 ft) high, with a slope of c. 74°. On the granite gate of her tomb an incised portrait of the queen mother (below left) showed her wearing the uraeus and false beard – symbols of kingship.





*Like her name, 'In-Front-of-Her-*Kas' *(i.e. her ancestors), the bedrock tomb of Khentkawes stands before the pyramids of her pharaonic lineage, Khufu, Khafre and Menkaure. With a mastaba-like superstructure and chapel doors open wide to the eastern approach that was flanked by her 'pyramid' town, this queen mother closed the Giza line and may have helped give birth to the 5th dynasty.*

Her pyramid town consisted of 10 modular houses along her causeway. At the west end a larger 'house' with thicker walls may have been part of her wabet *(p. 26). The southern extension, consisting of separate buildings, a court with granaries, terraces and a tunnel under the causeway, was for administration, possibly a token royal residence.*

The Tomb of Khentkawes

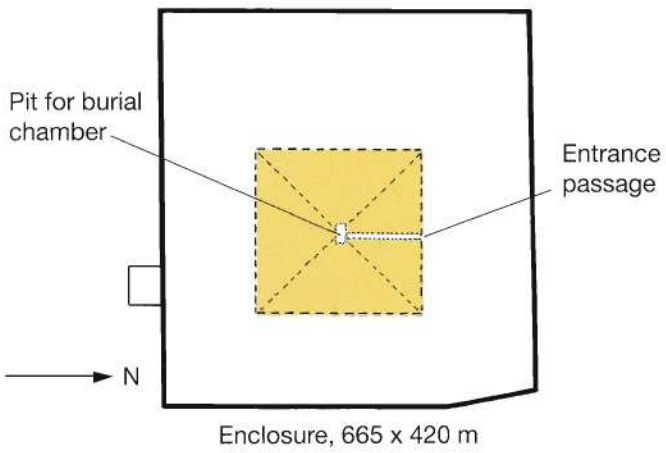
In the course of excavations of the Giza Central cemetery in 1932–3, Selim Hassan investigated a strange tomb. Once assumed to be that of Shepseskaf, it in fact belonged to Khentkawes, a female ruler of the end of the 4th dynasty. Her remarkable tomb has a base consisting of a large cube of bedrock reserved as the stone around it was quarried for the great pyramids. On top of the cube is a masonry structure resembling a mastaba. Khentkawes's name was found on a great granite gate, itself extraordinary as an entrance to such a royal tomb. The lower bedrock section was encased in fine Turah limestone at the steep slope of about 74°, the same as the accretion layers of the earlier step pyramids. The top masonry is slightly vaulted, like Shepseskaf's mastaba.

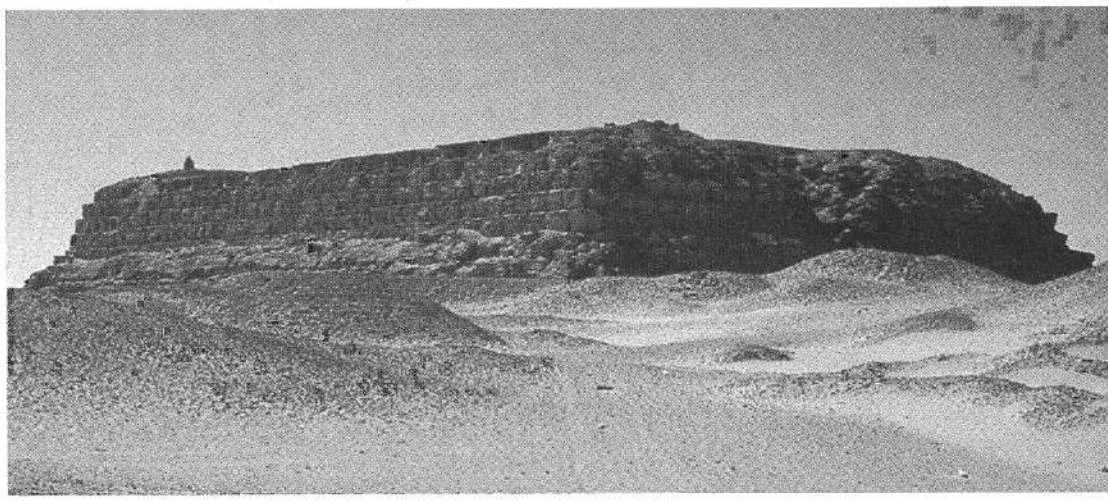
The interior, though badly damaged in ancient times, has some similarities with Menkaure's. From a granite-lined hall hewn into the bedrock cube a short, sloping passage leads down to an antechamber, a set of magazines and a burial chamber constructed in granite. As with other royal pyramids, the tomb has a boat pit, near the southwest corner – once again the direction that was so important from the 1st-dynasty tombs at Abydos.

One of the most interesting aspects of this pyramid is its associated settlement. The queen's memory was preserved by people who lived in a series of houses in one of the oldest planned urban structures in Egypt. These houses were arranged in a linear settlement along Khentkawes's causeway and to the south in an L-shape. There are hints that the southern extension comprises an important house, perhaps even a token palace. Immediately southwest of this block is an enclosure of walls and rooms that Selim Hassan called the valley temple of Khentkawes. Merging into the front of Menkaure's valley temple, it is, in fact, an extension of Menkaure's pyramid town enclosed by a thick wall. The pivot socket of its northern gateway was formed by the base of a statue of Khafre, with the pivot hole in one of the royal feet.

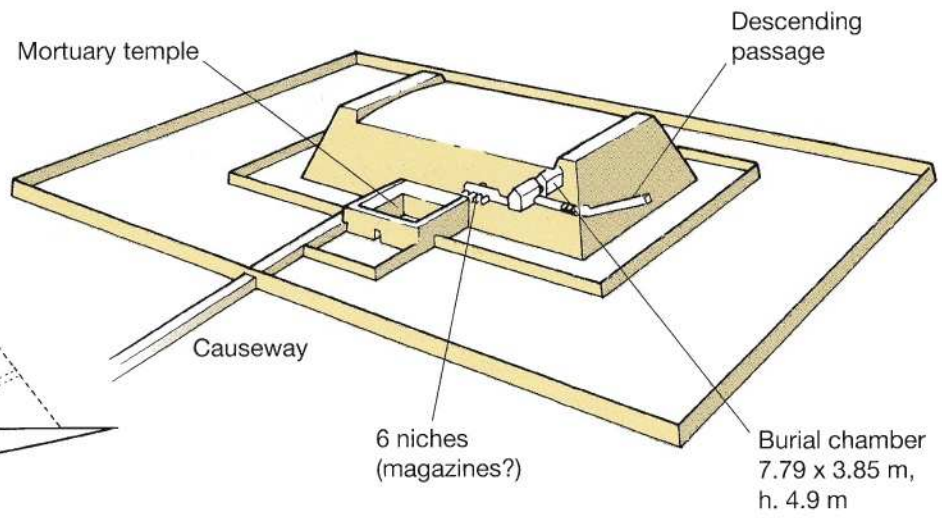
The tomb is at the edge of the wadi that was the conduit for the building projects at Giza over three generations. By positioning her tomb at its mouth, Khentkawes, the queen who may have been transitional to the kings of the 5th dynasty, symbolically closed the passage to the great Giza necropolis.

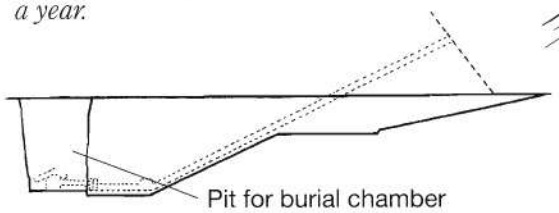
On the tomb's granite gate Selim Hassan found a title that translates either as 'The Mother of Two Kings of Upper and Lower Egypt' or 'The King of Upper and Lower Egypt and Mother of the King of Upper and Lower Egypt'. The mystery deepened when Miroslav Verner found a pyramid of a Khentkawes with the same titles at Abusir (p. 145). Both ruled as kings in their own right but seem to be a generation apart.

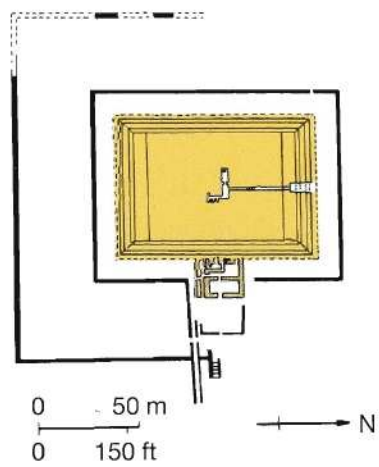




(Above and below) The Unfinished Pyramid at Zawiyet el-Aryan was intended to measure 200 x 200 m (656 x 656 ft). The sloping passage down to the burial chamber is 106 m (348 ft) long. It is thought that this massive structure was worked on for less than a year.







The Unfinished Pyramid at Zawiyet el-Aryan

Yet another puzzle associated with the passing of the 4th dynasty is the large unfinished pyramid at Zawiyet el-Aryan. It has been suggested that it belongs to a pharaoh who ruled between Khafre and Menkaure for such a short time he may have been overlooked in the king lists. Hieratic (shorthand hieroglyphic) inscriptions have been translated as Nebka, or Wehemka. Others see Baka, which was perhaps later remembered as Nebkare or Baufre, the Bicheris of Manetho's king list.

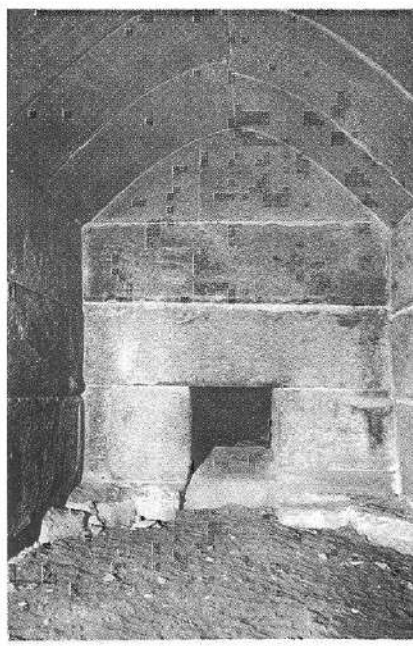
The measurements, in any case, compel us to date this unfinished scheme to the 4th dynasty. If finished, the pyramid would have been close in size to Khafre's. It has a large secondary precinct with walls of fieldstone and clay, like those around the Giza pyramids and of similar dimensions. Inside the pyramid a long, sloping passage leads down to a deep, square pit, like that of Djedefre (p. 120) and similar in size: 11.7 x 24 m (38 x 78 ft) and 21 m (69 ft) deep. At the bottom it was paved with gigantic blocks of limestone and granite. Clearly, this was a massive project, begun in the full confidence of a long reign. The granite sarcophagus took the form of a great oval tub, sunk into the pavement. The cover survived but the sarcophagus was empty.

The Mastabat el-Fara'un

Menkaure's successor, Shepseskaf, chose to be buried in South Saqqara, under a huge mastaba, 99.6 m (327 ft) long by 74.4 m (244 ft) broad, originally encased with fine limestone, except for a bottom course of red granite. With an outer slope of 70°, it may have risen in two steps and certainly took the form of a Buto shrine – a vaulted top between vertical ends. A corridor descends at 23° 30' for 20.95 m (69 ft) to a corridor-chamber followed by three portcullis slots and a passage to an antechamber. A short passage slopes down to the west to the burial chamber. Its ceiling, like Menkaure's, was sculpted into a false vault. Remains were found of a hard dark stone sarcophagus, decorated like Menkaure's (p. 135). From the southeast of the antechamber a narrow corridor leads to six niches, the equivalent of those in the tombs of Menkaure and Khentkawes, and the precursor of the three small magazines that would become standard. The mastaba was surrounded by a double enclosure defined by mudbrick walls. A small mortuary temple on the east had an offering hall and false door, flanked by five magazines. There were no statue niches though part of a statue of Shepseskaf was found in the temple. To the east lay a small inner court and a larger outer one. A long causeway led to a valley temple which has never been excavated.

Shepseskaf's giant mastaba measured 99.6 m (327 ft) by 74.4 m (244 ft) and had a slope of about 70°, reaching a height of about 18 m (59 ft).

The arched roof of Shepseskaf's granite burial chamber is carved into the undersides of the ceiling slabs.



The Pyramid of Userkaf

A granite head of Userkaf from a colossal statue that must have stood in the temple court.

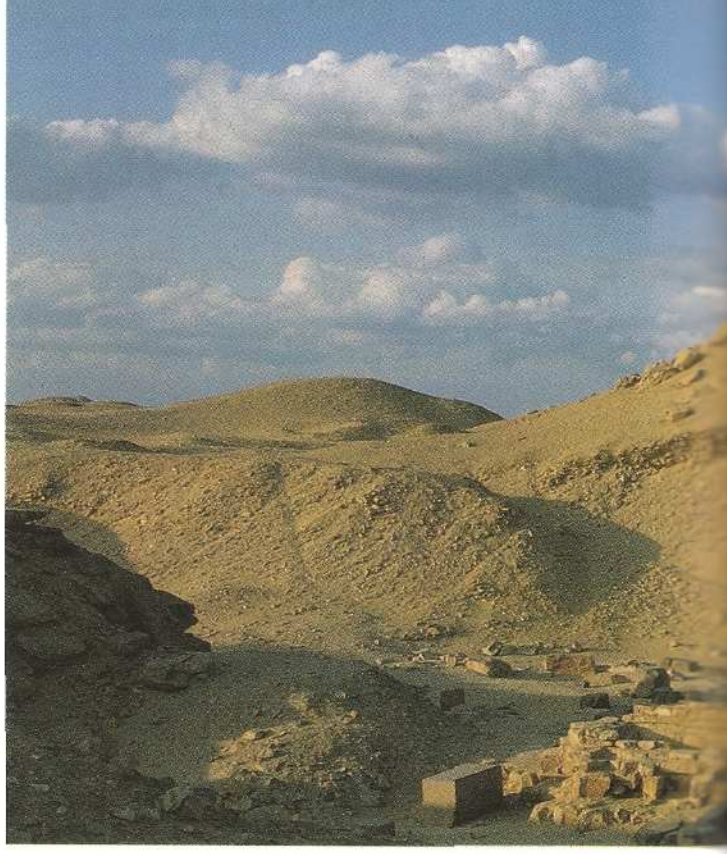
With Userkaf, probably a son of Khentkawes, Manetho begins a new dynasty, the 5th. It is interesting that Userkaf returned not just to Saqqara but also chose a site as close as possible to the complex of Djoser, building his pyramid at its exact northeast corner. Unas, the last king of the 5th dynasty, placed his at the opposite southwest corner. Userkaf also returned to the pyramid form.

Userkaf's reign was short – under 10 years, perhaps even as few as seven (*c.* 2465–2458 BC) – and his pyramid, 'Pure are the Places of Userkaf', was much smaller even than Menkaure's. It was originally encased in fine limestone, but this disguised a core masonry that was so haphazardly laid that when the outer casing was stripped the pyramid slumped into a large heap of rubble. The choice of core masonry in this case may have been as much related to the geology of the Saqqara formation – which consists of thin layers of limestone – as to any change in building practices.

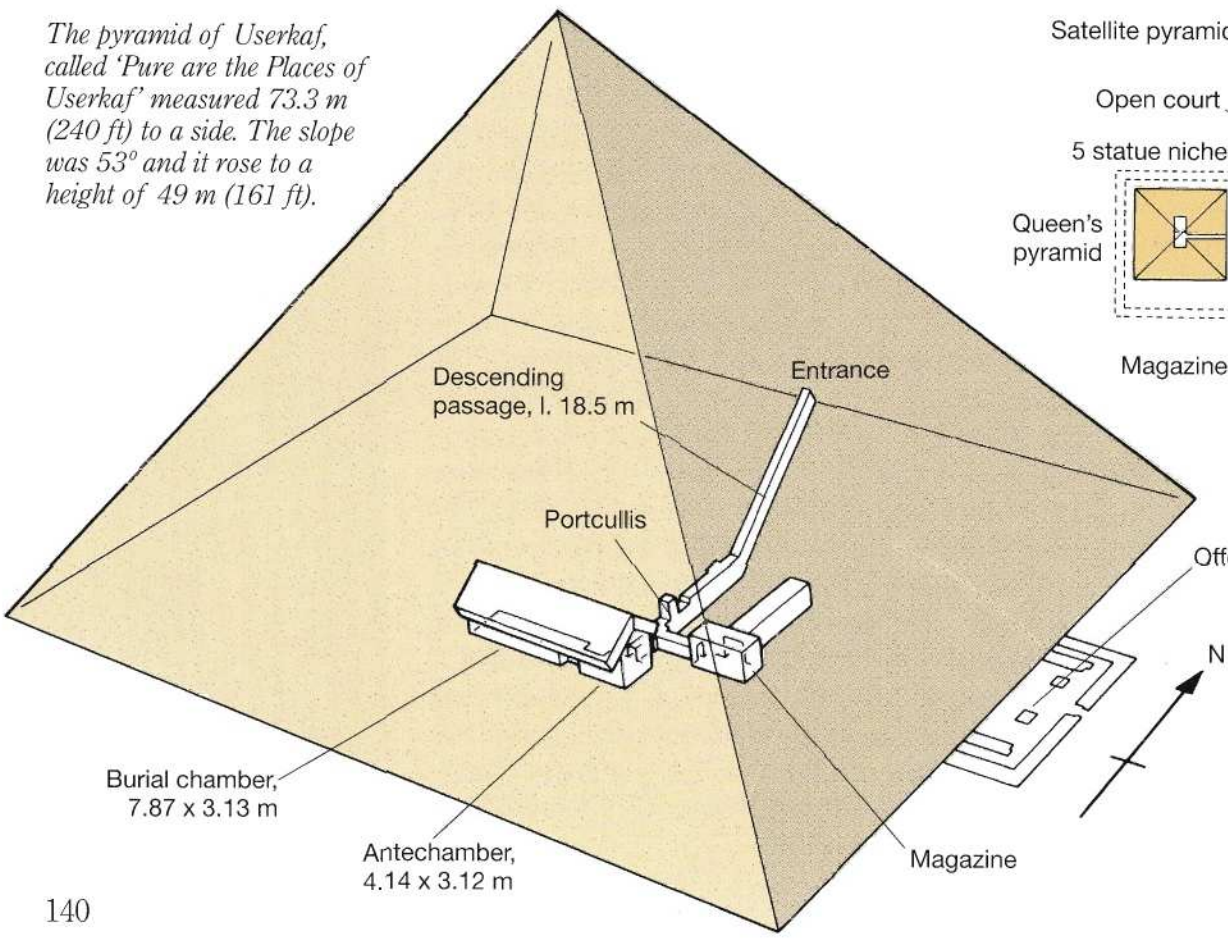
Inside the pyramid

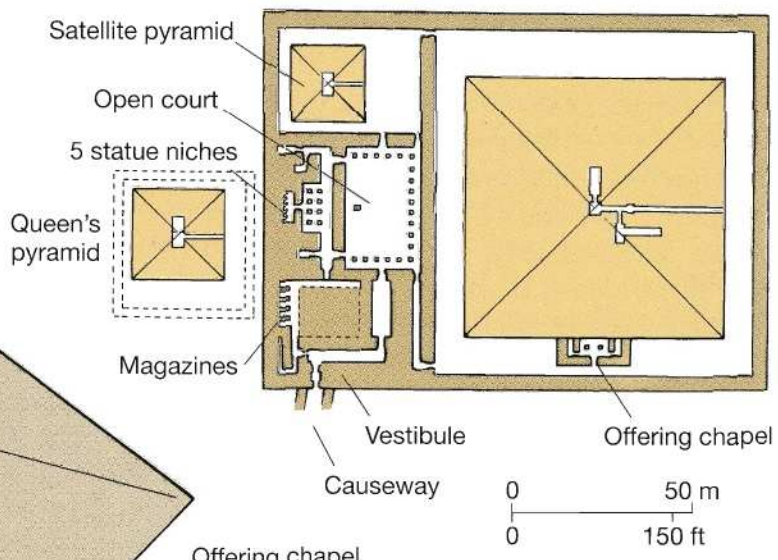
All the elements of the pyramid's substructure were constructed in a deep open shaft sunk below ground level before the pyramid itself was begun. A passage descended to the construction trench, the base of which was 8 m (26 ft) below the base of the pyramid. From here a horizontal corridor ran for 18.5 m (61 ft), partially clad with granite and plugged with blocks of the same stone, fragments of which survive. In the middle of the horizontal corridor was a huge portcullis slab and beyond this opened a T-shaped magazine. The corridor ran to an anteroom exactly on the pyramid's vertical axis. From here another short corridor led west to the burial chamber. This was the basic pattern for a pyramid substructure that would persist through the Old Kingdom.

The burial chamber was originally lined and paved with fine limestone. Its roof was pented, consisting of huge limestone beams leaning against each other. The sarcophagus, empty when archaeologists found it, was made of basalt.

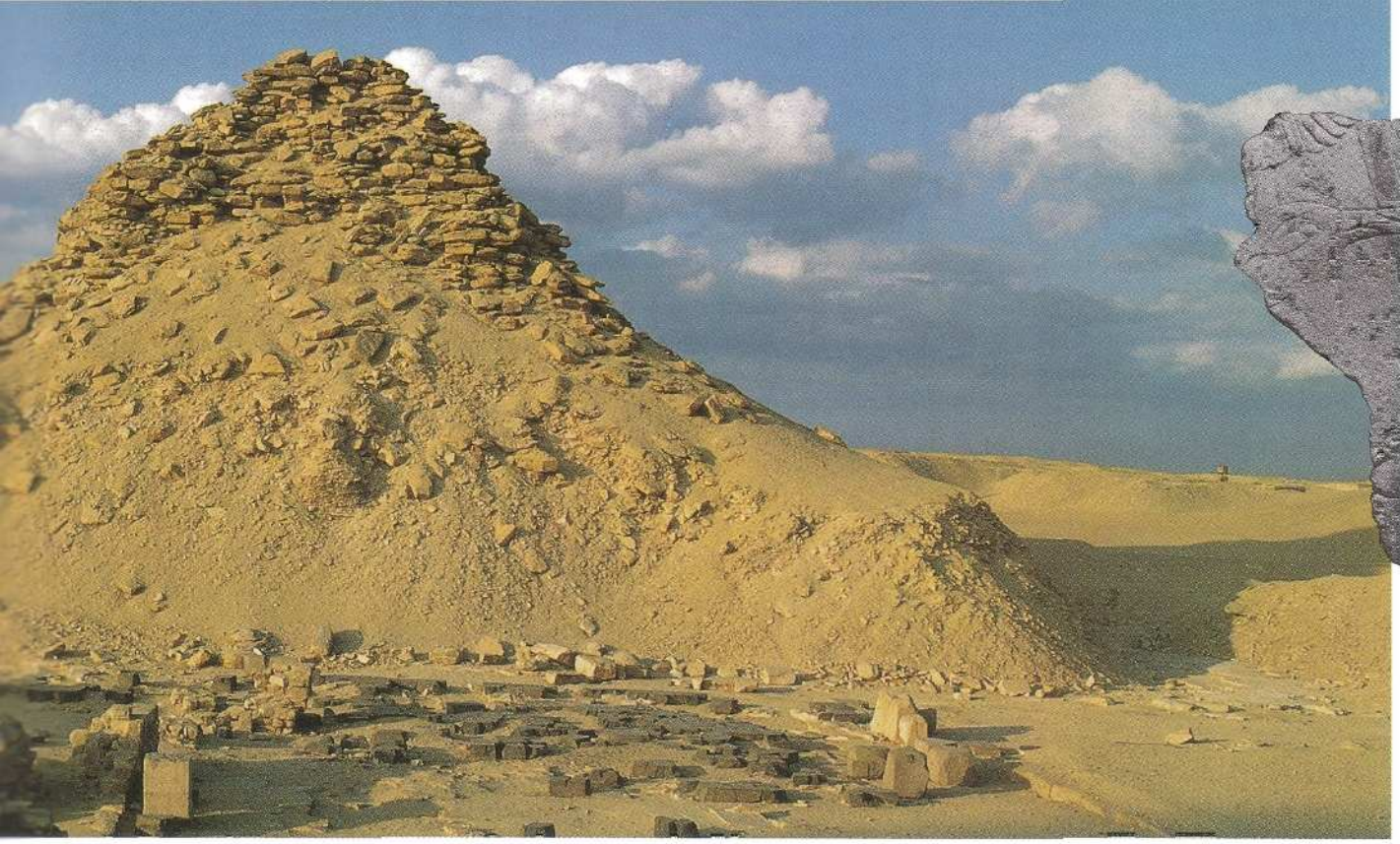


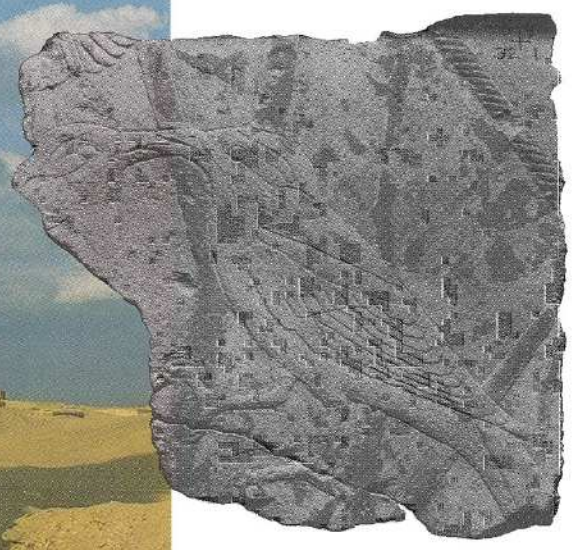
The pyramid of Userkaf, called 'Pure are the Places of Userkaf' measured 73.3 m (240 ft) to a side. The slope was 53° and it rose to a height of 49 m (161 ft).





Userkaf's temple is in a very unusual position, on the south of, and turned away from, the pyramid. There may be ideological causes or practical ones, due to a possible moat around Djoser's complex.





Some of the finest relief carving in Egyptian art decorated the 5th-dynasty pyramid temples. This fragment is from Userkaf's mortuary temple.

The pyramid complex

The position of Userkaf's mortuary temple is a significant departure from the plan of the standard pyramid complex. He separated his offering chapel, at the centre of the eastern base of his pyramid, from his mortuary temple, which he moved to the south side. Some have interpreted this change in terms of ideology. We know that the kings of the 5th dynasty became increasingly involved with the sun cult at Heliopolis, as hinted at by the legendary origins of the dynasty in the Westcar Papyrus. In addition to their pyramid complexes kings now began to build special solar temples of which Userkaf's at Abusir was the first (p. 150). By placing his mortuary temple on the south, Userkaf would ensure that the sun's rays would shine directly into it all year round. Others see this dramatic deviation from an established tradition as simple expediency, due to the fact that the ground was poor to the east.

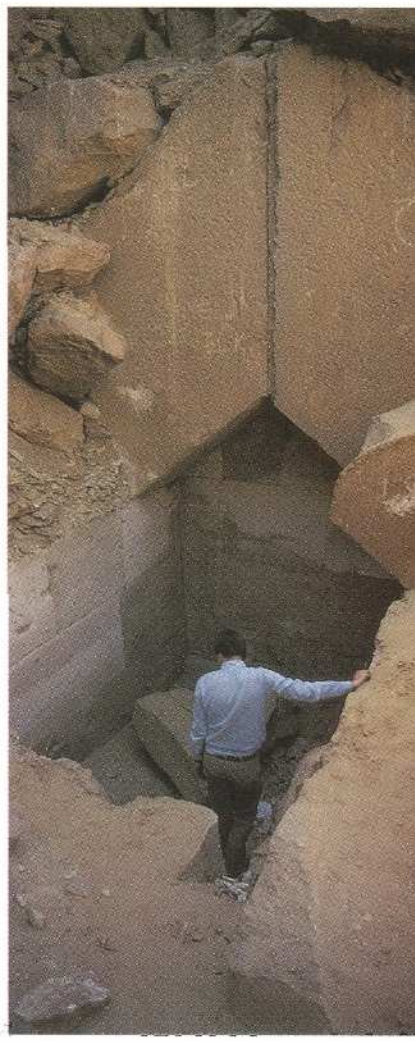
Nabil Swelim has pointed to evidence of a large moat completely surrounding Djoser's enclosure on all sides, as deep as 25 m (82 ft), which could have been the quarry for the core stone of Djoser's complex. Userkaf's pyramid fitted between the enclosure wall and the eastern side of this depression – but the pyramid combined with the temple on its eastern side would not. If the 'moat' did exist, Userkaf's reason for moving his mortuary temple to the south may have been practical. Whatever the precise reason, it seems that it was important for Userkaf to place his pyramid in close proximity to the already ancient Djoser complex. And herein lies yet another possible reason for his peculiar layout. Dieter Arnold has pointed out the vacillation between the 'Djoser-type' pyramid complexes and 'Meidum-type' with eastern mortuary temples and causeways (p. 18). While switching back and forth between the two is more characteristic of the Middle Kingdom pyramids, Userkaf returns to the 'Djoser-type' elements: a north–south rectangular enclosure and, by placing his temple on the south, an entrance at the far south end of the eastern side.

The mortuary temple seems to have had elements standard to every pyramid temple from the time of Khafre on, if in a different arrangement. The causeway entered the pyramid enclosure near the southern end of the east wall. A doorway led to a vestibule and then to a kind of entrance hall. That in turn led to an open court with a colonnade of monolithic granite pillars. A colossal head of Userkaf was found in the debris. South of the court was a small columned hall. Beyond, were the five statue niches – the statues of the king would have faced the pyramid in this position – a sanctuary and storage chambers. Not only was the temple moved to the south side, but, exceptionally, its elements are oriented towards the south rather than the pyramid, as in all other mortuary temples.

The offering chapel, of which only traces remain, consisted of a central room, containing a quartzite false door, with a narrow chamber on either side. Like the mortuary temple, the chapel had a floor of black basalt. The walls had a base of granite but were completed in Turah limestone, carved with very fine relief offering scenes. Userkaf's causeway has never been traced to the east and his valley temple remains to be discovered.

Userkaf also built a satellite pyramid, 21 m (69 ft) square, with a T-shaped substructure and a chamber with a pented roof as in the main pyramid. Yet a third pyramid, just south of and outside the enclosure wall, was apparently for a queen whose name is lost. It measures 26.25 m (86 ft) to a side and probably rose to a height of *c.* 17 m (56 ft). Its substructure was a smaller version of Userkaf's, without the magazines, and the pyramid had its own mortuary temple, decorated with reliefs.

In the 5th and 6th dynasties, pyramid chambers roofed by huge pented limestone beams were the rule, as seen here in the chamber of Userkaf's satellite pyramid.

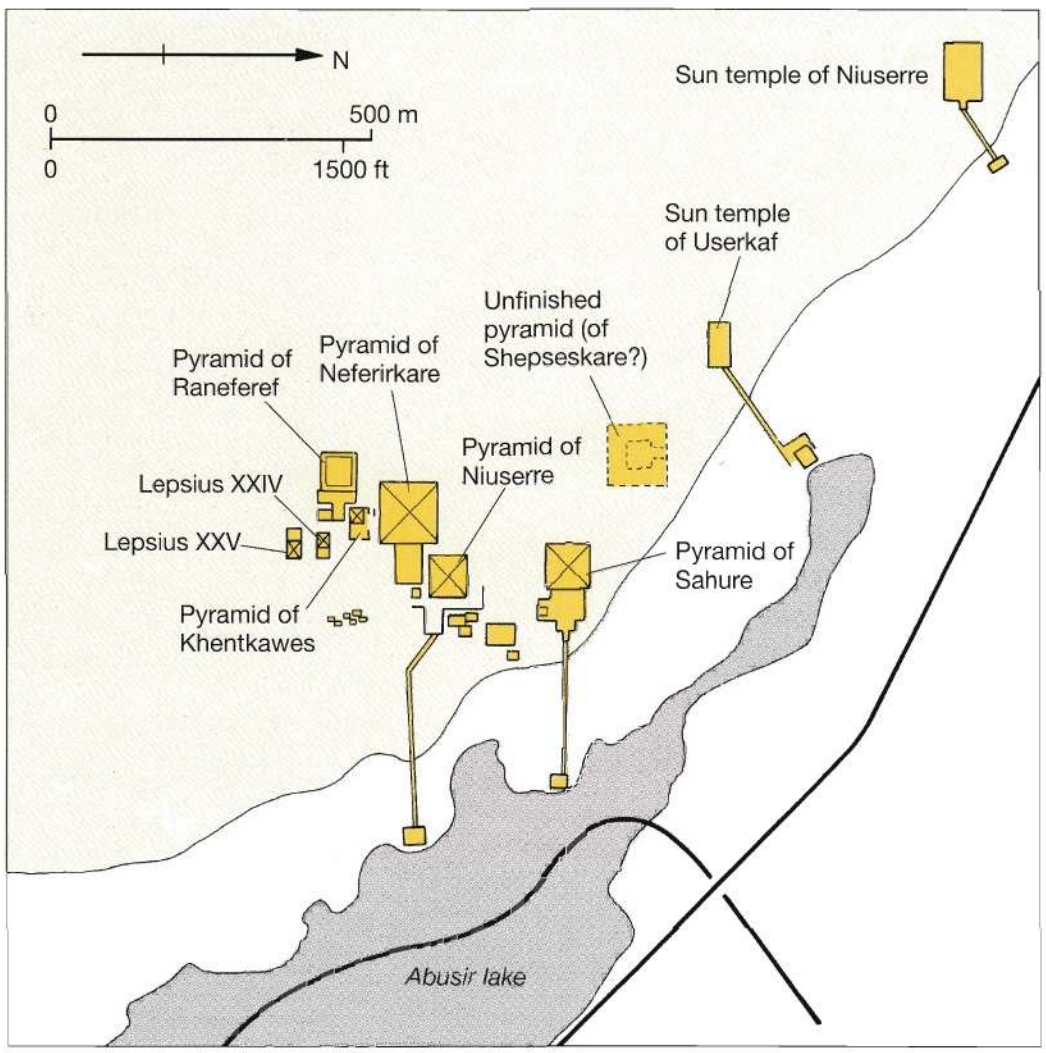


The Pyramids of Abusir

Several places in Egypt are named Abusir. The Arabic word derives from the Greek name, Busiris, which in turn stems from the ancient Egyptian, *Per Wsir*, 'Place of Osiris' – the multiple Abusirs reflecting the myth of the murder of Osiris, whose body was cut into pieces and buried at different places. The pyramid field of Abusir is a northerly extension of the Saqqara necropolis. It lies on the desert slopes northwest of the Abusir lake that served as a natural harbour for the pyramid complexes. Just south of the lake are the great 1st-dynasty mastabas located on the high ridge (p. 78).

The 5th-dynasty pyramid field at Abusir shows once again the concern for alignment as noted at Giza. Here the diagonal was interrupted by Niuserre. Just to the north, at Abu Ghurob, are the two remaining sun temples of six known from inscriptions to have been built by 5th-dynasty pharaohs.

Userkaf initiated the royal cemetery at Abusir by building his sun temple slightly north of the plateau where his successors would create a pyramid cluster. As at Giza, three of the Abusir pyramids – of Sahure, Neferirkare and Raneferef – align on a northeast to southwest diagonal along their northwest corners. Miroslav Verner, director of the Czech mission at Abusir, suggests that the two diagonals converge at the site of Heliopolis, where the quintessential icon of the pyramid, the sacred *ben-ben*, lay in an inner sanctuary of the sun temple. The Abusir diagonal was broken by Niuserre, who inserted his pyramid between Sahure's and Neferirkare's, his father. In addition to the four pyramids of kings, there are the smaller pyramids of Khentkawes, two, perhaps for queens (Lepsius XXIV and XXV), and an unfinished pyramid, possibly of Shepseskare.



The Pyramid of Sahure

When Ludwig Borchardt excavated Sahure's complex in 1902–8 he found a great wealth of relief carving. Walls of 4th-dynasty pyramid temples had also been decorated with reliefs, but here, with a vast reduction in the size of the pyramid, there is a proportionally greater emphasis on decoration.

The core of Sahure's pyramid was formed of roughly shaped blocks of limestone from quarries to the west of Abusir. It consisted of five or six steps, with the blocks loosely held together with mud mortar. In the north side a wide 'construction gap' allowed the builders to work on the inner structures while they raised the pyramid core all around; this gap was later filled with debris.

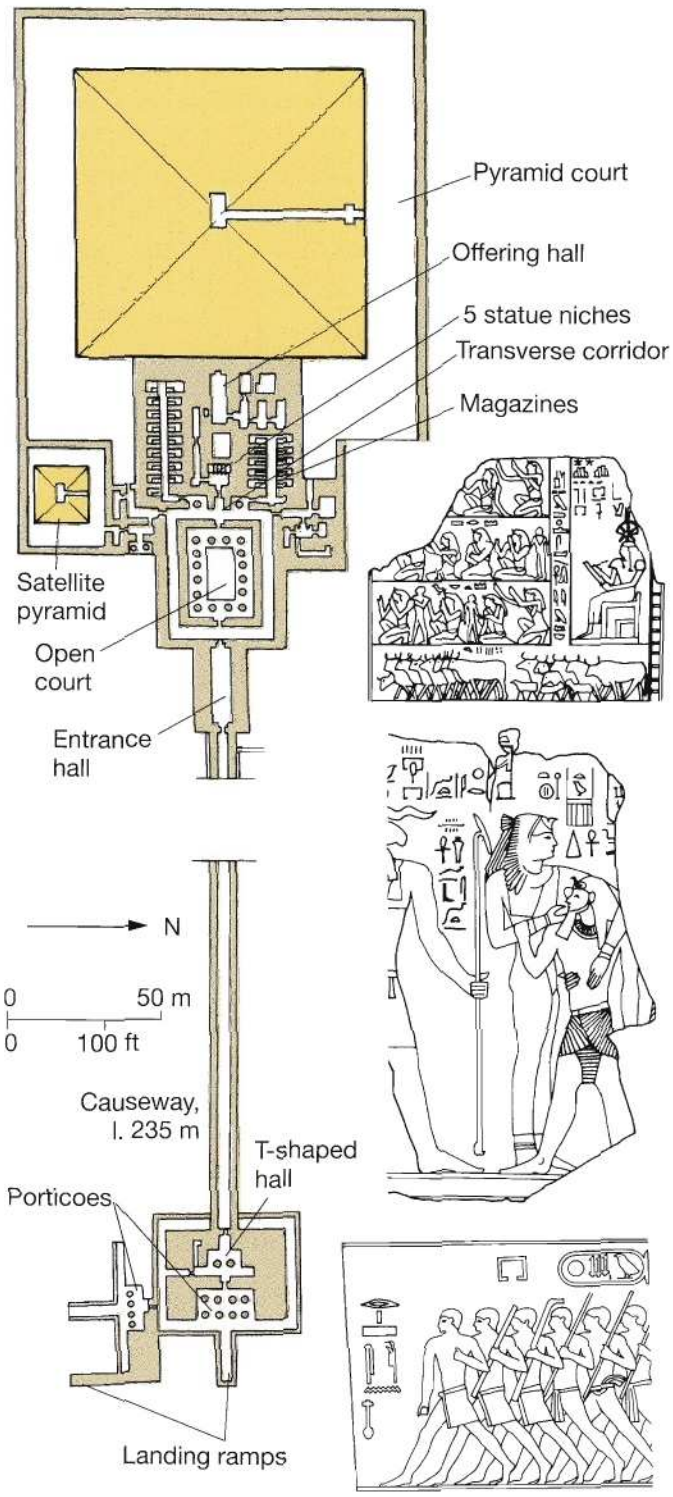
Inside the pyramid

Sahure's pyramid was entered by a passage opening on the north side, just east of centre, near the floor level of the court. A short, sloping section lined with red granite was blocked at the bottom by a granite portcullis. The passage next ascended slightly, now lined with limestone. A short, granite-lined, horizontal section led to the burial chamber, with a gabled roof of three tiers of enormous limestone beams. The substructure had been badly damaged and when Perring entered the burial chamber in the early 19th century he found only a single fragment of a basalt sarcophagus.

The pyramid complex

At the front of Sahure's valley temple, the waters of the Abusir lake lapped up to the main entrance, where there was a landing ramp. A canal or inlet led to a secondary entrance to the south, perhaps indicating that the palace lay in this direction. A wall here could belong to the pyramid town – 'The Soul of Sahure Comes Forth in Glory'.

The front ramp led to an elegant portico, the roof of which was decorated with carved and painted golden stars on a blue background and supported by eight granite columns with capitals in the shape of palm fronds. Here, as throughout Sahure's complex, was an interesting contrast of stones: the floor was black basalt; the dado was red granite; and the upper parts were fine limestone, decorated with painted reliefs featuring the king as a sphinx trampling on his defeated enemies.



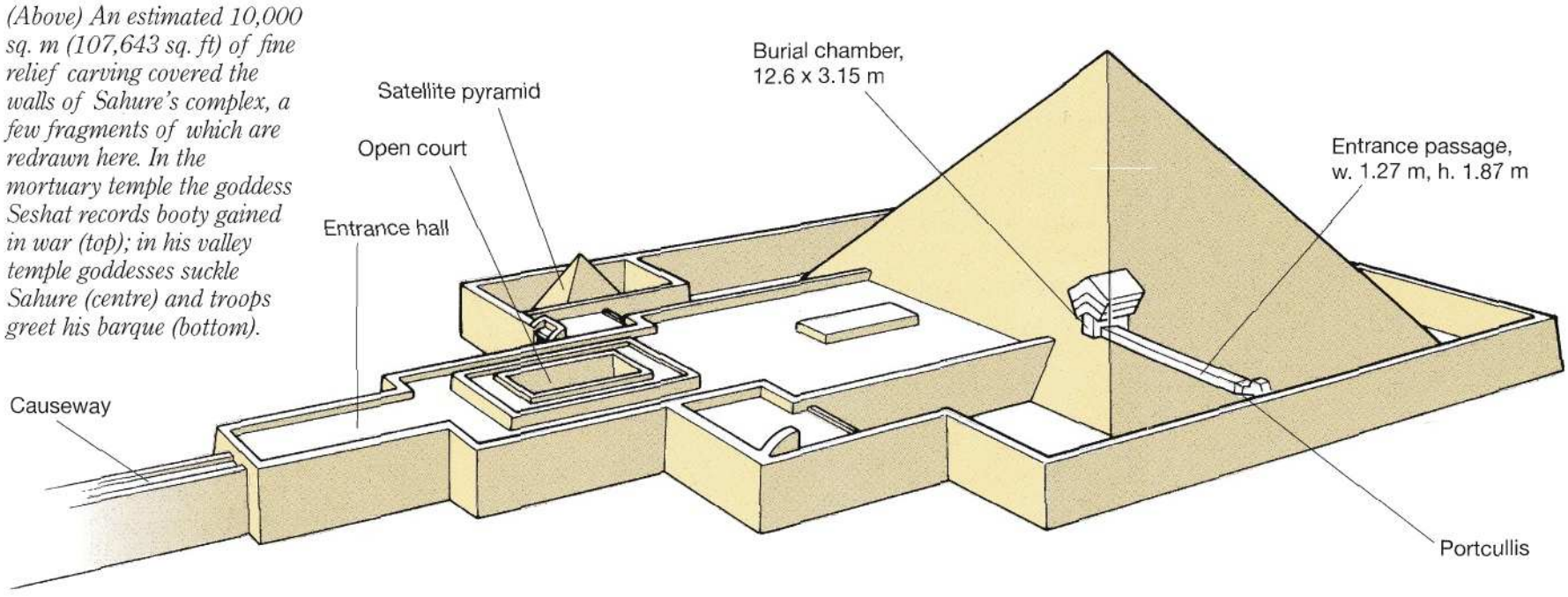
Inside the valley temple a T-shaped hall gave direct access to the causeway, 235 m (450 cubits or 771 ft) long, leading straight to the entrance hall of the mortuary temple up on the plateau. For their entire length, the walls of the causeway were decorated with reliefs, including scenes of gods leading prisoners taken from Egypt's traditional enemies. Such scenes were meant to ward off any evil or disorder that might threaten the security of the inner temple. Sahure's are among the oldest known reliefs of this genre, which would be placed at temple entrances for the next 2,500 years.

The plan of the mortuary temple has been called the 'conceptual beginning' of all subsequent Old Kingdom examples. A granite-framed doorway led to a closed corridor around a pillared court. Reliefs on the north wall show the king fishing and fowling, while on the south he is hunting with his

At the south side of Sahure's mortuary temple was a sacred service entrance for deliveries to the temple magazines. Inside, the walls were decorated with scenes of Nile gods and offering bearers. This small portico also gave access to the satellite pyramid.

Sahure's pyramid 'The Rising of the Ba Spirit' stood 78.75 m (258 ft) square and 47 m (154 ft) high, with a slope of 50° 11' 40". His satellite pyramid was 15.7 m (30 cubits, or 51 ft 6 in) to a side, 11.55 m (38 ft) high, with a 56° slope. This artist's reconstruction is based on Borchardt's.

(Above) An estimated 10,000 sq. m (107,643 sq. ft) of fine relief carving covered the walls of Sahure's complex, a few fragments of which are redrawn here. In the mortuary temple the goddess Seshat records booty gained in war (top); in his valley temple goddesses suckle Sahure (centre) and troops greet his barque (bottom).



A statue of Sahure, builder of the first pyramid at Abusir.

courtiers. It is certainly not by coincidence that themes of capturing wild game are played out on the walls of the dark corridor surrounding the open court – a bright clearing tamed by the king, the guarantor of order. The colonnade of the court is supported by granite pillars with palm capitals, each with the insignia of Sahure. A white alabaster altar stood in the court. Reliefs on the walls show the king's victories over Asiatics and Libyans, including one scene showing the king about to execute a Libyan chief while his family beg for his life.

Beyond the court is a transverse corridor, separating the front from the inner temple. On the east wall are reliefs of sea voyages – one of the earliest examples of this subject on walls flanking a temple threshold. Small chambers to the west were decorated with processions of offering bearers, each personifying an estate. Side doors gave access to more magazines, where all the goods hunted, captured or cultivated were stored – if perhaps only symbolically. A small alabaster stairway directly on the temple's main axis led up to a chamber with five niches with an alabaster floor and a double-leaf door. Each would have held a statue of the king.

At the heart of the mortuary temple is the offering chapel with the false door, only fragments of which survived. The floor of this chamber was paved with white alabaster. Originally it contained a black granite statue and an offering basin with a drain of copper tubing. In the north wall a granite doorway led to five rooms, two of which also had limestone basins and copper drains, part of a complex drainage system that ran through the temple.

Sahure's satellite pyramid is in a similar position to Khufu's, at the pyramid's southeast corner. This would be its standard place until the end of the Old Kingdom. It was surrounded by its own small court entered by a portico with two round granite pillars inscribed with Sahure's titulary.

The Pyramid of Neferirkare

Neferirkare ascended the throne after his brother Sahure. Although he may have been advanced in age when, for unknown reasons, he rather than Sahure's son became pharaoh, Neferirkare attempted to build a pyramid that exceeded his brother's in size. Evidence suggests that it was planned as a step pyramid, rising in six tiers of well-laid, limestone retaining walls. However, on the south and west sides some of the loose masonry remains from what must have filled in the steps, suggesting that the step pyramid might have been transformed to a true pyramid. It is certain that at a later stage the builders began to enlarge the pyramid by adding a girdle of masonry and a casing of red granite. It seems the lowest course was laid, but not smoothed, and the pyramid was never finished.

Inside the pyramid

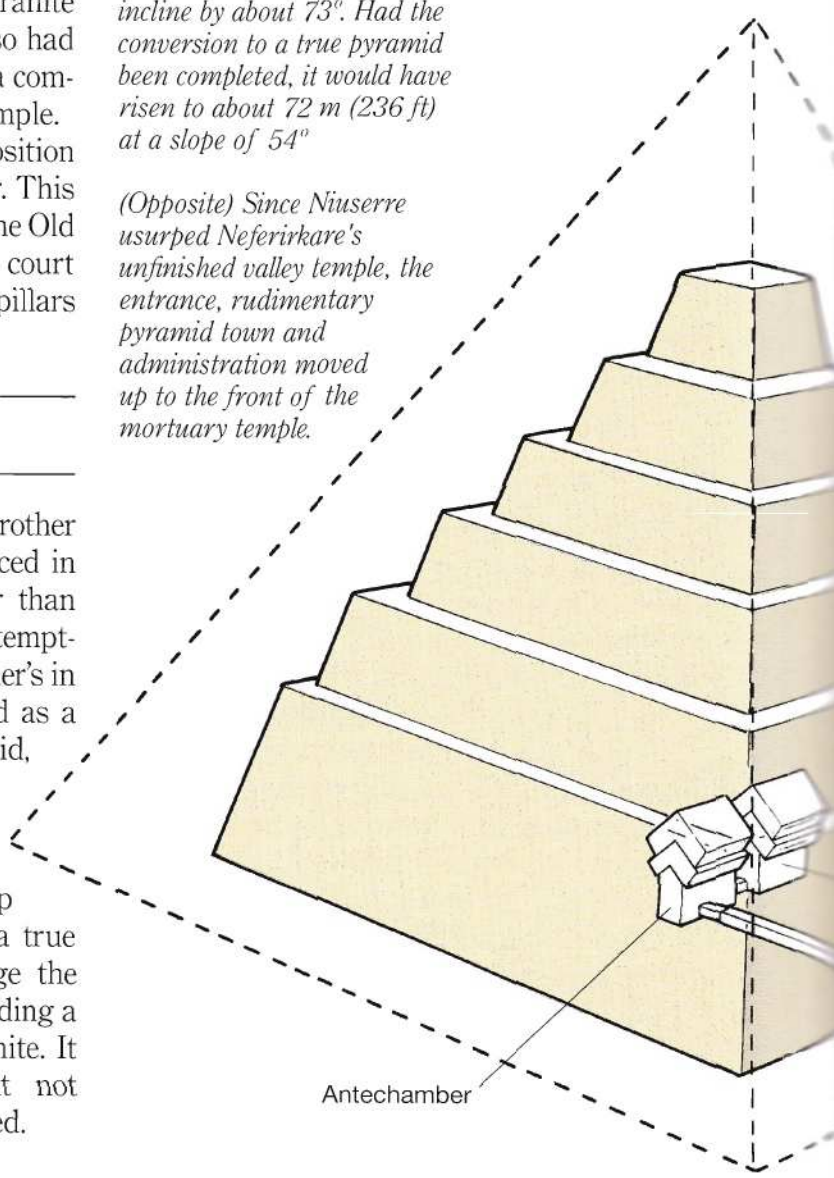
As with Sahure's pyramid, the substructure was very badly damaged. A descending corridor led from near the middle of the north side, roofed with great gabled limestone beams that discharged the weight to either side. The burial chamber was covered with three layers of such beams. No trace of the sarcophagus was found inside.

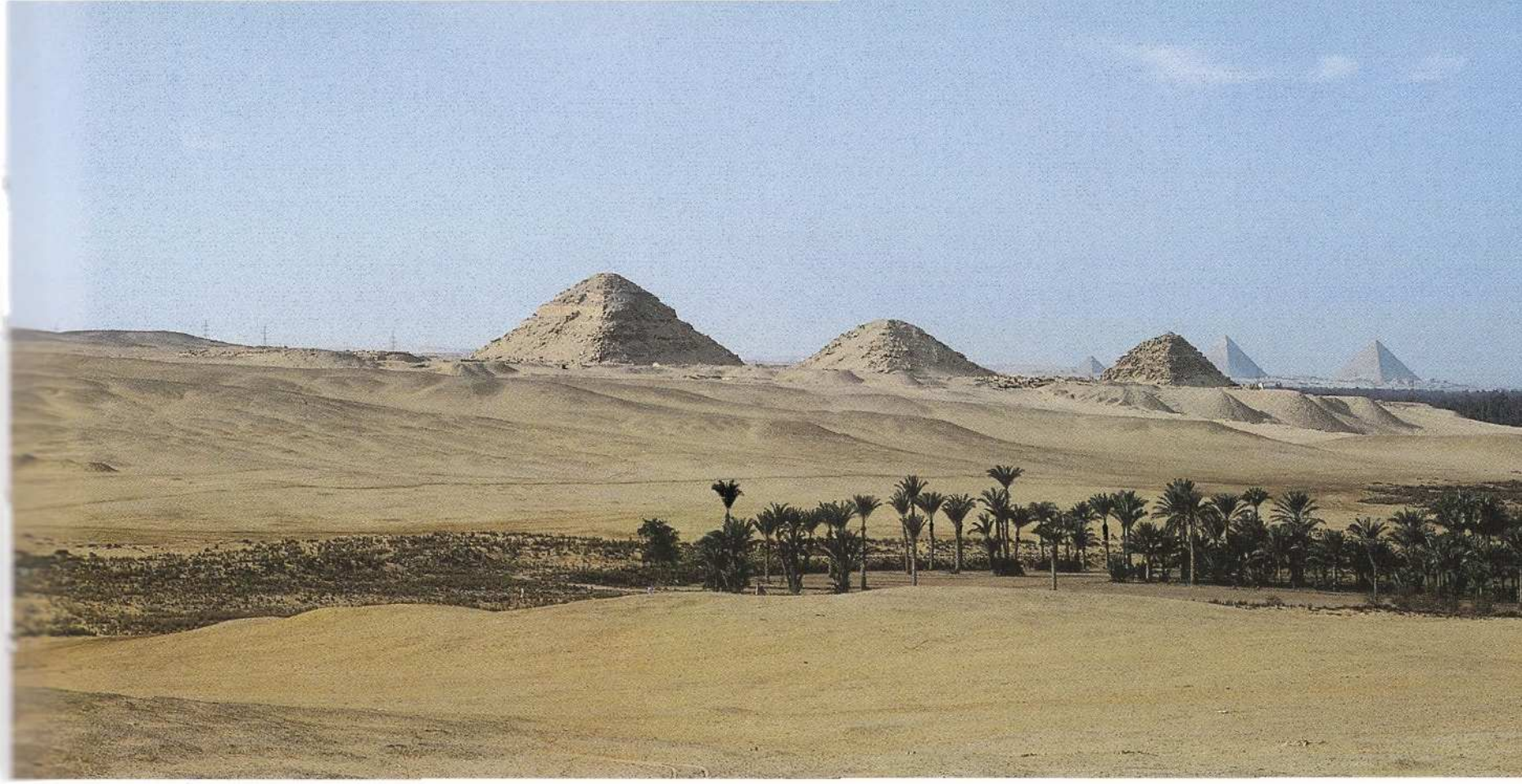
The pyramid complex

Neferirkare's mortuary temple appears to have been finished in haste. The inner temple with its five statue niches and offering hall were built in stone, but the court and entrance hall were completed in mudbrick, with wood columns in the form of bundles of lotus stalks and buds. Only the foundations of the causeway and valley temple had been built when work stopped. When Niuserre later took over the site of Neferirkare's temple for his own valley temple, the entrance to Neferirkare's complex was moved up to the mortuary temple. So, apparently, was the administration of the pyramid which normally would have focused in the town near the

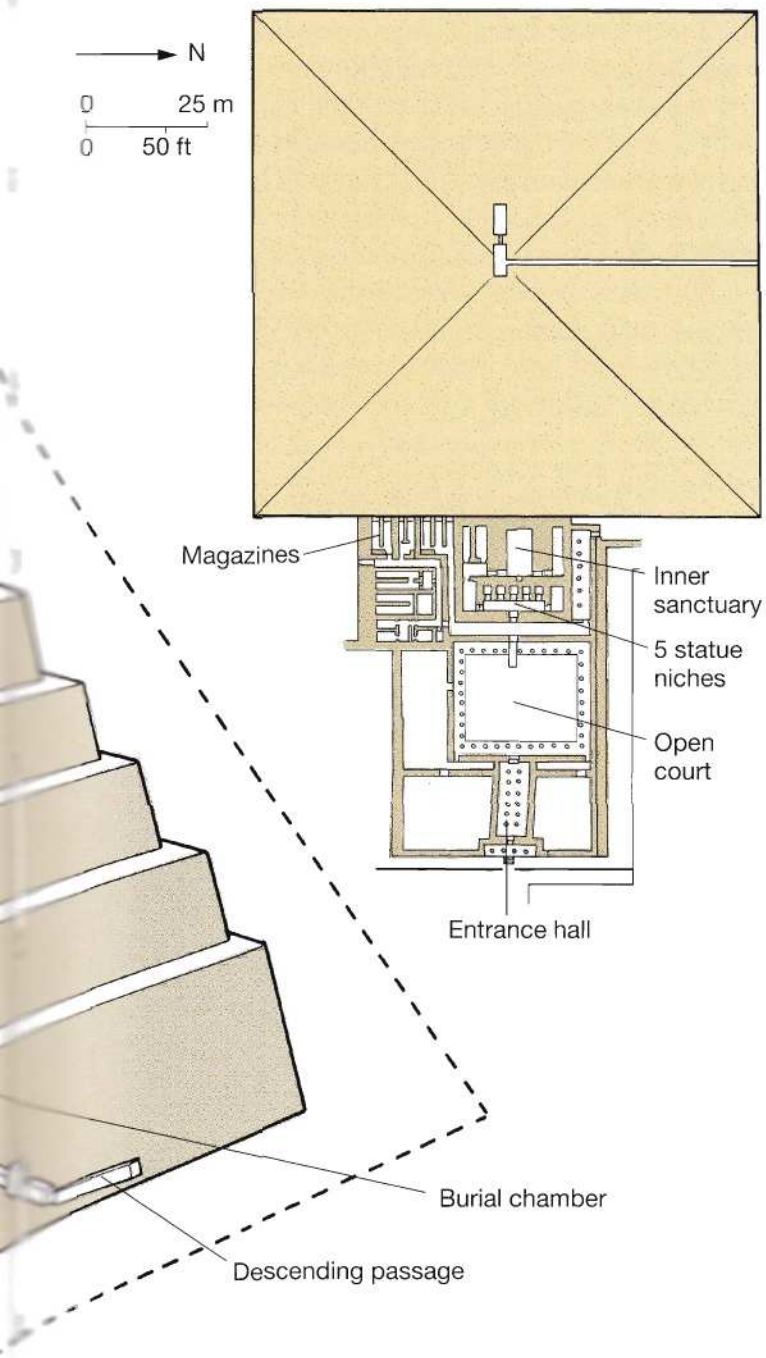
Neferirkare's pyramid was called the 'Pyramid of the Ba of Neferirkare' The length of the base was about 105 m (200 cubits, or 344 ft) and the faces of the steps incline by about 73°. Had the conversion to a true pyramid been completed, it would have risen to about 72 m (236 ft) at a slope of 54°

(Opposite) Since Niuserre usurped Neferirkare's unfinished valley temple, the entrance, rudimentary pyramid town and administration moved up to the front of the mortuary temple.





Contrasting pyramid clusters: the slumped cores of the Abusir pyramids form a line in front of the giant pyramids of Giza in the background.

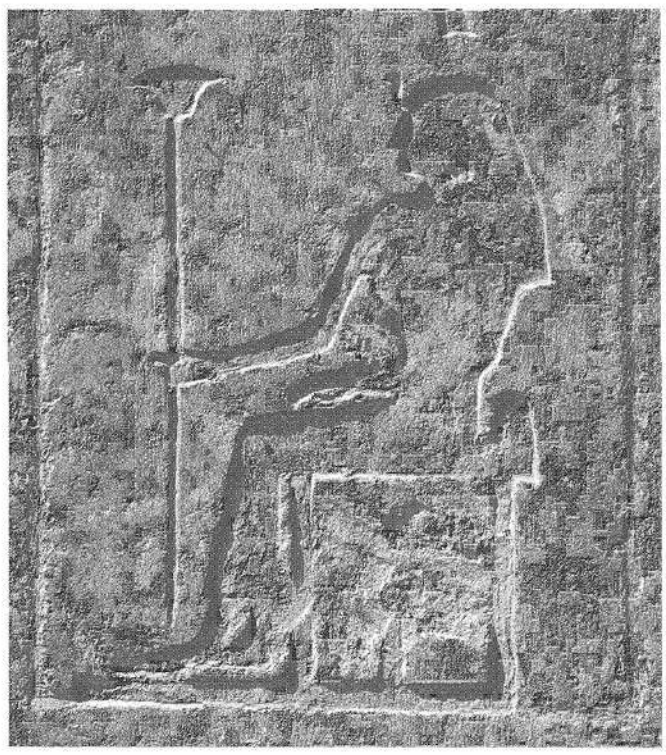


valley floor. Thanks to this, one part of the administrative archives, the Abusir Papyri, was preserved. Nine or ten houses were built, probably for those in temple service (p. 234). Over time the wooden columns and roofs must have deteriorated and the inhabitants hid the columns in mudbrick walls that were part of new rooms.

The Pyramid of the Queen Mother

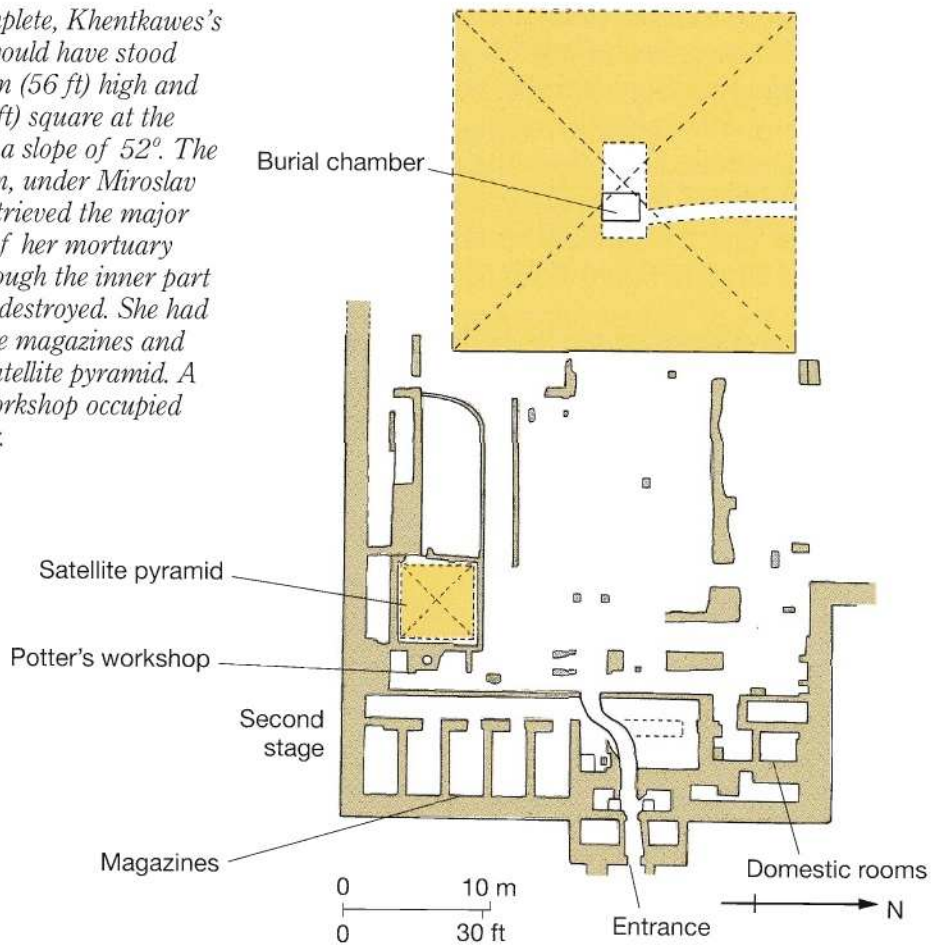
On a limestone block from Neferirkare's pyramid found by Perring was a graffito mentioning 'the King's Wife Khentkawes'. She also appeared as Neferirkare's wife in a relief of the royal family on another limestone block from the site, along with his son, Raneferef. It was only in the 1970s, however, that the Czech expedition identified her as the owner of a small pyramid at Abusir.

The pyramid of Neferirkare, looking northwest across the mortuary temple of Queen Khentkawes's pyramid.



Queen Khentkawes, shown in a relief from the court of her mortuary temple. Like the Khentkawes at Giza (p. 138), she wears the uraeus of kingship and holds a papyrus sceptre, symbol of northern Egypt.

Khentkawes's pyramid is south of Neferirkare's pyramid and near its centre axis – the position occupied by the satellite pyramids of Sneferu's Bent Pyramid at Dahshur and Khafre's at Giza. This location hints at a link between the function of satellite pyramids, related to the king's *ka*, and the role of the queen mother, who transfers the royal *ka* from one generation to the next. A date inscribed on a block of the pyramid indicates that construction paused in Year 10 of an unnamed king. On another block, the word 'Mother' was added above 'King's Wife', perhaps when work resumed. Had a son of Khentkawes become king, enhancing her status?



When complete, Khentkawes's pyramid would have stood about 17 m (56 ft) high and 25 m (82 ft) square at the base, with a slope of 52°. The Czech team, under Miroslav Verner, retrieved the major elements of her mortuary temple, though the inner part was badly destroyed. She had five storage magazines and her own satellite pyramid. A potter's workshop occupied one corner.

As with the superstructure, the substructure of the pyramid was badly ruined. The Czech team ascertained that the mortuary temple was built in two stages, and the entrance of the first included square limestone pillars painted red and inscribed with Khentkawes's name and titles. Similar pillars, gracing an open court, show the queen holding the papyrus *wadj* sceptre and wearing the royal uraeus on her brow, thought to be exclusive to kingship.

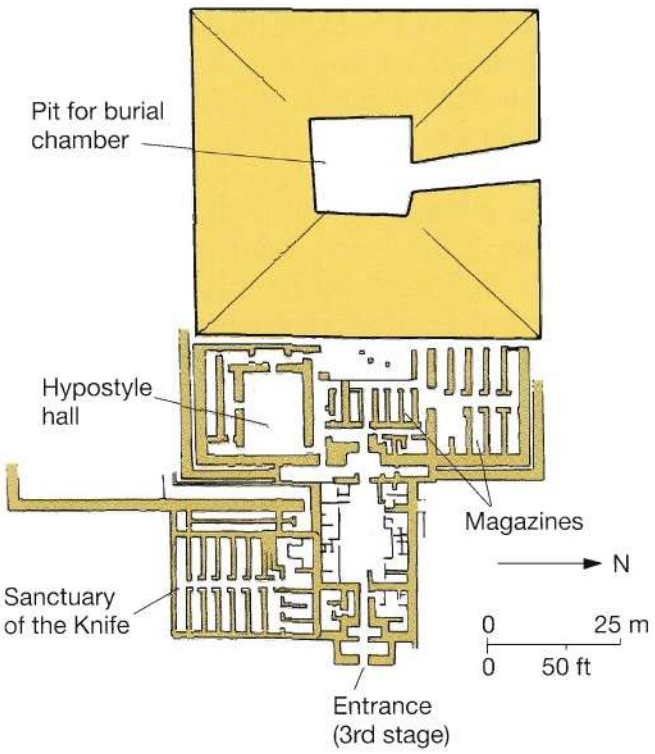
A granite false door was embedded in the west wall of the offering hall that backed on to the pyramid. Next to the hall, three deep recesses probably held statues of the queen. Carved and painted relief scenes covered the walls of the inner temple depicting processions of estates, agriculture and sacrifices. On one fragment she is given the same title as Khentkawes at Giza (p. 138). But the two are probably not the same person – this one was the mother of Raneferef and Niuserre. Verner has suggested that the title should be read as 'Mother of the King of Upper and Lower Egypt, [exercising office as] The King of Upper and Lower Egypt'.

The idea that Khentkawes II ruled as pharaoh in her own right is supported by the second stage of her mortuary temple. It was extended to the east and had the east–west axial alignment characteristic of kings' temples. Five storage chambers were added south of the entrance. Khentkawes also had her own satellite pyramid, for which stone was diverted from an enclosure wall of the pyramid. Khentkawes was worshipped at her small pyramid for 300 years, until the end of the 6th dynasty. Her temple yielded another collection of papyri, which, like those from Neferirkare's, provide a literary window on to the life of a pyramid complex

The Pyramid of Raneferef

The last pyramid on the Abusir diagonal was long known as the Unfinished Pyramid. In 1974 the Czech Expedition began to excavate it, suspecting it belonged to Raneferef, an ephemeral ruler whose mortuary temple was mentioned in the Abusir Papyri. Their research showed that the pyramid was indeed left unfinished, but was made functional for the cult of Raneferef. The site was less disturbed than others because there was no towering pyramid to attract robbers, and most of the temple had been finished in mudbrick rather than the limestone used by manufacturers of mortar. Thus the unfinished pyramid ironically provides much information about how pyramids of this period were built, and how they functioned as ritual centres.

Raneferef's builders levelled the site and laid out the square for the pyramid base with sides of 65 m (213 ft 3 in) – a respectable size, slightly smaller than Sahure's. In the middle of the square they dug a pit, in which the burial chamber would have been built while the core of the pyramid rose around it.



The unfinished pyramd of Raneferef was begun with a base length of 65 m (213 ft 3 in). Its mortuary temple stretches out along it – the L-shape is due to an added third stage consisting of a columned courtyard and the 'Sanctuary of the Knife' – a slaughter house for sacrificial animals. Since the pyramid was never finished and the substructure is now completely missing, a reconstruction is not possible.

An open trench, left to allow the builders to bring in the stone for the burial chamber, later contained the entrance passage. Although now missing, the substructure may have been finished when Raneferef died. Only one step of the core, however, had been completed, which was quickly faced with limestone at a slope of 78°, leaving the tomb in the form of a low mastaba. The top was finished off with a layer of clay into which desert stones were stuck. No wonder the pyramid is referred to as the 'Mound' in the fragments of papyrus found in its temple.

Here the Czech team had the opportunity to test the idea of Lepsius and Borchardt that the 5th-dynasty pyramids were built in steps in accretions around a tall, narrow central core, like those of the 3rd dynasty, albeit not with inward-leaning courses. If this was the case, under the capping layer, the accretions should have resembled the layers of an onion. Instead, the excavators discovered that the core consisted of an outer retaining wall of four or five well-laid courses of limestone blocks and an inner line of smaller blocks framing the trench of the burial chamber. Between these two walls was a fill of poor-quality limestone, mortar and sand.

The pyramid complex

Verner believes the first stage of Raneferef's mortuary temple was finished quickly, between the king's death and his burial – a period of perhaps 70 days. It was a small rectangular building, unusually oriented north–south, at the centre of the east side of pyramid platform. An entrance on the south led to a vestibule and three chambers, including the offering chapel with a red granite false door and an

The Abusir Papyri

Three sets of pyramid archives have been found at Abusir, written in hieratic, a cursive form of hieroglyphics. Papyri associated with the pyramid of Neferirkare, found by local villagers earlier this century, have been studied and published by Paule Posener-Kriéger. The fragments, only a fraction of the original archive, date mostly from the reign of Djedkare-Isesi, who built his pyramid at South Saqqara but required a good administrative system to oversee the mortuary cults of family members buried at Abusir. Neferirkare's papyri can be divided into several main categories:

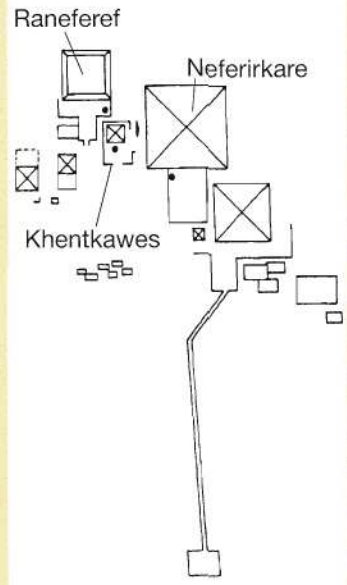
Schedules of priestly duties in the temple relating to daily and monthly ceremonies, as well as important festivals. They stipulate offerings, sacrifices and guard duties, as well as outlining the organization of the workforce (p. 233).

Inventories of the furnishing and equipment of the temple – knives, vessels, jewellery, boxes, etc.

Accounts of products and materials supplied to the temple, their use or storage, as well as financial transactions. These are key to our understanding of the economic function of pyramids. They record the goods flowing in from royal estates, and also from royal residences and other institutions. Neferirkare's sun temple, which has not been found, seems to have played a special role in this.

Architectural records form a small but interesting category. These relate to inspections of the masonry of the temple, checking for damage.

One fragment of this last category gave a clue to the existence of Raneferef's mortuary temple which was subsequently located by the Czech team. Another archive was discovered inside it, which is still being studied. It seems to contain similar categories as Neferirkare's archive, as well as a number of royal decrees. It also includes a mention of the Sanctuary of the Knife. Another archive, also still being studied, was found in the mortuary temple of Khentkawes.



A limestone statue of Raneferef, shown in the embrace of, and merging his identity with, the Horus falcon, god of kingship. The statue was found in his mortuary temple.

altar. Verner believes Shepseskare, who perhaps reigned for a short time after Raneferef, might have built this small chapel, because two mud sealings with his Horus name were found in the vicinity.

It is certain, in any case, that it was Niuserre who added the sprawling complex of mudbrick walls and chambers. This second stage enveloped the earlier stone chapel and spread to the east, extending the entire length of the pyramid. The entrance in the centre of the east side was marked by two limestone lotus-stalk columns. Immediately inside, a transverse corridor led to five large magazines. Two wooden cult boats were ritually buried in one, along with thousands of carnelian beads that may have adorned them. In the the northern part of the temple were 10 more magazines, arranged in two pairs of five. Here another cache of administrative papyri was found, as well as numerous objects including stone vessels and flint knives.

The southern part of the temple was taken up by one of Egypt's earliest known hypostyle halls. Four rows of five wooden columns supported the roof. Only the imprint of the columns remained on the limestone bases, but this showed that they took the form of sheaves of lotus buds. Among many fragments of statues found in the ruins of the court, the most beautiful shows Raneferef with the Horus falcon. Papyri inform us that the largest statue, in wood, was a special focus of cult activities. There were also small wooden statues of Egypt's traditional enemies – Asiatics, Libyans and Nubians – that were probably attached to the lower parts of the throne or dais on which the main statue stood.

One of the most remarkable features of Raneferef's complex was added at this stage– the 'Sanctuary of the Knife'. Its name was found in texts from the temple, as well as in inscriptions on vessels for animal fat. A wide entrance allowed workers to bring in animals to be ritually slaughtered in the court in the northwest corner of the building. Evidence from the papyri indicate that as many as 130 bulls could be slaughtered during a 10-day festival. The Sanctuary of the Knife was in operation for a short time before the third stage of the temple shut it down and it was used for storage.

A columned courtyard was added to the front of the temple in the third stage, giving the whole arrangement a T-shape. A new entrance was supported by two six-stemmed papyrus columns, while 24 wooden columns lined the court. Only the bases remain, but the imprint of the shaft on one indicates that they were palm columns.

The Pyramid of Niuserre

It was perhaps Shepseskare who made a start on another pyramid between Sahure's and the sun temple of Userkaf. It consists only of the base of the pyramid core and the beginning of the pit and trench for the substructure. It was never finished, and when Niuserre came to the throne he had to complete the pyramids of Neferirkare, his father, Khentkawes, his mother, and Raneferef, his brother. He did not finish the possible pyramid of Shepseskare, perhaps because that pharaoh was buried in a large mastaba that had been prepared before he assumed the throne for so short a time.

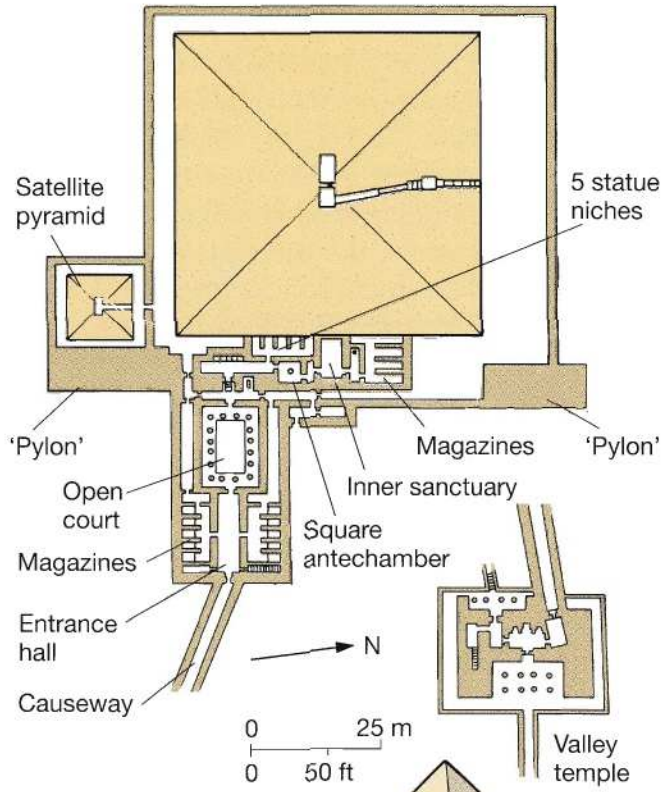
Niuserre reigned for more than 30 years but his pyramid is smaller than Neferirkare's and closer in size to Sahure's. He seems to have wanted to remain within this family of kings and inserted his pyramid in the space in the angle between Neferirkare's pyramid and Sahure's. Spatial limitations may therefore have determined the size of this pyramid. The pyramid core was built in steps and was originally sheathed in fine limestone as shown by some casing blocks found still in position.

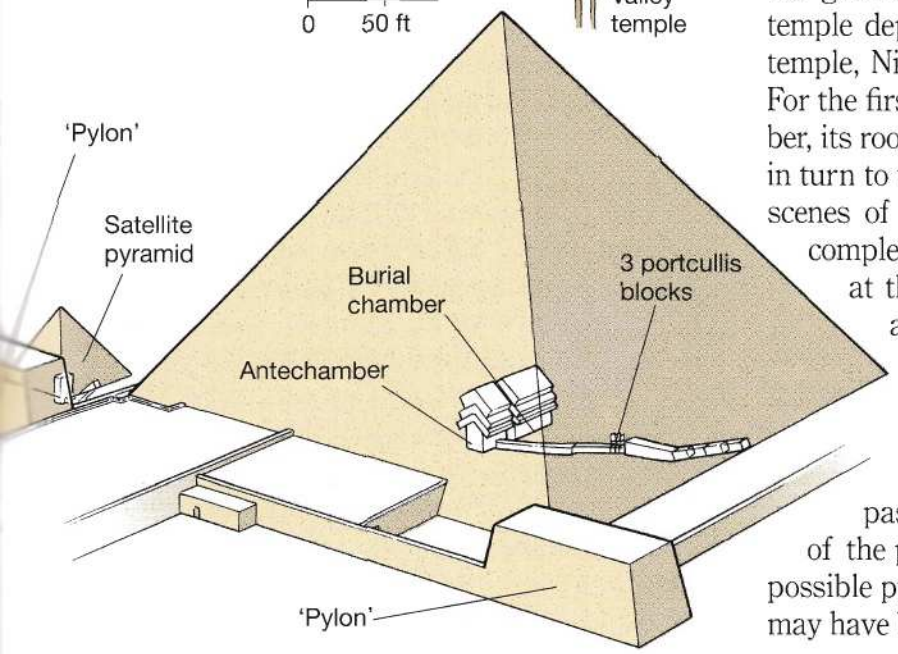
Inside the pyramid

From the entrance at ground level in the middle of the north side a passage ran horizontally for the thickness of the casing and then sloped down to a chamber blocked by three granite portcullises. Beyond, the passage continued at a more gentle slope to the antechamber, deviating slightly to ensure that the threshold between the antechamber and the burial chamber was on the pyramid's vertical axis. The antechamber and burial chamber were clad in fine limestone and roofed with the standard three tiers of enormous limestone beams, each 10 m (33 ft) long and weighing 90 tons.

The pyramid complex

Niuserre took over the terrace and foundations that had been prepared for Neferirkare's causeway and valley temple. The valley temple was entered by a portico with two rows of four columns in the form of papyrus bundles. Inside, the pavement was black basalt, with walls of fine limestone with painted relief decoration above a dado of red





granite. Limestone figures of fettered enemies may have stood near the exit to the causeway.

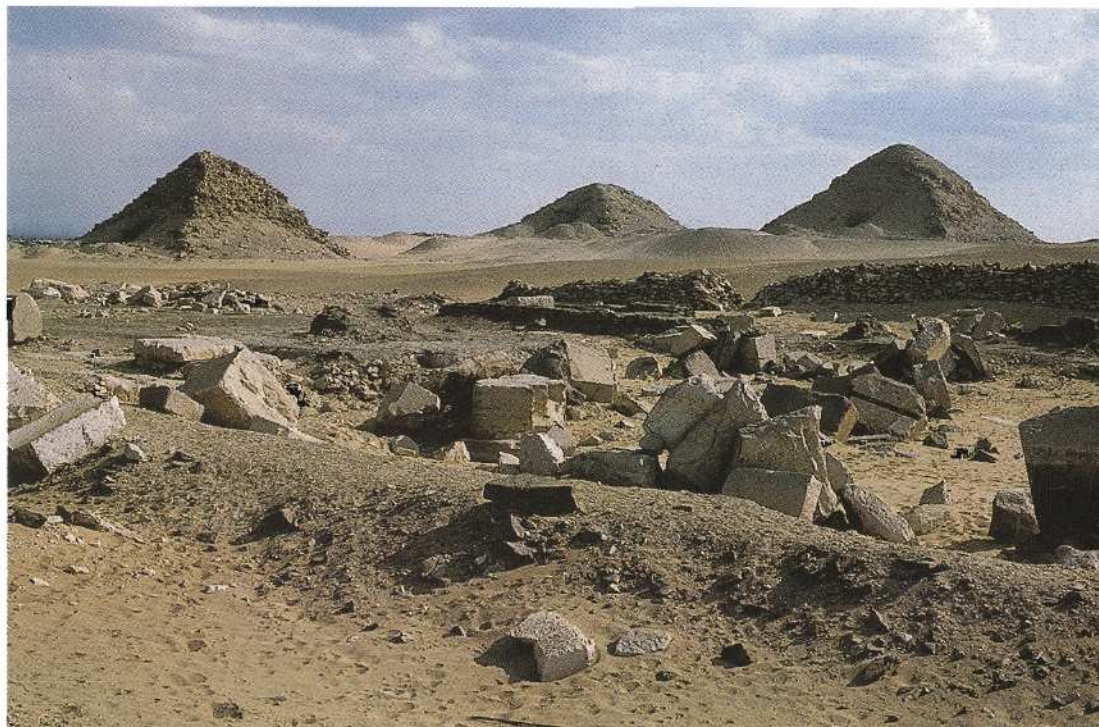
Niuserre's builders made great use of basalt, lining the bases of the walls of the entire length of the causeway with it. Above, the walls were decorated with reliefs, again showing the king as a sphinx or lion trampling his traditional enemies. The ceiling was a field of blue, studded with golden stars. Because it was intended for Neferirkare's pyramid, the causeway had to bend quite sharply to bring it to the entrance of Niuserre's mortuary temple. To avoid the older mastabas the temple had an unusual shape but kept the principal elements of previous ones, particularly Sahure's. The inner offering chapel is in its traditional place at the centre of the east side of the pyramid, lined up with the burial chamber. Five statue niches, complemented by five oblong magazines, flank the offering chapel with its red granite false door and offering slab.

Immediately north of the entrance to the five statue niches, a deep niche contained a huge lion of red granite. Fragments of reliefs from the outer temple depict members of the court; in the inner temple, Niuserre enters the company of the gods. For the first time there is a small square antechamber, its roof supported by a single pillar, that leads in turn to the offering hall. Relief fragments depict scenes of homage. Another new element in this complex is a pair of massive blocks of masonry at the corners of the pyramid court. These appear to be the precursors of the great pylons at the front of later Egyptian temples. Niuserre's satellite pyramid within its own enclosure had the standard T-shaped substructure of passage and chamber. At the southern edge of the pyramid cluster are two badly destroyed possible pyramids, Lepsius XXIV and XXV, which may have belonged to queens of Niuserre.

Niuserre's pyramid was called 'The Places of Niuserre Endure' It measured 78.9 m (150 cubits, or 259 ft) square and 51.68 m (164 ft) high with a slope of 51° 50' 35". This view is looking north, across the corner of Neferirkare's mortuary temple. Niuserre built his mortuary temple in an L-shape in order to avoid older mastabas to the east, and to usurp his father's causeway. He also usurped the foundations of his father's valley temple to build his own.

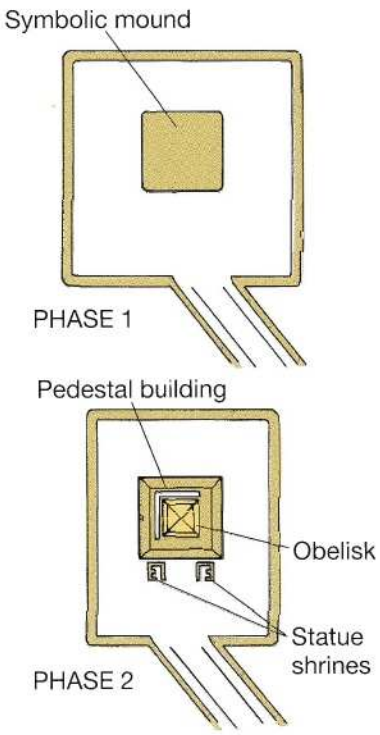
Sun Temples of Abusir

Ancient documents, including the Abusir Papyri, inform us of six sun temples, one for each king of the 5th dynasty except Djedkare-Isesi and Unas. The name of Sahure's, 'Field of Re', was found on a



The Abusir pyramids, looking across the ruins of Userkaf's sun temple. The Swiss and German expedition were able to reconstruct the four major phases of the temple's construction.

Four phases of a sun temple: 1 a mound in a rectangular enclosure; 2 Neferirkare sets a granite obelisk on a pedestal building, with two shrines in front; 3 Niuserre rebuilds the inner enclosure in limestone and extends outer enclosure, (re)builds valley temple; 4 inner enclosure cased in mudbrick, new altar, stalls and benches added.



block of masonry in the mortuary temple of Niuserre. We know that Neferirkare's was called 'Place of Re's Pleasure'; Raneferef's was 'Re's Offering Table'; while Menkauhor's was named 'The Horizon of Re'. But archaeologists have found only two sun temples, those of Userkaf and Niuserre. In layout both resemble a pyramid complex – with a valley temple, causeway and upper temple.

Userkaf's 'Stronghold of Re'

Userkaf's is both the first sun temple to be built by a pharaoh in addition to a pyramid and the first royal edifice at Abusir. The only precedent is the 4th-dynasty Sphinx Temple at Giza (p. 128), which appears to have been dedicated to the sun and may have housed ritual activity similar to that carried out in the later sun temples.

Userkaf's sun temple was named *Nekhen-Re*, 'Stronghold of Re', after the ancient name of Hierakonpolis (p. 72). Herbert Ricke, who directed excavations of the site in 1955–7, ascertained that, in its earliest form, the upper temple may well have contained the principal elements of its namesake: a rectangular enclosure and a central mound. One of the early forms of the sun temple's hieroglyphic name shows a mast projecting from a mound, perhaps a symbolic perch for the sun god in falcon form.

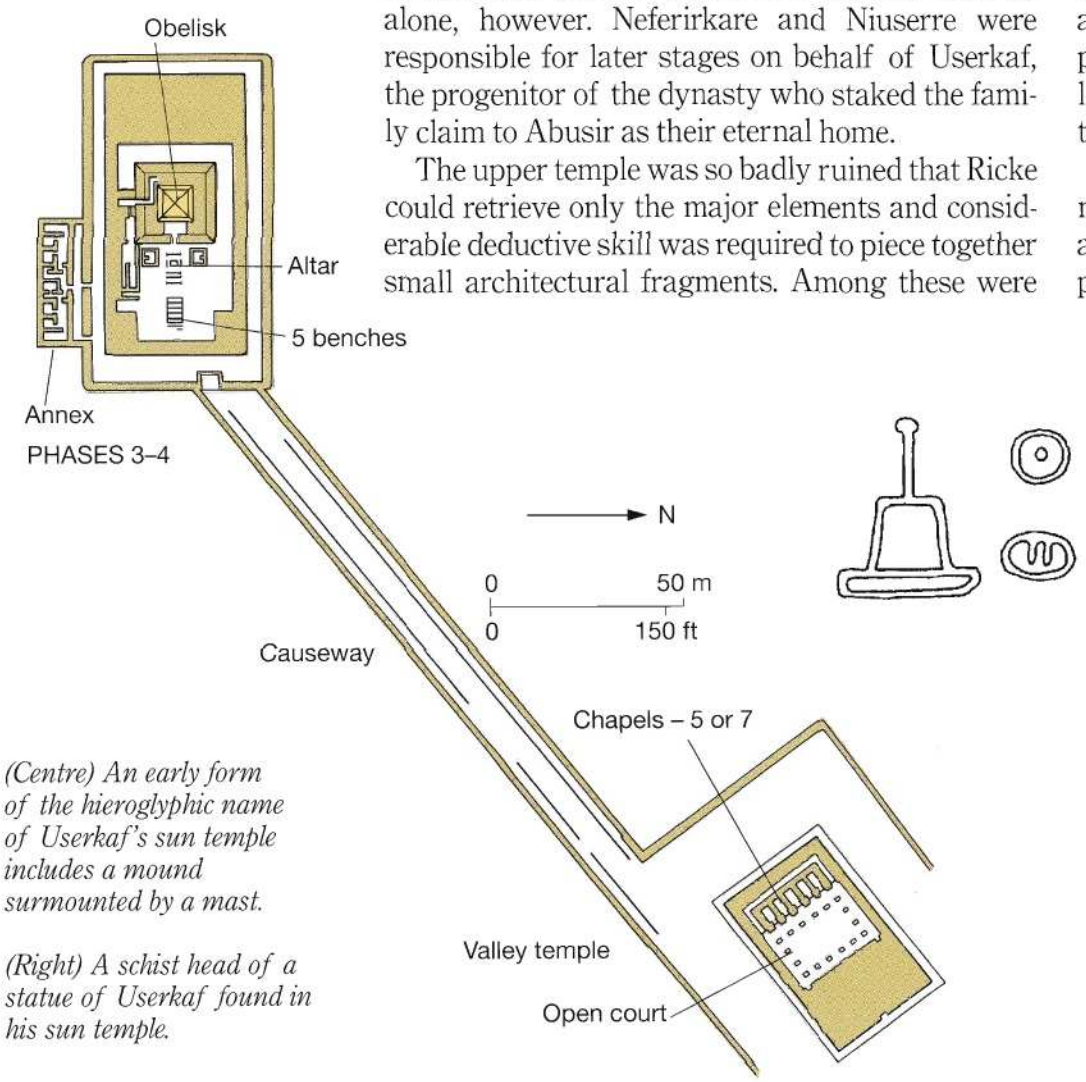
As with so many pyramids, the temple underwent several major transformations – four in this case – following one upon another before the previous one had even been completed. This continuous construction process was not the work of Userkaf alone, however. Neferirkare and Niuserre were responsible for later stages on behalf of Userkaf, the progenitor of the dynasty who staked the family claim to Abusir as their eternal home.

The upper temple was so badly ruined that Ricke could retrieve only the major elements and considerable deductive skill was required to piece together small architectural fragments. Among these were parts of a granite obelisk – a new form that Neferirkare erected in Phase 2 to match the obelisk he had built for his own sun temple, as seen in its hieroglyphic name. A pedestal building clad in quartzite and granite replaced the temple's central mound, with a winding corridor up to the roof and a sacristy. In Phase 3 the enclosure and the area around the obelisk were again completely rebuilt. It was probably Niuserre who added an inner enclosure wall and chambers of limestone that were not completely dressed before the next phase, 4, saw the exterior surfaces cased in plastered mudbrick.

A mudbrick altar at the east side of the pedestal building belonged to the last phase, although previous stages must also have had one. No signs of burning were found around the altar, which was surrounded by a curiously diminutive enclosure wall compared to the towering granite obelisk. Similar small partition walls describe two stall-like fields immediately east of the altar. The Palermo Stone mentions that in the reign of Userkaf two oxen and two geese were sacrificed daily in his sun temple, but the partitions hardly seem adequate for holding live animals.

More curious yet are five low benches made of mud and broken stone. Ricke thought they were places for setting out offerings – like the open-air altars in the sun temples of Akhenaten more than a millennium later – or low benches for priests. Here the correspondence between the five benches and the five phyles into which priests and labourers were organized (p. 224) is made more compelling by a small stela labelled *Wer* ('Great') phyle found completely hidden inside one bench. No additional stelae were discovered in the next two benches, and the last two were left unopened.

Several features of this sun temple would have made the movement and slaughter of sacrificial animals less of a problem than in the pyramid temples, with their narrow doorways and sharp turns.



(Centre) An early form of the hieroglyphic name of Userkaf's sun temple includes a mound surmounted by a mast.

(Right) A schist head of a statue of Userkaf found in his sun temple.

The causeway was divided into three lanes along its length by low, thin mudbrick walls. Two narrow pathways ran on either side of a central roadway which would have been wide enough for driving reluctant oxen up to their fate on the hill. Ricke believed that the side paths may have aimed at two statue shrines, if these had already been set up in front of the obelisk in Phase 2.

At its lower end, the causeway entered a walled enclosure around the sides and back of the valley temple. Now, we might consider that the messy business of slaughtering and butchering animals might be more easily carried out in installations attached to the valley temples, after which priests would have ritually offered the meat in the upper temples. The slaughter hall named the Sanctuary of the Knife was built right in front of Raneferef's mortuary temple, but only because no valley temple was ever built for his pyramid. However, the broad court around the valley temple and the wide causeway of Userkaf's sun temple suggest that animals may have been led up it: the early, and possibly later, enclosure walls of the upper temple had rounded outer corners – a feature also found in 'Sanctuary of the Knife'.

The valley temple of Userkaf's sun temple had been extensively quarried for stone, but Ricke reconstructed its plan from fragments. It was considerably more than the glorified gateway represented by pyramid valley temples, or by the valley temple of Niuserre's sun temple, even though Niuserre may well have built this one also. The building is rectangular but not oriented to the cardinal directions, pointing generally – but not exactly – in the direction of Heliopolis. Ronald Wells has suggested that causeway and valley temple were oriented to stars that would have ascended in the sky just before sunrise around 2400 BC, so that the temple was a kind of astronomical clock for sacrifices that took place at dawn.

The front section of the valley temple was lost but may have contained an entrance hall and magazines. An open court with a colonnade of 16 rectangular granite pillars is certain. The few surviving elements behind the court left Ricke unsure whether there had been seven niches in the rear, or only five. If five, it bears a strong resemblance to the five niches in mortuary temples of most Old Kingdom pyramids since Khafre. The five niches could also relate to the five benches in the upper temple and to the five phyles of priestly service. Five niches also echo the five chambers built over the central mound at the original Nekhen temple after which this complex was named and with which our survey of pyramids began.

Niuserre's 'Delight of Re'

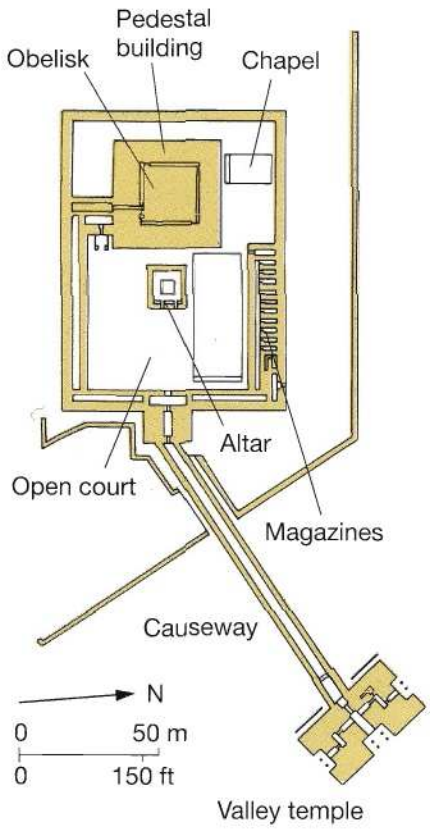
In addition to his extensive rebuilding of Userkaf's sun temple, Niuserre built his own, named 'Delight of Re'. In their excavations of 1898 to 1901, Heinrich Schaeffer and Ludwig Borchardt found evidence that, like Userkaf's sun temple, Niuserre's was also first constructed in mudbrick and then rebuilt in stone. Why was this so? The renewal of both temples might have commemorated Niuserre's celebration of the Sed festival. On the other hand, the transformations could reflect changing ideas about sun temples, analogous to developments seen in the earliest pyramids.

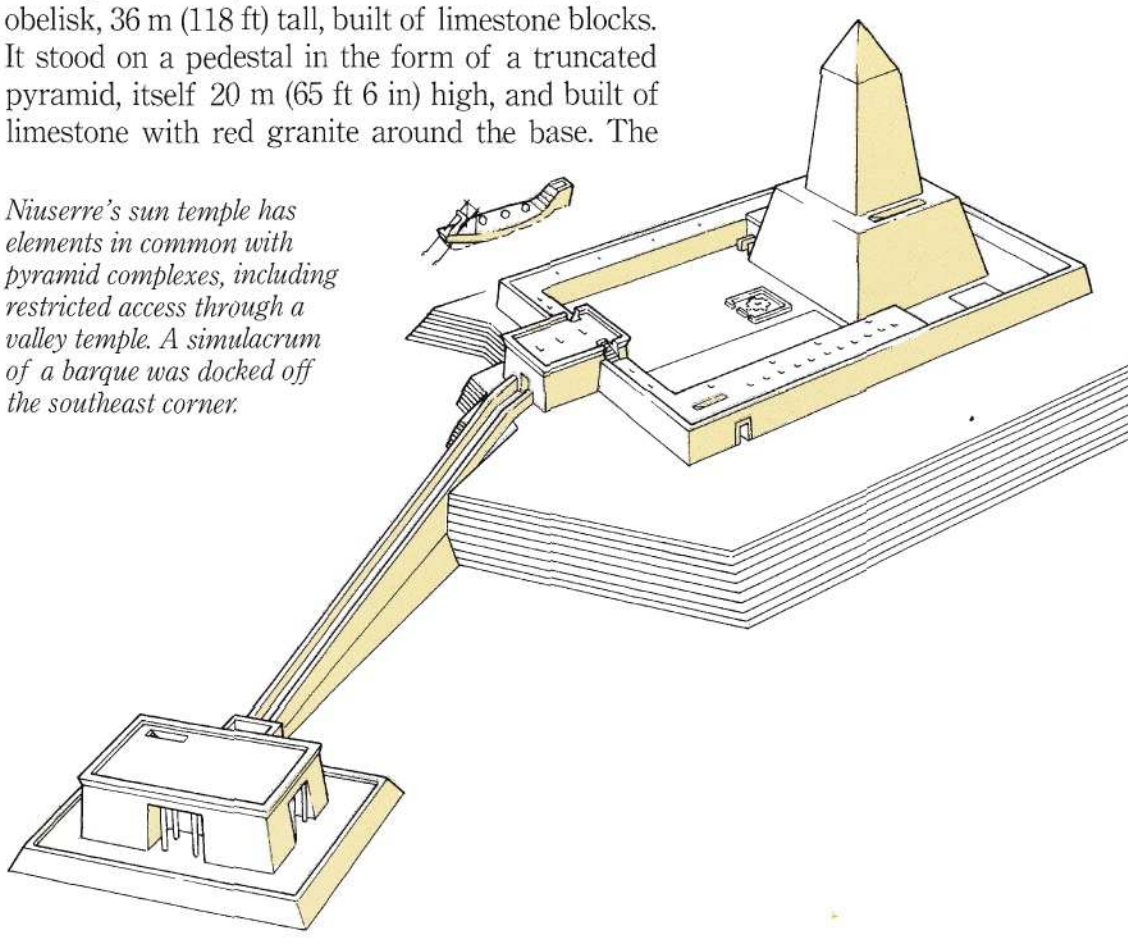
Like the valley temples of the 5th-dynasty pyramids, Niuserre's was little more than a monumental gateway forming the entrance to the causeway. It lay within an enclosure defined by a thick wall. Borchardt thought this was the enclosure wall of a surrounding town but he did not investigate the assumed settlement, so it remains conjectural.

The valley temple's layout was only partly retrieved because its remains were few and stood in knee-high ground water. A pillared portico of four palm columns formed an entrance through a pylon-like façade clad in white limestone. In addition to the main doorway on to the causeway, porticoes on either side gave access to narrow corridors.

The causeway ascended to an impressive terrace formed by extending a natural hillock to provide a platform on which the upper temple was built. In the first phase, mudbrick walls formed a grid of compartments filled with debris. Thick mudbrick retaining walls also formed the sides of the terrace. In the second phase a casing of yellow limestone blocks was added over the retaining walls.

The upper temple was set within a rectangular enclosure oriented to the cardinal directions. A T-shaped entrance hall had five granite-lined doorways. Those on the centre axis gave on to a broad rectangular court, dominated on the west by the obelisk, 36 m (118 ft) tall, built of limestone blocks. It stood on a pedestal in the form of a truncated pyramid, itself 20 m (65 ft 6 in) high, and built of limestone with red granite around the base. The





Niuserre's sun temple has elements in common with pyramid complexes, including restricted access through a valley temple. A simulacrum of a barque was docked off the southeast corner.

Niuserre – builder of a pyramid at Abusir and a sun temple at north Abusir.

combined height equalled or surpassed that of Niuserre's pyramid. In front of the obelisk and aligned with its centre axis stands an altar consisting of five slabs of white alabaster. The central element takes the form of a circle, 1.8 m (6 ft) in diameter, flanked by four slabs with the top carved in relief as the *Hetep* hieroglyph – a stylized conical bread loaf on a reed mat. This is the sign for 'offering', 'satisfied' or 'peace', commonly found at the base of false doors in Old Kingdom tombs. The whole arrangement can be read as 'May Re be satisfied'. There were no obvious signs of burning – perhaps burnt offerings were placed on another offering table fitted to a granite socket nearby.

Certain features were interpreted by Borchardt as belonging to a large 'slaughter court', including fragments of a limestone pavement that had been raised 15 cm (6 in) above the level of the surrounding court. Channels carved in the upper surface perhaps ran to a row of nine large alabaster basins that still survive. Each basin, about 1.18 m (3 ft 8 in) in diameter, had a series of small, circular shallow dips, between 24 and 26, carved around the rim. Borchardt thought that originally there were ten basins, and that the channels drained fluids – either the blood of sacrificed animals or the water used in cleaning up after the sacrifice – into them. However, Miroslav Verner doubts whether this was a place of slaughter at all. No tethering stones, flint knives or bones were found, in contrast to such evidence in the abattoir next to the pyramid of Raneferef. Perhaps offerings were ritually purified by laying them on the alabaster altar. The channels and basins certainly suggest that liquids were involved. A similar but smaller installation was found north of the obelisk, with seven more basins, this time of limestone and containing three drainage holes each.

From the entrance hall a right turn led along a corridor to a set of magazines built against the north enclosure wall, probably for short-term storage of offerings. At the east end a stairway led to the roof. A left turn in the entrance hall led to corridors with a wealth of fine relief carvings. These include one of the earliest scenes of the Sed festival of the king's renewal. In a section that attached to the pedestal building the three seasons were depicted. Fragments of the harvest (*shemu*) and inundation (*akhet*) seasons were preserved, but the season of 'coming forth' (*peret*) was lost.

Just outside the enclosure of the upper temple a huge mudbrick model of a boat, 30 m (98 ft) long, was found. This colossal simulacrum of a ship perhaps signifies the mythic boat in which the sun god sailed across the ocean of the sky. It also hints that the sun temple, like the pyramid complexes, was seen as a symbolic port to the world of the gods.

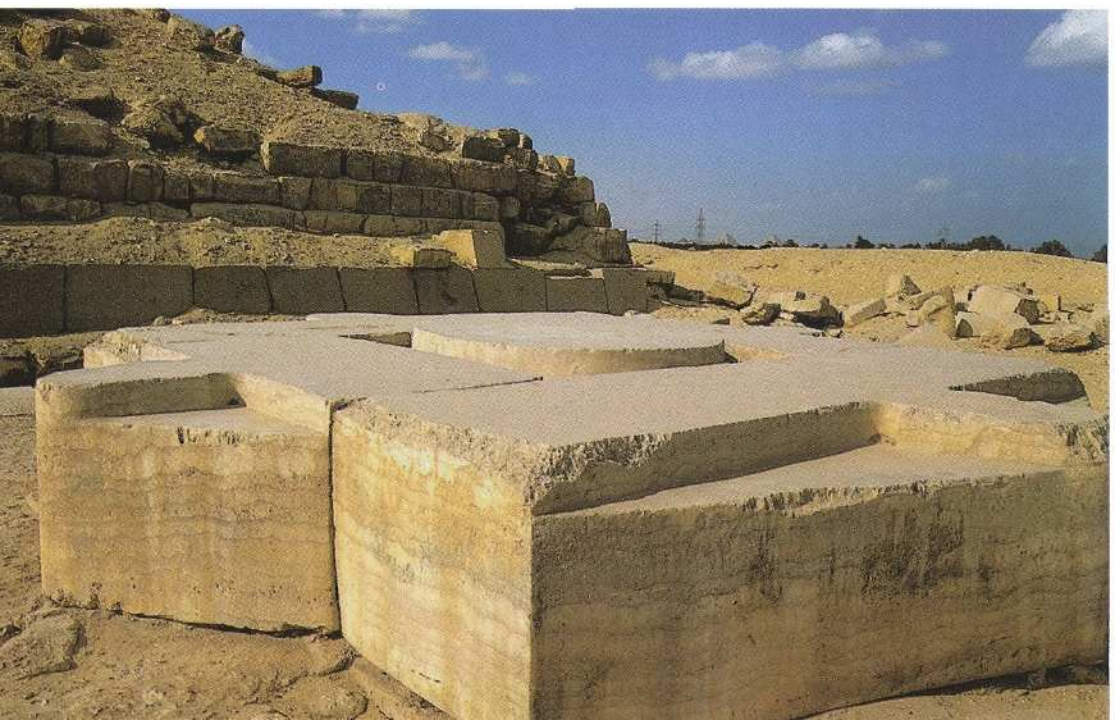
Meaning and function

The two sun temples found comprise at least six building or rebuilding projects. This has led to the intriguing idea that the various phases of the two known monuments are in fact the six temples mentioned in texts – for instance that *Nekhen-Re* was rebuilt and renamed *Sekhet-Re*. But one argument against this is that in the tombs of officials of the sun temples more than one is mentioned, as though they were functioning at the same time. An inscribed block from Sahure's sun temple was found in the masonry of Niuserre's pyramid temple, so perhaps the missing sun temples were destroyed for their stone.

Suggestions as to the significance of the sun temples are numerous, for instance that they were mortuary complexes for the sun, or for the king in his identity as the sun before birth and after death. Another idea is that they were places where the communion between the sun and the king could be consummated, ensuring the welfare of the land.

The Abusir Papyri give us a glimpse of the functioning of Neferirkare's sun temple. On papyrus scraps and fragments we read of provisions delivered by canal twice daily from the sun temple to the pyramid. One ox a day was slaughtered and the meat sent over to the pyramid. Bread and beer were also delivered from the sun temple, suggesting that they may have been produced nearby – perhaps in the valley enclosure. The 5th-dynasty pharaohs seem to have built their sun temples to be a sacred filter for the goods that sustained their pyramids.

An alabaster altar still stands in the court of Niuserre's sun temple. It can be read as a giant hieroglyph for 'May Re be satisfied' in the four cardinal directions.



Not only are we missing four of the six sun temples found in texts, we are also missing a pyramid for Menkauhor, the king who ruled for eight years after Niuserre. Dahshur was a suspected location because Menkauhor's pyramid is mentioned in a 6th-dynasty decree relating to Sneferu's pyramid. But Stadelmann's excavations established that a small unfinished pyramid northeast of the North Pyramid cannot be Menkauhor's. However, Lepsius pyramid XXIX, the so-called 'Headless Pyramid' (p. 165) at Saqqara is a possibility.

The Pyramid of Djedkare-Isesi

Djedkare-Isesi ruled for 32 years or more. He moved 6 km (3¾ miles) from Abusir and built the first pyramid in South Saqqara, relatively new ground except for the mastaba of Shepseskaf. Djedkare's pyramid is now aptly named el-Shawaf, 'The Sentinel', for it stands on a high spur overlooking the village of Saqqara; its ancient name was 'Beautiful is Isesi'. It was badly damaged in antiquity and its excavator, Abdel Salam Hussein, died before publishing his work. As with Niuserre's, the core of the pyramid was built in steps. The entrance was at ground level, just east of the centre of the north side. Here for the first time, except for the offering place at the Bent Pyramid (p. 103), were traces of a small limestone entrance chapel.

Inside the pyramid

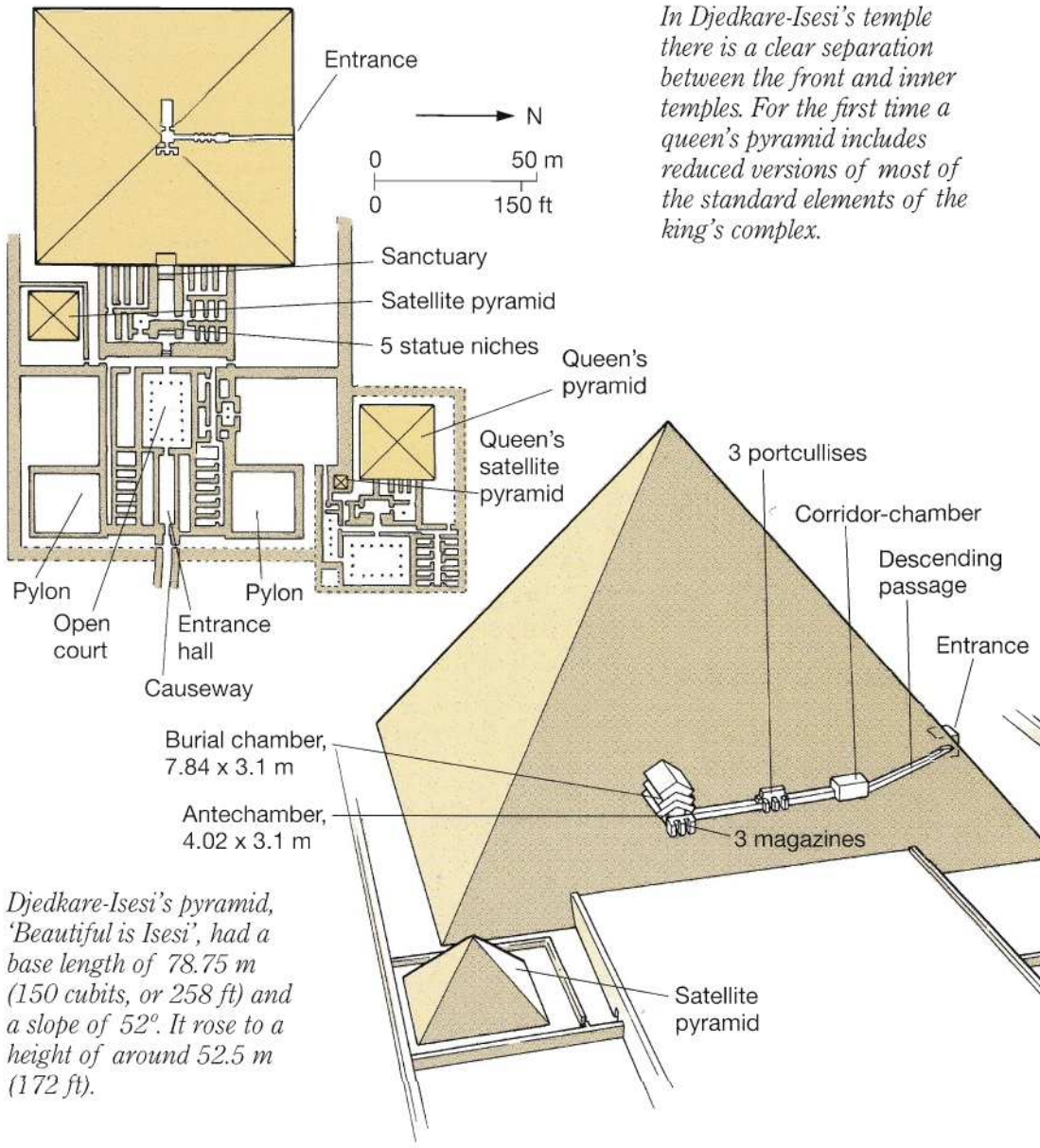
A granite-lined passage sloped down to an almost horizontal corridor-chamber lined with limestone, followed by three portcullis slots. Beyond was another passage, ending in an antechamber. Opening off the antechamber to the west was the oblong burial chamber. To the east were three magazines, a feature we have seen developing in the tombs of Menkaure, Shepseskaf and Userkaf. The burial chamber, constructed in an open shaft 9 m (29 ft 6 in) deep, was roofed with three layers of large gabled limestone 'rafters'.

Fragments of alabaster and a faience bead on a gold filament were found in the burial chamber. Scattered among the debris were enough fragments of the basalt sarcophagus to be able to reconstruct it. It was sunk into the floor, as was a niche for the canopic chest, originally concealed by a slab.

The pyramid complex

Although unexcavated, the course of the causeway can be discerned sloping in a straight line under the village of Saqqara. It joined the front of the mortuary temple between two massive masonry pylons. The symmetrical temple has yet to be completely cleared, but fragments of reliefs indicate it was as richly adorned as those at Abusir. A long vestibule led to a court surrounded by a colonnade of granite palm columns. Vestibule and court were paved in

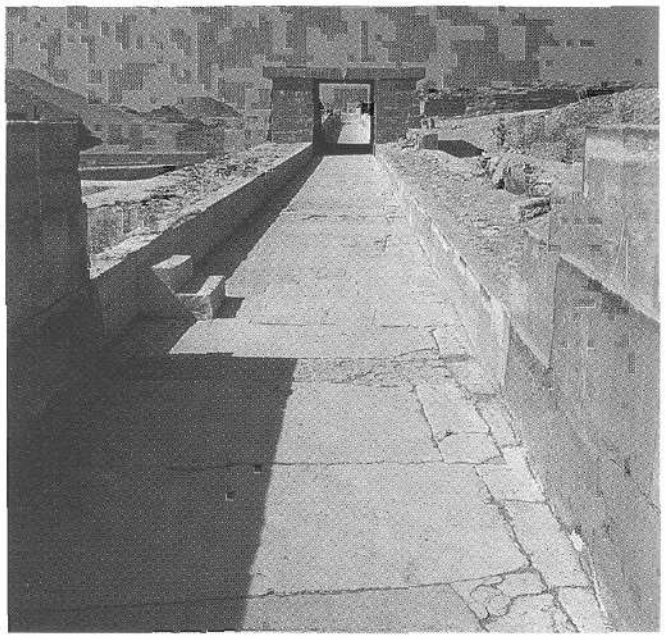
The End of the 5th Dynasty



In Djedkare-Isesi's temple there is a clear separation between the front and inner temples. For the first time a queen's pyramid includes reduced versions of most of the standard elements of the king's complex.

Djedkare-Isesi's pyramid, 'Beautiful is Isesi', had a base length of 78.75 m (150 cubits, or 258 ft) and a slope of 52°. It rose to a height of around 52.5 m (172 ft).

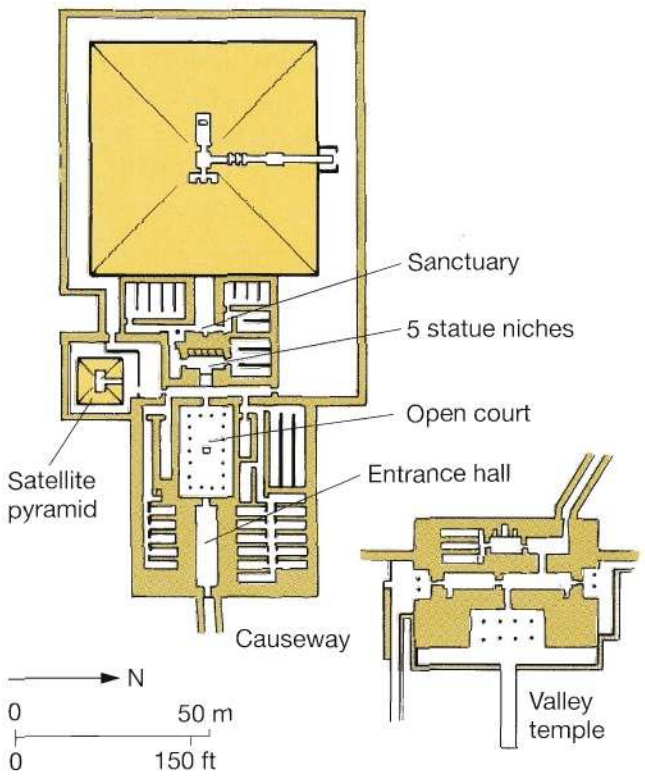
(Right) A gallery of brightly painted relief scenes would originally have lined Unas's causeway, 750 m (2,460 ft) long, lit by a slit in the great ceiling slabs.



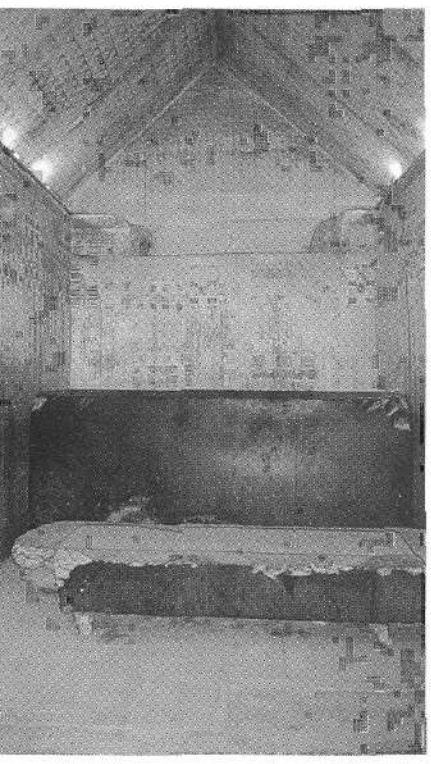
alabaster. Magazines on either side of the vestibule were reached by passages at each end of the transverse corridor separating the front from the inner temple, which here was more of a separate building. A door and small stairway led to the standard chamber with five statue niches, followed by a square antechamber with a single column, whence another turn opened into the offering hall. On either side, the inner temple was filled with long narrow magazines. Between the mortuary temple and the enclosure wall of the pyramid complex were four large open courts. In one was the satellite pyramid, with a T-shaped substructure. Another court might have been for animal slaughter or purifications.

A queen's pyramid situated off the northeast corner of the mortuary temple has, for the first time, smaller-scale versions of many of the standard elements of a king's pyramid. These include: its own enclosure wall; an offering hall; magazines; a square antechamber with a single column; a room positioned where the five statue niches are normally found; and a colonnaded court. It even had its own small satellite pyramid.

In the valley below the pyramid, granite architraves and walls of limestone and mudbrick were retrieved, perhaps part of the pyramid town or even the palace. Excavations also recovered limestone statues of prisoners with their hands tied behind their backs, calves, part of a sphinx and a lion support – the realization in the round of themes in the reliefs on pyramid temple walls.



Unas lay in the good earth, symbolized by his coffin, enclosed in a wood and reed-mat screen etched in the walls, the equivalent of the niched Archaic mastabas. He was the first pharaoh to have his burial chamber inscribed with Pyramid Texts.



The Pyramid of Unas

Unas, the last king of the 5th dynasty, may have reigned over 30 years (*c.* 2356–2323 BC), but his pyramid is the smallest of all known Old Kingdom pyramids. It is located between the enclosures of Djoser's pyramid and Sekhemkhet's. Unas thus completed a historical and architectural symmetry – the pyramid of Userkaf, the first king of the 5th dynasty stands at the opposite, northeast corner. In selecting this place Unas also put his pyramid temple directly over the substructure of the 2nd-dynasty tomb assigned to Hetepsekhemwy.

The entrance, in the middle of the north side, opened not in the pyramid's face but at ground level in the pavement of the pyramid court. Traces remain of a small entrance chapel.

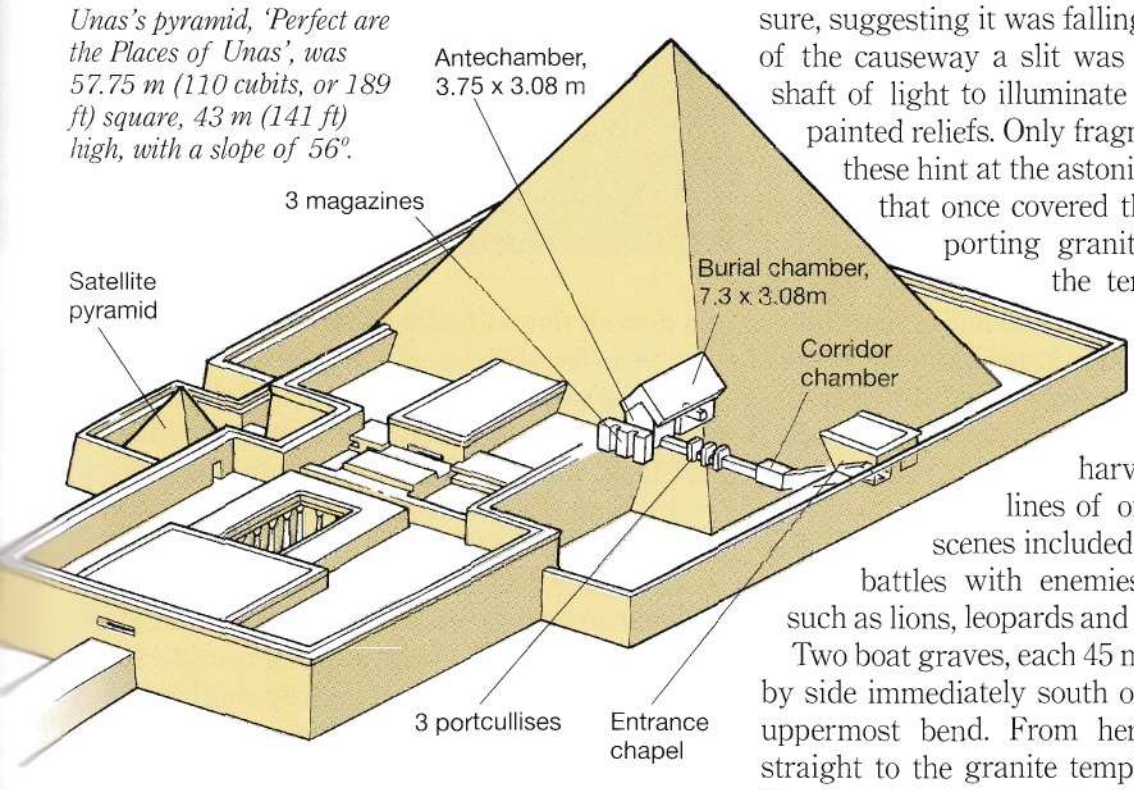
Inside the pyramid

From the entrance a passage slopes down to a corridor-chamber. This is followed by the usual horizontal passage, with three granite portcullis slabs. The passage then opened into the antechamber, directly under the pyramid's centre axis. To the east, a doorway opened to a room with three recesses. To the west lay the burial chamber, with its basalt sarcophagus still in place. Sunk in the floor to the left of the foot of the sarcophagus was the canopic chest. A few fragments of a skeleton found in the pyramid in 1881 are now in Cairo Museum.

Unas's chambers are the first since Djoser to be decorated. Around the sarcophagus the walls are lined with white alabaster incised and painted to represent a reed-mat and wood-frame enclosure. Unas thus lay inside his black coffin, representing the earth, within the divine reed-booth open to the sky, covered by the gabled ceiling with golden stars on a field of blue night sky. More significantly, the remaining walls of the burial chamber, antechamber and a section of the horizontal passage are covered with vertical columns of intricately carved hieroglyphs – the earliest example of the Pyramid Texts (p. 31). Each hieroglyph is painted blue, perhaps an allusion, like Djoser's blue-tiled chambers, to the watery aspects of the Underworld.

Unas's chambers contain only 283 of more than 700 known spells, some of which were already very

Unas's pyramid, 'Perfect are the Places of Unas', was 57.75 m (110 cubits, or 189 ft) square, 43 m (141 ft) high, with a slope of 56°.



ancient by his time. The wise men of the court must have seen what was happening to the monuments and cult of former kings. By etching in stone the sacred utterances and spells deep within the pyramid, Unas would enjoy their effect continually without having to depend for ever on the services of an unreliable priesthood.

The pyramid complex

In choosing the site for his pyramid Unas took advantage of two natural features. A long wadi east of the pyramid provided a good route for his causeway and opened on to a lake which formed a harbour for his valley temple, with a sophisticated arrangement of ramps, quays and a slipway.

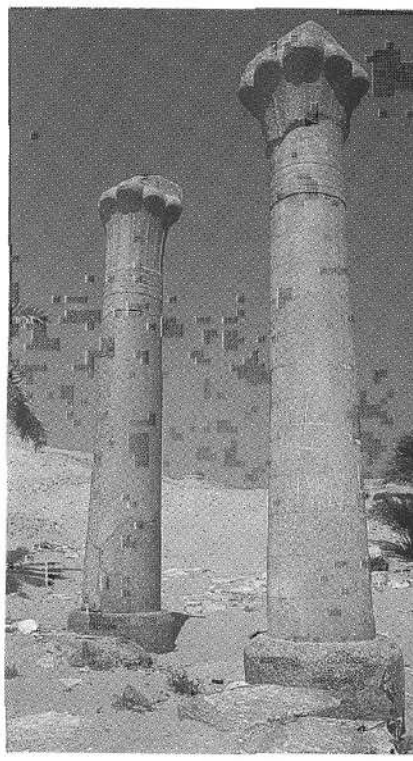
The causeway must have been one of the most impressive of any pyramid: at 750 m (2,460 ft) long it was equal to Khufu's. Though the wadi provided a natural route, gaps had to plugged with embankments. These contained blocks from Djoser's enclosure, suggesting it was falling into ruin. In the roof of the causeway a slit was left open, allowing a shaft of light to illuminate a gallery of brightly painted reliefs. Only fragments were found, but these hint at the astonishing array of scenes that once covered the walls: ships transporting granite palm columns for the temple (p. 202); craftsmen working gold and copper; estate labourers gathering figs and honey, and harvesting grain; and lines of offering bearers. Other scenes included bearded Asiatics and battles with enemies, and wild animals, such as lions, leopards and hyenas.

Two boat graves, each 45 m (148 ft) long, lay side by side immediately south of the causeway at its uppermost bend. From here the causeway led straight to the granite temple doorway that Teti, Unas's successor, completed and inscribed with his name to commemorate the act. In plan, the mortuary temple follows Djedkare's, marking the transition to the standard arrangement of 6th-dynasty pyramid temples. This consists of an entrance hall; colonnaded court; transverse corridor separating the front from the inner temple; statue chamber with five niches; square antechamber with its single pillar; offering hall with a granite false door; and the satellite pyramid. There are variations: for instance, Unas's pylons were not as massive as those of Djedkare; the palm columns of the court were thinner and taller and the single column in the antechamber is quartzite – from the Gebel Ahmar ('Red Mountain') near Heliopolis – a hard stone particularly associated with the sun.

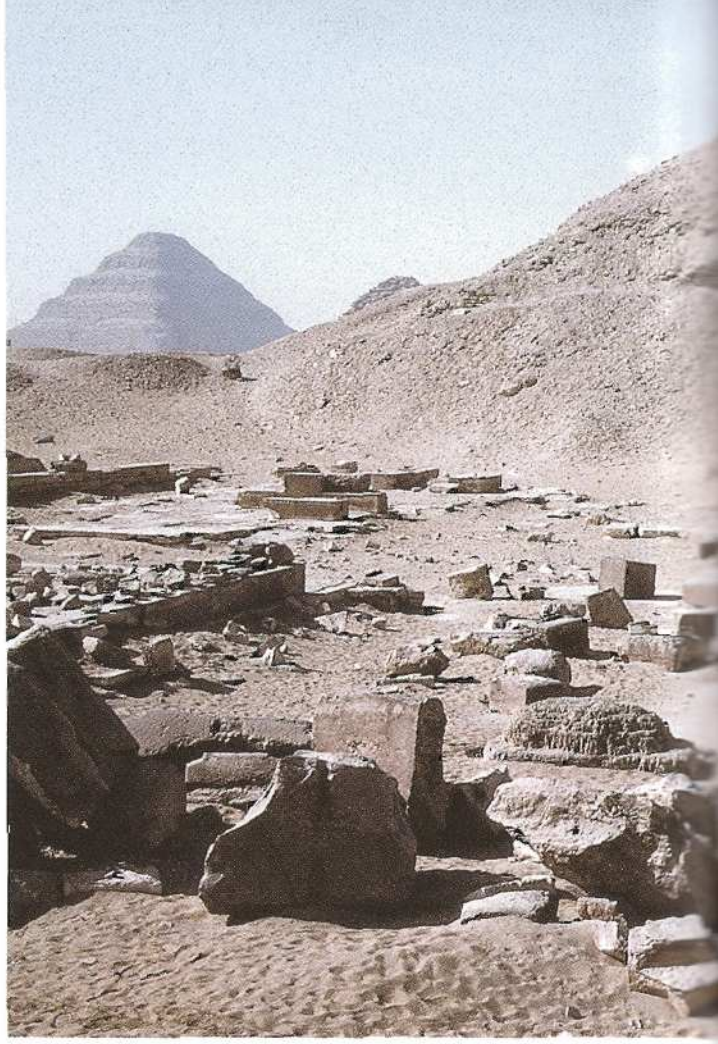
Unas's pyramid had already fallen into ruin by the New Kingdom. Khaemwaset, son of Ramesses II and High Priest at Memphis, left an inscription on its south side referring to his restoration work, thus causing the name of Unas to live again.

More than 1,000 years after Unas, Khaemwaset, a son of Ramesses II and high priest of Memphis, had an inscription carved to record his restoration of Unas's pyramid. Djoser's Step Pyramid, visible behind, was already falling into ruin when Unas built his tomb.

Granite columns with palm-frond capitals graced Unas's temples. This pair flank the southern entrance to his valley temple.



Pyramids of the 6th Dynasty



(Right) Teti's pyramid with the ruins of his mortuary temple in the foreground and Djoser's Step Pyramid behind.

Teti is listed as the first king of the 6th dynasty, though there is no evidence of a break in succession from Unas. Teti's queen, Iput, was the mother of Pepi I and probably a daughter of Unas. Certain of Teti's high officials, whose mastaba tombs are immediately north of his pyramid, had also served under Unas. One, named Kagemni, must have seen the building of three pyramid complexes.

The Pyramid of Teti

Teti chose a spot in North Saqqara, at the southern end of the 1st-dynasty mastabas and northeast of Userkaf's pyramid. He may have been anxious to include his pyramid in the diagonal formed by Userkaf, Djoser, Unas and Sekhemkhet, but it presents a puzzle as to the location of his valley temple and pyramid town, both of which are missing. Teti's pyramid stands above relatively high ground and an enormous embankment would have been needed to carry a causeway, also missing.

Teti's pyramid follows the prototype established in the late 5th dynasty and its dimensions are practically the same as those of Djedkare-Isesi, and of his successors Pepi I, Merenre and Pepi II. The core was built in steps and accretions made of small, locally quarried blocks and debris fill. Some blocks of the fine outer casing are preserved on the east side, but most of it was removed, causing the core to slump into the rounded mound seen today.

The entrance is at ground level on the centre axis of the pyramid and was simply covered with heavy flagstones, with a chapel built directly over it. Pivot sockets indicate that the chapel was closed by double-leaf doors. The side walls had painted reliefs depicting offering bearers and the roof was a massive limestone slab decorated with stars. In the back wall was a large false door of black basalt.

Teti's private apartment under his pyramid: looking from the three-niche chamber through the antechamber to the burial chamber and sarcophagus. The wooden beam is a modern support for the ceiling.

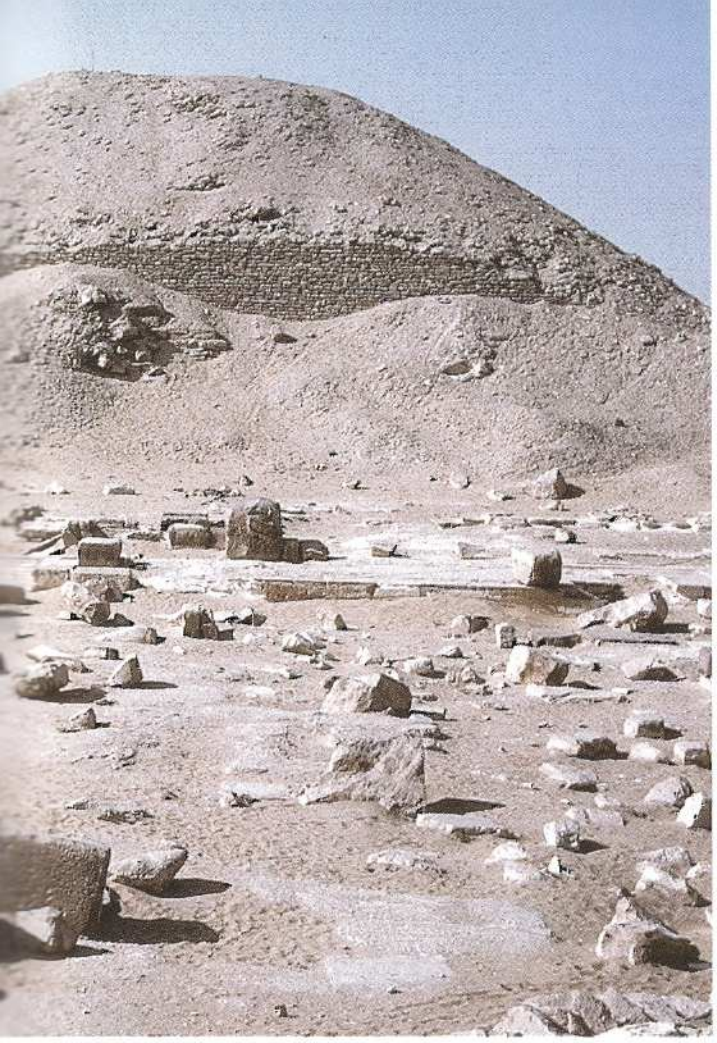
Inside the pyramid

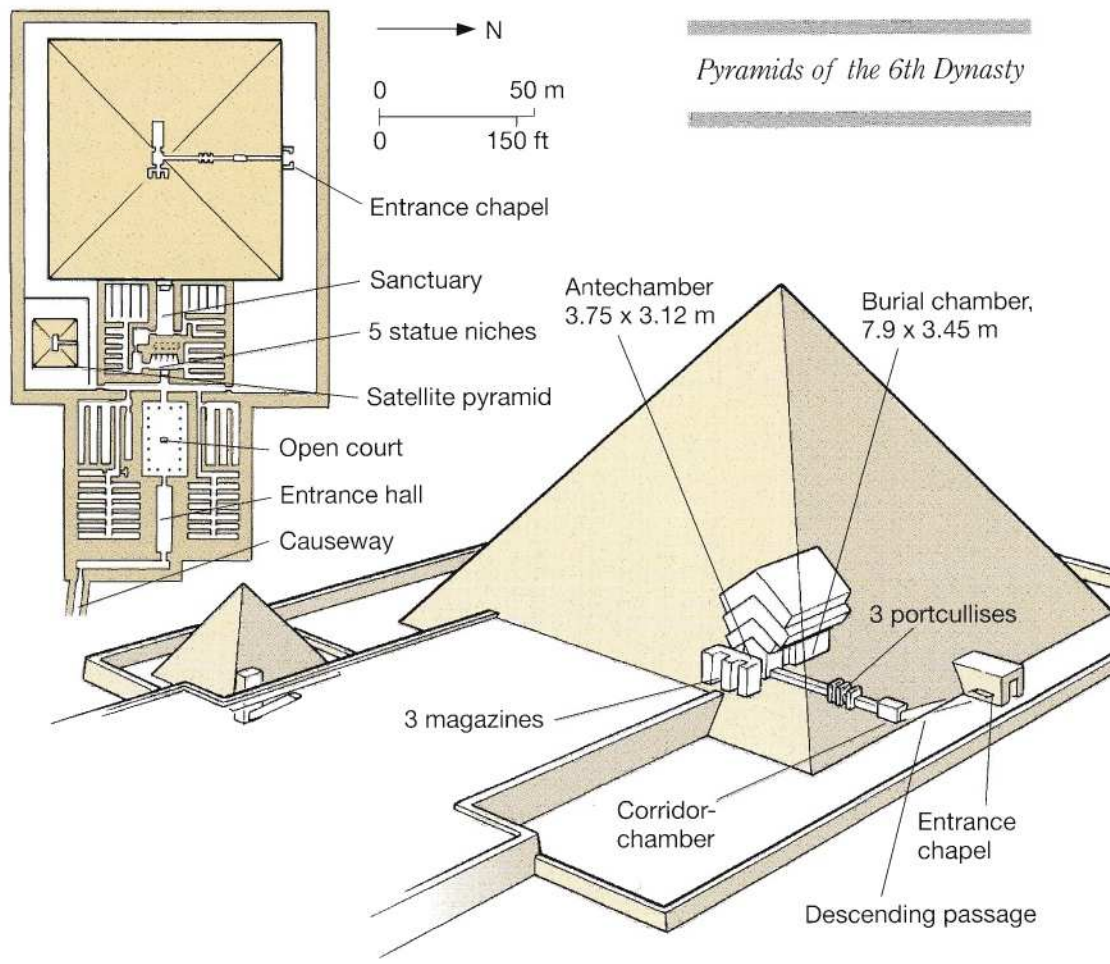
Teti's substructure is similar to Unas's, on a slightly larger scale. A granite-lined passage slopes down to a corridor-chamber followed by a horizontal passage, with three portcullises. The antechamber lies under the centre of the pyramid. To the east is a room with three niches; the burial chamber opens to the west. The basalt sarcophagus is well preserved and is inscribed, for the first time, with a single band of Pyramid Texts. Robbers broke through the lid and only a few fragments of the mummy survived. As with Unas's chambers, the walls of the burial chamber, antechamber and the last part of the horizontal passage were inscribed with Pyramid Texts, but here they are far more damaged.

The pyramid complex

Stone robbers also left little of the mortuary temple but its plan conforms to a standard scheme, following the essentials of Djedkare and Unas. One variation is the entrance, as the causeway may have been shifted south of the central axis in order to miss Lepsius pyramid XXIX (p. 165). If this belonged to Menkauhor, it would already have stood in Teti's time. A long, narrow corridor led to a doorway on the mortuary temple's central axis. This led in turn to a vestibule with a roof decorated with stars.

In his colonnaded court Teti returned to the square granite pillars of the 4th-dynasty and Userkaf. A rectangular alabaster altar in the centre retained traces of reliefs. Similar altars are known from emplacements or fragments in the mortuary temples of Sahure, Neferirkare, Niuserre and Unas. Magazines arrayed on both sides of the court and vestibule were entered via the transverse corridor. The small alabaster stairway to the statue chamber with its five niches is well preserved but not the walls of the niches. Each niche had a double-leaf doorway with a granite frame inscribed with the titles of the king. The offering hall, entered by a vestibule and square antechamber with a single pillar, had a vaulted ceiling. At the west end, against the pyramid, was a false door resting on a quartzite foundation block and framed with limestone reliefs.





Teti's pyramid, 'The Places of Teti Endure', measured 78.5 m (258 ft) to a side and rose to 52.5 m (172 ft) high at an angle of 53° 7' 48". The enclosure measured 200 cubits (105 m) N–S by 243 cubits (127.57 m) E–W.

The satellite pyramid was found in its standard place south of the inner temple and measured 15.7 m (30 cubits, 51 ft 6 in) square. In the court surrounding it were two basins of red quartzite on the eastern side and a third on the west; a small limestone basin was placed somewhere on the north.

Pyramids of Iput and Khuit

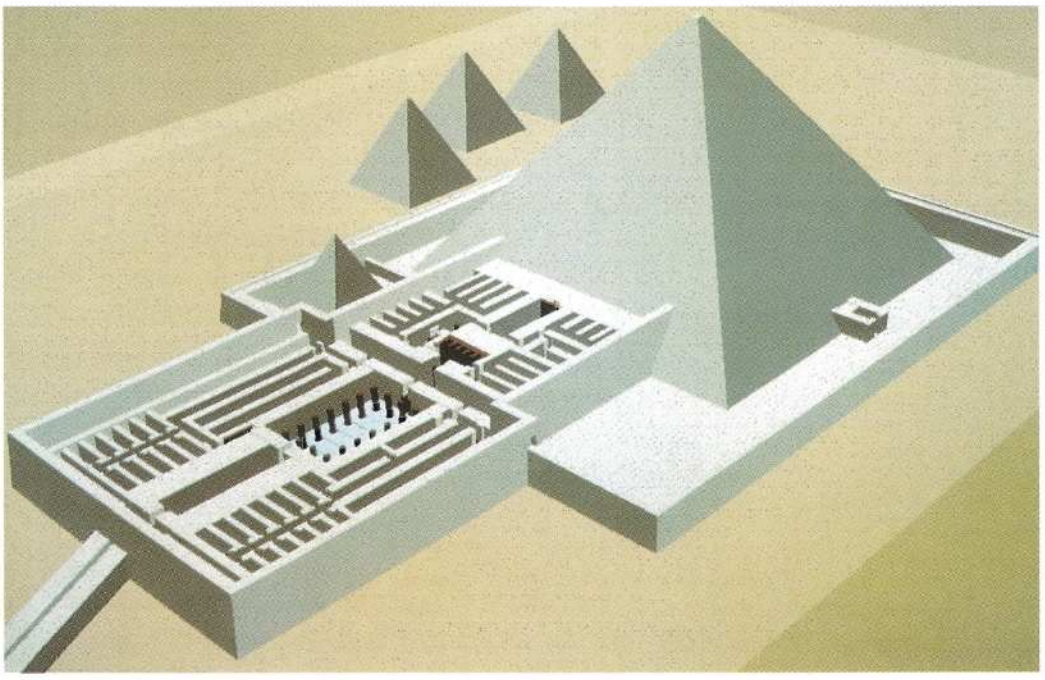
Two royal women of Teti's court were favoured with their own pyramids, in separate enclosures north of Teti's pyramid and behind the mastabas of court officials. Iput's pyramid was originally a mastaba, which her son, Pepi I, transformed into a pyramid. A. Labrousse ascertained the position of Khuit's pyramid, lost since the excavations of Loret in 1897–9 and Firth in 1922, but it was only excavated by Z. Hawass in 1997. It still stands for 7 m (23 ft) of its original 20-m (66-ft) height.

Loret could not find the entrance of Iput's, for the simple reason that it had none. The small pyramid, with sides 15.75 m (52 ft) long and a steep slope of 65°, was built over a vertical mastaba shaft and burial chamber. A small red granite false door on the north side was part of an 'entrance chapel' and a chapel on the east side had its own court, statue chamber with three niches, and offering hall with a limestone false door and a granite offering slab.

Iput's remains were found in a cedar coffin in a roughly dressed limestone sarcophagus. Although thieves had broken in, Iput's skeleton was intact, along with fragments of her necklace and a gold bracelet. Five crude canopic jars were also found. The room was filled with limestone chips to the level of the sarcophagus lid. On this were model vessels of alabaster, pottery and copper, alabaster slabs inscribed with the names of sacred oils, and model gold-leaf covered copper tools. Although robbed, this burial assembly seems to have been far more meagre than that of Hetepheres at Giza.

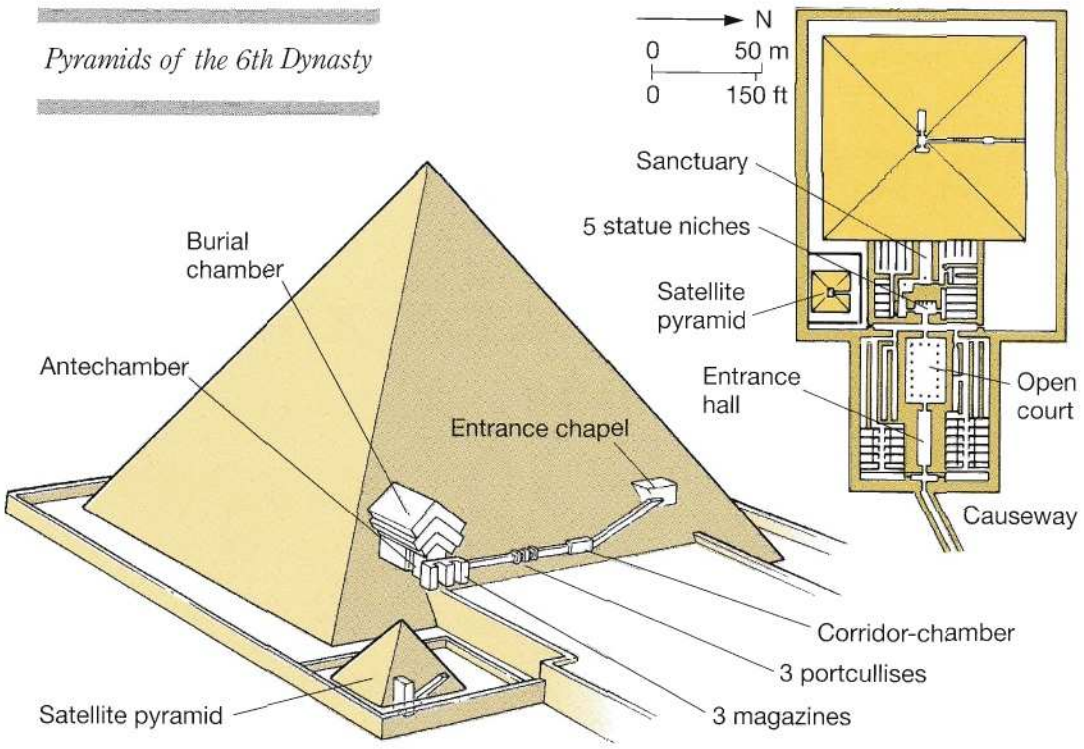
The Pyramid of Pepi I

Teti may have exhausted the topographical opportunities for pyramid complexes in Central and North Saqqara. Pepi I returned to a spur of high desert in South Saqqara, defined by the broad Wadi Tafla on the south. His pyramid is now reduced to a low mound, about 12 m (39 ft) high, with a large



Audran Labrousse's computer model of Pepi I's pyramid complex. Except for the central court, all chambers and magazines were dark covered spaces.

Pyramids of the 6th Dynasty

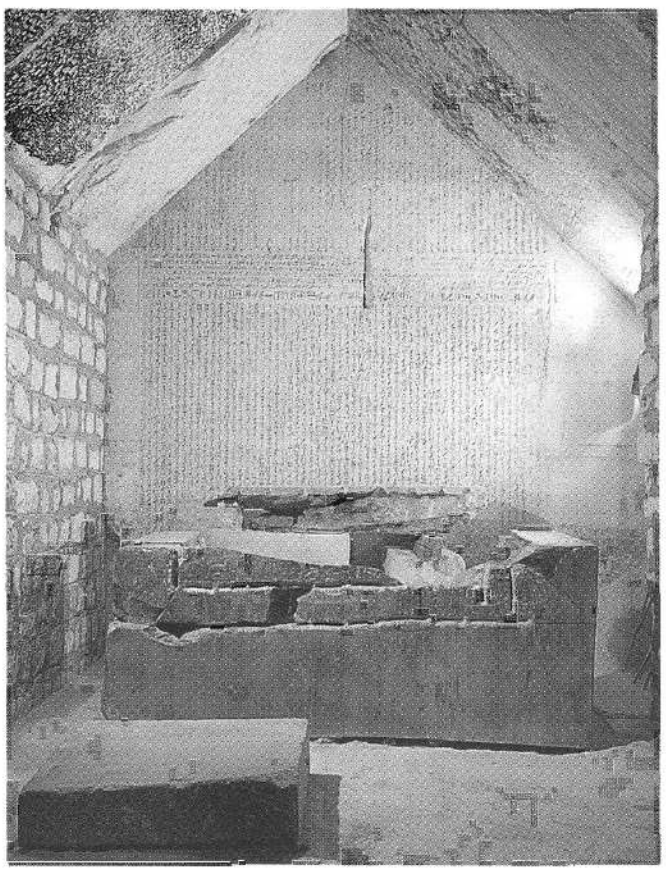


Pepi I's pyramid, 'The Perfection of Pepi is Established' followed the highly standardized pattern of the 6th dynasty. Though now badly destroyed it is estimated to have been 78.75 m (258 ft) to a side and 52.5 m (172 ft) high, with an angle of slope of 53° 7' 48".

crater in the centre dug by stone robbers. It was in this pyramid and Merenre's that the Brugsch brothers discovered Pyramid Texts in 1881. The pyramid and its mortuary temple have been systematically cleared and studied by the French Archaeological Saqqara Mission (MFAS), beginning in 1951 and directed by Jean Leclant since 1966.

Inside the pyramid

Pepi I's substructure is similar to Teti's, with the difference that the Pyramid Texts have expanded to cover more of the walls. Vertical columns of hieroglyphs were painted green, the colour of freshness, growth and renewal. In the course of restoration work, the French made a rare find in pyramid archaeology. The pink granite canopic chest, with its lid, was still set into the floor niche in front of the sarcophagus. A complete packet of viscera, presumably Pepi I's, lay close by – the tightly wrapped bundle retaining the shape of the alabaster jar which once held it (p. 22). On both the interior and exterior of the sarcophagus of hard, dark stone was a line of Pyramid Texts; around it the walls of the chamber were decorated with the motif of the reed-mat booth. As in the pyramids of Unas and Teti, the room to the east of the antechamber was left uninscribed.



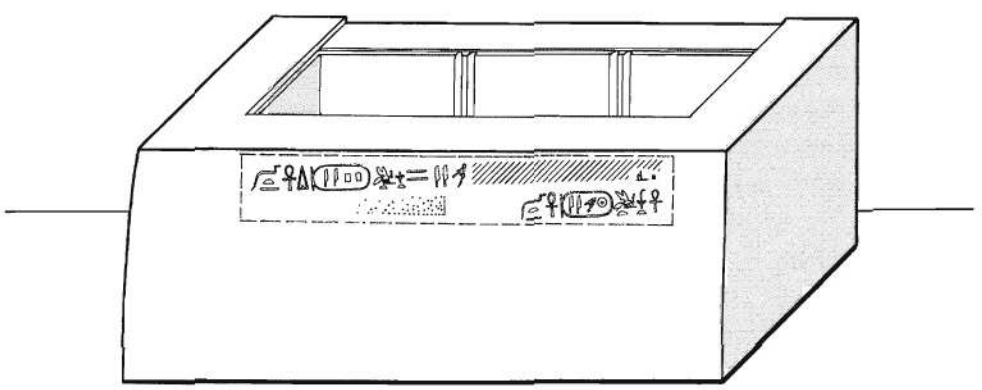
The burial chamber of Pepi I after the impressive work by the French Mission, who found the black stone sarcophagus (below) and canopic chest, with one packet of the king's viscera (p. 22). Thousands of fragments of Pyramid Texts were restored like a gigantic jigsaw puzzle.

The pyramid complex

Like all the Saqqara mortuary temples, Pepi I's had suffered grievously from lime makers, but three decades of study by the French have shown that it had all the essential components of previous temples. A number of limestone statues of prisoners, broken at the neck and waist, were found in the southwestern part of the temple where they had been brought to be thrown into lime furnaces. Each represented a kneeling man, his hands tied behind his back, belonging to Egypt's traditional enemies. Remains of similar statues were found at the pyramids of Djedkare-Isesi, Teti and Pepi II. Lauer suggested that they lined the two sides of the causeway to signify the conquered peoples of the north and south. Alternatively they may stood under scenes of the king's victories in the mortuary temple.

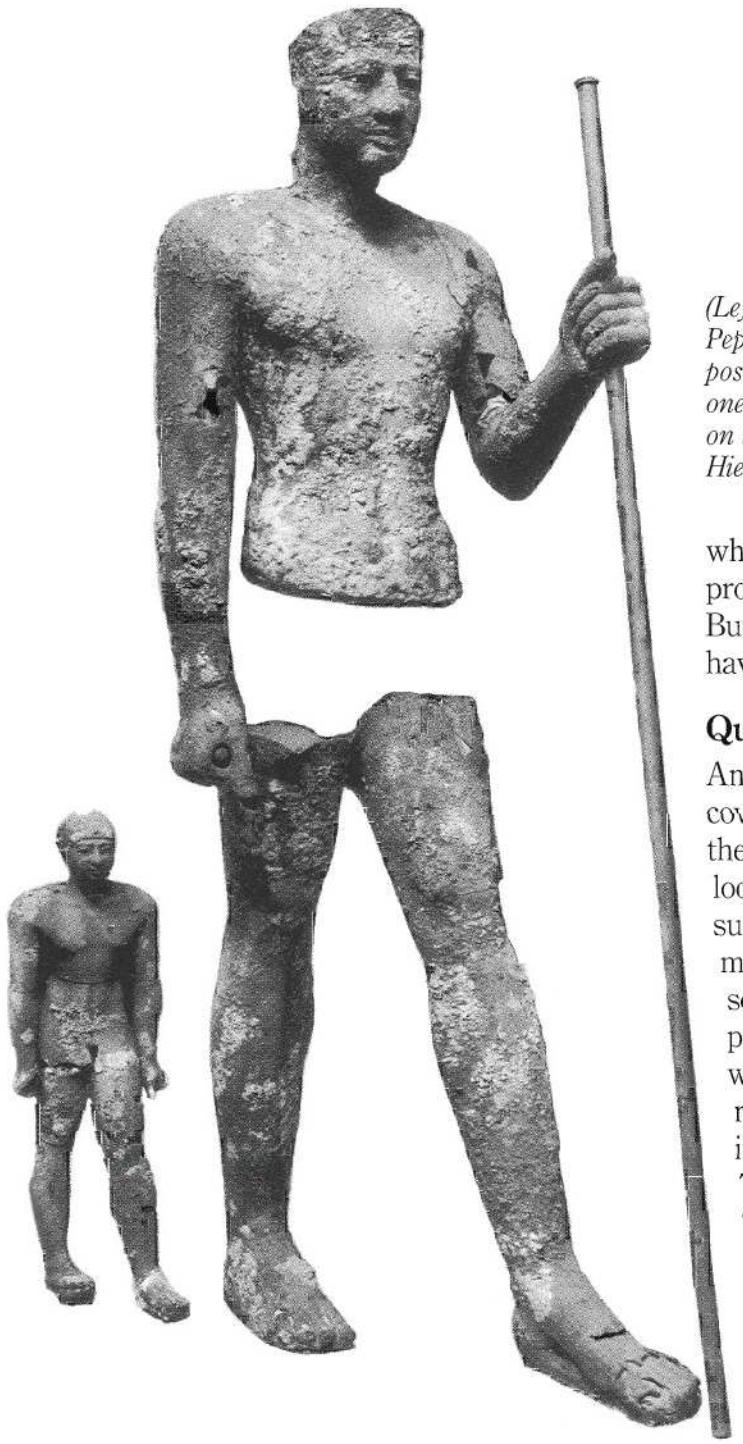
Pepi I's valley temple and pyramid town have never been excavated, nor has his causeway, except for a few metres in front of the mortuary temple. However, the line of the causeway revealed by contours may point to the valley temple under the alluvium in the bay. The name of the pyramid and its town, *Men-nefer Pepi*, 'The Perfection of Pepi is Established', extended in the Middle Kingdom to the settlement around the nearby Ptah temple, and was handed down in Greek as Memphis.

Pepi I's satellite pyramid was in a better state of preservation than the mortuary temple. Statue fragments, parts of stelae and offering tables found in the debris indicate that the cult of Pepi I continued into the Middle Kingdom, though the pyramid was falling into ruin by the New Kingdom. In 1993, on the south side of the main pyramid, the French found another inscription of Khaemwaset, in



Pyramids of the 6th Dynasty

The ruins of the pyramid and mortuary temple of Pepi I, in the course of clearing by the French Archaeological Mission at Saqqara.



(Left) A copper statue of Pepi I and one of his sons, possibly Merenre, found in one of the five chambers on the temple mound at Hierakonpolis.

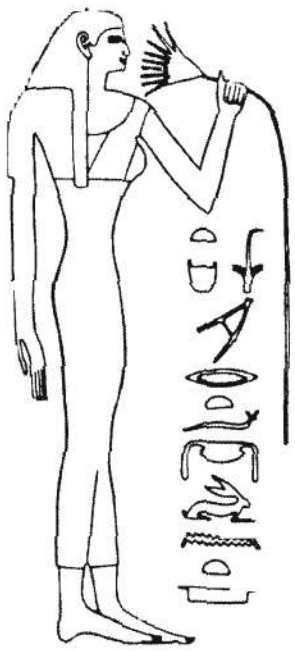
(Above) Two of the bound prisoner statues that may have lined the court of Pepi I's mortuary temple. As the king plants trees in orderly rows in the court (the columns) and clears a space of wild foliage (the court), so he ties the hands of 'wild' nomadic peoples on Egypt's margins. They had been deliberately broken at the neck and waist.

which he describes how he recalled for posterity the proprietor of a pyramid he had found abandoned. But the most dramatic finds of the last few years have been the queens' pyramids.

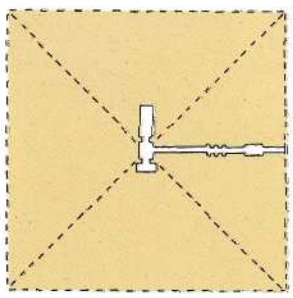
Queens' pyramids

An enormous accumulation of debris and sand covered an area south of Pepi I's pyramid. In 1988 the French team used electromagnetic sounding to look for boat-pits and queens' pyramids that they suspected might be buried here. Possible emplacements for three small pyramids were located and soon an apex stone and casing stones of a small pyramid emerged. Eventually three pyramids were cleared, all about 20 m (65 ft 6in) square, roughly aligned in an east–west row. Each had its own enclosure and small offering temple. They were ascribed to the 'Queen of the West', 'Queen of the East' and 'Queen of the Centre'.

On the fallen east jamb of the mortuary temple of the eastern queen was an image of the queen, with her name, Nebwenet, and her titles. The western queen's identity is preserved only



Queen Nebwenet – tall and slender in 6th-dynasty style – from her pyramid chapel.



Merenre's pyramid was badly destroyed and has yet to be fully cleared or surveyed. It may have been planned to follow the dimensions of his predecessors' pyramids.

(Right) The burial chamber with the sarcophagus and canopic chest.

as 'eldest daughter of the king' on a small obelisk in front of her pyramid. The name of the central queen, Inenek/Inti emerged when her visage, name and titles were found on jambs and small obelisks flanking the door to her temple.

The French team suspected yet a fourth queen's pyramid – a suspicion confirmed by the discovery of a stela inscribed with the name of Merytytyes, a royal wife and daughter. Recently a fifth queen's pyramid has been located. These women of Pepi's court would be deeply appreciative of the work of the French, who are fulfilling one of the highest hopes of literate ancient Egyptians by ensuring that their names live on after death.

The Pyramid of Merenre

Pepi I's eldest son and successor, Merenre, reigned only a short time. Although we are uncertain just how short, it was probably only nine years. Merenre probably planned his pyramid to the same standard dimensions (150 cubits square, 100 cubits tall, 53° 7' 48" slope) as his immediate predecessors, although an exact survey has yet to be done and so we do not have precise details or plans.

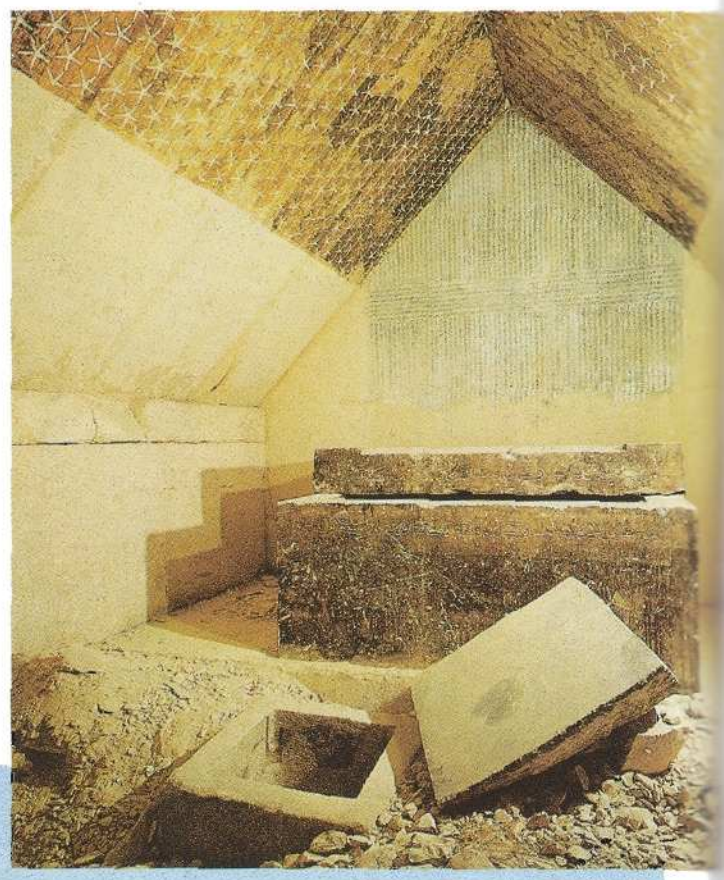
The pyramid is 450 m (1,476 ft) southwest of Pepi I's and the same distance directly west of Djedkare's. It is unusual for a pyramid to be located due west of an older one but perhaps Merenre wanted to use the Wadi Tafla as his harbour. He would have needed a causeway that spanned a drop of 27 m (86 ft) over a distance of only 300 m (984 ft). A linear feature may be the beginnings of an embankment.

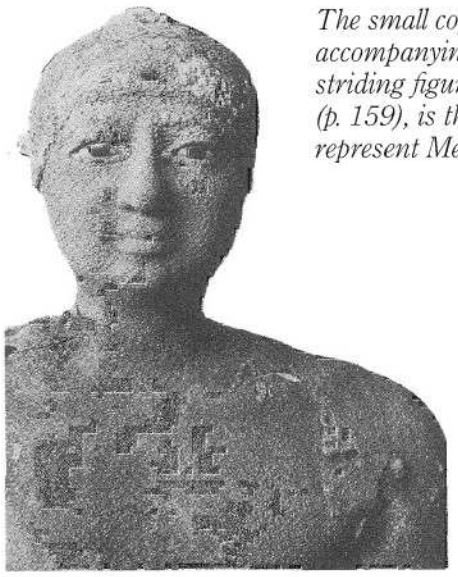
Inside the pyramid

The substructure is very similar to Pepi I's, including the distribution of Pyramid Texts. The Brugsch brothers were the first archaeologists to enter, by crawling through a robbers' tunnel around the lowered granite portcullis slabs. Inside the burial chamber the huge limestone ceiling girders and a gigantic slab between this room and the antechamber hung suspended after robbers had removed much of the lower supporting walls. But the black basalt sarcophagus was in good condition, its lid intact but pushed back. Amazingly, it still contained a mummy, apparently that of a young man, as the hair was braided into the side lock of youth. The great anatomist of Egyptian mummies, G. Eliot Smith, considered it an intrusive secondary burial, possibly of the 18th dynasty. Unfortunately the mummy, now in Cairo Museum, has not yet been properly studied. When the French team cleared the burial chamber they found the red granite canopic chest, with its lid, in front of one end of the sarcophagus.

The pyramid complex

On the pyramid's north side, the French found two corner stones of the entrance chapel in position, along with fragments of reliefs of deities walking towards the king to greet him as he entered their world. In the mortuary temple, the offering hall was paved with limestone. Traces of an offering table





The small copper statue accompanying the larger striding figure of Pepi I (p. 159), is thought to represent Merenre.

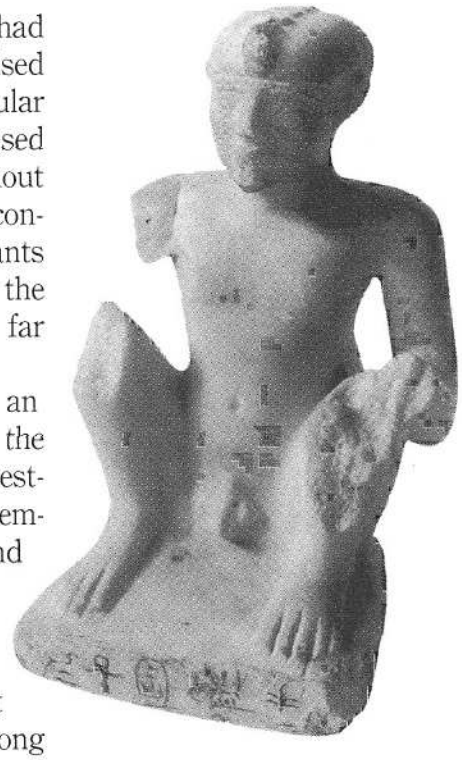
with a limestone trough at its side were found, and another small offering table against the north wall and an elliptical depression in the pavement. Only the base of the granite false door remained at the west end of the hall. Some of the relief decoration had only been outlined and not modelled. Work in the temple must have stopped when the king died.

A slab of limestone from a small chapel at Abydos is inscribed with one of the very rare contemporary texts about the building of a pyramid. The hieroglyphs convey to us the voice of Weni, whose career spanned the reigns of Teti, Pepi I and Merenre. Under Merenre, Weni became Governor of Upper Egypt, which gave him responsibility for bringing back stone for the pyramid, including the sarcophagus – trips he describes in great detail.

The Pyramid of Pepi II

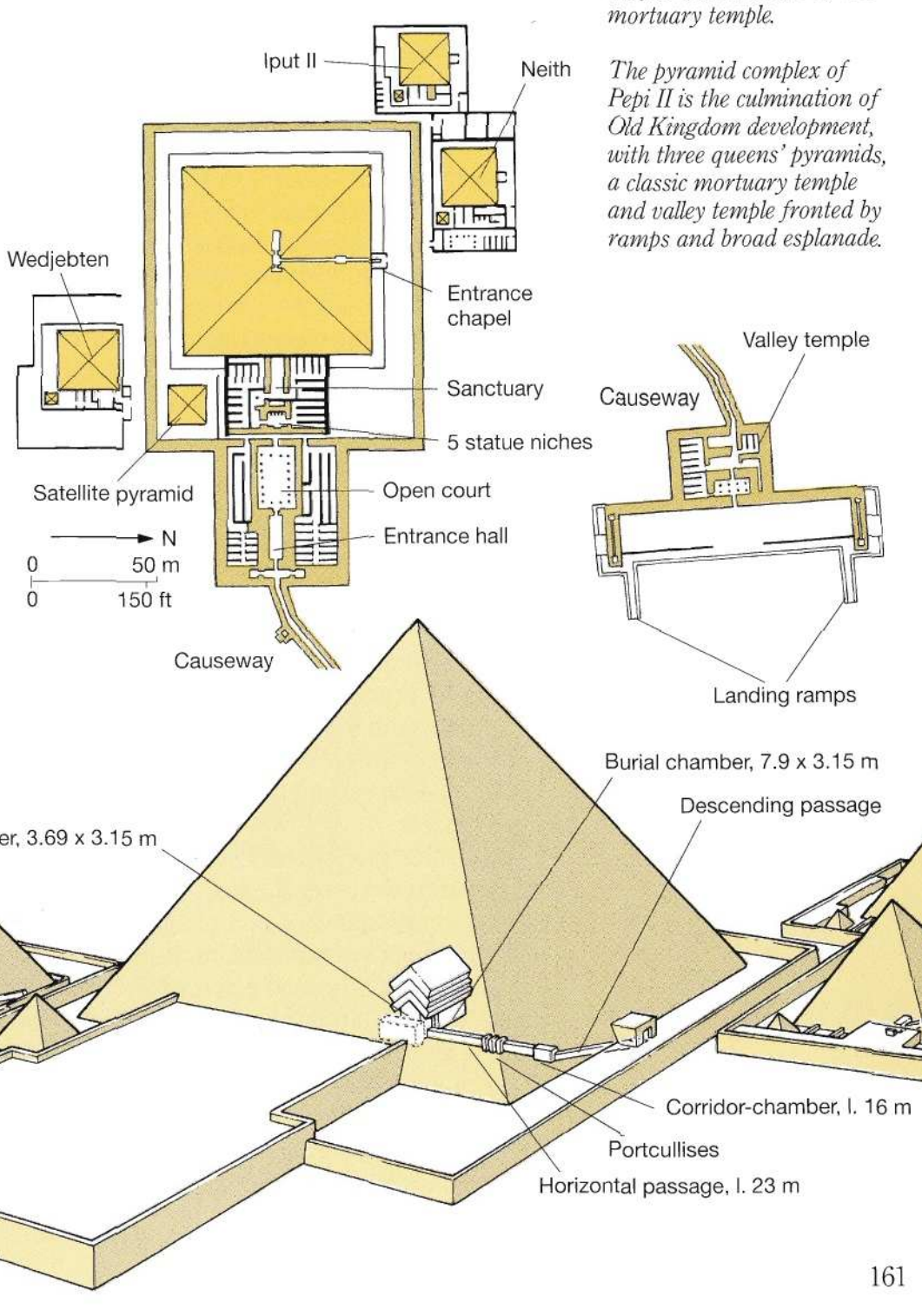
Pepi II was the last Old Kingdom ruler of any substance. His pyramid was fittingly named '*Nefer-ka-Re* [Pepi II] is Established and Living' since he lived 100 years according to Manetho and ruled 94 years – longer than any other pharaoh. He located his pyramid south of Merenre's and Djedkare-Isesi's across the Wadi Tafla, and only 120 m (394 ft) away from the mastaba of Shepseskaf. Despite such a long reign, Pepi II's pyramid was the standard size – 150 cubits (78.5 m/258 ft) square and 100 cubits (52.5 m/172 ft 4 in) high. By the time it was excavated by Gustave Jéquier (1926–36), however, it had been reduced to a low mound. The core comprised five steps, with retaining walls of small irregular stones set in tafla and Nile mud, the whole encased in heavy blocks of Turah limestone laid without mortar. The retaining walls are reminiscent of construction ramps at Giza. In effect, the descendants of the Giza masons built the pyramid core in the same way as the earlier ramps, with material far easier to mould and manipulate.

A unique feature of Pepi II's pyramid was an immense girdle, 6.5 m (21 ft) wide, added after the pyramid had been completed. It has been suggested that the builders wanted the pyramid to resemble the hieroglyph for 'pyramid', with a band across the base, or that they were worried about its structural security. In the standardized pyramid complexes of the 6th dynasty we see little of the successive rebuildings that characterize earlier ones. Considering Pepi's long reign, and if pyramid building was indeed part of a ritual cycle, the girdle perhaps celebrated one of his Sed festivals.

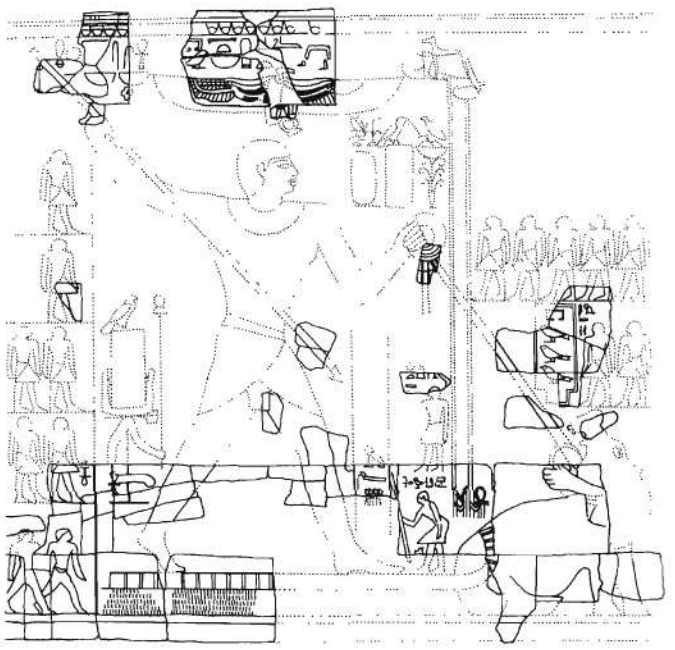


An alabaster statuette of Pepi II as a child, found near the five statue niches of his mortuary temple.

The pyramid complex of Pepi II is the culmination of Old Kingdom development, with three queens' pyramids, a classic mortuary temple and valley temple fronted by ramps and broad esplanade.



Pepi II's pyramid – 'Pepi is Established and Living' – was the standard size – 78.75 m (258 ft) square and 52.5 m (172 ft) high, with an angle of slope of 53° 7' 48", despite his 94-year reign.



(Above left) The pyramid of Pepi II looking northwest over the ruins of Wedjebten's pyramid, with packed stone and clay core walls typical of the complex.

(Above right) Pepi II spears a hippopotamus, thus asserting his control over the forces of chaos in a relief from the front vestibule of his mortuary temple.

Inside the pyramid

From the entrance a passage sloped down to a corridor-chamber with a star-studded ceiling and walls covered with Pyramid Texts. Here Jéquier found fragments of alabaster and diorite vases, perhaps for perfume, and a golden spatula. These may have been used in a ritual performed at the closing of the pyramid corridor. A further section of the horizontal passage, lined with granite, was blocked by three portcullises.

The inner chambers were covered with a gabled ceiling decorated with stars. Single gigantic limestone blocks form the north and south walls of the burial chamber. Around the black granite sarcophagus, inscribed with the kings titulary, the walls were decorated in the niched pattern of the sacred reed-mat booth. At the head and foot ends, the decoration featured false doors, painted green, topped with a name plate of the king. Two low walls west of the sarcophagus supported the lid until it was pushed sideways to seal the king's mummy. Only the niche of the canopic chest remained in the floor, together with its granite lid.

The pyramid complex

If, as we suspect, there were pyramid towns below the tombs of Djedkare, Merenre, Shepseskaf and Pepi II, a substantial line of settlements must have extended along the base of the escarpment by the end of the Old Kingdom. Unfortunately it has never been excavated.

Visitors could gain access to Pepi II's valley temple either from the desert or from the harbour via ramps up to an esplanade and platform. A single door, framed in red granite and inscribed with Pepi II's name and titles, opened into a small hypostyle hall with eight rectangular pillars. The walls were decorated with reliefs of the gods receiving the king, the suppression of enemies and a hunt in the papyrus thickets. Other rooms were undecorated.

From the scattered fragments reconstructed by Jéquier it seems Pepi II's artists copied much of his decorative programme from Sahure's complex. The lower part of Pepi's causeway showed the king, transformed into a sphinx and griffin, trampling on his enemies; the upper part had scenes of offering bearers. The causeway changes direction twice to take advantage of the most even slope.

At either corner of the east wall of the mortuary temple was a kind of proto-pylon that temple builders had been developing since Niuserre. A door on the central axis of temple and pyramid led to a vestibule where reliefs depicted the king's triumph over human and animal forces of disorder – the latter in the form of a hippopotamus, which the king harpooned from a boat. Around the open court was a colonnade of 18 rectangular quartzite pillars. Each was decorated on the side facing into the court with figures of the king and a god. Notwithstanding the pillars and granite doorways, there seems to have been a cheapening of materials and decoration – the court was paved in limestone and the walls of the open court were undecorated.

A doorway at the south end of the transverse corridor opened to the court with the satellite pyramid which was 15.75 m (30 cubits, 52 ft) square and had a slope, like most late Old Kingdom satellite pyramids, of 63°. The T-shaped passage and small chamber were left unsmoothed. The door at the other end of the transverse corridor led to the main pyramid court, where three basins sunk in the pavement may have collected libation water.

Patches of relief from the east wall of the transverse corridor belonged to scenes of the king performing the ritual run of the Sed festival. Also recovered was a scene from the Festival of Min. A relief of the king about to execute a Libyan chief in the presence of his family is a near-exact copy of a scene in Sahure's mortuary temple. Reliefs on the entrance to the inner temple depicted the king being suckled by goddesses. The five statue niches were framed in red granite; the middle one was slightly larger and still held the limestone base of a life-size royal statue – the only direct evidence we

have that these niches did indeed hold statues. Between the niches and the offering hall, as in other mortuary temples, is a masonry massif with an open core, perhaps a *serdab* for hidden statues.

The north doorway of the statue chamber led to five magazines, while that to the south gave access to a small vestibule and square antechamber on the route to the offering hall. In the vestibule the king was once more shown suppressing disorder, slaying enemies and hunting wild animals. The roof of the antechamber was supported by a single octagonal quartzite pillar. Here as many as 100 deities and 45 officials received the king. On the north wall the king sat enthroned, protected by the jackal-headed Anubis and by Nekhbet.

Nothing remained of the false door at the west end of the offering hall, which was covered by a vaulted roof. Fragments of reliefs reveal scenes of the king seated before a table laden with offerings. Behind him stands a small figure with the symbol of up-raised arms on his head – the king's *ka* (p. 22), here receiving *kau*, 'food sustenance'. Before the king were more than 100 dignitaries and residents of the pyramid town bringing ducks, geese, quail, pigeons, gazelle, goats and antelopes, cattle, fruit, wine, beer and bread. On the east wall were scenes of cattle being slaughtered. Pepi II's complex also featured prisoner statues as did Pepi I's, Teti's and Djedkare's, but much greater numbers have been found here. Each had been broken at the neck and waist before being cut into smaller pieces.

Queens' pyramids

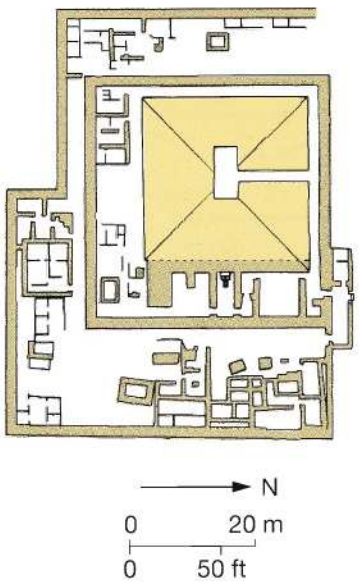
Three queens of Pepi II had their own pyramid – with entrance chapel, temple and tiny satellite pyramid. Neith's was the finest and probably the oldest. Flanking the entrance to her enclosure were two small obelisks inscribed with her name and titles, indicating she was the daughter of Pepi I and wife of Pepi II. Reliefs on the walls of the court showed the queen and offerings. Her small temple had five magazines, a chamber with three niches, an offering hall with presentation scenes and a false door, missing before Jéquier's excavations.

The pyramid was 24 m (78 ft) square with a 61° slope. It was built around a three-step core encased in a limestone girdle like that around the king's pyramid. An entrance chapel contained scenes of offering bearers. In the south wall a granite false door closed the descending passage which sloped down to the burial chamber, blocked by a single portcullis. For the first time in a queen's pyramid the chamber and passage were inscribed with Pyramid Texts. As in the king's pyramid, a magazine to the east remained uninscribed. The flat ceiling of the burial chamber was carved with stars. Neith's empty red granite sarcophagus stands in the chamber, with her canopic chest of the same material before it. Around it the walls were decorated with the niched and false door pattern.

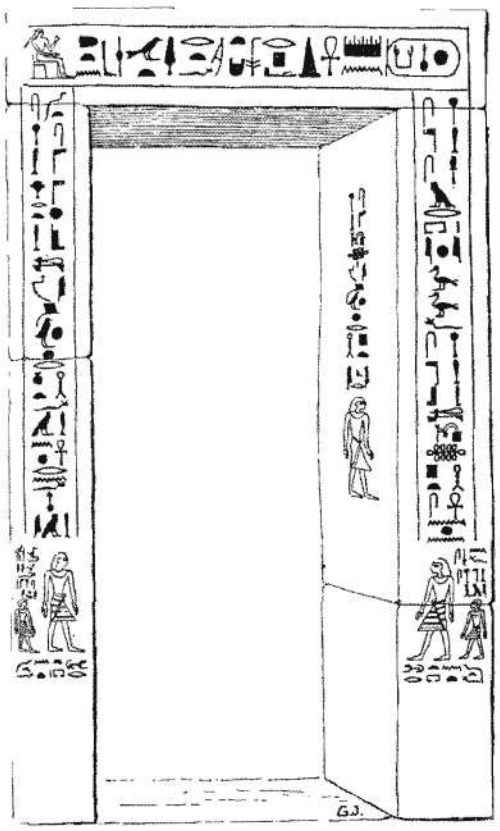
Neith's own satellite pyramid was 10 cubits (5.25 m, 18 ft) square, with a miniature passage blocked with stone. A rectangular chamber was filled with sherds of pottery vessels. Three alabaster vessels were perhaps used in the embalming of the queen's body, or they may have been for offerings for the queen's *ka*. Between Neith's satellite and main pyramid 16 wooden model ships were buried in a shallow grave – perhaps the queen's own funerary fleet.

Iput II's pyramid complex was built on to the southwest corner of Neith's. It had all the same elements, including a satellite pyramid, small obelisks at the enclosure entrance, vestibule and court, inner offering temple and magazines, here approached by a long corridor with several turns. A queen named Ankhes-en-Pepi was buried between the enclosures of Neith and Iput, without a pyramid of her own.

Near the southeast corner of Pepi's enclosure was the pyramid of Wedjebten, another daughter of Pepi I and wife of Pepi II. Like the other two, her tomb contained Pyramid Texts. A small vestibule and plain court led to a chapel with an alabaster offering table inscribed with her name. The walls of the chapel were decorated with reliefs of the queen before a goddess and scenes of slaughtering cattle. A fragment depicted the base of a throne, similar to a relief in Neith's chapel. Because of the glimpse it offers of the role of a pyramid in the economics of the Afterlife, the most remarkable feature of Wedjebten's pyramid is her secondary enclosure. Inside were chambers resembling houses and magazines. Inscriptions refer to a family line of priests. Each beneficiary had a chamber and small courtyard in which they set up proxy symbols of their real households and tombs. By being so honoured, they were allowed to share the endowment of her funerary estate, just as she had a share of Pepi II's.



The secondary enclosure around Wedjebten's pyramid contained small houses and offering chambers of priests and their kin who shared in the queen's estate, as she shared in that of Pepi II.



A legal document etched in stone: the doorway to Wedjebten's secondary enclosure was inscribed as 'gate of the estate' of a family line of Wedjebten's priests.

Pyramids of the First Intermediate Period

In spite of archaeological and documentary hints of instability, the abrupt end of the Old Kingdom pyramid sequence still surprises us. The Turin Papyrus ends the 6th dynasty with a Queen Nitokerti (Nitocris) – reminding us of Khentkawes at the end of the 4th (p. 138). But Nitokerti's rule followed a long period when an elderly Pepi II ruled over a deteriorating kingdom. Manetho lists the next dynasty, the 7th, as 70 kings in 70 days.

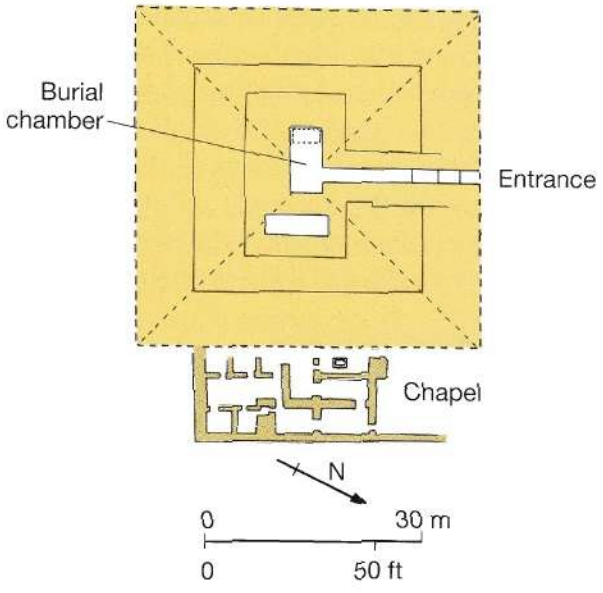
The Pyramid of Ibi

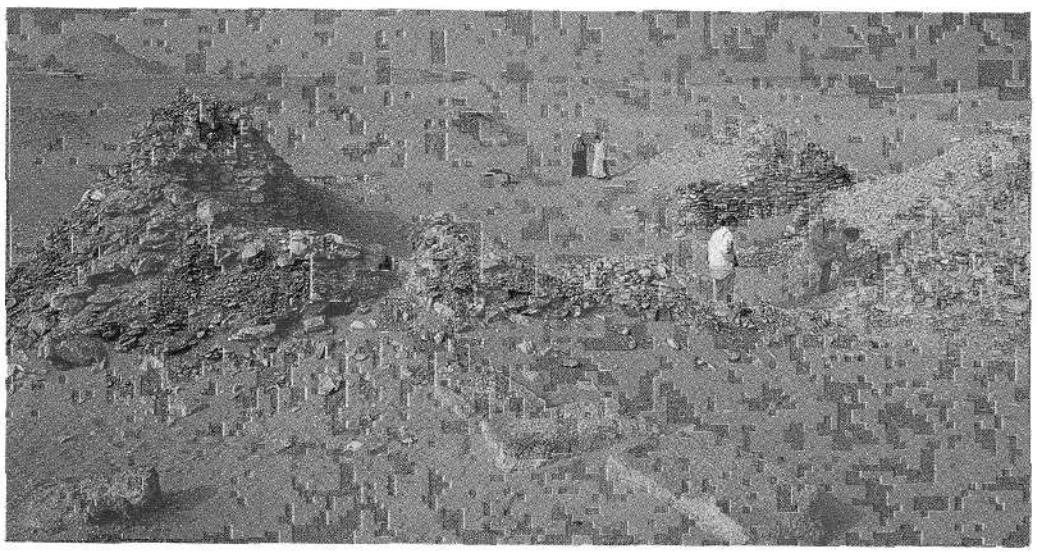
The 8th dynasty is listed as 27 kings in 146 years, but we know of only one ruler who attempted to build a pyramid. Begun on a low knoll near the causeway of Pepi II, this small pyramid is in marked contrast to the great pyramid complexes of the Old Kingdom. Here Jéquier found fragments of Pyramid Texts for a king named Hakare-Ibi. In the Turin Canon, Ibi is given only two years of rule. His pyramid is similar in dimensions and layout to the queens' pyramids of Pepi II – 31.5 m (60 cubits or 103 ft) square.

The pyramid's core of small stones took the form of a double girdle around the trench in which the inner chambers were built. Foundations for the outer casing were laid into a trench around the core, but it seems the builders never began to put the casing in place. In the north side of the pyramid a passage lined with Turah limestone sloped down to a horizontal corridor. The walls of the passage and burial chamber were inscribed with Pyramid Texts. A huge granite block in the west end of the burial chamber held the sarcophagus. On the east side of the pyramid, a small mudbrick chapel was built, approximately on its centre axis. An entrance on the north side of the chapel gave indirect access to an offering hall with a rectangular basin set in the floor in front of an emplacement for a stela or false door. A round alabaster platter and an obsidian mortar may have been used in rituals. The south side of the chapel was taken up by magazines opening off a central courtyard.

(Right) Plan of the small pyramid complex of Ibi. Its base length was 31.5 m (103 ft) and it was an estimated 21 m (69 ft) high. Today (below) it is in a very ruined state. Piles of mud and limestone chips remain from the core; the burial chamber, roofed now with modern concrete, is covered with Pyramid Texts.

(Below right) Plan of a pyramidal tomb of a local ruler, possibly Khui, at Dara in Middle Egypt. Today it stands just 4 m (13 ft) high.

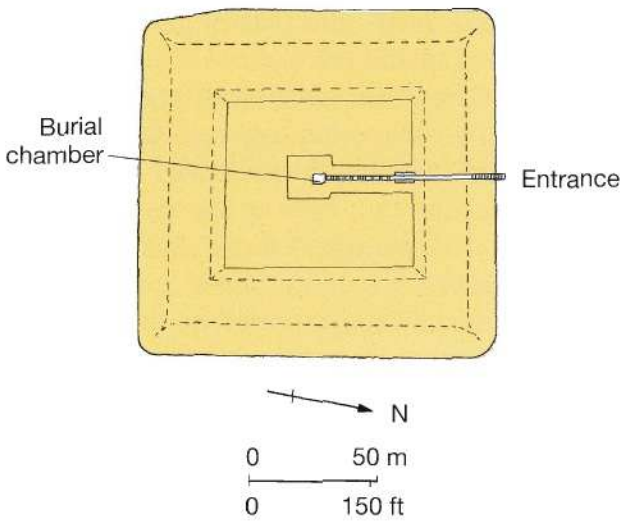




The Pyramid of Khui

In the absence of a unifying pharaoh local rulers took on the prerogatives of kingship during the First Intermediate Period, around the end of the 3rd millennium BC. One of these built a pyramid at Dara in Middle Egypt, near the western desert entrance to the Dakhla Oasis. Its excavator, Ahmed Kamal, believed it was a mastaba, but the mudbrick superstructure with rounded corners had sloping sides and a square ground plan with a base length of 130 m (426 ft 6 in) – nearly equal to the base of Djoser's Step Pyramid.

From the entrance an alternately sloping and horizontal passage runs to the door of a burial chamber, 8.8 m (29 ft) below the base level of the pyramid. The walls of the last part of the passage



were reinforced with pilasters, and both it and the burial chamber were lined with limestone robbed from tombs in a nearby cemetery, apparently of the 6th dynasty. A block found in a tomb south of the pyramid, and which may have come from the pyramid's own offering temple, had an offering scene with a cartouche with the name Khui.

Lepsius Pyramid XXIX

A cemetery near Teti's pyramid was in use through the First Intermediate Period. Among those buried there was an early 12th-dynasty priest of the pyramid, *Wadj Sut* ('The Fresh Places') of Merikare, a 9th- or 10th-dynasty ruler. It was suspected that the anonymous pyramid that Lepsius numbered XXIX (29) may have belonged to this king.

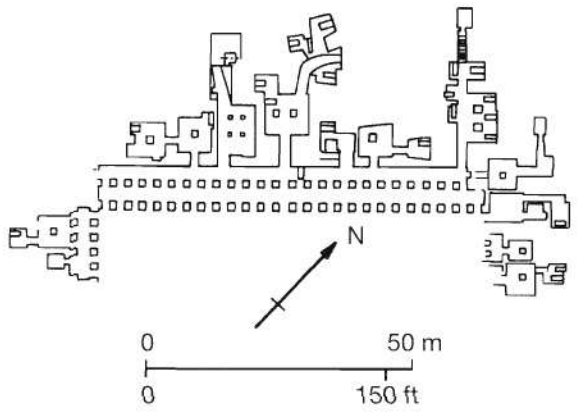
The pyramid – in Arabic the 'Pyramid Without a Top' (or 'Headless Pyramid') – is east of Teti's and was laid out with little regard to the cardinal directions. Maspero entered it in 1881 and Firth cleared the site in 1930 but did not produce a plan. Practically all that remains of the superstructure is the foundation, about 52 m (100 cubits or 170 ft) per side. The entrance is approximately in the middle of the north side. Two granite portcullises sealed the passage to the antechamber and burial chamber, indicating that a burial had taken place, and the broken lid of a fine sarcophagus was found. In spite of reasons to link the pyramid with Merikare, a study by Jocelyne Berlandini pointed to stronger associations with Menkauhor (p. 153), whose pyramid has not been located. Recently, however, Jaromir Málek has argued for Merikare as the owner. More investigation of this little-explored pyramid is needed to settle the question.

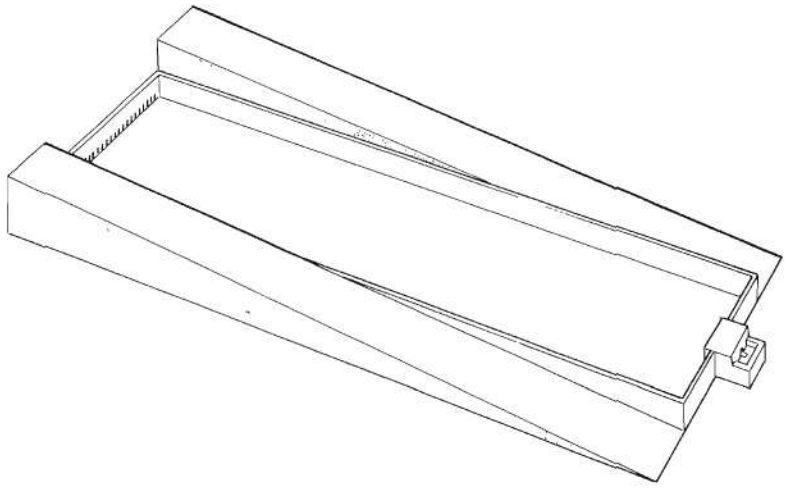
Terrace Tombs of the Intefs

For a second time rulers emerged from the Qena Bend. The founder of the line that would emerge as the 11th dynasty was simply a nomarch and chief priest of a local temple who was named Intef. Intef I declared himself King of Upper and Lower Egypt and he and his successors (Intef II and III) built their tombs at el-Tarif at Thebes, opposite what would later become the great Karnak complex. They are known as *saff* tombs from the Arabic for 'row', because of the rows of columns and doorways at their west end. An open trapezoidal court was cut into the sloping desert until sufficient depth was reached for a façade with columns hewn out of the rock. The king's burial was behind this colonnade. Side doors opened into chambers and shaft tombs of royal followers, with no substantial distinction, in plan at least, from the king's.

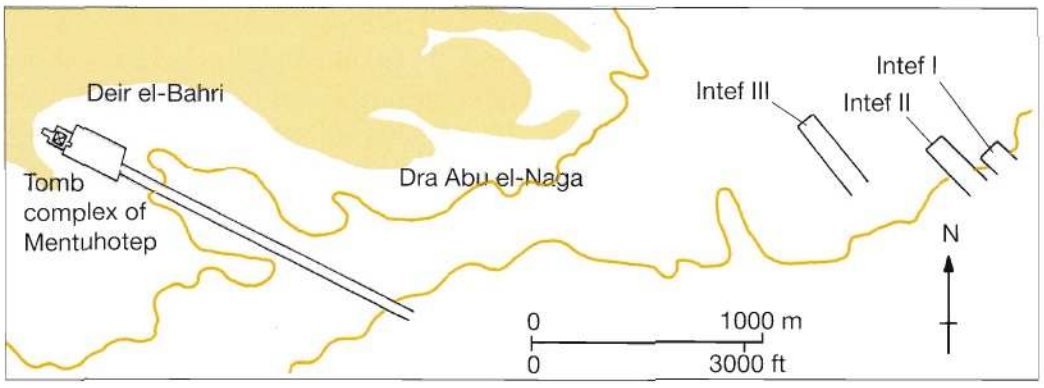
It was thought that the royal tomb was marked by a mudbrick pyramid in the court or above the façade. In the Abbott Papyrus, a report of a commission into the plundering of royal tombs written about a millennium after they were built (*c.* 1115 BC) it was said of the tomb of Intef II that its 'pyramid was crushed down upon it, its stela is set up in front of it, and the image of the king stands...with his hound, named Behka...'. In 1860 Mariette found this stela, with not one but five hounds, the uppermost named Behka. However, Dieter Arnold has established that it was found in an offering chapel east of Intef II's tomb. There is no evidence that the Intefs' tombs were surmounted by pyramids at all.

Only the foundations remain of the aptly named 'Headless Pyramid' that Lepsius numbered 29, located in this area east of Teti's pyramid at Saqqara. Even its owner is not known for certain.





The Intefs built their saff *('row') tombs in the el-Tarif plain at Thebes. The design can be seen as the conceptual beginning of the great complex of Mentuhotep Nebhepetre further south. The plan and reconstruction are of the tomb of Intef II.*



Mentuhotep at Deir el-Bahri

Mentuhotep was one of the most important kings in the long history of Egypt. He can be compared with Djoser in creating a unique and colossal temple and funerary complex as a monument to the resurrection of the kingdom. The two complexes are alike in having been expanded in several distinct phases. Mentuhotep's tomb complex, however, was a gigantic saff *or terrace tomb, several orders of magnitude larger than those of the Intefs before him.*

Mentuhotep ('the god Montu is satisfied') Nebhepetre ('Lord of the Steering Oar of Re'), listed as Mentuhotep I or II, was the fourth king of the 11th dynasty. He came to the throne in around 2061 BC, reuniting the kingdom after the First Intermediate Period. His tomb complex was a gigantic *saff* tomb, much larger than those of the Intefs, in a deep bay in the cliffs on the west bank of Thebes called Deir el-Bahri. Excavations by Edouard Naville in 1903–7 and Herbert Winlock in 1920–31 were incorporated in a new study of the monument by Dieter Arnold. He clarified four distinct phases (A, B, C, D) in which Mentuhotep's builders created his complex.

Rather than clear a terrace in the desert as his predecessors had done for their *saff* tombs, Mentuhotep reserved the entire Deir el-Bahri bay. He defined his temple precinct with a wall built of natural field stones across its wide mouth. He may well have conceived and built the main part of his temple at about the time he changed his Horus name to 'Uniter of the Two Lands'.

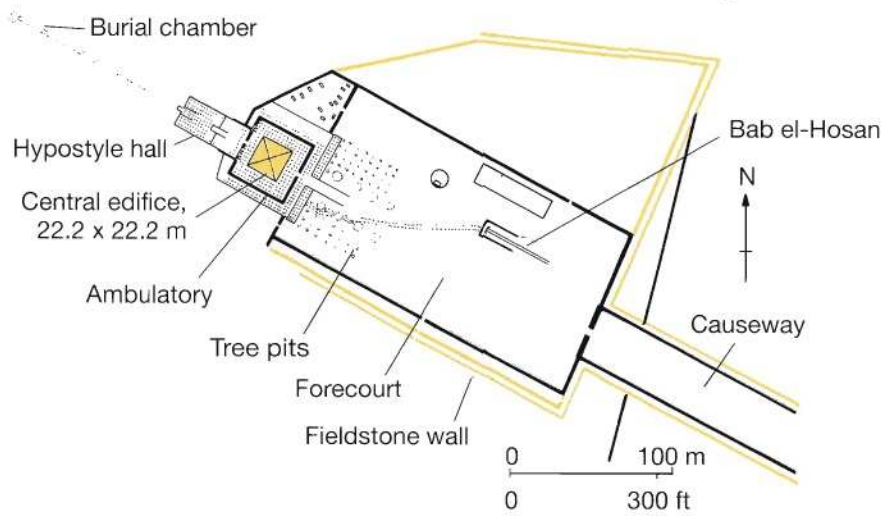
At the base of the cliff a T-shaped terrace was partly built of masonry and partly carved into the rock. A ramp rose from the forecourt to this terrace. On the terrace, low walls bordered a platform on which an ambulatory was constructed of thick limestone walls decorated inside and out with painted relief carving. The corners of the exterior walls had torus moulding, and a cavetto cornice crowned the building – making the whole structure a stylized reed-mat 'divine booth'. The 'booth' enclosed a central edifice – a masonry-filled building, of which only the square base remained.

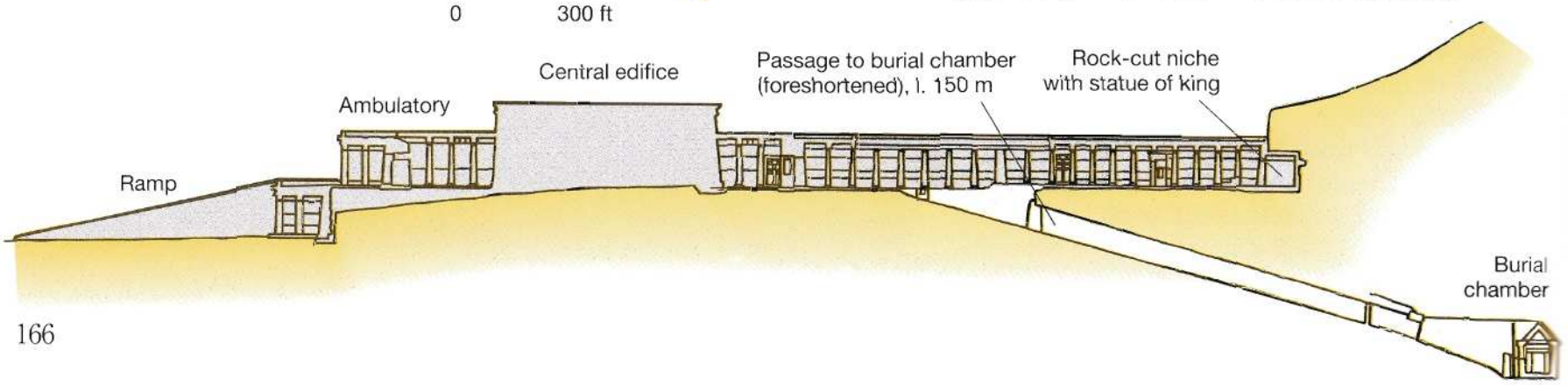
In the Abbott Papyrus this tomb, as well Intef II's (p. 165), is referred to with the word for 'pyramid' (*mer*). Further, the hieroglyphic determinative for the temple in later texts and graffiti is a pyramid. For these reasons the central edifice has been reconstructed as a solid limestone-clad massif which formed a podium for a pyramid. This reconstruction placed Mentuhotep's monument neatly into any iteration of Egyptian pyramids. But Dieter Arnold has now shown that there probably never was a pyramid above Intef's tomb and so by the late Ramessid period of the Abbott Papyrus *mer* may have been a general term for 'tomb'. Arnold also pointed out that the walls of Mentuhotep's edifice would not support the weight of a pyramid and no casing blocks with the angled face of a pyramid were found. This central icon of Mentuhotep's complex was, in Arnold's view, simply a solid building capped by a cornice. It perhaps symbolized the primeval mound and therefore carried some of the same meaning as a pyramid. More recently Stadelmann has reconstructed a rounded Osirian mound within the edifice – a tempting parallel to the mound inside the Archaic mastabas at Saqqara (p. 80), but completely hypothetical.

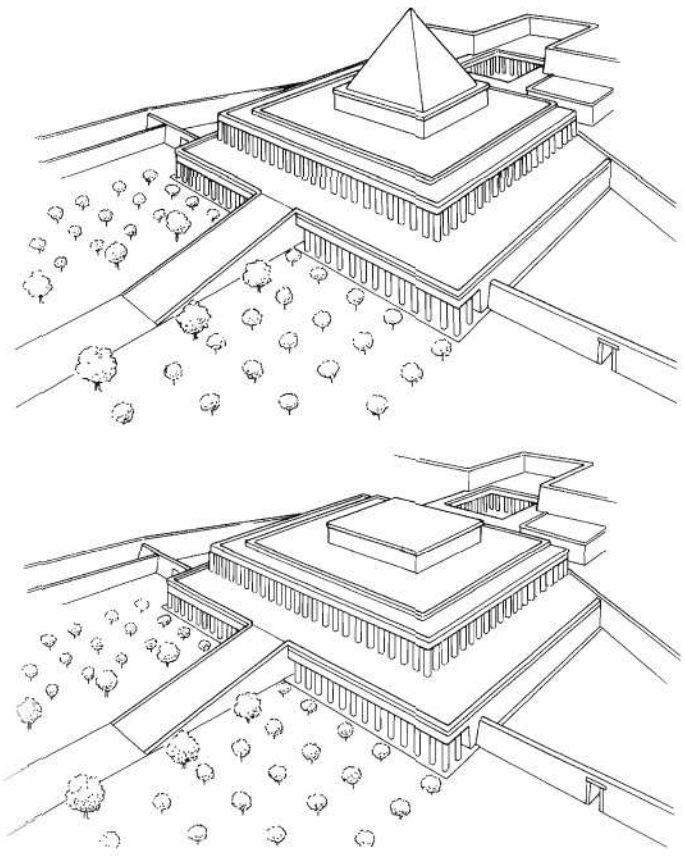
The royal tomb

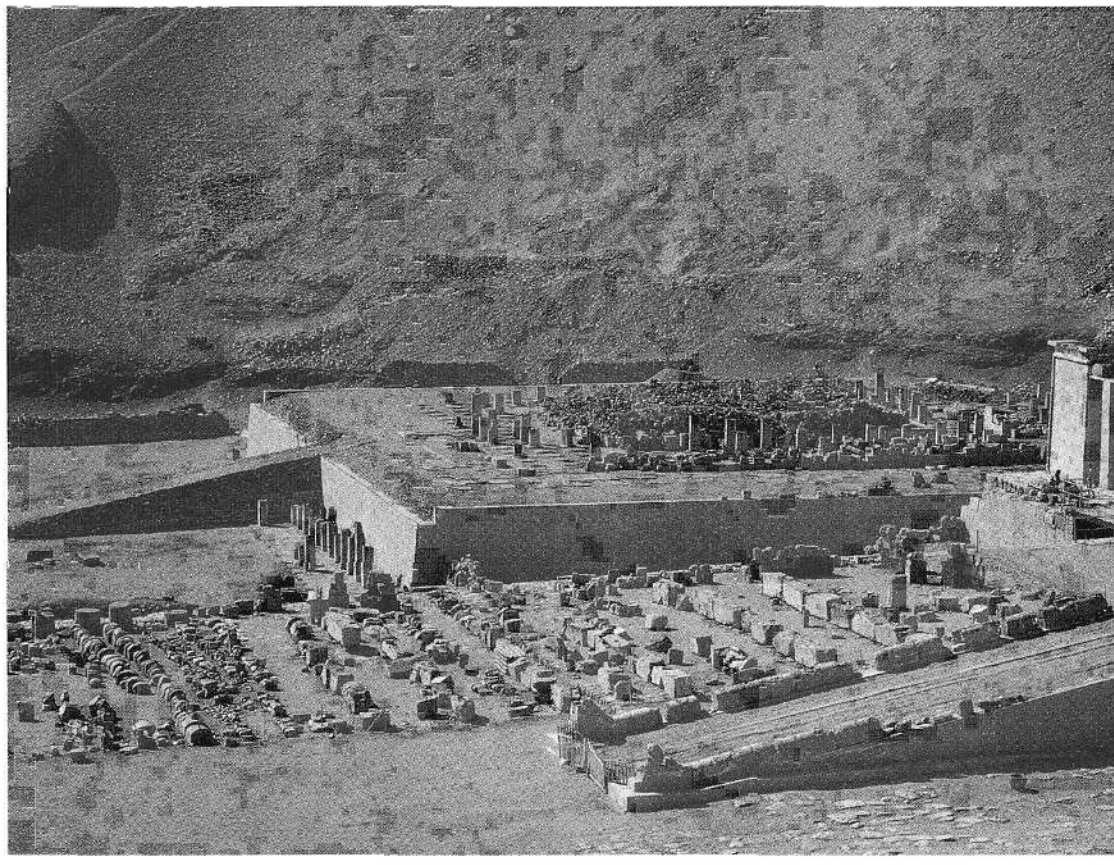
From the ambulatory a doorway led to a cloistered court at the beginning of the leg of the T-shaped terrace. In the centre of the court and on the centre axis of the temple the king's tomb opens as a rectangular trench. Near its mouth is a socket for an altar or offering table. The trench becomes a tunnel, descending through the bedrock. Niches in thewalls contained human figures from wooden models of bakeries, butcheries, granaries and ships, but none of the model architectural settings survive. From this point, the sides and vaulted ceiling of the tunnel are clad in sandstone. The cladding then suddenly ends, leaving the rough bedrock exposed.

The burial chamber is a marvellous structure, built in a cavern hewn 44.9 m (147 ft) below the level of the court and at the end of a tunnel 150 m (492 ft) long. It is a granite vault with a pent roof and side walls cut with a slight outward lean. Three-quarters of the floor space was taken up by an alabaster shrine with a top formed of a single gigantic granite slab. The shrine probably once









enclosed the king's mummy in its wooden coffin. Only a tiny space was left between the shrine and the walls of the chamber but the builders had managed to fill it with slabs of black diorite. The buried king was therefore enveloped by successive shells of costly stone, reminiscent of the fragments found around Djoser's chamber.

Behind the colonnaded court that covered the tomb entrance Mentuhotep built the first grand stone hypostyle hall in Egyptian architecture, with 80 octagonal columns. At the west end of the hall a statue of the king once stood in a niche hewn into the face of the cliff. Directly in front of it was an altar table at the top of a stairway ramp that ascended through the hypostyle hall. This statue was the central focus of the entire complex – every feature, natural and architectural, led to this point. Instead of emerging from his pyramid, Mentuhotep comes forth from the mountain. The peak called el-Qurn, rising slightly to the south, may have already been seen as a natural pyramid, and during the New Kingdom pharaohs were buried below it in the Valley of the Kings, behind Deir el-Bahri.

At the end of the third phase, the Mentuhotep temple must have resembled a step pyramid from the east, with three tiers formed by the façades of the lower terrace, the ambulatory and the central edifice. A Memphite element was the broad causeway running down to the valley. The valley temple must have disappeared when Ramesses IV levelled it for his mortuary temple.

One of the last elements added to the temple was a 'garden' of pits for trees and two rectangular flower beds. A series of standing sandstone statues of the king as Osiris stood facing the processional way in front of the tree pits. All 12 statues found had been decapitated before they were buried in the pits. Also in the garden was a grove of 53 tamarisk trees and a large sycamore fig.

In the second phase of the complex a mysterious feature, the Bab el-Hosan, had been built in the forecourt. It took the form of an open trench, enclosed by mudbrick walls. The trench becomes a tunnel which leads to a chamber, in the centre of which a vertical shaft descends to another, unfinished chamber. Arnold sees this as the first royal tomb, which became a cenotaph by sealing a ritual burial inside it when the new tomb was prepared. After Phase C, the burial chamber of the Bab el-Hosan lay directly under the central edifice of the temple. Howard Carter excavated this feature and in the chamber under the temple he discovered a statue of the king, carefully wrapped in layers of fine linen like a mummy. In the centre of the room a shaft, perhaps a symbolic link to the Nile of the underworld, dropped to a rough grotto.

Meaning

Given Arnold's reconstruction of the central edifice as a solid building with the outline of the 'divine booth', the Mentuhotep temple does not, strictly speaking, belong to the series of royal pyramids. Some doubts remain, however, on the grounds of its description as a 'pyramid' in the Abbot Papyrus. Beautifully painted reliefs in the complex contain many of the same themes found in Old Kingdom pyramid temples: the king as a sphinx trampling enemies, fowling, fishing, hunting a hippopotamus, sowing, harvesting and reaping. The whole complex was a combination of royal tomb and temple to the deified king, and to Montu-Re and Amun-Re, the new state god.

(Above) The remains of Mentuhotep's complex. No name of the temple or of any of its parts has been found in the numerous texts and reliefs. But 12th-dynasty texts refer to the entire Deir el-Bahri bay as 'The Valley of Nebhepet-Re' and to the temple itself as Akh Sut Nebhepetre – *'Glorious are the Places of Nebhepetre.'*

(Above, left) The central edifice of Mentuhotep's complex was reconstructed by Winlock as a solid massif forming the podium for a pyramid (top). This long-accepted view has been challenged by Dieter Arnold. In his view, the structure was simply a solid building capped by a cornice (below).

The Pyramids at Lisht

Another king began a large tomb that might have replicated the principal elements and scale of Mentuhotep's complex if it had been finished. It is situated in a bay on the other side of the Sheikh Abd al-Qurna hill, south of Deir el-Bahri. Whose tomb was this? Two kings also called Mentuhotep followed the first, taking the names Seankhkare and Nebtawire. The long-accepted attribution to the former made sense. He was the next ruler, graffiti of his priests were found nearby, and his short reign of about 12 years could explain why the complex was unfinished. Recently, however, Dorothea Arnold has argued that it was actually begun for the founder of the 12th dynasty, Amenemhet I, before he transferred his residence north, perhaps only in the last decade of his 30-year reign (1991–1962 BC). His new 'capital' was named *Iti-tawi*, 'Seizer of the Two Lands'.

The Pyramid of Amenemhet I

Picking up the pieces to resurrect the pyramid age: Amenemhet I incorporated fragments of Old Kingdom tombs and pyramid complexes in his own pyramid.

Iti-tawi's exact location is unknown, but if it was Amenemhet I's pyramid town it would have lain close to the desert edge near the modern village of Lisht, midway between Meidum and Dahshur. One attraction of the site may have been the growing economic importance of the Fayum. At Lisht, a canal called Bahr el-Libeini, thought to be an old Nile channel, swings west to run close to the escarpment at the foot of Amenemhet I's pyramid, perhaps providing a harbour.

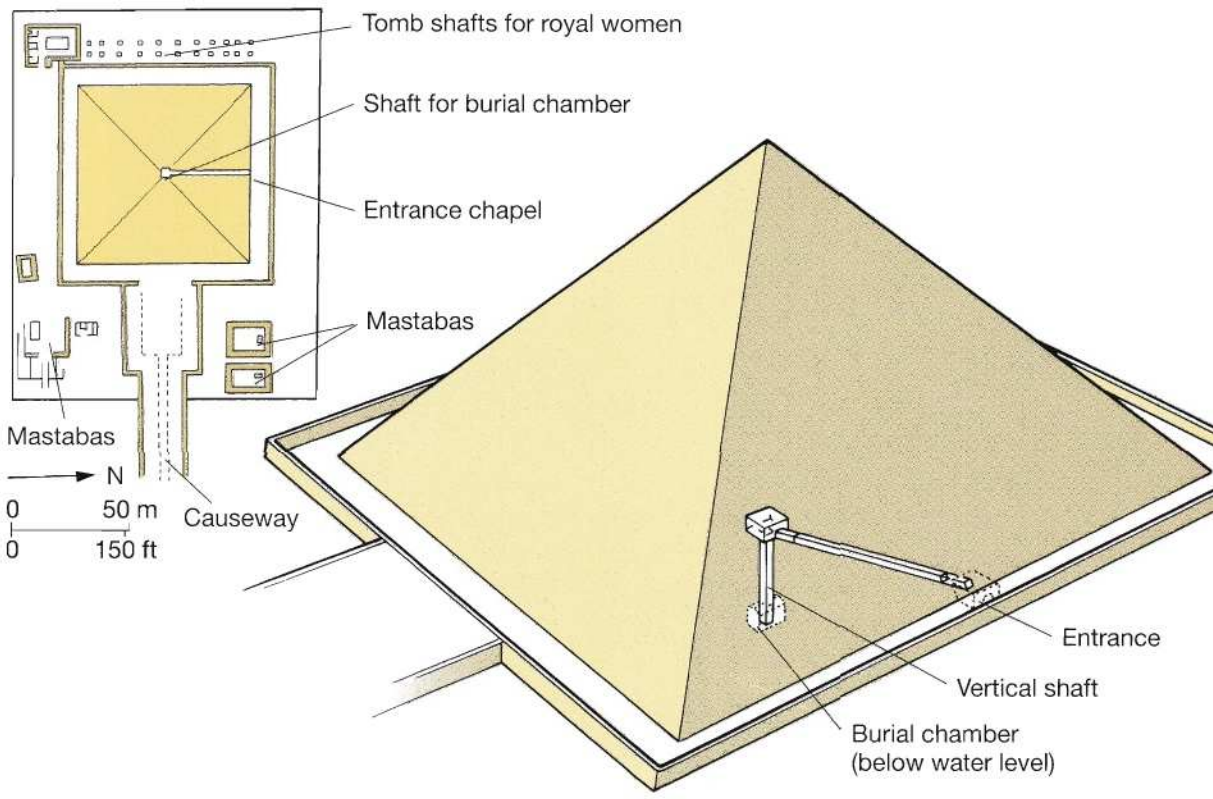
Amenemhet I returned to the approximate size and form of the late Old Kingdom pyramid complex. The core of his pyramid was made of small rough blocks of local limestone with a loose fill of sand, debris and mudbrick. Perhaps the most remarkable feature is the fact that it included fragments of relief-decorated blocks from Old Kingdom monuments – many from pyramid causeways and temples, including Khufu's. Granite blocks from Khafre's complex went into the lining and blocking of Amenemhet I's descending passage. We can only conclude that they were picked up at Saqqara and Giza and brought to Lisht to be incorporated into the pyramid for their spiritual efficacy.

Inside the pyramid

The entrance to the pyramid was in the now-standard position, at ground-level in the centre of the north side. Above it was an entrance chapel with a red granite false door at the back. A passage, blocked with granite plugs, sloped to a shaft directly below the vertical axis of the pyramid. Ground water has prevented anyone entering the burial chamber in modern times.

The pyramid complex

Very little of Amenemhet I's mortuary temple was left standing for archaeologists. It was built on a terrace cut into the hill lower than the pyramid. Foundation deposits, in holes covered by limestone slabs, included an ox skull, paint grinders and model vases of pottery and alabaster. There were



Amenemhet I (above left) re-established the pyramid complex as royal tomb, albeit with Theban elements – two terraces for pyramid and temple and an open causeway. Rows of tombs on the west were for royal women. The pyramid had a base length of 84 m (276 ft), a height of 55 m (180 ft), and a 54° slope.

This relief from the pyramid of Amenemhet I has Khufu's cartouche and probably came from his mortuary temple at Giza.

also bricks with plaques of copper, alabaster and faience inscribed 'The Places of the Appearance of Amenemhet', the name, perhaps, of the pyramid. Another name, 'The Perfection of Amenemhet is Exalted', found elsewhere, may refer to the pyramid temple. A limestone false door and a granite altar or offering table are all that survive of the temple equipment. The altar is carved with Nile gods and figures representing the nomes bringing offerings.

Among relief fragments found were some dating to the reign of Amenemhet but which were such faithful reproductions of Old Kingdom style that it was hard to tell copy from original. Some pieces of reliefs embedded in the foundations came from a pyramid temple of Amenemhet I that had been pulled down and they also included the name of his son and successor, Senwosret I. It is probable that father and son were co-regents from Year 20 of Amenemhet I. The reliefs may reflect the preparations for a Sed festival for the older king who was close to or in his 30th year of rule when he died. Senwosret I seems to have rebuilt the temple – relief blocks from the second temple with both names label Senwosret I as 'the king himself'. No evidence of a satellite pyramid has been found.

The causeway ran in a straight line on the axis of the pyramid and temple. Although it was unroofed, fragments of relief indicate it was decorated with processions of foreigners, estates, nobles and gods. The valley temple has not been excavated because it, too, lies below ground water.

Around the pyramid was an inner enclosure wall of limestone and an outer one of mudbrick. Privileged members of the king's family and court were buried in mastabas between the two. On the west side of the pyramid 22 tomb shafts in two rows were evidently for royal women. Fragments and small stone objects give us the names of some of these women, including the king's daughter, Neferu, principal wife of Senwosret I, the king's mother, Nefret, and another wife, Nefrytatenen, mother of Senwosret I.

William C. Hayes has pointed out that there is a lack of grandeur and a certain degree of provincialism in the pyramid complex of Amenemhet I. Although he revived the general Memphite pattern, some elements are Theban in origin: the style of certain reliefs, the two terraces of pyramid and temple, the central shaft to the burial chamber and the open causeway. It was Senwosret I who moved the standard Memphite pyramid complex closer to its former level of sophistication before pyramid building reached a final stage of experimentation.

The Pyramid of Senwosret I

Senwosret I chose as his site a prominent hill about 2 km (1¼ miles) south of his father's pyramid. It may have had its own pyramid town named *Khenemsut*, 'The Places [of Senwosret] are United'. However, this could refer specifically to his pyramid. *Kha-Senwosret*, 'Senwosret Appears', written with the sign of a fortified enclosure, might be the name of the town. On foundation tablets the name of the pyramid was inscribed as *Senwosret Peteri Tawi*, 'Senwosret Beholds the Two Lands'.

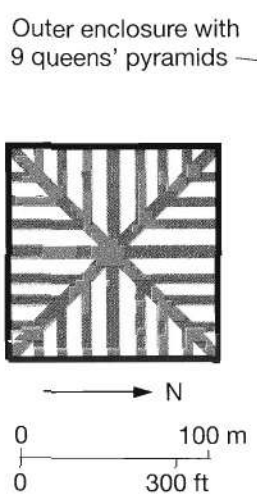
Maspero ascertained that the pyramid belonged to Senwosret I in 1882 when he found objects with the king's name inside. Excavations by J.E. Gautier and G. Jéquier in 1894 were followed by work by the Metropolitan Museum of Art between 1906 and 1943. Arnold renewed study at the site from 1984 to 1987. More traces of pyramid-building have been found here than at any other pyramid. Quarries on the southeast, southwest and south of the pyramid furnished stone for its core. Ramps led from the quarries and harbour to the pyramid.

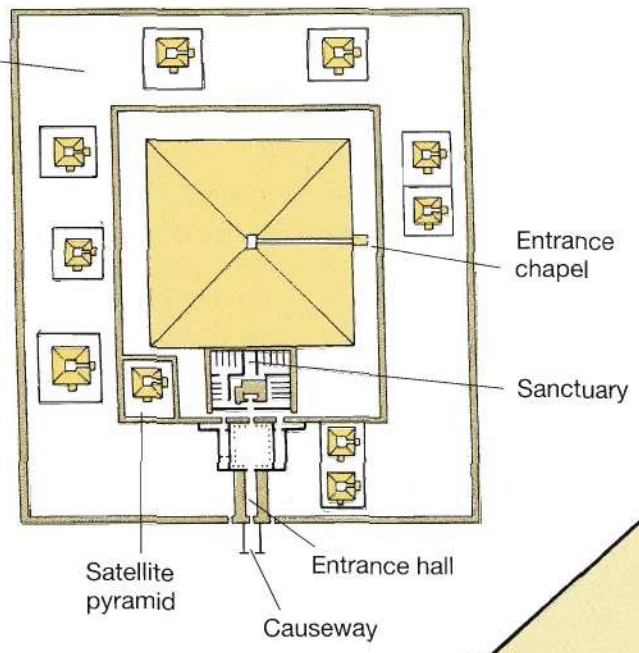
The base length of Senwosret I's pyramid – 200 cubits – surpasses all pyramids since Neferirkare, and puts it in the class of the pyramids of Djedefre and Menkaure. Today, however, all that remains is a smallish hillock with its casing preserved up to eight courses in one spot. The pyramid's core is one of Senwosret I's innovations. A skeleton of eight walls radiates from the centre to the four corners and the middle of each side. The walls are built of huge, roughly shaped blocks which decrease in size towards the top. Each of the eight triangular sections is subdivided by three cross walls. The resulting 32 compartments were filled with slabs of stone set in steps. Backing stones rest on the steps, behind the pyramid's outer casing, which together form an exoskeleton. The framework and fill must have been built together as the pyramid rose.

Senwosret's masons used wooden cramps to join adjacent casing blocks, as shown by sockets cut for them and actual examples incised with Senwosret's name. A small step was cut in the foundation blocks and the lowest course of casing was laid directly above it, so that the baseline of the pyramid was formed by the court pavement. Rather than providing support, this arrangement weakened the casing: multiple patches are visible where it survives and east of the entrance a crack zig-zags down the pyramid. Arnold believes another source of instability was an open construction shaft under the pyramid. The builders' struggles are further demonstrated by the unevenness of the base – up to 13–15 cm (5–6 in) difference between the entrance and two of the corners.

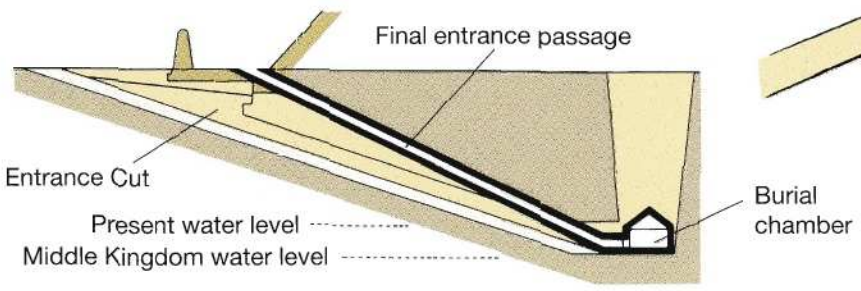
The entrance to the pyramid opened in the pavement of the court in the middle of the north side. It has been completely destroyed but fragments of reliefs from the chapel that once stood over it were

Senwosret I's pyramid is the first to have an internal skeleton of limestone walls forming compartments filled with roughly shaped stones. Nine subsidiary pyramids plus one satellite pyramid are more than in any other single pyramid complex. The pyramid's base length was 200 cubits (105 m/344 ft), and its intended slope was 49° 24', which gives an ideal height of 61.25 m (201 ft).





(Below) The Entrance Cut and sloping construction passage used to bring in materials for the burial chamber were superseded by the final, higher granite-lined pyramid passage.



found. The chapel fitted into a niche in the casing. Spouts in the shape of lions' heads allowed rain water to drain off the roof. The back wall of the chapel was mostly taken up by an alabaster false door, of which only fragments were found. Short wall panels to either side were decorated with gods. The entrance wall had scenes of butchering cattle and stacked offerings, while the side walls carried scenes of the king,with his *ka*, seated at an offering table, with lines of priests and offering bearers.

Inside the pyramid

Although the burial chamber of Senwosret I, like that of Amenemhet I, now lies below the water table and has never been entered by archaeologists, Arnold was able to make certain observations on the basis of careful analysis. Senwosret's builders began with a preliminary ramp or stairway north of the pyramid's north face, the Entrance Cut. Under the pyramid this ramp probably became a construction tunnel, though it has never been seen. At a higher level, and built later, was the sloping pyramid passage, too narrow to bring in anything except the king's body and burial goods.

The lower tunnel would have facilitated the excavation of a deep pit in which the burial chamber was built – as in the pyramids of Djoser, Djedefre and Zawiyet el-Aryan (Unfinished) and those of the 5th dynasty. From the slope of this tunnel and the pyramid passage, and from the rise in ground water, Arnold calculated that the burial chamber must lie 22 to 25 m (72 to 82 ft) below the surface.

When they began the sloping pyramid passage, the builders filled in the Entrance Cut apart from near the surface. Wood beams were laid in this section and buried in limestone chips and sealed with mud – the same materials as hauling tracks around the pyramid. This must have formed a slipway for the granite blocks – each weighing 8 tons – that lined the pyramid passage, except near the entrance where the lining is fine limestone. After the funeral, the passage was sealed with enormous granite plugs, weighing 20 tons, that fit the passage exactly. It is likely that the builders brought them in before they had completed the small and delicately decorated entrance chapel. The plugs slid down the passage, each hitting the next with a force that left fractures radiating through the blocks.

Arnold believes a large group of professional tomb robbers made their way to the burial chamber not long after the pyramid had been sealed. They dismantled the entrance chapel and, after repeated attempts, tunnelled their way around the granite blocking and lining of the passage. Maspero's workmen followed the robbers' tunnel to the point where it went round the second plug. Here they found the remains of the spoils from the king's burial that the plunderers had left behind: pieces of wooden boxes, alabaster containers, a gold dagger sheath and parts of four alabaster canopic vessels.

The pyramid of Senwosret I is now only a low mound, just 23 m (75 ft) high. Here, the end of one wall of the internal framework skeleton is visible through the debris.

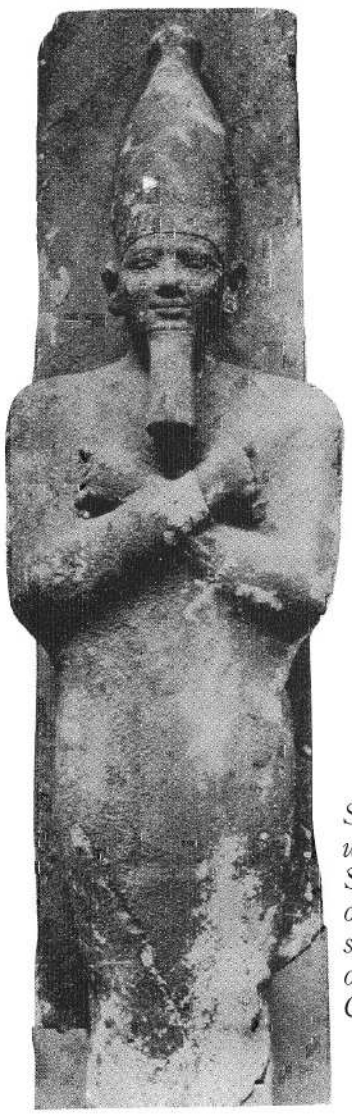
Rather than follow the robber's tunnel deeper into the pyramid, Maspero's workmen hammered away 30 m (98 ft) of granite plugging before – as would happen to later archaeologists, including Arnold in 1984 – they were halted by sand filling the passage and by water seeping through the masonry.

Arnold believes the sand may be fill left by Senwosret's workers to prevent the first granite plug from crashing into the horizontal passage to the burial chamber. A slight deviation of the passage is a clue that Senwosret followed the 5th-dynasty pattern of a burial chamber directly below the centre axis, perhaps entered from the antechamber to the east. If Senwosret's burial chamber is indeed under the vertical axis of his pyramid, it lies a frustrating 7 m (23 ft) from the archaeologists' stopping point.

Both Amenemhet I and Senwosret I showed a concern for placing chambers so deep that they were close to the level of the water table even when they were built. Amenemhet II, Senwosret II and Senwosret III would also use shafts and sloping passages to reach down close to the subterranean waters. This is one of several aspects that demonstrate a desire to connect with the realm of Osiris.

The pyramid complex

The valley temple has never been found, although it may lie under sand dunes and a Roman cemetery. The causeway was originally open, like those of Amenemhet I and Mentuhotep, flanked by limestone walls. A quarry inscription shows that it was built as late as Year 22 of Senwosret. In the next stage, a roof was added which required narrowing



Senwosret I in Osiride form, wearing the Crown of the South. This is one of a series of statues that lined the south side of the causeway. Those on the north side wore the Crown of the North.

the passage by adding limestone blocks inside. Every 10 cubits there were niches, in which almost life-sized statues of the king were placed, wearing the red crown of Lower Egypt on the north and the white crown of Upper Egypt on the south. Eight complete statues were found, and some additional bases. It is not certain if the walls were decorated with relief scenes, but a painted dado was stippled red and black to imitate granite.

A doorway on the south side of the upper end of the causeway was connected to a small mudbrick building for priests or attendants. Mudbrick walls parallel to the stone walls of the causeway created a secondary lane on either side – a feature common to Middle Kingdom causeways. At the upper end, the outer lanes broadened into small courtyards with a gate leading into the pyramid's outer enclosure. Arnold's excavations in the northern court revealed that it had been used first as a site for cutting hard diorite, then for preparing gypsum. In its final phase, a small bath with a pottery pipe to drain it was installed. Here priests could ritually cleanse themselves before entering the outer enclosure to serve the cults of the queens' pyramids. Senwosret I surrounded his pyramid with two enclosures, defined by a outer wall of mudbrick and an inner enclosure wall of stone. The interior and exterior faces of the inner enclosure wall were decorated with 150 *serekh* panels.

A side panel from a throne of one of the statues found in a pit in the mortuary temple. Horus and Seth – here Lower (north) and Upper (south) Egypt – tie papyrus and lotus stems around a stylized windpipe, the hieroglyph for unity. The whole is topped by the cartouche of Senwosret I.

Senwosret's mortuary temple was already badly destroyed when first excavated in 1894. It suffered further in later years, so that only a few blocks survive in place. Comparison with Old Kingdom examples reveals that it was very similar to mortuary temples from Teti to Pepi II. The front temple lay within the outer pyramid enclosure and the inner temple within the inner one. All the standard elements of the late Old Kingdom are present, though there is no evidence that alabaster, basalt or diorite were used and granite was used only sparingly.

In 1894 Gautier cleared a rectangular pit in an open area between the front temple and the enclosures of two subsidiary pyramids. It contained 10 complete limestone statues of Senwosret I seated on large, block-like thrones. These may have been set up under the colonnade of the temple court, but, as Arnold points out, they show no signs of weathering and the court lacks sockets for them. Perhaps the sculptors stopped work and the statues were buried after plans for the temple decoration were changed. The five niches in the statue hall – which Arnold reconstructed on the basis of Old Kingdom parallels though there were no traces – probably held standing statues.

Senwosret I built the last of the satellite pyramids and the only one known in a Middle Kingdom pyramid complex. It is more complicated than most, with two subterranean chambers and evidence of two or three phases of construction. In its first phase the pyramid was 15.75 m (30 cubits, 52 ft) square and the same height. The slope of 63° 26" 06' conforms to Old Kingdom satellite pyramids from Sahure on. In a later phase an enclosure wall was added to form a court entered by a doorway on the north. About the same time the pyramid was enlarged by the addition of a layer of casing and backing stones on the north and west, making a new base length and height of 18.38 m (35 cubits, 60 ft), bringing it closer to the standard Old Kingdom ratio to the main pyramid of 1:5.

The main shaft to the underground chambers lies under the southeast quadrant. At the bottom, two corridors led to chambers, both encased with limestone slabs. They are situated on the same axis but the northern one is slightly larger. Apparently the pyramid was built over the shaft before work was finished, so a new shaft was cut east of the centre of the pyramid's north side. Those cutting the new shaft seem to have had difficulty finding the chambers, only reaching them on their third

attempt. Robbers also found the chambers. Either they cleared them completely (except for some pieces of wood) or found them already empty, for nothing remained for the archaeologists.

The outer pyramid enclosure, defined by mudbrick walls, is a busy archaeological area. It contains priests' houses, granaries, low mudbrick walls, hauling tracks and slideways left over from building, numerous shallow pits for ritual burials of model dishes, ox bones and beads, and, in the western part, a mudbrick boat pit.

The pyramid cemetery extended well outside the royal enclosure. Here large and impressive mastaba tombs of high officials are found, such as those for the Vizier Mentuhotep with its own causeway, Imhotep, the High Priest of Heliopolis, named after his ancestor with the same title, and Senwosret-ankh, who had a copy of the Pyramid Texts in his burial chamber. Numerous small shaft tombs of those attached to these great households scatter about the large mastabas.

The nine subsidiary pyramids

Also within the outer enclosure are nine small pyramids, all about the same size except Pyramid 1 which seems to have been the first built. Each is situated in its own enclosure, except 8 and 9 which share one; each also had a chapel on the east and north. The angle of slope varied from 62° to 64°, the range of late Old Kingdom subsidiary pyramids. With the exception of Pyramid 1, the small pyramids seem to be paired: 3–4, 4–5, 6–7 and 8–9, suggesting a close relationship between two royal women. In their alignments and spacing they skilfully avoid the corners of the outer enclosure.

Rather than being planned as a set from the beginning, the series was built incrementally over a long time. Pyramid 9 may have been constructed as late as the reign of Amenemhet II or Senwosret II. It is curious, therefore, that, while the pyramids and their chapels were completed, including the relief decoration, the substructures seem never to have been finished. In fact it is not certain whether all received a burial. Although there are several shafts scattered around the base of each pyramid, none of those around 5, 6 and 9 led conclusively to a burial chamber associated with the pyramid.

The owners of only two of the pyramids have been identified. Pyramid 1 is assigned to Neferu, wife of Senwosret I, on the basis of three inscribed granite pieces. A shaft in the centre of the north side leads to a gently sloping corridor paved with limestone. This leads in turn to a chamber, lined with limestone, under the centre of the pyramid. In the floor is a receptacle for the sarcophagus, which was not found, and an unfinished niche was for the canopic chest. Neferu's chambers appear to have been neither completed nor used.

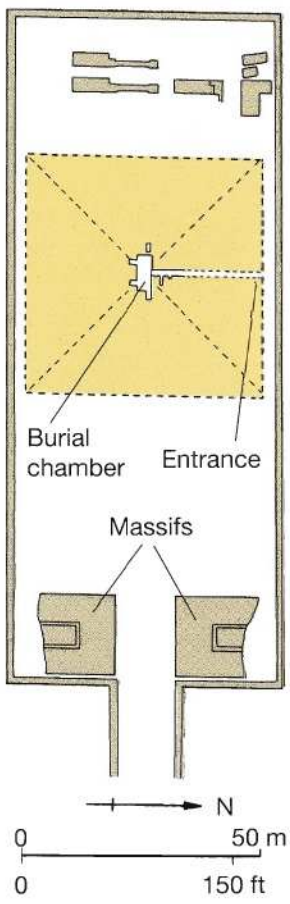
Pyramids 2 and 3 had two shafts each, one from the north to facilitate the construction of the substructure and a second to the east for access to the chambers after the first was sealed by the north chapel. Around Pyramid 2 were found many fragments of relief decoration from the east chapel and from a painted shrine that stood within it, as well as of 32-sided columns inscribed with the name of princess Itayket. Her burial chamber, sealed with mortared limestone slabs, was simply an extension of the entrance corridor. Although robbers had made a hole wide enough only to bring out small objects, no trace of sarcophagus, canopic chest or coffin were found. Pyramid 3 sat over a main burial chamber and a set of five burial niches. The main burial chamber, as under Pyramid 2, was formed by casing the end of the corridor with limestone slabs. It was blocked in three places by limestone slabs slid sideways on wooden skids in grooves cut into the passage. The chamber was almost filled by a beautiful quartzite sarcophagus and canopic chest. Pyramid 4 also contained a quartzite sarcophagus, but it was found parked in a crude side niche outside the limestone-cased burial chamber. There is no evidence it ever received a burial.

Red granite pyramidions may have crowned all nine pyramids – fragments were found close to Pyramids 3 and 5. Remains of an over life-sized granite female statue were found by Pyramid 6. Although Pyramids 8 and 9 form a pair, 9 was built with a core of mudbrick perhaps when, as Arnold suggests, all available building stone had run out.

Subsidiary Pyramids of Senwosret I

Pyramid	Enclosure	Base	Slope	Height	Shafts
1	100 x 75 c 52.5 x 39.37m	40 c 21m	62.5°	36 c 18.9 m	2
2	72 x 54 c 37.80 x 28.35 m	32 c 16.8 m	63.6°	16.8 m	2
3	50 x 50 c 26.25 x 26.25 m	32 c 16.8 m	63.25°	16.8 m	2
4	46 x 43 c 24.15 x 22.575 m	32 c 16.8 m	?	?	3
5	48 x 47 c 25.20 x 24.675 m	31 c 16.275 m	63.917°	31 m 16.275 m	?
6	49 x 56 c 25.725 x 29.4 m	30 c 15.75 m	?	?	?
7	49 x 49 c 25.725 x 25.725 m	30 c 15.75 m	?	?	?
8	47 x 86 c 24.675 x 45.15 m	30 c 15.75 m	?	?	1
9	Same as 8	30 c 15.75 m	?	?	? [c = cubits]

The Second Phase of Middle Kingdom Pyramids



Amenemhet II's hybrid complex: a long rectangular precinct, as in the 3rd dynasty, orientated east–west as in the 4th, and with massive pylons, as in the 5th.

A pendant from a queen's tomb west of Amenemhet II's pyramid.

Amenemhet II began what Arnold sees as a second phase in the development of Middle Kingdom pyramids. Amenemhet I and Senwosret I, while incorporating innovative elements into their pyramids, were trying to revive the pyramid complex of the late Old Kingdom Memphite tradition. Amenemhet II gave this up and no consistent development is apparent in the pyramids that followed. Those who designed and built pyramids in the 12th dynasty seem to have been experimenting with new forms combined with old elements borrowed from earlier 11th- and 12th-dynasty complexes, the late Old Kingdom and even the 3rd dynasty.

New forms included long rectangular enclosures. Senwosret III's was oriented north–south, while Amenemhet II's was east–west. Amenemhet II situated his pyramid near the escarpment about halfway along the Dahshur plateau. From now on royal pyramids would alternate between Dahshur and the area around the mouth of the Fayum.

Amenemhet II's is one of the most poorly investigated and documented in the long sequence of pyramids. Jacques de Morgan excavated the site in 1894–5, but devoted much of his attention to the discovery of the jewellery and personal items of two princesses, Khnumet and Ita, whose burials he found among the row of tombs west of the pyramid within its enclosure wall.

Because of its proximity to the edge of the cultivation, the pyramid was quarried for the Turah limestone which formed the casing and the core skeleton of radiating walls, similar to the framework in Senwosret I's pyramid. Here, however, the cross compartments were filled with sand. When the pyramid was dismantled for its stone, the many limestone chips left behind prompted the modern name, 'White Pyramid'. Its ancient name was *Djefa Amenemhet*, 'Amenemhet is Provided'. Since no casing stones have been found we do not know the angle of the pyramid and as the base has never been adequately cleared its exact length is also unknown, though it is about 50 m (164 ft).

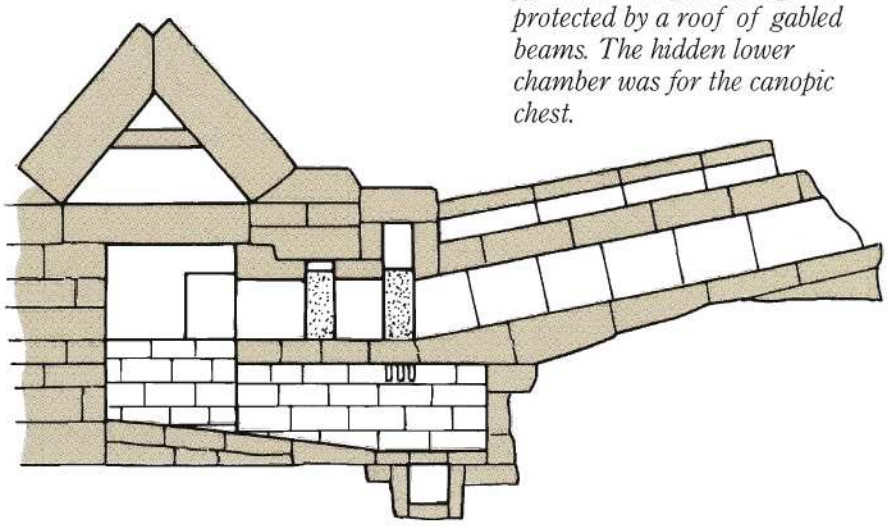
Inside the pyramid

The entrance is in the middle of the north side. A corridor slopes down to a short horizontal passage blocked by two portcullises, one of which slid vertically and the other sideways; beyond is the burial chamber. Four niches are connected to the chamber, one at either short end and two in the wall opposite the entrance corridor. These have been compared to the eastern niches of the Old Kingdom, thought to be for offerings or statues.

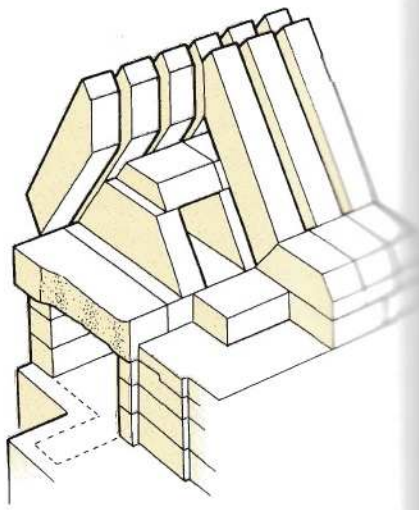
The sarcophagus, composed of sandstone slabs, was set into the floor against the west wall. Immediately in front of the entrance to the chamber a shaft drops a little less than 2 m (6 ft) to a passage leading north directly below the entrance corridor. A square hole sunk in the floor at the end of this passage may have been the receptacle for the canopic chest. The weight of the pyramid was diverted from the flat ceiling of the burial chamber by a hidden roof of six pairs of huge beams that lean against one another.

The pyramid complex

Amenemhet II returned to a broad, open causeway that sloped steeply down to the edge of the cultivation, but no one has searched for his valley temple. At the point where the causeway enters the pyramid enclosure on the middle of the east side, two massive structures recall the pylon-like thickenings in the same position in mortuary temples since Niuserre. The space between the massifs may be the entrance hall, but beyond that almost nothing is known about the layout of the temple.



Entrance passage and burial chamber of Amenemhet III's pyramid. The flat ceiling was protected by a roof of gabled beams. The hidden lower chamber was for the canopic chest.



Mudbrick Pyramids

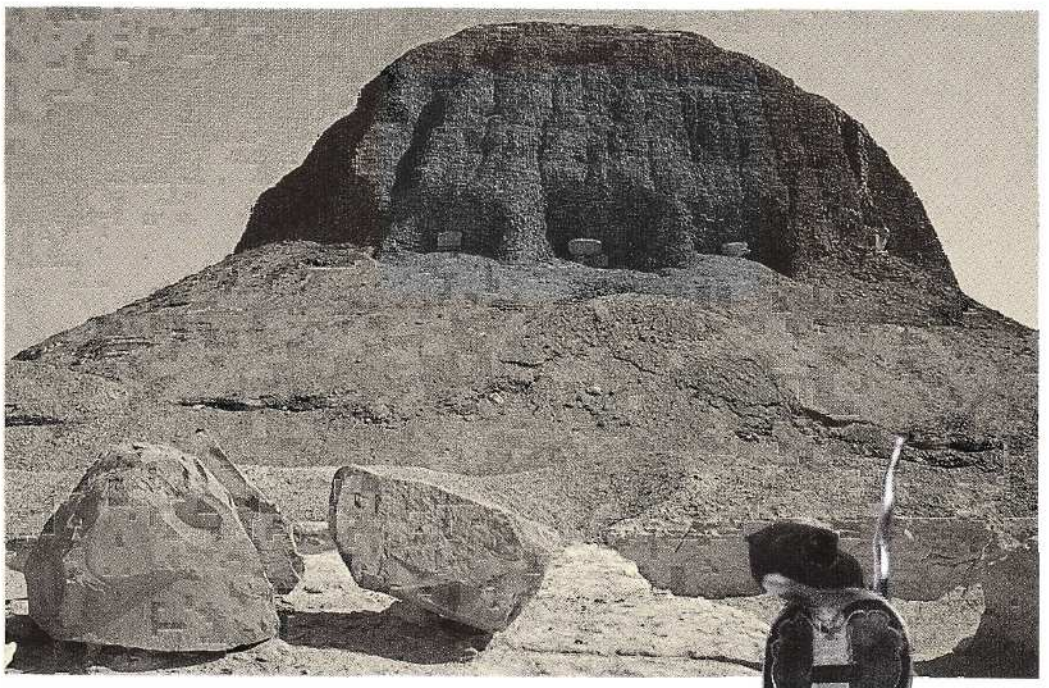
The Pyramid of Senwosret II

Senwosret II built his pyramid overlooking the opening of the Hawara Channel from the Nile Valley to the Fayum basin, near the modern village of Illahun. His choice reflects the growing importance of the Fayum in the Middle Kingdom. The pyramid was built around a stump of yellow limestone that was reserved in four steps when the perimeter was levelled. On this core, radial and cross walls were built of limestone to form a framework of compartments that were filled with mudbrick. Mudbrick was also used to build the upper part. The bottom course of the fine limestone casing was set into a foundation trench cut into the rock as a precaution against settling. As an additional measure, the base of the pyramid was surrounded with a cobble-filled trench to drain off rain water.

Inside the pyramid

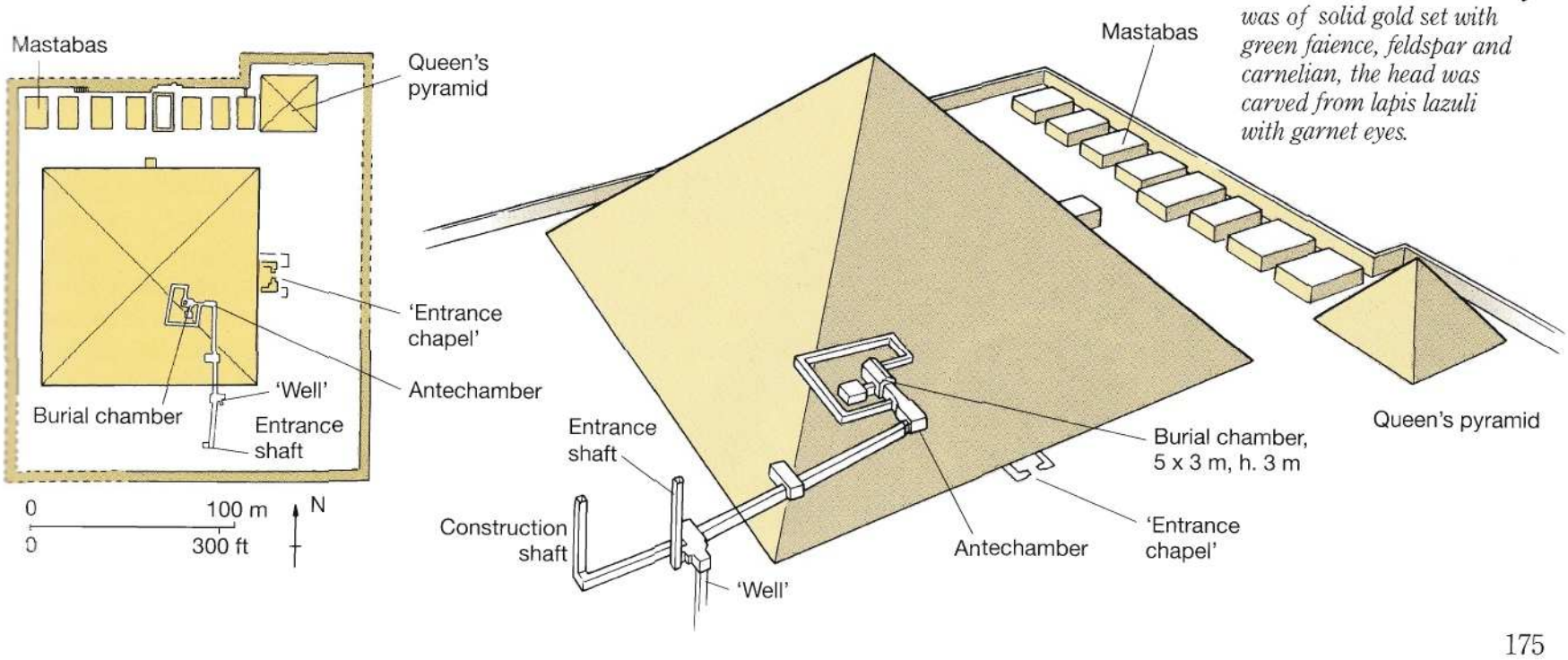
Petrie spent months searching without success for the entrance to the pyramid, due to the fact that Senwosret II's pyramid marks a complete departure from the usual arrangement of an entrance on the north. Instead, the pyramid is entered by a narrow vertical shaft at the east end of its south side. The king's body and burial goods were probably carried down this shaft, but it was too narrow for the sarcophagus and blocks of the burial chamber, which may have been brought in by a wider shaft farther south, hidden beneath a sloping passage to the tomb of an unknown princess. This disguise, which required a radically new position for the pyramid's entrance, may be the architects' solution to the risk of the pyramid being robbed. That they regarded it as sufficient seems to be indicated by the fact that there was no blocking in the corridor.

At a depth of 16 m (52 ft 6 in) below the surface the construction shaft opens into a horizontal corridor which runs to a hall with a vaulted ceiling. From a niche at the east end of the hall a 'well', the bottom of which has never been reached, drops to the water table. The corridor continues, rising at slight angle, with a chamber on the west. After an antechamber at a right-angle, a short additional section leads to the burial chamber, entirely clad in granite and with a gabled roof. This lies not under the centre of the pyramid but under its southeast quadrant. The red granite sarcophagus takes up



The pyramid of Senwosret II had a base length of 106 m (348 ft). With a slope of 42° 35' it rose to a height of 48. 6 m (159 ft).

Senwosret II's pyramid, the first of the giant mudbrick pyramids, was built over a reserved bedrock stump. Inside, all that remained of the king's burial goods was this uraeus. The cobra's body was of solid gold set with green faience, feldspar and carnelian, the head was carved from lapis lazuli with garnet eyes.



A diorite statue of the young Senwosret II, from Nag-el-Medamud.

the west end of the burial chamber. In front of it, an alabaster offering table was inscribed for Senwosret II. From the southeast corner of the chamber a short passage leads to a side room where Petrie found all that was left of the royal burial, lying in the dusty debris – a gold uraeus that once adorned the king's head band. Leg bones, presumably of the king, were also found.

A passage opens in the south wall of the corridor between the antechamber and burial chamber and then almost loops around the burial chamber, re-entering it in the northwest corner at the head of the sarcophagus. Stadelmann has pointed out that this last section allows a symbolic exit of the king's spirit to the north – it would then pass through the pyramid to emerge in the 'entrance' chapel built in the traditional spot at the centre of its north side. This arrangement reflects the old idea of the king's ascension to the circumpolar stars, but there may be an additional theme in the circuitous corridor. It created a subterranean 'island' – an important symbol of Osiris, whose worship was on the rise during the 12th dynasty at Abydos. The 'well' and the cobble-filled trench may also be reflections of the Osiris myth.

The pyramid complex

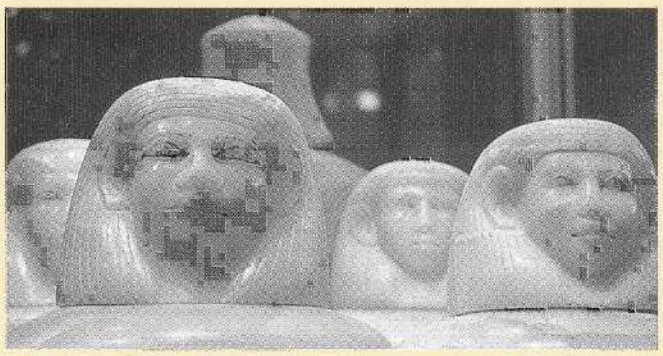
The inner enclosure wall had limestone casing that was decorated with niches, which, like Senwosret I's, is a nod to Djoser's complex and Archaic funerary enclosures. Rows of trees of unknown variety were planted parallel to the outer enclosure wall of mudbrick. The grove surrounding the 'mound' is another strong Osirian symbol. It would have been interesting to see if these new ideas found expression in the mortuary temple on the east side of the enclosure, but its ground plan is unknown. Numerous fragments attest to the use of granite with incised decoration. Senwosret retained a broad open causeway but we do not know how it attached to the enclosure or temple.

Within the north side of the outer enclosure, the builders began eight mastabas by isolating blocks of bedrock that they then built over with mudbrick – the same method as the pyramid. These were in addition to the tombs of princesses. At the north end of the row is a small pyramid, originally 27.6 m (90 ft 6 in) square and rising to a height of 18 m (59 ft). Although Petrie discovered foundation deposits, he never found a single passage or chamber beneath the pyramid, despite exploring it with tunnels and a deep vertical shaft. He did uncover the remains of a chapel at the north side. Part of a name on a vase, together with its position, are the only evidence that the pyramid belonged to a queen. If it is a satellite pyramid, it, and not Senwosret I's is the last satellite pyramid, though these are traditionally south of the mortuary temple.

Senwosret II's causeway has never been investigated. The location of the valley temple is known but its ground plan was destroyed. Immediately to the northwest of it lay the foundations of part of Senwosret II's pyramid town, named *Hetep Senwosret*, 'May Senwosret be at Peace'. The footprint of this town is one of the basic documents for the study of the history of Egyptian urbanism.

The Treasure of Illahun

In 1913 Guy Brunton and Petrie examined the plundered tomb of a princess named Sit-Hathor-Iunet. They found her red granite sarcophagus and canopic jars, but very little of her funerary furniture until they discovered a recess, plastered over,



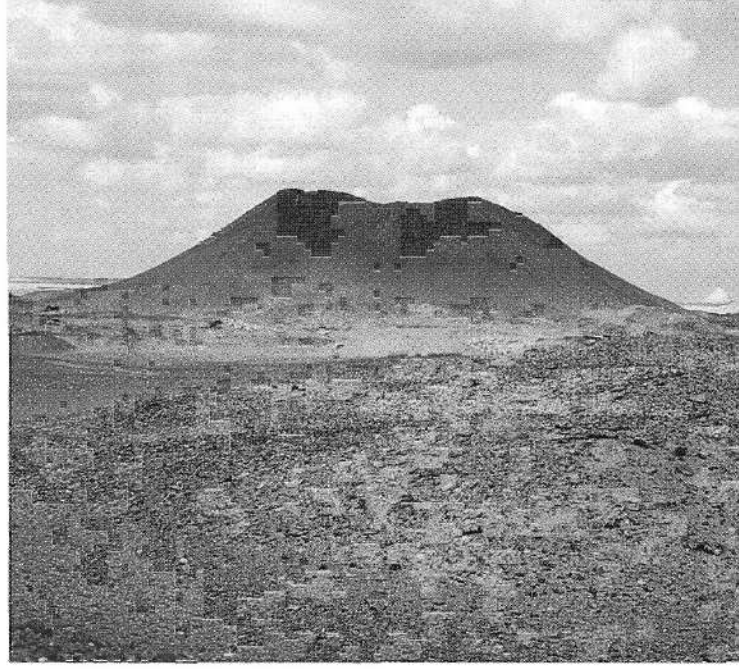
In the tomb of Sit-Hathor-Iunet, daughter of Senwosret II and aunt of Amenemhet III, were found her canopic jars (left) and a pectoral (below left) with the cartouche of Senwosret II (the reverse side is shown here).

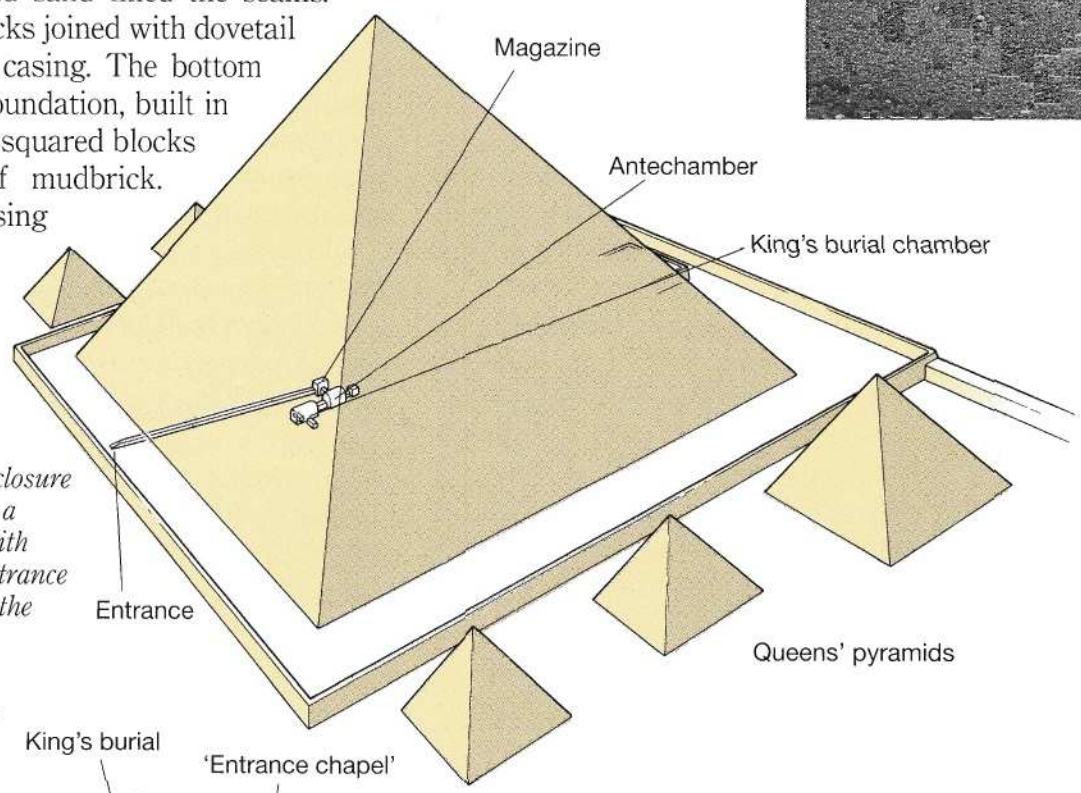
containing five boxes, two of which were of inlaid ebony. These contained the princess's necklaces, bracelets, anklets, scarab rings, mirror, razors and cosmetic containers. This 'Treasure of Illahun' also included a diadem formed of a band of gold adorned with a uraeus similar, though smaller, to that found in the king's pyramid. Her mirror was a disk of silver with a black obsidian handle in the form of an open papyrus, partly plated with electrum, with a face of Hathor. Two pectorals of chased gold inset with semiprecious stones revealed details of the life and death of the princess. One formed the hieroglyphic name of Senwosret II, her father, and the other was the name of Amenemhet III, her nephew.

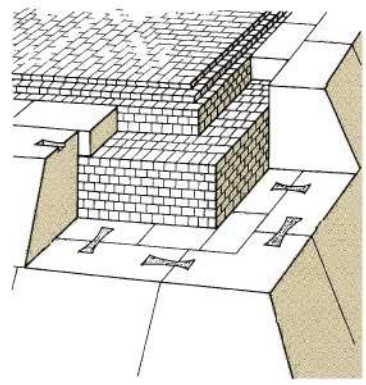
The Pyramid of Senwosret III

Senwosret III returned to Dahshur to build his pyramid northeast of Sneferu's North Pyramid. It was built directly on the desert gravel with a core of mudbricks laid in stepped horizontal courses. The bricks are of different sizes, suggesting that standardized moulds were not used. Some still retained signs inscribed with a finger in the wet clay, apparently to monitor work. The bricks were laid without mortar – instead sand filled the seams. Turah limestone blocks joined with dovetail cramps formed the casing. The bottom course rested on a foundation, built in a trench, of roughly squared blocks on three courses of mudbrick. Behind the outer casing the builders laid backing stones on the mudbrick steps to tie casing and core together.

The pyramid of Senwosret III at Dahshur had a mudbrick core, covered with a casing of fine limestone – blocks of the casing were bonded with dovetail cramps (below, right). On its east side was chapel.

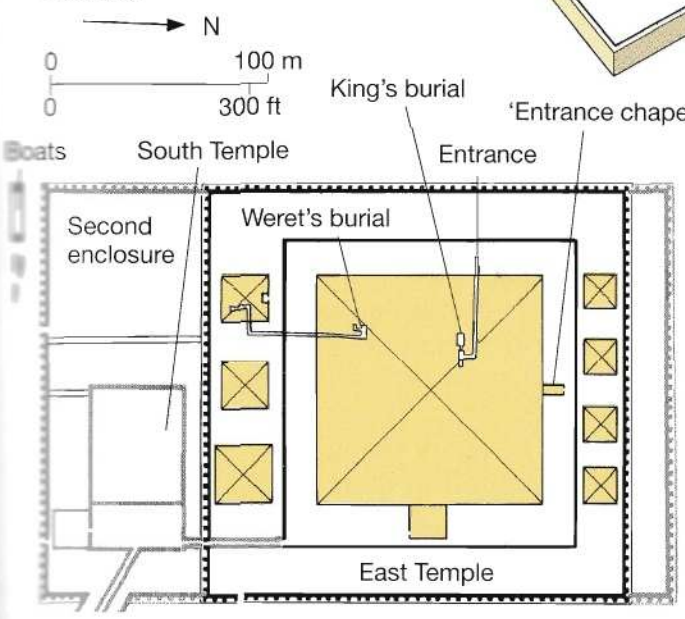






The pyramid's side length is calculated as 105 m (345 ft). Casing blocks were found with an angle of 56° 18' 35", from which the original height was worked out as 78 m (256 ft).

(Below) Senwosret's enclosure was expanded to create a 'Djoser-type complex, with south temple and an entrance at the far south end of the east side.



Inside the pyramid

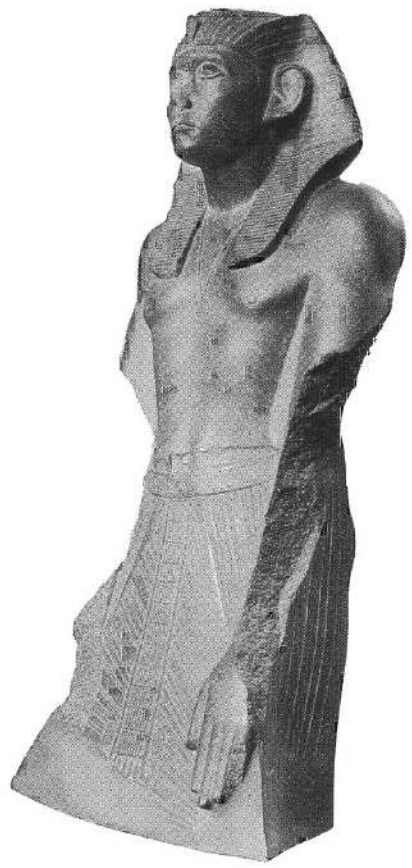
Jacques de Morgan, the first archaeologist to enter the pyramid, tunnelled extensively into and under it before, in November 1895, he hit upon an ancient robber's tunnel that led him to the king's chambers. The real entrance lay outside the pyramid's base at the north end of west side. From here a passage slopes under the pyramid, then turns south to an antechamber. A small magazine opens to the east and the burial chamber lies to the west, an arrangement similar to that of late Old Kingdom pyramids. The burial chamber was built in granite but the walls were completely whitewashed with gypsum; the granite sarcophagus filled its west end and a niche in the south wall was for the canopic chest. In the north wall a blocked opening is a corridor that communicated directly with the entrance passage. Above the vaulted granite roof of the burial chamber Arnold found a second 'stress relieving' gabled roof of five pairs of limestone beams, each weighing 30 tons. Above this was a third, mudbrick vault.

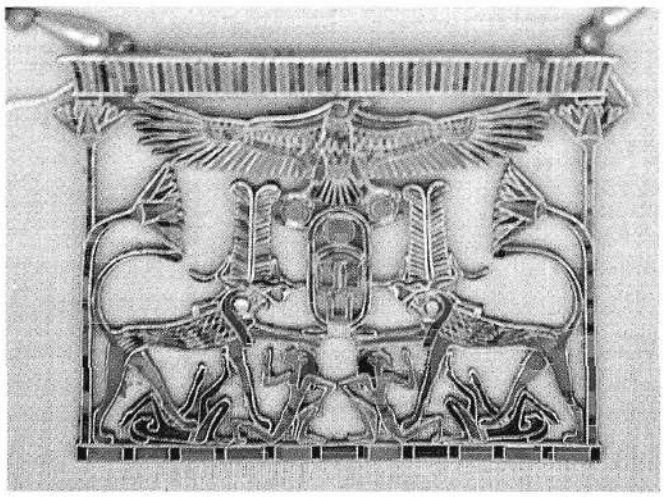
All that was found in this part of the pyramid were pottery vases and pieces of a bronze dagger with an ivory handle. There was nothing but dust in the sarcophagus. The lack of a canopic burial or other objects, and the absence of a blocking system, prompts the question whether Senwosret III was buried here. He built another tomb, perhaps his real burial place, at Abydos (p. 178).

The pyramid complex

As with so many other pyramid layouts, Senwosret III expanded his in at least two phases. In the first, his outer enclosure was nearly square and contained the inner enclosure wall, the pyramid with a small temple at the centre of its east side and an 'entrance chapel' at the centre of its north side and shaft tombs of royal women. In the second phase, the enclosure was extended both north and south.

(Below) A black granite statue of Senwosret III from Deir el-Bahri.





The king as double-plumed griffin trampling his enemies – order defeats chaos – on the pectoral of Merit, from her tomb under the north side of Senwosret III's pyramid enclosure.

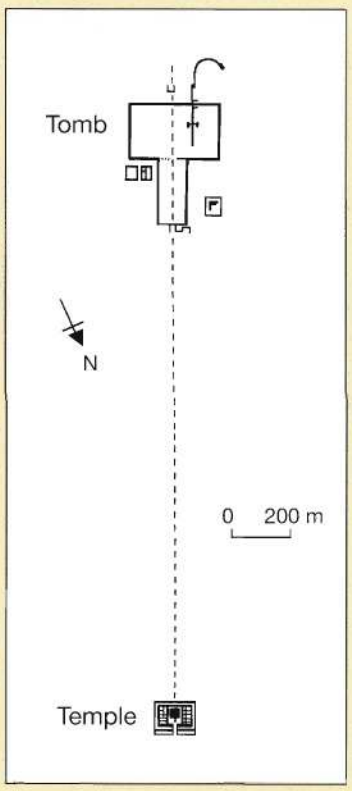
The southern extension enclosed a new temple. A causeway was also added in this phase.

No valley temple is known so far. The eastern mortuary temple is small in comparison to previous examples but it was so thoroughly destroyed that it is hardly possible even to reconstruct its plan. Arnold sees its size as evidence of the decline of the traditional mortuary cult, reduced to the offering hall with granite false door, storage magazines and entrance chamber. The walls were decorated with panels containing the royal name and titles. These, like the interior decorations, were executed in very high relief. Based on comparisons with Old Kingdom chapels, fragments of scenes of deities moving towards the king must come from an antechamber in which lower registers showed rows of officials and the slaughter of cattle. An inner offering chamber seems to have had the standard repertoire: the king enthroned before an offering table, with rows of offering bearers, the offering list, cattle slaughter and gifts.

The south temple was also completely destroyed, probably in Ramessid times, though Arnold could read its outline in the preserved foundations. The fragments suggest two sections: a forecourt, with papyrus bundle columns, and rear sanctuaries. Fragments of lotus columns were also found. The reliefs depicted the king in the typical cloak worn for the Sed festival. Deities, such as the ram-headed gods Khnum and Herishef, played a prominent role. Arnold believes the south temple may be a precursor of New Kingdom mortuary temples at Thebes.

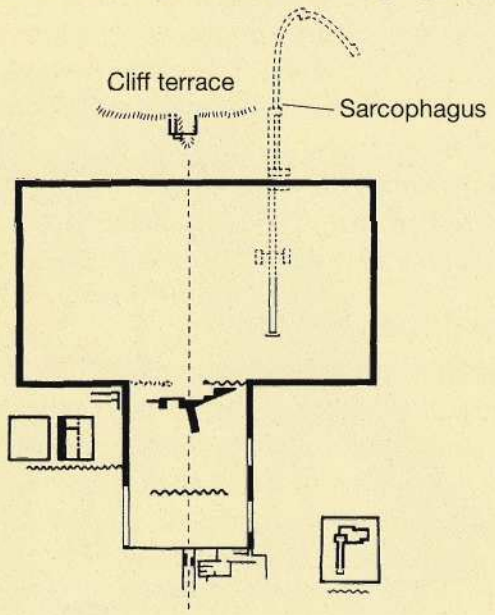
Senwosret III's Abydos Tomb

In addition to a long and curving substructure, Senwosret III's Abydos complex included a small terrace on the cliff, a large T-shaped enclosure, a long desert road and a temple – all aligned on a northeast–southwest axis.



We should include Senwosret III's Abydos tomb in our survey because its layout has many similarities with a pyramid complex. That Senwosret should build another tomb, which some see as his cenotaph, at Abydos is consistent with a rising interest in the cult of Osiris in the Middle Kingdom. It was about this time that the tomb of the 1st-dynasty king, Djer, at Abydos (p. 75), was remodelled as a tomb of Osiris. Senwosret III's complex is immense. Stretched out over 900 m (2,953 ft), it consists of two main parts: an extensive subterranean tomb that opens within a T-shaped enclosure at the foot of the cliffs; and a mortuary temple at the edge of the desert.

The tomb opens via a long dromos in the north side of the court at the back of the enclosure. The builders used a variety of defences – dummy chambers, entrances hidden high in chamber walls, passages filled with blocks and shafts – against robbers. But endlessly persistent thieves got past all the ingenious devices, to reach the final chambers at the end of a curving passage. On tearing down much of the cladding here which could have hidden the royal burial they found nothing. But when they removed the quartzite facing of a previous chamber they found their royal quarry. Behind the cladding of the west wall lay the granite sarcophagus, fitted in a niche, while the canopic chest was built into the opposite corner of the chamber. The lid had been forced up and broken and the sarcophagus emptied.



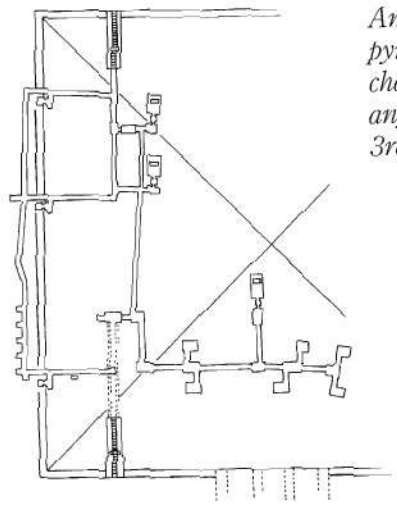
A long road connected the great enclosure with a temple near the cultivation, which consisted of a limestone chapel flanked on either side by magazines and houses. The central building was fronted by a heavy mudbrick pylon and forecourt with fluted columns. As in many pyramid temples, an altar or offering table stood in the northwest part of the court. An elaborate system of channels facilitated the draining of purification water or other fluids. Relief fragments show that the decoration was similar to Old Kingdom offering halls, but a new element is the frequent reference to Osiris. Two large seated quartzite statues of the king graced the front of the chapel inscribed for Senwosret III, 'beloved of Osiris-Khenti-Amentiu, Lord of Abydos' and 'beloved of Wepwawet, Lord of the Necropolis'. Smaller calcite statues stood in the back hall.

There is evidence of 200 years of cult service to the memory of Senwosret III in this temple. The heart of the layout is the tomb, with one of the most complex defence systems of any royal sepulchre. Yet it was made to look like a cenotaph. Perhaps Senwosret and his planners thought that the best defence of all was to bury the royal mummy in the 'false tomb', the cenotaph in the tradition of Abydos, as opposed to the pyramid, which for generations had traditionally been the king's real tomb.

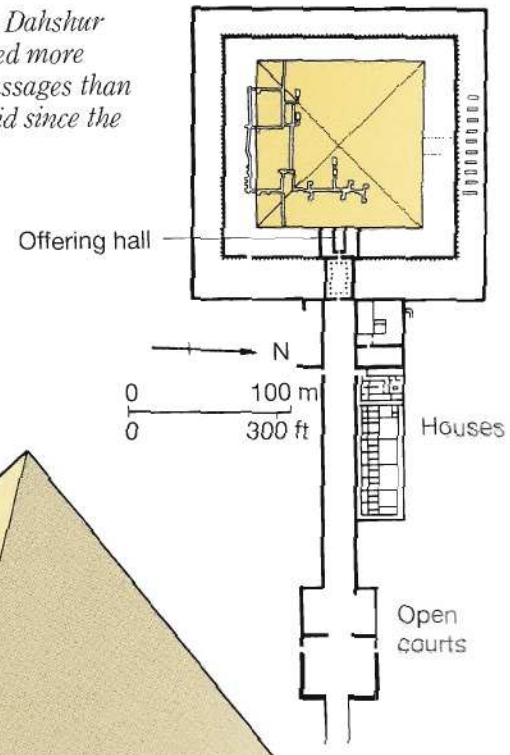
On the north of his pyramid was a subterranean gallery of graves for royal women, more complex than the four superstructures might suggest. A principal shaft gave access to a long vaulted corridor connecting four sets of chambers, each for a sarcophagus and canopic chest, plus one or two niches. Another gallery on a lower level communicated with 8 niches containing sarcophagi, two of which were inscribed – for princesses Ment and Senet-senebti. In a pit in the central corridor of the lower gallery de Morgan found a chest, once inlaid with the name Sit-Hathor, containing 333 pieces of her treasure. A gold pectoral spelled the name of Senwosret II and a scarab was inscribed with that of Senwosret III. The next day he found another treasure, belonging to Princess Merit, which contained many of the same elements as Sit-Hathor's but was even more extensive. It included a pectoral of Senwosret III and another of Amenemhet III.

On the south side of the king's pyramid were more tombs of royal women. In 1994 the shaft of 'mastaba' 9 was discovered. A tunnel leads to an antechamber, burial chamber and canopic chamber actually under the southwest corner of the king's pyramid. A granite sarcophagus fills the west end of the burial chamber, the floor of which was littered with pottery, wood, a few alabaster fragments and scattered bones. The name Weret, wife of Senwosret II and mother of Senwosret III, was found on a canopic jar and an inscribed board. It is interesting that the queen mother was buried under the southwest quadrant of her son's pyramid, given the emphasis on that direction throughout pyramid history. Outside this corner of Senwosret's enclosure was a mudbrick-vaulted building buried in the desert. Immediately to the east of this was a 'fleet' of at least six wooden boats, possibly more, each 6 m (20 ft) long. One or more wooden sleds were buried along with them.

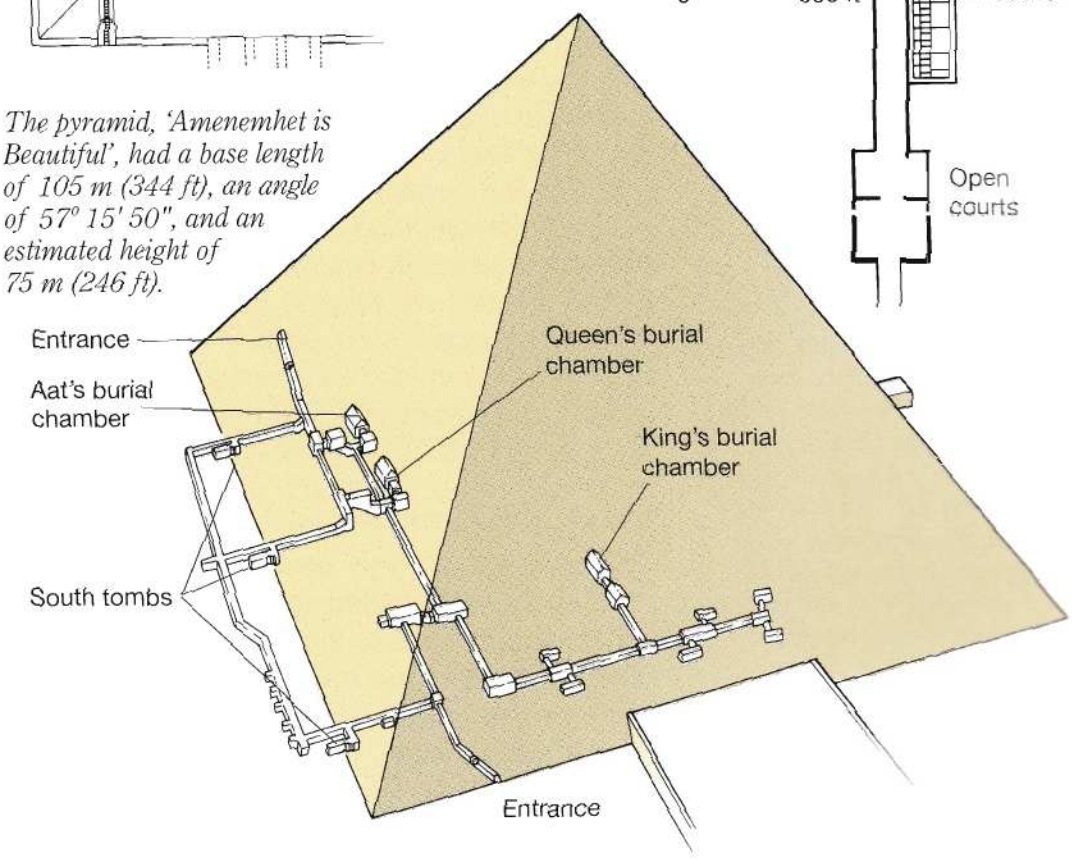
In 1997, Dieter Arnold's investigations uncovered evidence that the seven superstructure bases north and south of the pyramid in its inner enclosure belonged in fact to small pyramids and not mastabas, as had previously been thought.



Amenemhet III's Dahshur pyramid contained more chambers and passages than any other pyramid since the 3rd dynasty.



The pyramid, 'Amenemhet is Beautiful', had a base length of 105 m (344 ft), an angle of 57° 15' 50", and an estimated height of 75 m (246 ft).



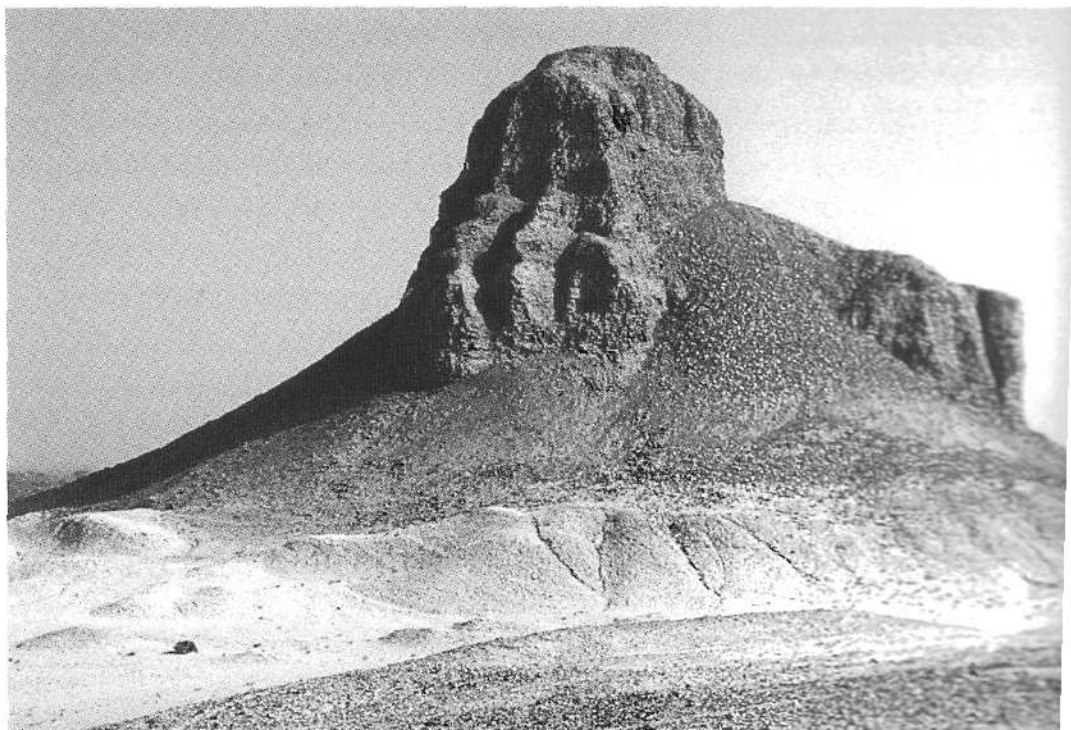
In contrast to his father's north–south enclosure, with many elements reminiscent of Djoser's complex, Amenemhet III returned to the east–west layout of the post-3rd-dynasty pyramid complex. For his second pyramid, however, at Hawara, he preferred the Djoser-type of layout.

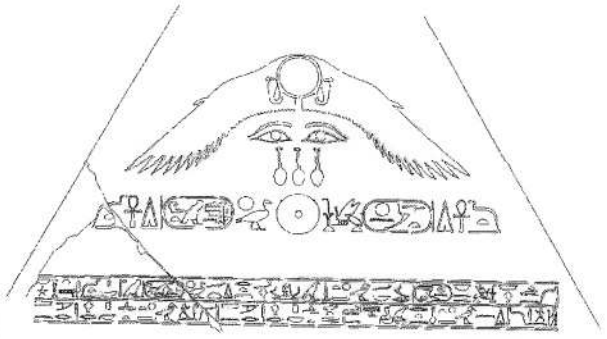
The pyramid's core was formed entirely of mudbrick without a framework of stone walls. The large mudbricks bear symbols impressed with a

A tower of mudbrick is the remnant of the core of Amenemhet III's pyramid at Dahshur after the outer casing of fine limestone had been robbed.

The Pyramid of Amenemhet III at Dahshur

Amenemhet III, son and successor of Senwosret III, ruled for 46 years. A builder's graffito from his pyramid casing dates to Year 2, suggesting that he began his pyramid as early as the first year of his reign when he was about 20 years old. Jacques de Morgan excavated the pyramid in 1894–5, and Dieter Arnold worked here in 1976–83. At only 33 m (108 ft) above sea level, it is one of the lowest pyramid locations. Perhaps Amenemhet III wanted to take advantage of Lake Dahshur, but his decision to build a pyramid here would be its undoing.





(Above left) An unusual archaizing statue probably showing Amenemhet III. On the pyramidion intended for his Dahshur pyramid (above, right) Amenemhet's eyes 'Behold the Perfection of Re'. Carved from black granite, it measures 1.87 m (c. 6 ft) per side and 1.31 m (4 ft 3 in) high. The composition represents Amenemhet III, resurrected from (and as) the mound of his pyramid, looking towards the sungod.

finger in the wet clay. The outer mantle was formed of Turah limestone casing and backing blocks, both joined by dovetail joints or cramps.

Remarkably, the pyramidion was found in 1900 in debris along the eastern base. The edges of the underside are bevelled to allow it to be set into a socket of the casing block below. Near the base of all four sides is a band of hieroglyphs; on the side that would have faced east is an additional design. Due to its good condition, it has been questioned whether it was ever set in place. When Amenemhet III began a pyramid at Hawara, his Dahshur pyramid was not abandoned – was the pyramidion kept in the temple, like the *ben-ben* of Heliopolis?

Inside the pyramid

The pyramid has two entrances, opposite each other at the south end of the east and west sides. For the first time since the 3rd dynasty these take the form of stairways and lead to more chambers and passages than in or under any other pyramid since the 3rd dynasty. The eastern stairway ends in a small chamber with a vaulted roof. A niche high in the south wall was for the king's canopic chest. A short stairway in the north wall leads to a series of corridors, corridor-chambers and side chambers strung out underneath the entire east quadrant of the pyramid. In the burial chamber the sarcophagus lies at the west end, just east of the pyramid's central axis. The entire substructure is cased in white limestone.

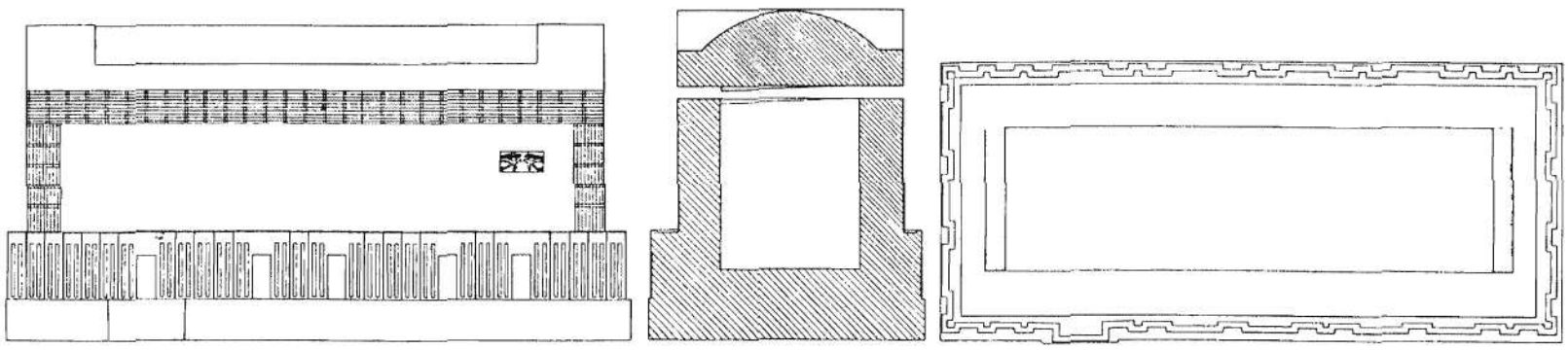
Directly under the south baseline of the pyramid a chamber lined with Turah limestone is a *ka*-chapel, with six more small chapels beyond the pyramid's baseline. These form the counterpart of the burial chamber and the six chambers of the king and may have had the same significance as Djoser's South Tomb and later satellite pyramids. It seems the satellite pyramid has moved in and under the main pyramid – as do the queens tombs.

Amenemhet III's Dahshur sarcophagus was a reduced copy in granite of Djoser's enclosure wall, including a larger doorway bastion at the far south end of the east side. A pair of eyes at the opposite end are, magically, the king's, who gazes in the direction of the rising sun, image of rebirth.

The western stairway entrance leads to two sets of passages and chambers for two queens under the southwest quadrant of the pyramid. The first to the west ends in a rectangular chamber with a niche for a canopic chest for a queen named Aat. Here the canopic niche is in the east wall and, as in the king's layout, it was above a stairway leading to the burial chamber. After a short passage and two antechambers is the burial chamber which contains Aat's sarcophagus. Although thieves had been inside long before archaeologists, they overlooked two maceheads, seven alabaster cases, in the form of ducks, an alabaster unguent jar and scattered pieces of jewellery. The canopic chest was broken but complete and one of the four canopic jars was present. Like the king, Aat had her own *ka*-chapel reached by a corridor leading south from her entrance corridor.

Arnold believes that Aat's burial complex was planned from the beginning of the pyramid. Before work was finished, plans were changed to include the burial of a second queen, east of Aat, with a layout similar to Aat's. Once again, robbers had entered but left some of the queen's possessions: an obsidian vase decorated with gold bands, three alabaster duck-shaped vessels, granite and alabaster maceheads and jewellery. She also had her own *ka*-chapel, located, like those of the king and Aat, exactly under the southern rim of the pyramid. Here Arnold found parts of her stone shrine, originally encased in gold and containing a *ka* statue – parts of a feminine wig remained. A canopic chest may indicate that in this period each *ka* burial had its own set of canopic vases. The bones of Aat and of the second queen show that they were aged 35 and 25 respectively.

Corridors connected the kings burial compartments with those of his two queens and probably facilitated bringing in construction materials. The plethora of turning corridors and chambers may mirror the winding ways of the Netherworld. But there is also a clear logical and spatial order to the principal elements. To the north lies the burial chamber containing the sarcophagus with a pair of eyes at the north end of the east side for the occupant to look out in the direction of sunrise and resurrection. The canopic chest lay to the south, on a higher level and overlooking the stairway down to the burial chamber. Farther south, and at the same level as the burial chamber, was the tomb of the *ka*.



The substructure and most, if not all, of the superstructure of the pyramid, were finished by Amenemhet III's Year 15, though a considerable part of the queens' layouts had yet to be encased in limestone. It must have been about this time that the builders were alarmed by obvious structural stresses. The weight of the pyramid was pushing down the ceilings and walls so that they sank in some places up to 3 cm (2 in) below the pavements. When the settling of the pyramid caused door frames to buckle and pushed walls apart, fracturing them with long fissures, the workers quickly cased unfinished narrow rooms with mudbrick and roofed them with mudbrick vaults. They brought in cedar beams to roof and buttress broader chambers. While such measures prevented collapse, continuing to build in costly stone was out of the question. Like Sneferu, whose Bent Pyramid is due west, Amenemhet III began another pyramid.

What went wrong? Amenemhet III's planners founded the pyramid too close to the valley floor where the clay-like bedrock was further weakened by ground water. There were also too many rooms and corridors beneath the pyramid; and the builders placed too great a trust in their ceiling constructions which provided no real stress-relieving device above the king's chamber.

The pyramid complex

In spite of the fact that it would not be the royal grave, Amenemhet III's Dahshur pyramid had a temple, causeway and valley temple. His is the first 12th-dynasty valley temple to be located and partially cleared. It consisted simply of two broad open courts built on ascending terraces. The front and side walls of the first were thickened to form a pylon-like gateway. A short section of causeway led to the entrance and then continued from the back of the second court to the pyramid enclosure.

The mortuary temple was almost completely destroyed so that it is only an informed guess that it was reduced to a front court with papyrus-bundle columns and an offering hall. The existence of an 'entrance chapel' in the centre of the north side of the pyramid is not certain. Attached to the north side of the causeway is a rectangular block of rooms identified as priests' houses.

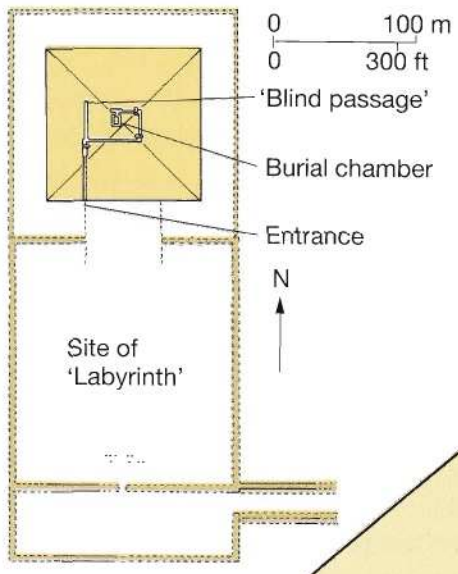
Aat may have been buried in Amenemhet III's Year 20, after which the pyramid was closed. The two entrance stairways, the king's chamber and antechambers, the queens' burial chambers, and the entrance corridors to the three *ka* chapels were filled to the ceiling with limestone blocks. Other chambers and corridors were filled with mudbrick. This may have been a precautionary measure against collapse, although corridors and chambers in the Hawara pyramid were similarly filled.

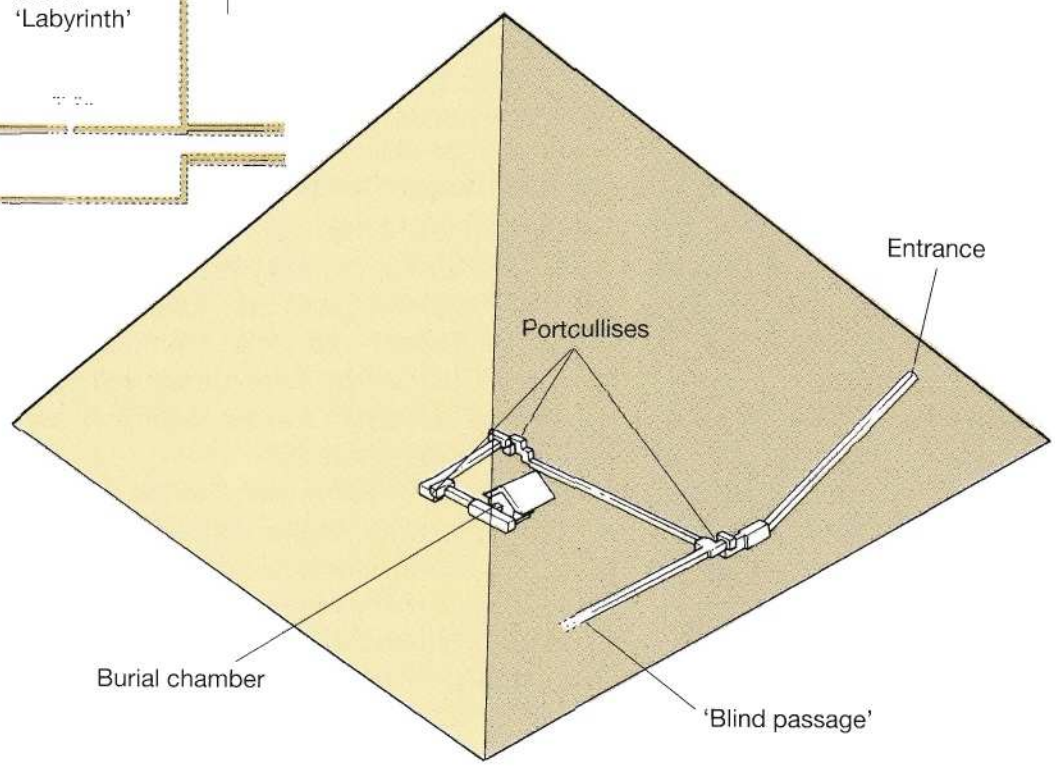
Fragments of Aat's false door and offering slab found in the buildings on the north of the causeway hint that the cults of the queens may have been carried out here, though it may previously have been a masons' workshop. The name of Amenemhet IV was found in the valley temple and it may have been during his reign that the pyramid was reopened to place sarcophagi in two chambers. Arnold wonders if these could have been for Amenemhet IV and the last regent of the 12th dynasty, Queen Sobekneferu. Two more burials bring the total to six royal family members laid to rest in the pyramid.

The guardianship of the pyramid was lax by the beginning of the 13th dynasty. Local inhabitants began to build granaries in the valley temple and the first breach of the pyramid happened about this time. There is evidence of restoration work perhaps 100 years later, when King Auibre Hor and his princess Nubheteptikhered were buried in two of the 10 shaft tombs in the north side of the outer enclosure. Were they descendants of the king's household, ruling, according to the Turin Canon, 12 kings after the end of the 12th dynasty?

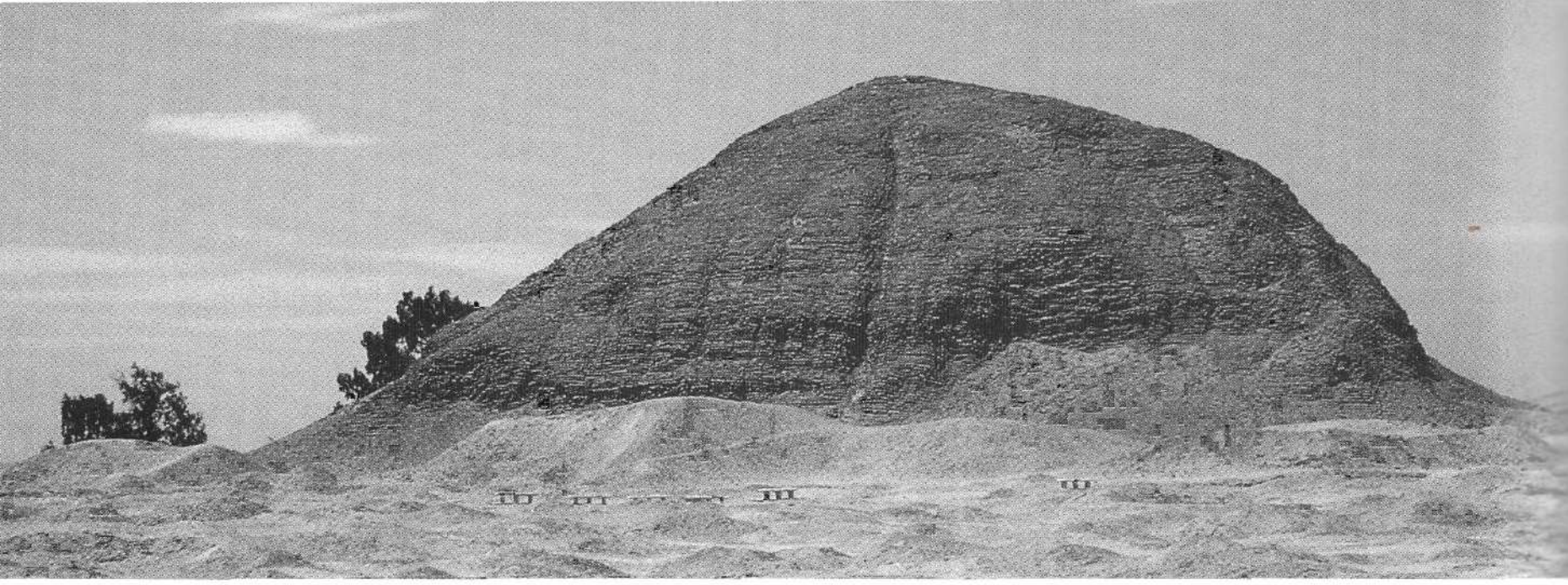
The Pyramid of Amenemhet III at Hawara

Buried in the floor of the valley temple of Amenemhet III's Dahshur pyramid, the German excavators found an architect's model of a pyramid substructure (p. 227). While some details differ,





For his pyramid at Hawara, possibly called 'Amenemhet Lives' Amenemhet III chose the 'Djoser-style' complex, with a long rectangular north–south enclosure. The pyramid's base length was 105 m (344 ft). It rose about 58 m (190 ft) at an angle of 48° 45'.



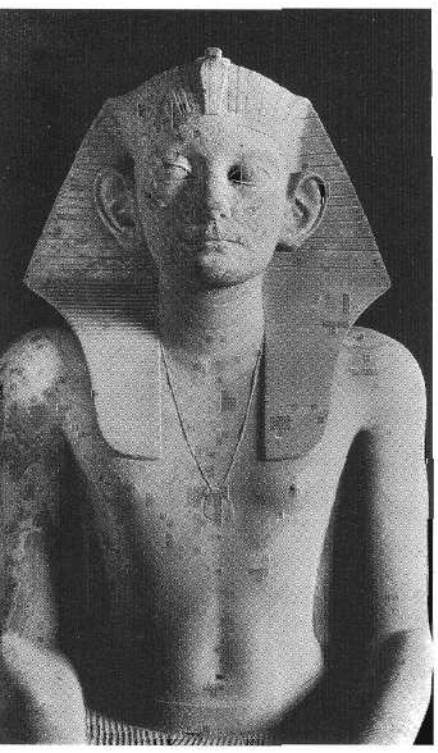
Despite the fact that it now lacks its limestone mantle, the mudbrick core of Amenemhet III's pyramid at Hawara is still impressive. However, its vast temple, the legendary Labyrinth of Roman tourists, has been quarried down to a layer of stone chippings.

there are similarities with Amenemhet III's second pyramid at Hawara. In his Year 15, Amenemhet III returned to the site of his grandfather's pyramid at the entrance to the Fayum, choosing a long spit of low desert. In design and location, this pyramid was a complete departure from that at Dahshur.

Richard Lepsius explored the Hawara pyramid in 1843. He mapped walls that he thought belonged to the large mortuary temple south of the pyramid, which he correctly identified as the site of the legendary Labyrinth. Petrie also explored the pyramid, reaching the burial chamber only after two seasons and great difficulty.

We are not certain of the name of Amenemhet III's Hawara pyramid. Rock inscriptions in the Wadi Hammamat speak of statues quarried for a building named '*Amenemhet-ankh*, Who Always and Forever Lives in the House of the Fayumi, Sobek', possibly a name for the whole pyramid precinct; Sobek was the crocodile deity of the Fayum. The pyramid core was constructed entirely of mudbrick with an outer mantle of limestone. Like Sneferu, Amenemhet III built his second pyramid at a lower angle than his first, and probably for the same reason – as a precaution against the threat of collapse. The anxiety of his builders is reflected even more strongly in the plan of the substructure.

Amenemhet III ruled for 46 years, and, like his 4th-dynasty predecessor, Sneferu, built two large pyramids, albeit with mudbrick rather than stone cores.



Inside the pyramid

The ground at Hawara was little better than that under the Dahshur pyramid, but the builders incorporated changes to protect the king's burial chamber from robbers and from the weight of the pyramid. There are far fewer tunnels and chambers and the main burial chamber was built near the base level of the pyramid.

The entrance, west of centre on the south side, is a stairway corridor sloping down to a level deeper than the burial chamber. At the bottom of the stairway is a small chamber from which a short passage leads to a dead end. Amenemhet III's builders then elaborated a device used in the Abydos tomb of Senwosret III: the route to the burial chamber continues as a short passage hidden in the ceiling. It was intended to be blocked by a massive slab of quartzite, weighing 20 tons, that could be slid sideways from a niche in the wall.

The ceiling passage leads to a second chamber, from which two passages depart. The first runs directly north. Petrie thought it was another blind passage and he had difficulty exploring it because it was filled with mud and water. The mud is probably disintegrated mudbrick that filled the passage. It is possible that the so-called blind passage might in fact lead to a south tomb, like that in the Dahshur pyramid. The second passage, once closed by a wooden door, makes a right-angled turn and runs directly east. At a point just under the southeast diagonal of the pyramid is a third chamber. After another right-angled turn the passage continues, hidden again in the ceiling and intended to be closed by another large quartzite slab. The third such arrangement is under the northeast corner, the only one actually closed by its quartzite blocking slab. From here a short passage leads to an antechamber. A channel in the centre of its south wall opens into the trench containing the burial chamber, slightly west of the pyramid's centre.

The burial chamber is a technical marvel and completely innovatory. It is beautifully carved from a single piece of hard sandstone or quartzite, in the form of a rectangular 'tub', measuring 7 x 2.5 x 1.83 m high (23 x 8 x 6 ft), set into an open trench. This was a considerable accomplishment since Petrie estimated it weighed 110 tons. Before roofing the chamber, the king's quartzite sarcophagus, its plinth decorated with niches, a second smaller sarcophagus and two canopic chests were placed in it. Although working under difficult conditions – the chamber was submerged in ground water – Petrie reported finding bits of bone inside the coffins.

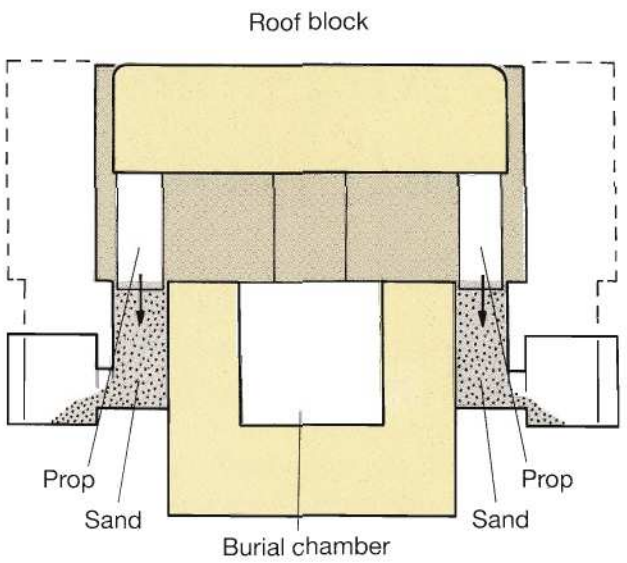
In the antechamber Petrie found an alabaster offering table elaborately carved with depictions of food with hieroglyphic labels, and duck-shaped bowls. These objects bore the name of a princess Neferu-ptah. From Djoser to Amenemhet III, the

male ruler, at the centre of a pyramid cemetery, was surrounded by royal women and it is the women's tombs that have given us some of the richest discoveries as well as the greatest puzzles of the pyramids – Neferu-ptah presents one of these. With a reduction in the number of chambers under the pyramid it may have been a logical development that Amenemhet III's favourite was buried with him in his burial chamber – two queens' tombs were incorporated within the substructure of his Dahshur pyramid. However, in 1956 another tomb for Neferu-ptah was found, southeast of Hawara, with a red granite sarcophagus inscribed with Neferu-ptah's name, along with other objects. In the waterlogged sarcophagus, were traces of two wooden coffins and fragments of linen bandages.

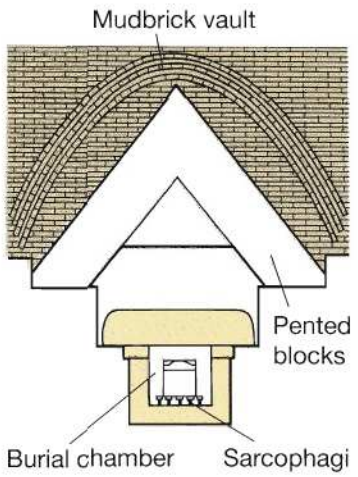
The mystery of Neferu-ptah is heightened by the fact that the pyramid burial chamber could be closed only once. Its roof was composed of three large quartzite slabs, one of which was propped up on smaller blocks to leave a space to introduce the king's (and queen's?) mummy and coffins. In order to close the burial vault, the Hawara builders installed the first known sand lowering device. Small pillars supporting the raised ceiling block rested in turn on sand filling shafts to either side of the vault. When the sand was removed by side galleries (that Petrie took for robbers' tunnels), the props descended and the ceiling slab with them, to close the vault. Not only would this quartzite vault not buckle as easily as the masonry chambers of the pyramid at Dahshur, but the builders also ensured that the weight of the pyramid would not press directly on it. The ceiling slabs extended beyond the sides of the vault to rest on a ledge cut in the sides of the bedrock trench. On top of the quartzite roof the builders set a row of triangular limestone blocks. These were then covered with a second roof of high gabled limestone beams set in pairs leaning against each other. Above this they built a third vaulted roof of mudbrick.

Pyramid complex as Labyrinth

The layouts of Amenemhet III's two pyramids are so different that we might wonder if there were ideological as well as practical reasons for having two. Measuring 385 x 158 m (1,263 x 518 ft) the Hawara enclosure, orientated north–south, was the largest of the Middle Kingdom pyramid enclosures. As with Djoser, the pyramid was in the north while the entrance was at the far south end of the east side where, as in Senwosret III's layout, an open causeway approached from the east. Between the entrance and the pyramid lay the 'mortuary temple' which here is something of a misnomer. This was apparently such an extraordinary architectural creation that it was seen by visitors in Classical times as a unique monument in a class of its own. They called it the Labyrinth, comparing it with the legendary Labyrinth of Minos at Knossos in Crete.



Mudbrick Pyramids



The burial vault of Amenemhet III (above) was protected by triangular lintels, gabled beams and a mudbrick vault. The last great quartzite ceiling slab was lowered to close the vault (above, left) by an ingenious device. Sand which had supported props holding up the block was released via side tunnels, allowing the huge piece of stone slowly to descend to its resting place.

It is all the more frustrating, therefore, that the temple is almost completely lost to us. Quarried since Roman times, very little is left except a foundation bed of sand and limestone chips, which only hints at its vastness. This was not a labyrinth in the sense of nested passages and blind corridors. Its complexity instead arose from the replication of small courts and shrines, in an arrangement that Strabo called 'a palace composed of as many smaller palaces as were formerly nomes'.

All the Classical authors write of multiple courts but disagree on the number. Herodotus spoke of 12 main courts, and said the visitor was conducted 'from courtyards into rooms, rooms into galleries, galleries into more rooms, thence into more courtyards'. He mentioned lower rooms or crypts devoted to the sacred crocodile Sobek, noted also by Pliny the Elder. Close to the south side of the pyramid Petrie found remains of two great granite shrines, weighing 8 to 13 tons, each containing two figures of the king. These may have stood near their findspot at the back centre of the temple. Did they occupy a central place like the five statues in the Old Kingdom pyramid temples? Also close to the pyramid Petrie found the remains of a colossal granite statue of the king.

Other fragments must have belonged to statues that stood in the chapels and courts, including ones of the crocodile god, Sobek, as well as other deities like Hathor and an unusual palm goddess, statues of the king and offering bearers. Stadelmann sees these statues, probably assigned to their respective 'booths' and courtyards, as the translation into three dimensions of flat painted relief scenes that graced the walls of prior pyramid complexes. But the rows of chapels recall most strongly the Heb Sed court of Djoser, which was more abbreviated than the Labyrinth's fabled colonnaded courtyards. It seems fitting that Amenemhet III, who built the last major royal pyramid complex in Egypt, borrowed and elaborated the architectural expression of 'the palace composed of smaller palaces' from Djoser, the builder of the first great royal pyramid.

Late Middle Kingdom Pyramids

Amenemhet III is succeeded in the king lists by his son Amenemhet IV. There is no known funerary complex for this last king of the 12th dynasty, although one of the unfinished pyramids of the late Middle Kingdom may have been intended for him. Another possibility is that he was buried in Amenemhet III's Dahshur pyramid, along with his successor, Queen Sobekneferu who ruled for a few years in her own right. From the late 12th dynasty to the end of the 13th, while some 50 rulers are mentioned in texts over a period of about 143 years, only six to eight pyramids are known, not all of which were completed. Sites range from extreme South Saqqara in the north to Mazghuna, south of Dahshur. Once again, the lakes at the edge of the desert, particularly Lake Dahshur, may have had much to do with the choice of these locations.

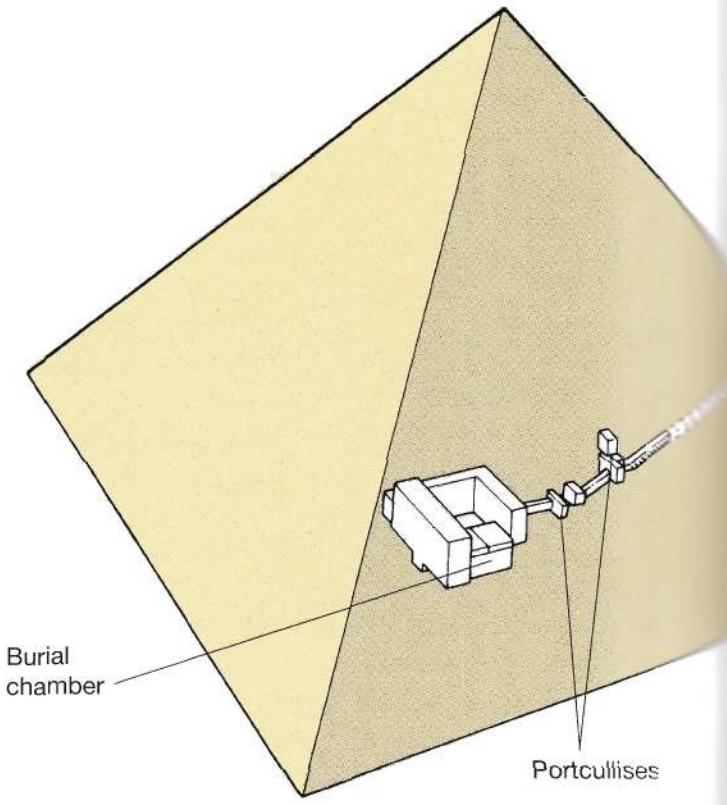
The Pyramid of Central Dahshur

A poorly known pyramid south of Amenemhet II's may belong to this period. Fragments of limestone reliefs and the track of a causeway leading eastwards suggest some degree of completion. A fragment bearing the royal name Amenemhet could be derived from Amenemhet II's complex, or possibly belong to Amenemhet IV. The site was badly damaged by digging for a petroleum pipeline in 1975.

The Mazghuna Pyramids

Amenemhet IV and Sobekneferu have been suggested as the owners of two unfinished pyramids at Mazghuna. However, the names of neither of these regents have been found at the sites.

The southern Mazghuna pyramid, about 4.8 km (3 miles) south of Sneferu's Bent Pyramid, was surrounded by a wavy-wall of the kind that we begin to see at earlier Middle Kingdom monuments. A broad entrance and vestibule were built into the far east end of the south side of the enclosure. Around the vestibule the ground was covered with a thick layer of limestone chips, suggesting that it was a work yard such as were found at the upper ends of the causeways of Senwosret I and Amenemhet III at Dahshur. A mudbrick chapel occupies the centre of the east side of enclosure consisting of a large central chamber, or court, and magazines to either side. An offering hall with a vaulted roof was attached to the southwest corner of the court.

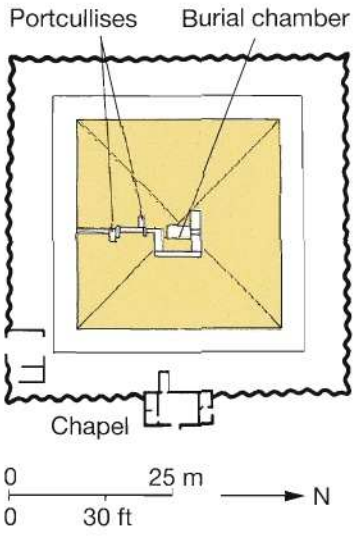


The chapel indicates that a cult began, even though the pyramid superstructure was never finished. When excavated, the core consisted of one or two courses of brick, laid on edge on the desert gravel. No outer casing stones were found although a foundation trench indicated the intended pyramid baseline. The entrance opens in the centre of the south side to a stairway with shallow steps and side ramps sloping to a short horizontal passage.

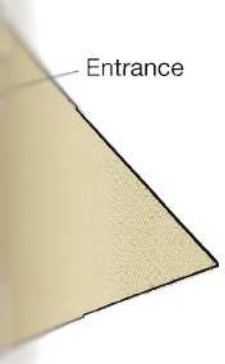
At this point is the first of two great portcullis blocks. The lower part of the passage is blocked by a granite slab, so that when the plug was slid into place from its recess, it blocked the continuation of the passage at the higher level. From this higher opening another stairway ramp descends to the second portcullis. This is similar to the first except that the plug was left open. From here the route to the burial chamber was a series of corridors arranged in three turns around the burial chamber. A service chamber at the head of the burial chamber had a floor trench for introducing the burial down into the coffer. In this antechamber were found an alabaster vessel in the form of a trussed duck and three limestone lamps. A single block of red quartzite fills the chamber and is, in fact, an inner burial chamber like Amenemhet III's monolithic vault at Hawara. Receptacles for the coffin and the canopic chest were carved in the interior. Robbers made their way inside and left only a small alabaster kohl pot and a piece of glazed steatite.

The arrangement for closing the lid is another feature borrowed from the Hawara pyramid. Two large pieces of the lid rested on the rim of the vault, with a gap between. Slabs supported the missing lid piece and rested on sand-filled shafts. When the sand was removed through side tunnels, the props carried the middle part of the lid down.

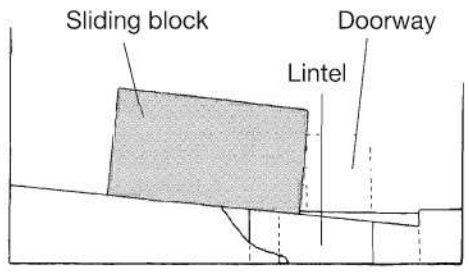
The southern Mazghuna pyramid had a wavy-wall enclosure and a fairly complicated substructure.

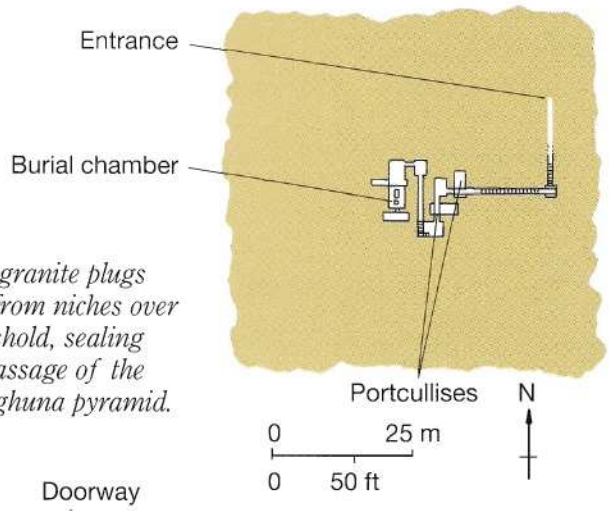


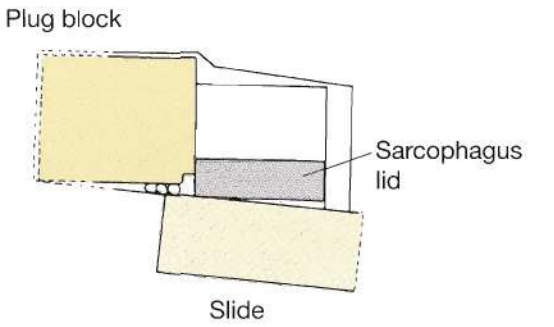
(Left) The pyramid of southern Mazghuna had a base length of 52.5 m (172 ft). Though it has a complicated substructure, the superstructure was never finished.

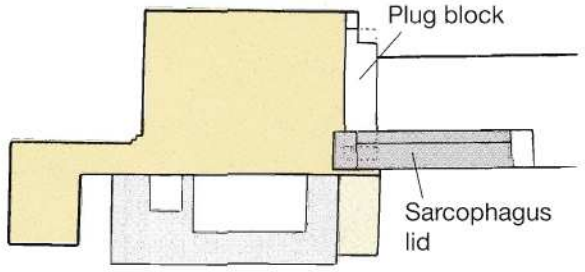


(Below) Great granite plugs slid sideways from niches over a granite threshold, sealing the pyramid passage of the southern Mazghuna pyramid.









A pyramid at north Mazghuna was planned on a larger scale than the southern one. The superstructure was never begun, and the system of closing the substructure – which resembles that of Ameny-Qemau but is more elaborate – was not used. The pyramid therefore may date well after the end of the 12th dynasty. Its position as the next pyramid south after Ameny-Qemau's may not be significant, since kings would shift back and forth between major pyramid sites.

The passage to the burial chamber here doubles back on itself in a U-shape before arriving at the chamber – a pattern also found in a Late Middle Kingdom pyramid at South Saqqara. A short stairway descends from the north on the east side of the pyramid. From a square chamber at the bottom, the passage turns a right-angle and continues as a stairway, sloping to the first portcullis chamber. A recess with a gigantic quartzite plug block, weighing 42 tons, opens to the north. This was meant to slide over a quartzite slab across the base of the passage and in front of a quartzite lintel at the top. Once in place, the assembly would have formed a wall of quartzite; the plug, however, was left open. The passage continued with right-angled turns, past a second portcullis similar to the first, although the block was smaller, and finally ends in an antechamber on the north of the burial chamber.

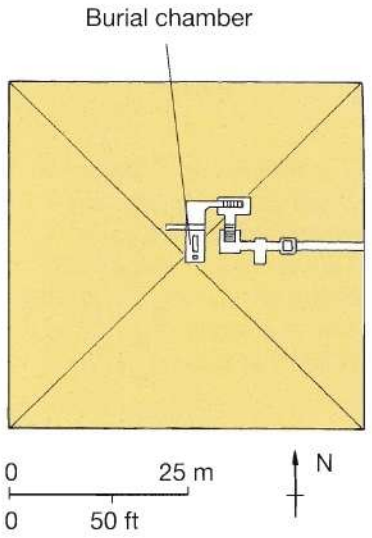
The burial chamber was filled by the sarcophagus vault, made from a quartzite monolith in which the coffin receptacle was fashioned in the north end and the canopic compartment in the south. Scarcely 2 cm (less than 1 in) of clearance was left between the sides of the vault and the burial chamber. To the north, the lid was still parked in a low chamber. This would have been slid over the top of the vault and locked in place by a slab pushed over from a side recess. All exposed quartzite was painted red, even the plug blocks. After carefully smoothing the sarcophagus, the workers covered it with plaster which they also coloured red. On the painted surfaces they sometimes added series of vertical black strokes bounded by fine horizontal lines.

Outside the pyramid, mudbrick walls formed a causeway approaching from the east. This must have been the route for bringing in the massive plug blocks and burial vault, as well as other building materials. One block was found on the causeway where the builders may have left it when work was abruptly halted on this pyramid.

(Above) The northern Mazghuna pyramid was never finished, nor did it ever receive a burial – the lid of the sarcophagus was parked in its chamber and the blocking slab that would have been slid across to lock it in position was in its recess.

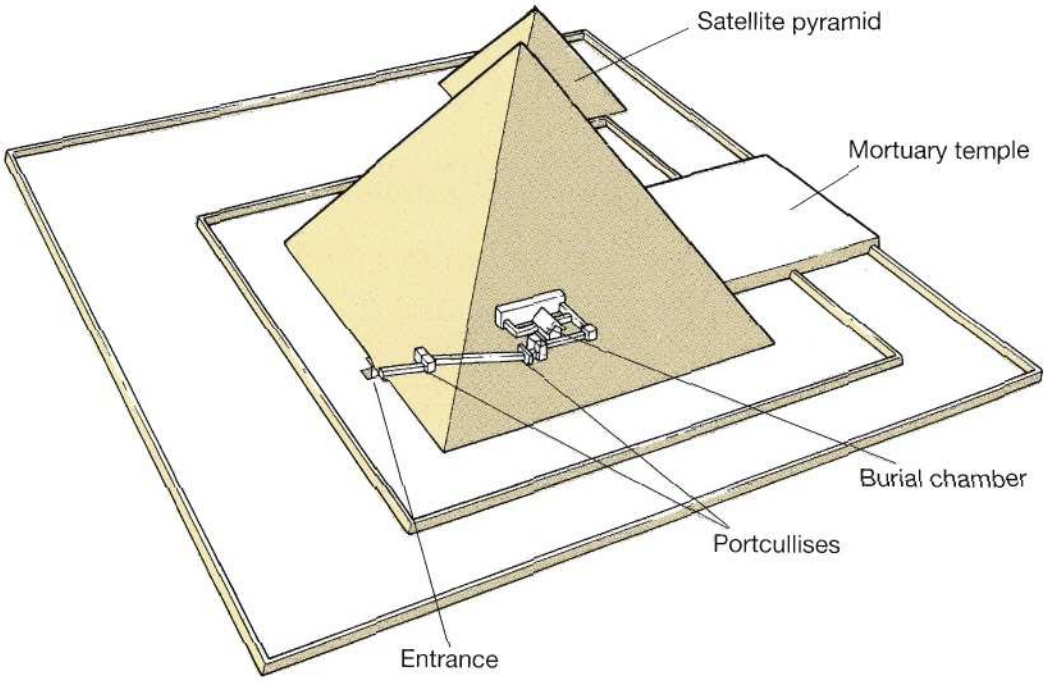
The Pyramid of Ameny-Qemau

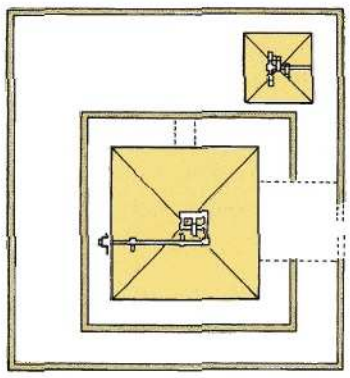
One of the few 13th-dynasty pyramids to which we can attach a name is located close to the southeast rim of Lake Dahshur. Broken canopic jars from the pyramid bore the name Ameny-Qemau. His pyramid was originally about 50 m (164 ft) square. The burial chamber was shaped from a single block, like Amenemhet III's, with the receptacles for the sarcophagus and canopic chest formed together into the interior, like the north Mazghuna pyramid. The lid was slid on to the coffer from the entrance end of the chamber, after which it was locked in place by a sideways sliding portcullis slab.



The pyramid of Ameny-Qemau, today barely visible in the surrounding landscape, originally had a base length of approximately 50 m (164 ft). Its substructure is now very badly damaged.

The Pyramid of Khendjer





The complex of Khendjer at South Saqqara is the only pyramid completed in the 13th dynasty. It had a base length of 52.5 m (172 ft) and rose to a height of 37.35 m (123 ft) at slope of 55°.

Khendjer was a pharaoh of the middle of the 13th dynasty whose Asiatic name may hint at Syrian or Palestinian ancestry. He sited his pyramid in far South Saqqara, between Pepi II's and Senwosret III's. This is the only known 13th-dynasty pyramid to have been completed. Originally it rose to a height of 37.35 m (123 ft) at a slope of 55° from a base 100 cubits (52.5 m/172 ft) square. Today its ruins rise just 1 m (3¼ ft). The core was mudbrick, with a mantle consisting of backing stones and a casing of limestone. Fragments of a black granite pyramidion were found on the east side.

Two enclosure walls surrounded the pyramid. The outer one contained, in the northeast corner, the only subsidiary pyramid known from the 13th dynasty. A mortuary temple on the east side spread across both inner and outer enclosures. All that remained of the temple were parts of the pavement and bits of reliefs and columns. A north chapel was built against the inner enclosure wall. In its north wall was a yellow quartzite false door. Fragments of reliefs show standard scenes of offering bearers.

The inner enclosure wall was of limestone, patterned with niches and panels. This replaced an earlier wavy wall of mudbrick, which has prompted Stadelmann to suggest that the wave-form wall may be an abbreviated form of the niched wall, built as a provisional substitute under time constraints. A blocked, unfinished stairway in the southeast corner of the outer enclosure may indicate an earlier plan for the pyramid substructure, or the beginning of a south tomb for the royal *ka* that was never completed.

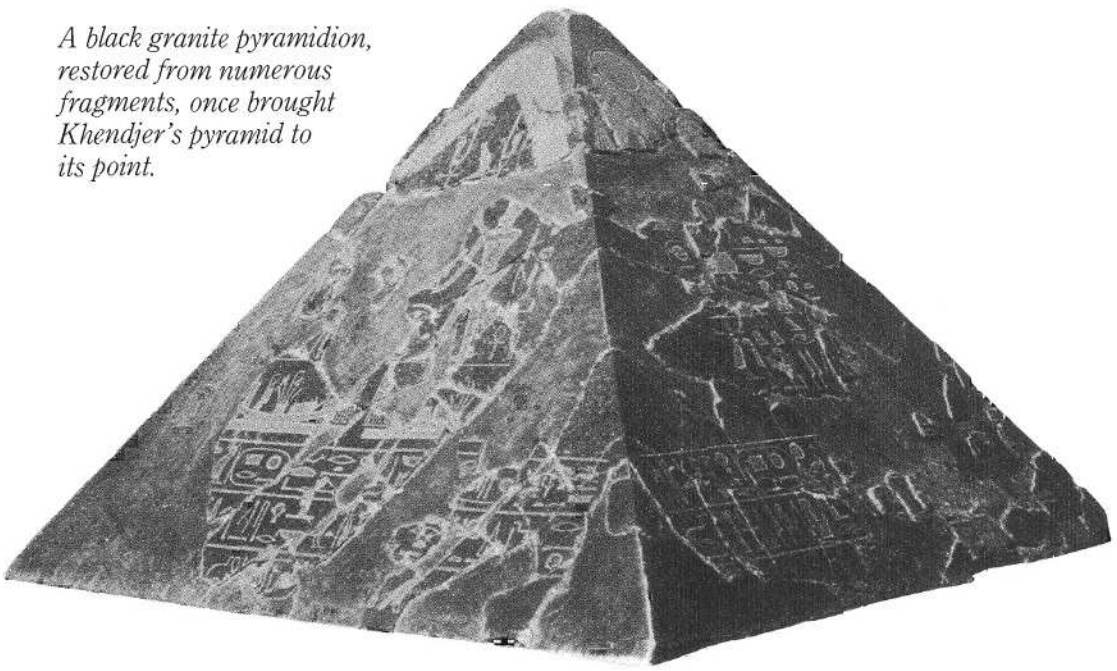
The pyramid entrance is towards the south end of the west side. A stairway ramp leads down to a portcullis chamber similar to those of the Mazghuna pyramids. The huge portcullis block in its recess was never slid across the passage. A second stairway of 39 steps continued on the same axis down to a doorway that had been closed with a double-leaf wooden door. A second portcullis, also left open, lay just beyond the wooden door.

Rather than indicating that the royal burial never took place, the open portcullises may suggest that, ultimately, these mighty closing devices were 'for show'. When the king was alive, he and his officials no doubt inspected work in progress. They would have been satisfied that such gigantic blocks of the hardest stone would protect the king's final resting place. However, once the pharaoh died it may have been relatively easy for a work crew to avoid the strenuous task of closing the plug blocks – particularly when other crews and even the palace had moved to another location.

Khendjer's second portcullis was installed at the corner of a trench in which the burial chamber was placed before the pyramid was built above it. The chamber was formed of a single huge quartzite block in which receptacles for the coffin and canopic chest were carved. Two quartzite beams formed the roof. Once the quartzite portcullis blocks and the sarcophagus chamber were in position, the builders roofed the corridors and built a gabled roof of limestone beams above the burial chamber. In addition they constructed a brick vault to relieve the weight of the superstructure.

The mechanism for closing the vault after the funeral was the same as in the Hawara and south Mazghuna pyramids. The props of the northern ceiling slab rested on sand-filled shafts. When the sand was drained through tunnels, the ceiling slab lowered on to the vault. It would have been necessary to scoop out the last of the sand, and workmen probably used short wooden supports to allow them to do this. The workers escaped through the tunnels, which they filled with masonry. Finally, they paved over the openings into the corridors.

The small subsidiary pyramid had a simpler corridor and closure system. A stairway ramp leads to a corridor through two portcullises to a central



A black granite pyramidion, restored from numerous fragments, once brought Khendjer's pyramid to its point.

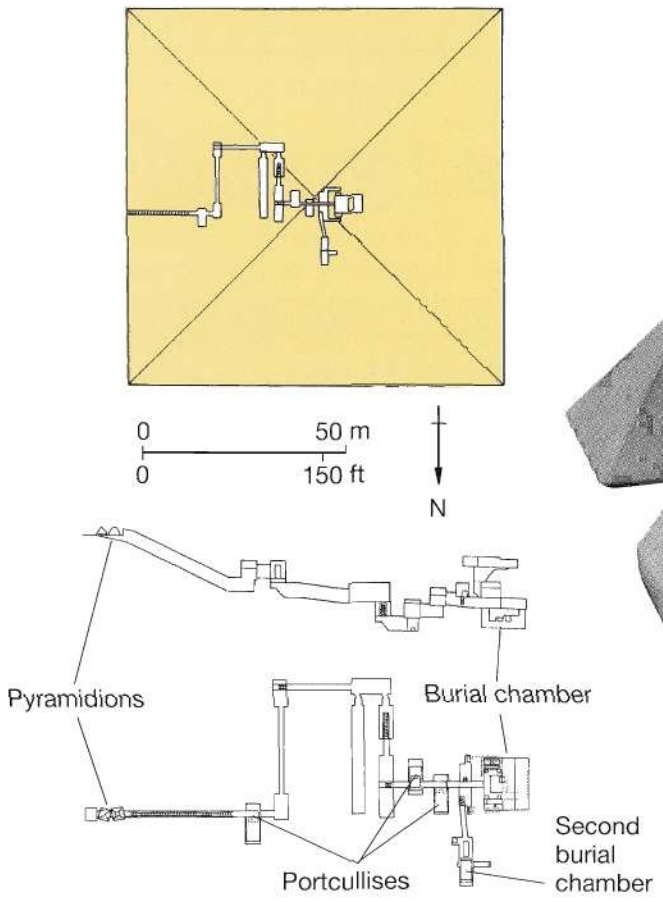
antechamber from which two burial chambers branch north and south. Both of these contained quartzite coffers. The lids were found propped on blocks, the coffers never closed. This small pyramid is generally considered as the burial place of a queen rather than as a satellite, or *ka*, pyramid of the king. However, while the last of the *ka* pyramids, which were always on the south or southeast of the main pyramid, was found in Senwosret I's complex at Lisht, it too had two chambers lined with masonry, on the north and on the south.

The Southern South Saqqara Pyramid

Southwest of Khendjer's pyramid lies the substructure for another unfinished pyramid. With a side length of about 150 cubits (78.75 m/258 ft) it was planned on a larger scale than Khendjer's. A wavy enclosure wall surrounds the site, but there is no evidence of cult buildings. A remarkable find here was two pyramidions before the entrance near the centre of the east side. Both are of black granite – one was polished smooth while the other was only roughly finished, with a truncated top. Two pyramidions in front of a pyramid for which the superstructure was hardly begun suggest that capstones could be brought to the site well in advance of the pyramid's completion – a note of caution against using Amenemhet III's pyramidion as evidence that his Dahshur pyramid reached its apex. One of the pyramidions may have been for a subsidiary pyramid. No inscription was found on them, or anywhere else on the site, to indicate the name of the king for whom this pyramid was begun.

This unfinished pyramid has a surprisingly elaborate substructure, similar to that of the north Mazghuna pyramid in the way the route to the burial chamber switches back on itself in a U-pattern. A long stairway ramp leads down to the first of three large side portcullises. There are the usual wider chambers at the turns, and a blind corridor runs parallel to a shorter stairway and chamber. These lead to a narrow passage, past the other two great portcullises to an antechamber and then to the main burial chamber. This chamber was again formed from a colossal quartzite block, here weighing 150 tons and with the sarcophagus and canopic compartments hewn into its interior. The chamber was intended to be closed by the system of sand-filled shafts. Like the portcullises, this closure system was never put into effect, the lid was left on its props.

An unusual feature is a second burial chamber to the north of the first, entered by a small stairway from the antechamber. This chamber had the same kind of closure system as in the pyramids of Ameny-Qemau and north Mazghuna – a horizontally sliding lid. A separate canopic compartment



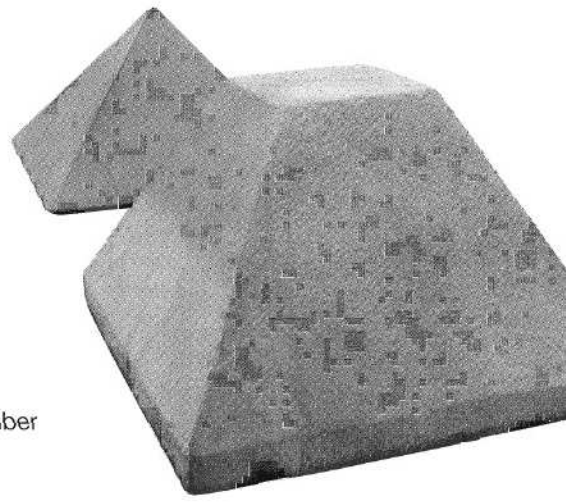
was provided in a niche off one corner of the chamber. This second burial chamber has been considered a queen's burial room or a 'decoy' to thwart robbers. However, if they got this far, robbers could hardly have missed the main chamber. Another possibility is that it is a *ka* tomb, but these are usually to the south of the main chamber.

Stadelmann points out that the workmanship of this tomb – the masonry of fine Turah limestone casing the corridors, painted in places to imitate granite, the unsurpassed construction of the burial chamber, and the elaborate closure system, to which we can add the large base length laid out for the superstructure, suggests that the pyramid was begun for a significant, or at least an ambitious, ruler. His plans for the Afterlife, however, did not come to fruition, at least not in this monument.

There may be at least two more pyramids of the 13th dynasty near Ameny-Qemau's in South Dahshur. These were first noted by Dieter Arnold and Rainer Stadelmann. They have yet to be explored and so beyond their probable Late Middle Kingdom date, little else is known about them.

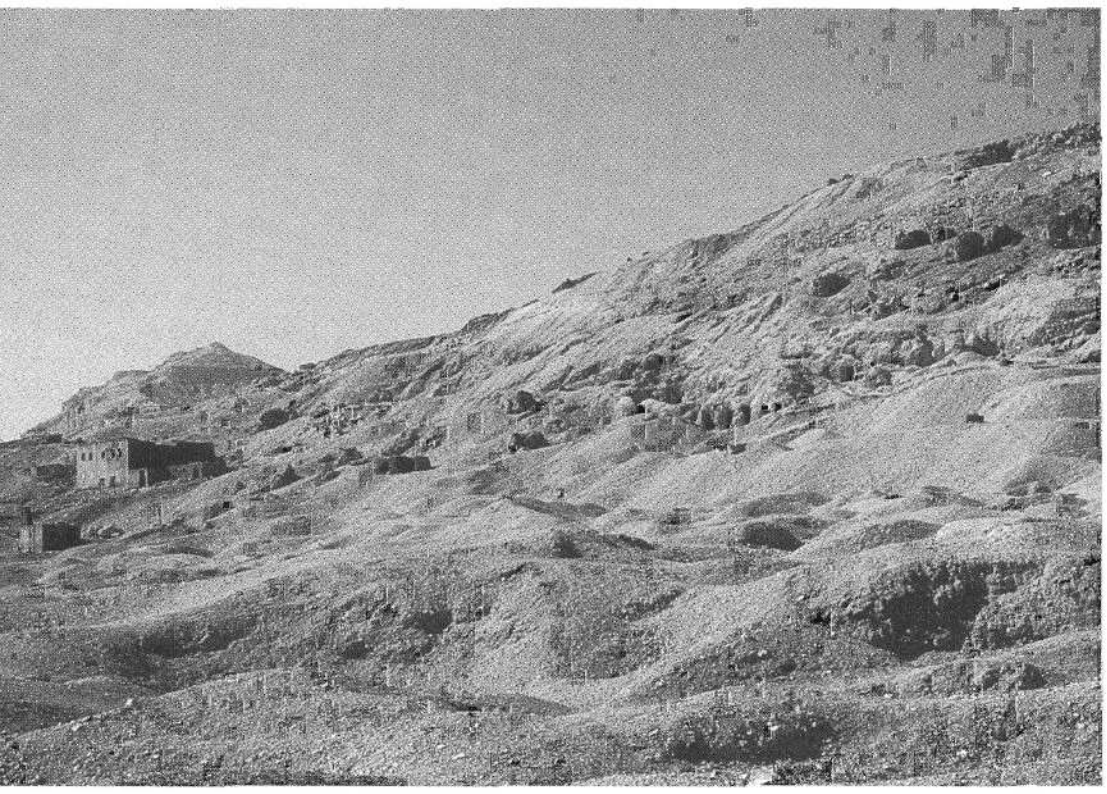
The half-dozen attempts to build pyramids in the traditional zone of the Memphite cemeteries attest, on the one hand, to the confidence of kings early in their reigns and a persistent presence of skilled and experienced teams of royal quarrymen, masons and work crews who could, for example, hew and haul gigantic blocks. On the other hand, the same pyramids, of which only Khendjer's may have been completed, testify to short reigns, and, as Kemp pointed out, to the 'inability to promote the construction of a monumental court cemetery' by the ruling households.

The superstructure of southern South Saqqara pyramid was barely begun, but it was planned to have a base length of 78.75 m (258 ft) and had a well-built and elaborate substructure.



A pair of pyramidions was found at the entrance of the southern South Saqqara pyramid, although the pyramid's superstructure was hardly begun. Were they meant to be raised as the pyramid was being built, in order to solve the problem of transport to the top?

New Kingdom Pyramids



Now covered in spoil heaps, the Dra Abu el-Naga plain was once crowned by a line of thin, pointed royal pyramids.

On the eve of the golden age of the New Kingdom, as they struggled to reunite Egypt, pharaohs of the 17th dynasty would build the last royal pyramid tombs in Egypt.

Pyramid tombs of the 17th dynasty

Opposite Karnak, already the temple of Amun in the late Second Intermediate Period, lies the Dra Abu el-Naga cemetery. Here a landing, personified later as *Khefet-hr-nebes*, 'Opposite her Lord', was the start of the road to the royal tombs. In later times it led to the wadi road to the Valley of the Kings. The 17th-dynasty pyramid tombs stretched from here to Mentuhotep's causeway to the south.

Until recently, our sources of information about this series of six or seven royal tombs were very limited. They are listed, along with those of the 11th dynasty, in the Abbott and Leopold-Amherst Papyri, reports of a commission appointed during the reign of Ramesses IX in the 20th dynasty to investigate allegations of tomb robbing (p. 165). Excavations, carried out under the authority, but unfortunately often in the absence of Mariette, were mostly unpublished. There was also some illicit digging by villagers from nearby Qurnah.

The pyramids at Dra Abu el-Naga were probably not much more than 20 cubits (10.5 m/34 ft) at the base. They must have appeared as a row of very thin, pointed pyramids. Simple plastering or whitewash replaced stone casing on these mudbrick pyramids, which have all but disappeared. They were apparently capped by pyramidions, as shown by that of Sekhemre-Wepmaat Intef V. It is damaged, but the four sides are inscribed with the name and titles of the king.

A small cult chapel, probably with a vaulted ceiling, was built in front of and sometimes against the small pyramids. The pyramid of the tomb of Nubkheperre Intef VI, which Mariette excavated in 1860, must have been on the higher ledge of rock above the terrace on which the chapel stood – although Mariette did not report finding remains of a pyramid. He did find two small obelisks inscribed with the royal name and titles, and similar ones may have flanked the fronts of all the chapels. The tomb robbery papyri also suggest that a stela was placed at the back of the chapel. A pit or stairway which led to the rock-cut burial chamber was sunk in the floor of the chapel or in an open front court.

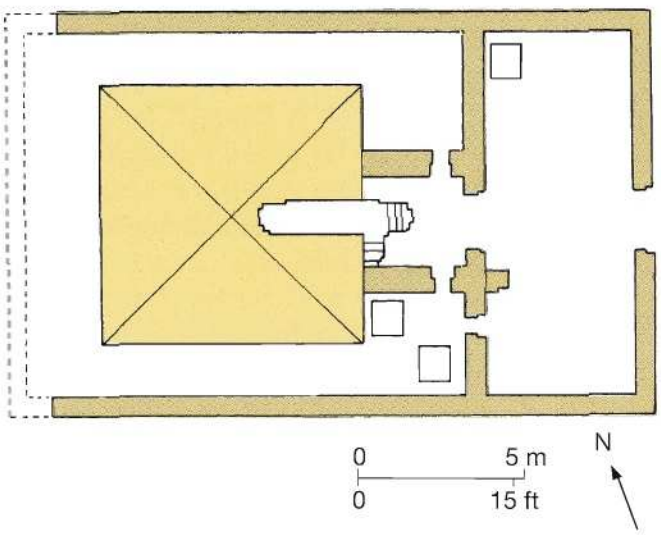
This was the sum of our knowledge until 1991, when the first systematic archaeological investigation of the Dra Abu el-Naga cemetery was begun by Daniel Polz for the German Archaeological Institute in Cairo, later in collaboration with the University of California at Los Angeles. The royal tombs have not yet been located with certainty, but Polz has found three or four rock-cut tombs that are likely candidates. One of these, in addition to two large forecourts, has a mud mass that could be the remains of a pyramid. A passage leads to a hall with four pillars where a vertical shaft drops 10 m (33 ft). From the bottom a passage, already cleared in the 1920s, leads to an anthropoid recess sunk in the floor which once contained the wooden coffin.

It is interesting to compare these results with the descriptions of local villagers who found the tomb

of Intef VI in 1827, 33 years before Mariette. They might have seen the interior as it was left by the 20th-dynasty commission, 'in the course of being tunnelled into by thieves' but not yet robbed. The villagers are said to have found the mummy of the king in his coffin inside a sarcophagus cut from the natural rock, free-standing but attached at the bottom. With the king's body were two bows, six flint-tipped arrows, a diadem on the king's head and a gold-mounted scarab over his heart.

Polz is also revealing the context of these last royal pyramid tombs. In the plain at the northern part of Dra Abu el-Naga the expedition is clearing a cemetery of household tombs with great social diversification. He estimates that some 17,000 people were buried in this cemetery of Theban households, dominated by the pyramid tombs of the kings along the hillside.

In 1913 H.E. Winlock found a small pyramid, measuring only 8 m (26 ft 3 in) square, with a slope of 66°, in the area called Birabi at the north foot of Mentuhotep's causeway, which he thought might have belonged to the tomb of Kamose, the elder brother of Ahmose I.



(Above) Could this be the pyramid of Kamose? This is what Winlock suggested when he found this small pyramid, only 8 m (26 ft 3 in) square, with a slope of 66° near the south end of Dra Abu el-Naga.

(Left) The pyramidion of Sekhemre-Wepmaat Intef V was found at Dra Abu el-Naga. It is inscribed with the king's name and has a slope of 60°.

Coffin Styles

The rishi *coffin of Intef VI, from Dra Abu el-Naga. It was made of wood and originally gilded. The name* rishi *comes from the Arabic for feather.*

In the 13th dynasty the inner coffin was a black varnished rectangular wooden box with painted decoration and a lightly vaulted lid with vertical ends. By the time of Intef V coffins were bulky wooden cases in the form of a wrapped mummy with a massive foot and the *nemes* headdress. The type is called *rishi*, the Arabic for feather, because of the painted, and later inlaid, decoration depicting the wings of a bird folded round the body. The human-headed bird transformed the coffin into the image of the *ba*, or soul. Tutankhamun's magnificent golden coffins are the most refined examples we know.

Four of the more primitive *rishi* coffins of the 17th dynasty were found buried in the debris of the lower Dra Abu el-Naga plain. These are reburials, perhaps by the same priests who transferred many of the later royal mummies from their tombs in the Valley of the Kings to hiding places for safekeeping, re-discovered in 1881. A 17th-dynasty *rishi* coffin found in the Deir el-Bahri cache contained the body of Seqenenre Tao II, father of Kamose and Ahmose. The massive proportions of these coffins convey the same mix of power and provincialism as was evident in the art of the earlier Theban revival of the 11th dynasty. Kamose and Intef VII had particularly crude coffins which were probably hurriedly borrowed from a non-royal – other royal coffins were covered with gold leaf.

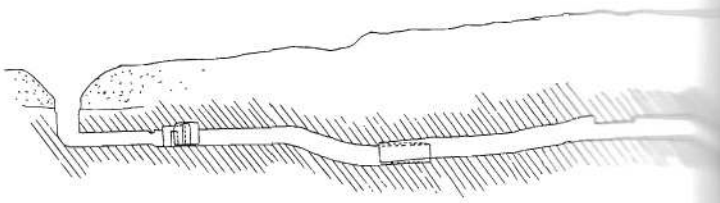
The coffins correspond to Winlock's assessment that 'the kings who were buried in this cemetery were a far remove from the mighty and extravagantly wealthy Pharaohs of great periods'.

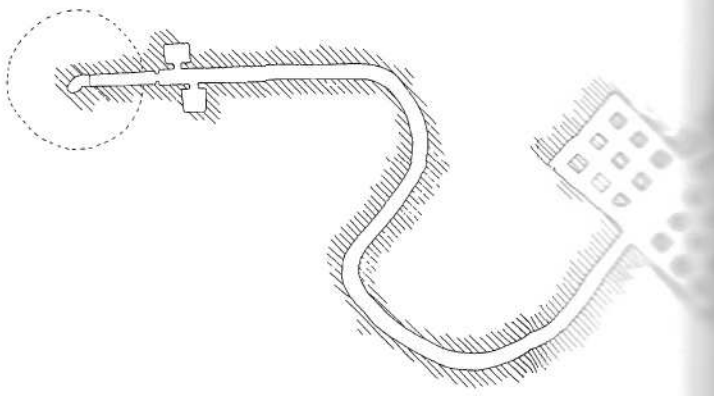
Royal tombs in the New Kingdom

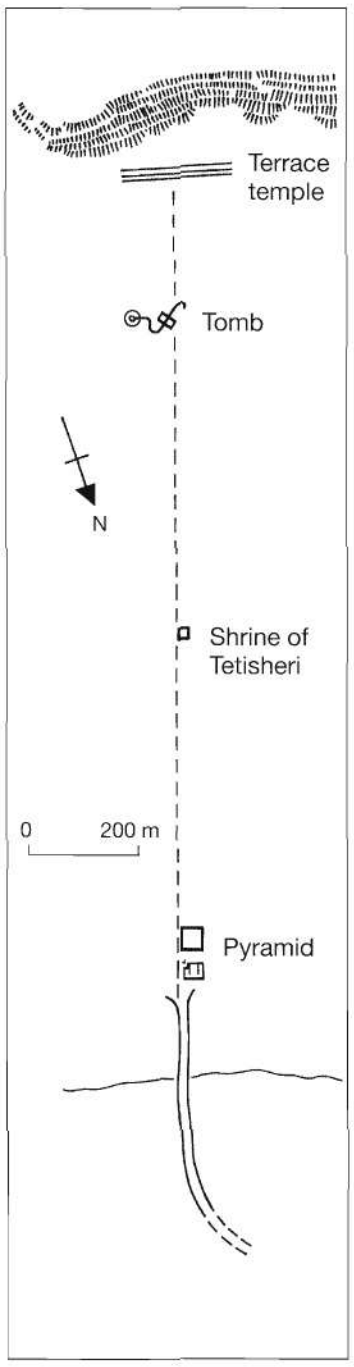
Whenever the Egyptian kingdom expanded to the full extent of traditional territory – from the Delta to Elephantine – the royal tomb removed itself farther from the local cemetery. We have seen this at Umm el-Qa'ab in Abydos, where the 1st-dynasty royal tombs move away from the crowded predynastic cemetery. The giant pyramids of the early Old Kingdom achieve exclusivity by sheer size as well as location and by the axial layout of the temples and causeways.

When the New Kingdom was inaugurated by Ahmose I's defeat of the Hyksos, the royal tomb once again became removed. And now the artificial pyramid as the central icon of pharaoh's tomb was finally abandoned. Monarchs buried themselves in the communal royal cemetery of the Valley of the Kings. The peak called el-Qurn, whose patron goddess was Meretseger, 'Lover of Silence', served as a natural pyramid over the next 500 years for the kings of the 18th to the 20th dynasties.

Ahmose at Abydos







Ahmose I's Abydos pyramid was one element of his axial complex, 1,200 m (3,937 ft) long, orientated, like the cenotaph of Senwosret I and the Archaic royal tombs, both also at Abydos, from northeast to southwest.

Ahmose I (1550–1525 BC) was probably buried in one of the pyramid tombs at the southern end of Dra Abu el-Naga, but he also built the last known royal pyramid in Egypt at Abydos. It was part of a long axial layout of cenotaph and temple, similar to and south of Senwosret III's, stretching from the edge of the cultivation to the high cliffs. The temple was connected to a pyramid and had its own town, an arrangement that was the last nod to the Old Kingdom pyramid complex, functioning perhaps as a combination of valley and mortuary temple.

The core of the pyramid was composed of loose stone and sand. As most of the outer casing was robbed the pyramid had slumped into a mound but was perhaps originally 100 cubits (52.5 m/172 ft) square. Two intact courses of casing stone survived at the eastern base when explored by Arthur Mace at the turn of the century, from which he estimated its angle as 60°. He dug a tunnel from the north side into the centre of the pyramid without finding any chambers. The next excavator, C.T. Currelly, seems to have been especially concerned about where Ahmose 's workers dumped all the bedrock from hollowing out the cenotaph (see below), and decided it had been used to fill the pyramid, leaving no inner passages or chambers.

In the space that separates the pyramid from the temple on the east side Mace found a peculiar semicircular mudbrick deposit or structure that may be the remains of a ramp, or an inner temple like those of the Old Kingdom. The temple plan as known so far consists of a massive wall on the east with a central doorway to a kind of forecourt. Two pits in the floor on either side of the entrance may have been for trees. From the forecourt a doorway leads to a square court. Rows of foundation blocks at the back might have supported the pillars of a colonnade. Beyond lies an inner court where little was found except patches of pavement and four circular granaries along the back wall.

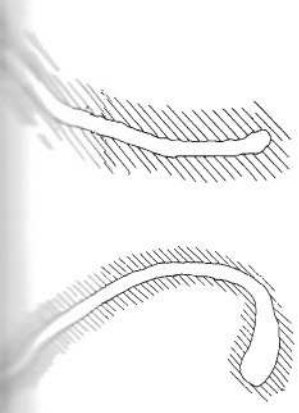
Recent excavations under Stephen Harvey of the Pennsylvania and Yale University Expedition have recovered 2,000 fragments of painted relief that once adorned the temple, as well as pieces of torus mouldings, cornices, square pillars, memorial stelae and a star-studded ceiling. Some of the reliefs may have narrated Ahmose's campaign against the Hyksos. Tantalizing fragments show bridled horses, once harnessed to chariots, archers firing bows and Asiatics, with their characteristic beards and long-sleeved garments, fallen in battle. One bears the name Ipep, possibly referring to Apophis, the Hyksos leader, while another has part of the name Hut Waret, Avaris, the Hyksos stronghold at Tell ed-Dab'a. A second smaller temple was dedicated to Ahmose's wife, Ahmose-Nefertari, at the southeast corner of the pyramid.

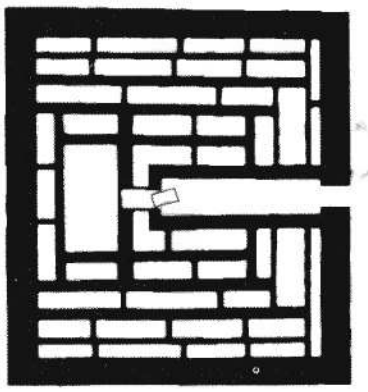
The tomb complex

Two large houses in the town have plans which appear to be mirror images, with smaller structures to either side. Each possibly consists of a core house with servant rooms and magazines. These may have had a similar function in the administration of Ahmose's pyramid temple to the large houses in the Middle Kingdom town of Illahun.

It is likely that, as with Senwosret III's layout, a roadway marked the axis of Ahmose 's complex. On this line Ahmose built a special shrine for his grandmother, Queen Tetisheri. It is a massive mudbrick building, similar in form to a mastaba, with a a grid of debris-filled retaining walls forming the core. A corridor reaches into the centre of this mass and at the back was a remarkable stela inscribed by Ahmose for his grandmother. In the lunate at the top the queen grandmother is shown twice. She is seated, wearing the vulture headdress of queens, while her grandson presents her with offerings. The hieroglyphic text quotes the king informing his wife, who is also his sister, of his plans for making a pyramid in the memory of their grandmother:

'I indeed have called to mind the mother of my mother, the mother of my father, the Great Royal Wife and Royal Mother, Tetisheri, the justified. Her grave chamber and





(Above) A casemate mudbrick massif (21 x 23 m or 69 x 75 ft), housed a stela from Ahmose I, honouring his grandmother, Tetisheri. He called the structure a pyramid.

(Left) A subterranean winding way of Osiris was provided for the western end of Ahmose I's complex, in hurriedly hewn passages and chambers.

Ahmose I's grandmother, Tetisheri, is shown receiving offerings on the top of a stela in her mudbrick shrine. She was bearer of the vital ka *force of Ahmose's royal lineage or clan.*

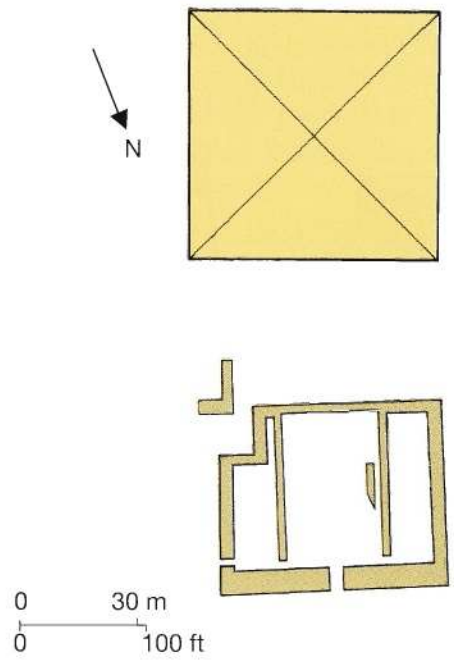
her cenotaph are at present upon the soil of the Theban and Thinnite Nomes, it is true, but I have told this to you because my Majesty has desired to build for her a pyramid and chapel in the Sacred Land (Abydos) near the monument of my Majesty.'

The king stipulates that the pyramid is to be endowed with a lake, land, livestock, plantations, priests and personnel. The 'pyramid' must refer to the mudbrick shrine where the stela was erected at the rear of the chapel, rather than the pyramid nearer the cultivation.

Further into the desert Ahmose had a cenotaph cut into the bedrock. Its curving subterranean route is again similar to the Abydos tomb of Senwosret III, but it is much more hurriedly and less skilfully executed. The entrance is a pit no larger than an ordinary person's tomb and an initial horizontal passage is so low that those who enter must crawl on hands and knees. Rooms on either side of the passage are crudely shaped and left unfinished. The corridor then begins to wind and turn, ending in a hall with nine pillars on either side making a total of 18. From here the way rapidly descends to end in a simple grotto.

So quickly and poorly was this cut, it seems to have been a only a token winding Osirian underworld. It lies across the great axial line through temple, pyramid and grandmother's shrine. We can see this as deliberately aligned to the Nile's orientation along the Abydos bay, or, if Ahmose's and Senwosret III's surveyors paid attention to the true cardinal directions, these long axes were laid out somewhat northeast–southwest, a significant orientation throughout pyramid history. A shrine to the queen grandmother on this alignment fits the idea that it is the queen mother who ensures transmission of the royal *ka* from one king to the next.

The final element in Ahmose 's great layout was a set of terraces built against the high cliffs to the southwest of the cenotaph. Caches of votive ceramic vessels, model stone vases and boats with oars were buried near the south end. The ascent up the terraces was from the south by a series of steps up through odd trapezoidal rooms. On a higher level a long corridor ran further south. At the end was a small chamber with a limestone dais, possibly the base for a statue of the king looking from the southwest, down the long line connecting his terraces, cenotaph, the shrine of his grandmother, his pyramid and his town and temple.



The arrangement of pyramid and temple at the valley end of Ahmose I's Abydos complex reflected Old and Middle Kingdom pyramid complexes. An inner temple may lie buried between the pyramid and temple.