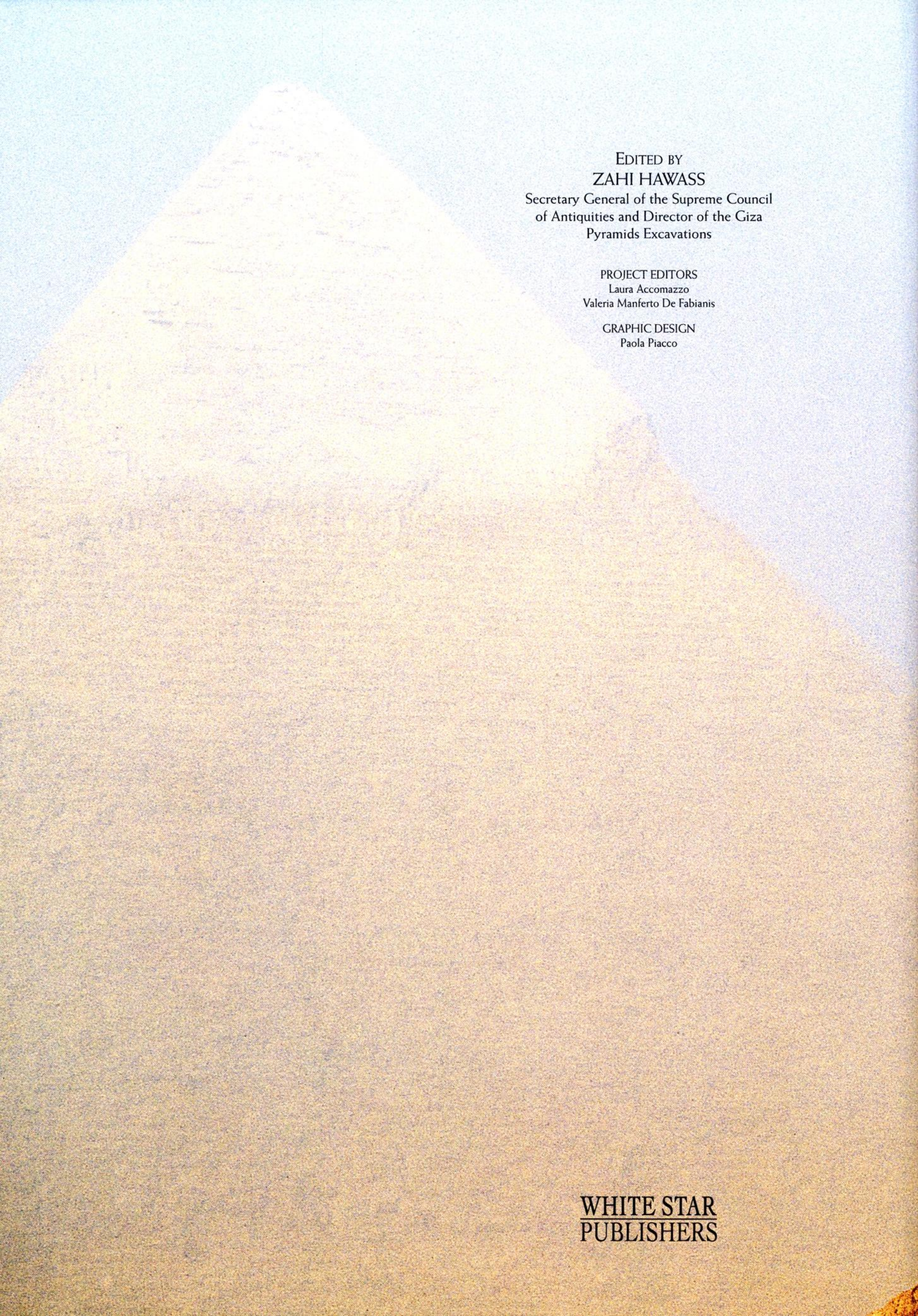


An aerial photograph of the Great Pyramids of Giza in Egypt. The pyramids are constructed from dark, weathered stone blocks, showing significant erosion and some missing sections. The Great Pyramid of Giza is the largest, followed by the Pyramid of Khafre and the Pyramid of Menkaure. In the background, a dense urban area with numerous buildings is visible under a clear blue sky. The foreground shows the desert landscape with some smaller structures and debris.

ZAHÍ HAWASS

THE TREASURES OF THE PYRAMIDS



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THE TREASURES OF THE PYRAMIDS





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10-11

Scene showing the 'Meidum geese',
Egyptian Museum Cairo, Old
Kingdom.

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The Architectural Components of the Pyramid Complex

by Zahi Hawass

Many people approach the royal pyramids of the Old and Middle Kingdom as if they were isolated monuments. But in fact, each major pyramid forms the centerpiece of an elaborate complex consisting of fourteen distinct elements, each crucial in its own right to the successful afterlife of the king and the proper functioning of the Egyptian cosmos.

THE PYRAMID

The most important component of each complex is the pyramid itself, which marked the burial place of the king. In the Old Kingdom, these were built mainly of local limestone cased with finer white limestone from the site of Tura; in the Middle Kingdom, the core was of limestone rubble or mud brick and the casing of limestone. In the Old Kingdom, the entrance to the pyramid was in the north face, with some exceptions. For example, the Bent Pyramid at Dahshur has two entrances, one from the north and the other from the west. The architects of the later Middle Kingdom tried to hide the entrance to the pyramid in an attempt to outwit tomb robbers, so its location is variable. The burial chamber is always located under the pyramid, except for in the pyramids of Khufu at Giza and Sneferu at Dahshur, where the burial chambers are within the pyramid core, above ground level.

THE UPPER TEMPLE

The upper temple, also called the funerary temple or mortuary temple, where the cult of the deceased king was celebrated, is usually located on the east side of the pyramid, unless the topography of the area caused the temple to be moved, such as in the Third Dynasty complex of Djoser and the Fifth Dynasty complex of Userkaf. In the Third and early Fourth Dynasties, the temple plan was very simple, generally

a small offering area marked by royal stelae. Later, the upper temple became larger and more elaborate. From the reign of Sneferu onward, the walls of the upper temple were decorated with scenes.

THE ENCLOSURE WALL AND PYRAMID COURT

Each pyramid was surrounded by a wall about three meters high, built of stone rubble. A second wall was built around the first. A well-preserved example of these enclosure walls can be seen in the complex of Menkaure. These walls served to limit access to the pyramid and its inner court to the priests directly responsible for the cult of the king. During the Old Kingdom, the enclosure walls were left undecorated; during the Twelfth Dynasty, kings began to carve their names in monumental hieroglyphs on these walls.

THE CAUSEWAY

The causeway leads east from the upper temple to the lower temple. Our recent work at Giza found some decorated blocks *in situ*, suggesting that causeways were roofed as early as the reign of Khufu. Most causeways were built of limestone, although some, like the causeway of Menkaure, were of mud brick. Causeways were decorated with scenes depicting activities of the king and events such as the capping of the pyramid with its pyramidion. The average length of the causeway was about one and a half kilometers.

THE SUBSIDIARY PYRAMIDS

Two kinds of subsidiary pyramids appear as part of pyramid complexes: queens' pyramids, and cult, or ritual pyramids. These smaller pyramids usually stand about 50 to 60 meters high, were cased with fine

white limestone, and can be located to the east or south of the main pyramid. Small chapels often lie to the east of these pyramids. Queens' pyramids usually contain evidence for a burial, such as a sarcophagus, bones, or funerary equipment.

In early Old Kingdom complexes, the position of the ritual pyramid is somewhat variable, but eventually takes up a standard position at the southeast corner of the main pyramid (where it is seen, for example, in the complex of Khufu). The substructure can be T-shaped or echo the interior of the main pyramid on a smaller scale; cult pyramids do not contain evidence for burial. The prototype for the ritual pyramid is the south tomb of Djoser. Scholars are still debating the function of these structures.

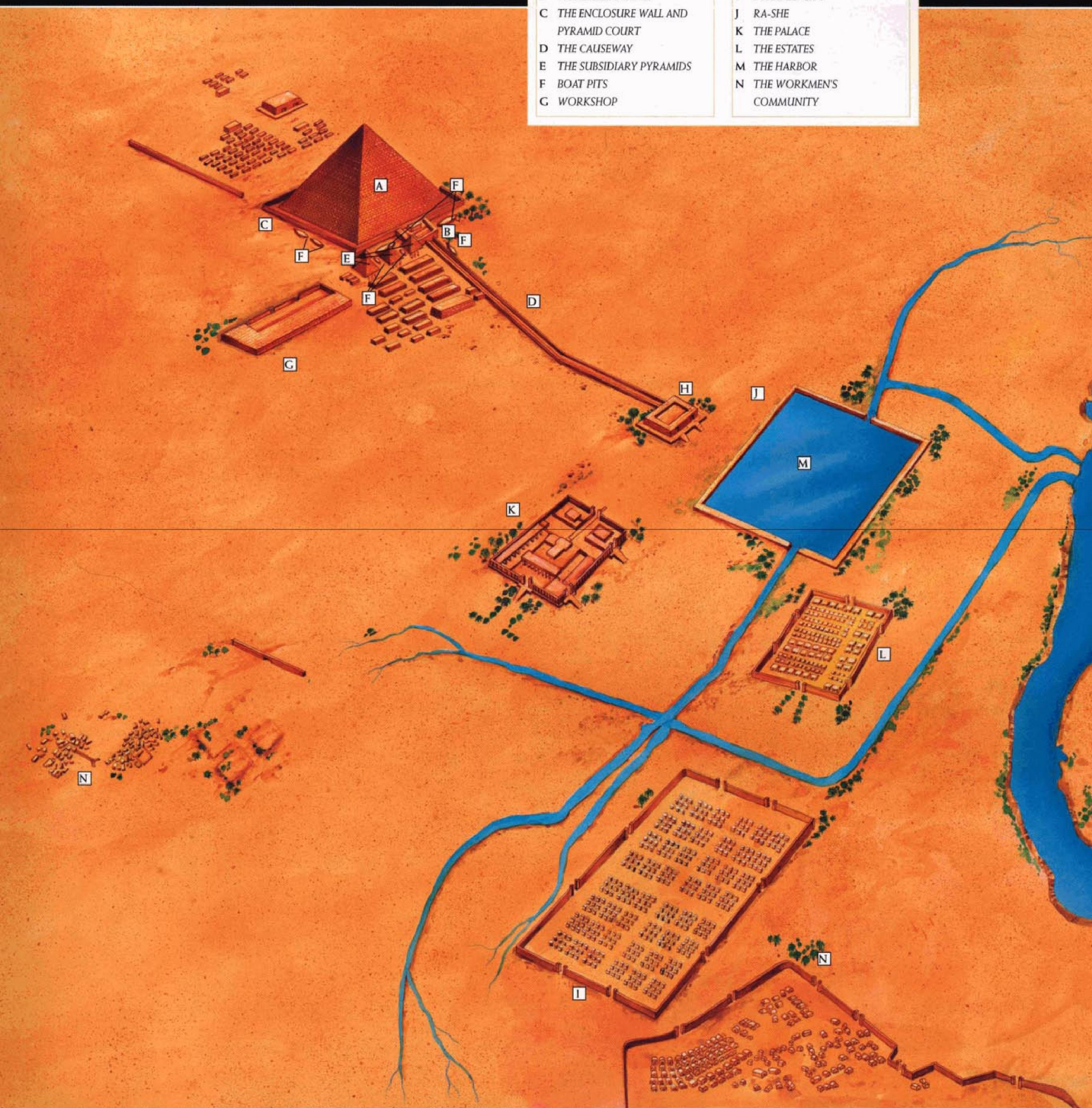
BOAT PITS

Boat pits have been associated with royal mortuary complexes since the Early Dynastic period: David O'Connor and the Pennsylvania-Yale Expedition to Abydos recently found thirteen wooden boats cased with mud brick near some massive enclosures associated with the mortuary cults of the kings of the First and Second Dynasties. Some other Early Dynastic funerary monuments also have model boats or boat pits as parts of their complexes.

The pyramid complex of Khufu has five boat pits cut into the rock around the pyramid. Three are on the east side, and are shaped like boats. The fourth and fifth are south of the pyramid and are rectangular in shape; a full-size wooden boat had been dismantled and buried inside each of these pits. One of these boats has been excavated and restored; it is now exhibited in a museum just south of the pyramid. The pyramid complex of Khafre also includes five boat pits, all to the east of the pyramid.

THE PYRAMID COMPLEX OF KHUFU

- | | |
|--|---------------------------|
| A PYRAMID OF KHUFU | H THE LOWER TEMPLE |
| B THE UPPER TEMPLE | I PYRAMID CITY |
| C THE ENCLOSURE WALL AND PYRAMID COURT | J RA-SHE |
| D THE CAUSEWAY | K THE PALACE |
| E THE SUBSIDIARY PYRAMIDS | L THE ESTATES |
| F BOAT PITS | M THE HARBOR |
| G WORKSHOP | N THE WORKMEN'S COMMUNITY |



WORKSHOP

There is no specific location for the pyramid workshop, where cult objects such as small statues were produced and stored, where the process of mummification was carried out, and where kitchens for the preparation of fresh offerings were located. Evidence for what could be Khufu's workshop was found to the south of his causeway. Our recent work at Giza has demonstrated that the so-called 'Workmen's Barracks' located to the west of Khafre's pyramid were actually workshops and storage magazines. Menkaure's workshop was to the south of his causeway. No workshops have yet been found around the pyramids of the later Old Kingdom, but this is primarily due to lack of sufficient excavation.

THE LOWER TEMPLE

The lower temple, or valley temple, is invariably located to the east of the pyramid complex, generally at the edge of the floodplain. Scholars have suggested that the temple was used for mummification and also for the people who attended festivals and feasts after the death of the king. I believe the temple was used for the worship of the king as Horus.

Plans have been recovered for eight Old Kingdom lower temples; the temple of Khafre is the best-preserved of these. The temple of Unas at Saqqara is now being restored. The lower temple of Khufu was recently discovered during the construction of a sewage system for the village at the foot of the Giza plateau. Due to the presence of a modern villa on the site, we were not able to excavate the entire temple, but we collected some of the basalt blocks, found *in situ*, that formed part of its pavement.

THE PYRAMID CITY

Each pyramid had a pyramid city associated with it, always located to the south of the lower temple and bearing the same name as the pyramid itself. During the Fourth Dynasty, only the priests who maintained the cult of the king, all of whom were royal relatives, lived in the pyramid city; in the later Fifth and Sixth Dynasties, the pyramid city expanded in size. We recently found evidence for the pyramid city of Khufu south of his lower temple, stretching for about five square kilometers, under the modern village of Nazlet al-Samman; other known pyramid cities are that of Khentkawes at Giza and Senusret II in the Fayum area.

RA-SHE

Ra-she means the mouth of the lake or pool, or delimited areas for the building site for the pyramid complex. This area is referred to in texts, and seems to be the place where goods from royal estates around the country were delivered to the pyramid for use in the maintenance of the king's cult and for the living king. It was the area where the boundary between the mundane world outside the pyramid complex and the sacred world within was located. Only one *Ra-she* has been found and excavated, in front of the lower temple of Khafre's pyramid. This area has two ramps sloping up from the harbor area to the east and leading to the two entrances of the temple, one to the north and one to the south. Beneath each of the ramps is a boat-shaped tunnel, perhaps representing boats used by the king for the day and night trips, or perhaps built so that people could pass through without entering the sacred space of the complex.

THE PALACE

It was once thought that the king's palace was located at Memphis, but we now know that each king had a palace at his pyramid site. The pyramid was the national project of the country, every household in the entire land, from the Delta to Aswan, participated in building the pyramid by sending workers and food. Therefore, the king needed to be on hand to unite the nation, and the pyramid site itself was the most logical place from which he could control his most important project.

Recent excavations at Memphis by David Jefferys demonstrates that there was no major settlement in the area dating to the Archaic Period or Old Kingdom. Instead, he found evidence for the Archaic capital of Inb-hedj near the tombs of the First and Second Dynasties at Saqqara. The papyri found in the tomb of Senedjemib-Inty at Giza state that the Fifth Dynasty king Djedkare Isesi lived in a palace near the site of his pyramid. In addition, we have recently found evidence for a palace to the south of Khufu's valley temple.

THE ESTATES

We know of the existence of royal estates from offering lists and scenes representing personified estates used to decorate the pyramid temples and associated private tombs. These were scattered along the length of the Nile. The estates were agricultural units which provided food offerings of grains, fruits, vegetables, and animals for the maintenance of the living king and for the royal cult; relatives and priests were granted materials from these royal estates as a mark of favor. We have no archaeological evidence for these estates.





THE HARBOR

The harbor is always located near the lower temple. We have evidence at Giza for harbors of both Khufu and Khafre. It is believed that a large canal was cut parallel to the Nile, and additional canals were built to connect to these harbors. The harbor was used for the delivery of non-local stone, such as granite, basalt, alabaster, and white fine limestone, as well as offerings from the royal estates, to the site. It was also used by the workers who lived nearby and traveled to the worksite every morning, and by people attending feasts of the gods.

THE WORKMEN'S COMMUNITY

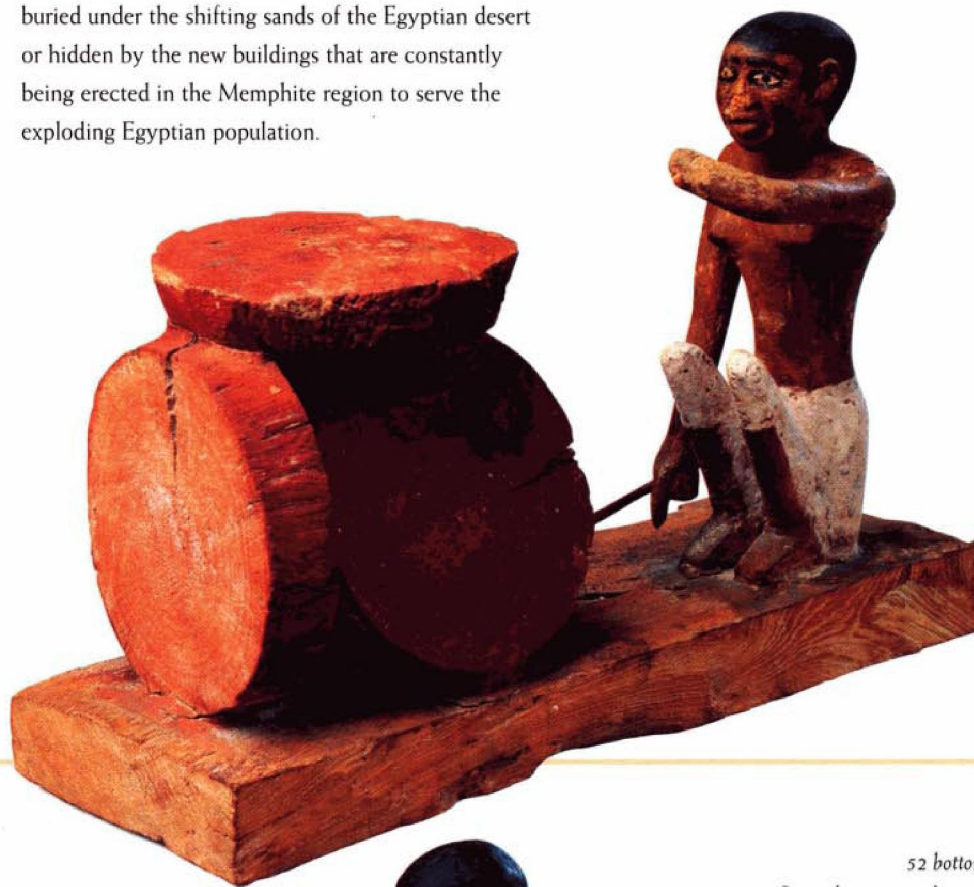
The only well-excavated example of a workmen's community is at Giza, located southeast of the main plateau. This was discovered recently and is still being excavated. The workmen's community consists of the following areas:

1. The tombs of the pyramid builders. The lower cemetery contains the tombs of supervisors and the workmen who moved the stones, and the upper cemetery contains the tombs of the more skilled artisans, such as craftsmen, draftsmen, and artists, as well as minor officials.
2. The industrial area. In this area are bakeries, an area for sorting salted fish, metal and faience-working shops, and also dormitories where the workmen slept during the work week.
3. The settlement of the workmen. The Old

Kingdom settlement in this area, of which we have caught only glimpses, seems to include a camp for the workmen who moved the stones and a village for the permanent artisans.

4. The 'Wall of the Crow.' This separates the workmen's area from the royal tombs themselves. It is built of limestone, and is about ten meters high and two hundred meters long. A doorway in the center leads from the workmen's community to the sacred pyramid site.

There are very few complexes for which we have found all of these components, and modern excavations are constantly finding new pieces of the individual pyramid complexes that were missed by earlier excavators. Much important information is buried under the shifting sands of the Egyptian desert or hidden by the new buildings that are constantly being erected in the Memphite region to serve the exploding Egyptian population.



52 bottom

Scene showing jewelry workshop, Tomb of Mereruka, Saqqara, Old Kingdom.

53 top left

Scene showing furniture workshop, Tomb of Nianknum and Khnumhotep, Saqqara, Old Kingdom.

53 top right

Steps of sculpting of a statue, Tomb of Nianknum and Khnumhotep, Saqqara, Old Kingdom.

53 center right

A wooden statuette of a man tending a fire, Egyptian Museum Cairo, Old Kingdom.

53 bottom

A wooden statue of two men preparing bread and beer, Egyptian Museum Cairo, Old Kingdom.



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THE ARCHITECTURAL DEVELOPMENT OF THE EGYPTIAN ROYAL TOMB

Text by Zahi Hawass

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THE ARCHITECTURAL COMPONENTS OF THE PYRAMID COMPLEX

Text by Zahi Hawass

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THE PRE-DYNASTIC PERIOD

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57 right Araldo De Luca/Archivio White Star

58, 59 Renee Friedman

60 The British Museum

61 Kenneth Garrett

THE TOMBS OF THE FIRST AND SECOND DYNASTIES AT ABYDOS AND SAQQARA

Text by Günter Dreyer

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67 center Araldo De Luca/Archivio White Star

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THE ROYAL MORTUARY ENCLOSURES OF ABYDOS AND HIERAKONPOLIS

Text by David O'Connor and Matthew Adams

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THE STEP PYRAMIDS

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