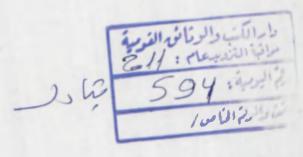
3-4-114

NATIONAL LIBRARY - CAIRO DEPARTMENT OF EXCHANGE PUBLICATION.

# GIZA PLATEAU



THE PYRAMIDS, SPHINX AND SOLAR BOAT



902.5(11)- Apronomisset we ramgirules

#### INTRODUCTION

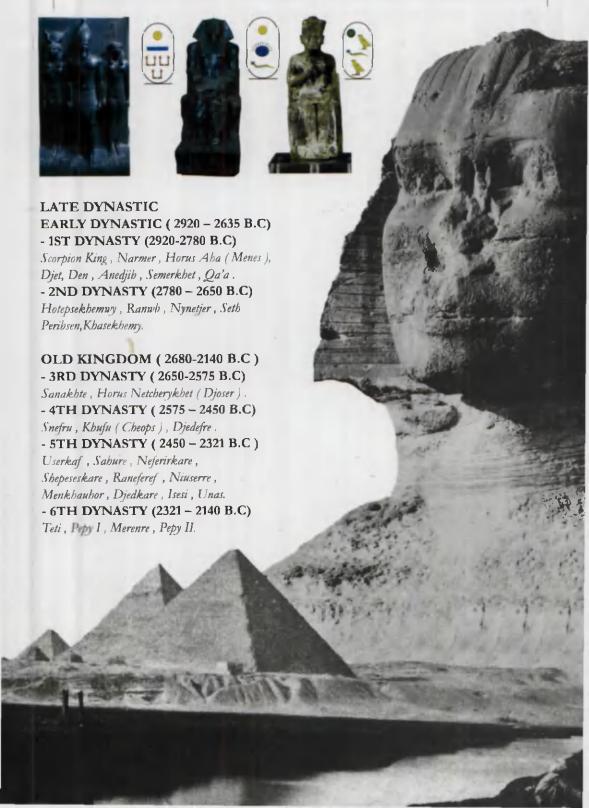


mong all the monuments created by man, few have attracted as much attention or earned as much respect as the pyramids of Egypt. Designed to protect and preserve the body of the king so that he might enjoy eternal life, they became international tourist attractions shortly after they were built, and to this day they engender awe and admiration for the culture that created them 4500 years ago. They are products of a golden age that later Egyptian dynasties actively, but unsuccessfully, attempted to emulate. The Pyramid Age, called the old kingdom (2780-2140 B.C), evolved from well over a thousand years of cultural development in the Nile Valley. The Egyptian pyramids are very human monuments, although their builders may have tried not to emphasize that fact. At dawn, as the sun rose over the eastern cliffs, its rays caught the pyramids energizing their sacred precincts with heat and light well before the morning mists had lifted from the cool, sleeping valley floor. At high noon forty-five centuries ago, when the pyramids were complete with their freshly smoothed white limestone casings, their brilliance must have been blinding. Only in this light we can appreciate the intensity with which the pyramids symbolized the

Giza pyramids represent the sun god. unique wonder among the seven wonders of the ancient world in having survived the ravages of time, the great pyramids of Giza continue to dazzle and inspire the countless stunned visitors who tour these immense masses of stone, grandiose testimony to the extraordinary civilization that flourished in the Nile Valley between the fourth and the third millennia. Napoleon, on the eve of the celebrated battle of The Pyramids, was also enchanted by the pyramids and rallying his troops, he pronounced the famous phrase: "Men, up there forty centuries are watching you " Meanwhile the scholars who traveled with his expedition incredulously recorded that the three pyramids of Giza (Cheops, Chefren, Mycerinus) were so huge that the material used in their construction would be sufficient to build a wall around the whole of France. It is difficult to explain the mysterious power that undoubtedly emanates from the pyramids of Giza. A veil of mystery still lies over the pyramids, despite all the researches and studies carried out to date. We still do not know with any certainty how they were really constructed, strangely the ancient Egyptians left us no records of their techniques and hypotheses are all we can safely put forward.

- Louisian MK

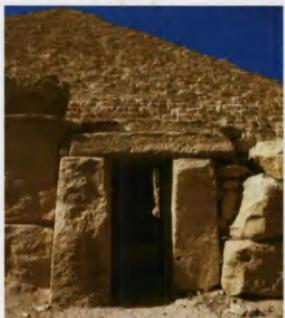
### CHRONOLOGY OF THE PYRAMIDS' BUILDERS



# THE DEVELOPMENT OF THE ROYAL TOMB UP TO CHEOPS

In the very beginning of the history of Egypt, the tomb of the monarch was a simple substructure, followed by subterranean chambers underneath the ground and superstructure known as Mastaba (the mud-break benches in the Egyptian villages) the best examples of this stage are those of the kings of the 1st & 2nd Dynasties in Saggara and Abydos . In the 3rd Dynasty, an advanced technology took place during the reign of king Zoser about (2630 - 2611 B.C.) when the great architect Imhotep created the magnificent complex for king Zoser at Saggara, the tomb of King Zoser here became a step pyramid . Then the step pyramid followed by the first true pyramid in history by king Snefru (father of Cheops), when he created two examples at Dahshour (about 7 km South to Saggara) the 1st is the bent pyramid (the southern pyramid), the 2nd was the red pyramid (the northern one ), the latter considered as the first true pyramid in Egypt . Then Cheops built his pyramid at Giza . Nowadays , the number of the pyramids discovered in Egypt is 118.

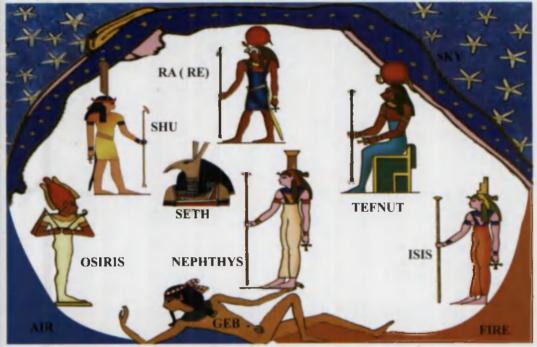




# THE SIGNIFICANCE OF THE PYRAMID

It is true that the pyramids are pharaoh's tombs, but the tomb of a pharaoh in Ancient Egypt was more than just a grave of a king. One of the hallmarks of the Egyptian state from its very beginning in the first dynasty was the tradition centered on the king as an incarnation of the God Horus, whose totem was the falcon .In the world of the Ancient Egyptian the falcon soared above all other living creatures. When an incarnation of Horus died, the God passed to the next reigning king. Physically entombed within the pyramid, the dead king became identified with Osiris, the divine father of Horus. The Pyramid complex was, in one sense, a temple complex devoted to the life and dead representations of the pharaoh as (Horus-Osiris), and a divinity that merged with the sun God in the central icon of the pyramid.

#### THE PYRAMID AND CREATION LEGEND



#### PYRAMID AND PYRAMIDION

The word for pyramid in Ancient Egyptian is (Mer). Our word pyramid comes from the Greek pyramis (pyramides), "wheaten cake". The Egyptian had a conical bread loaf called (ben-ben), which was also the word for the capstone of a pyramid or the tip of an obelisk (ben-ben), named after the ben-ben stone, the sacred icon in the temple of Heliopolis, the oldest center of the sun cult

#### **BEN-BEN**

The identification of the pyramid with the sacred (ben-ben) stone in the temple of Heliopolis is a sign that the pyramid was sun symbol. To understand the ben-ben we must know the Heliopolisan Creation myth, which was developed by the priesthood of Heliopolis, the sacred city of the sun God. Heliopolis situated at the suburbs of north-east Cairo lies under the ruins of Yunu, once counted among the foremost and most ancient sanctuaries in Egypt. It was known as Heliopolis or city of the Sun, according to Herodotus, the Greek historian who visited Egypt in the 5th century B.C.

#### THE HELIOPOLITAN CREATION MYTH

Before the development of a structured cosmos, there it existed in the darkness a limitless ocean of linert water, it was envisaged as primeval being called (Nun). No temples were ever built to honour it, but the nature of Nun is present in many cult sanctuaries in the form of the sacred lake which symbolizes the "non existence "before creation. Atum 'Lord of Heliopolis', constitutes the demiurge, the creator of the world, who rose out of (Nun) at beginning of the time to create the elements of the universe. As the Sun God, he self-developed into a being and stood on a raised mound, this primeval mound became formalized as the (Ben-Ben), a firm pyramidal elevation to support the sun God; the actual stone relic, perhaps regarded as the petrified semen of Atum, was alleged to survive in the Hewet-Benben (Mansion of The Benben) in Heliopolis. Atum (name means "complete") has three generations of his progeny his children SHU (God of Air) and TEFNUT (God of Moisture). His grandchildren GEB (God of Earth) and NUT (God of Sky), and his four great-grandchildren OSIRIS, ISIS, SETH and NEPHTHYS. These are the nine deities involved in the Heliopolitan creation myth.

## THE PYRAMIDS AND NECROPOLIS OF GIZA

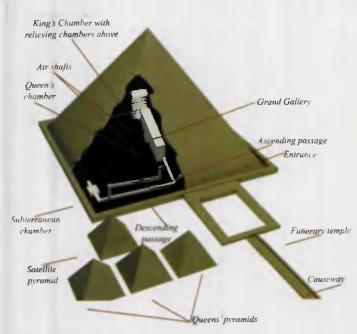


A few kilometers south of Cairo, several hundred meters from the last houses in the southernmost part of the city, a limestone cliff rises abruptly from the other side of a sandy desert plateau dominated by the imposing and unmistakable form of the last monument on the list compiled by Philo of Byzantium in the second century B.C., inspired by the poet Callimachus. Famous as the Seven Wonders of the Ancient World, this list has survived to the present and includes the great pyramid of Khufu (Cheops) the pyramids of Khafre (Chefren)

and Menkaure (Mycerinus), and the Great Sphinx. The Ancient Egyptian called this place "Imentet" (the west), or "Khaerneter" "the necropolis". Two thousand years later, this site is known as Giza, from a nearby city founded in the seventh century which has now become a populous quarter of Cairo. Even today it is pervaded by an aura of magic and mystery, where suddenly all the noise and clamor of the city fade away into a silence interrupted only by the wind whispering through the sand.



# THE PYRAMID OF KHUFU (CHEOPS)



ANCIENT NAME : The Horizon of Re

ORIGINAL HEIGHT : 148.31 m CURRENT HEIGHT : 137.75 m LENGTH OF SIDE : 232.96 m ANGLE : 51°52°

**BURIAL CHAMBERS: Three** 

A lso known as the Great Pyramid, this was built by King Khnum-Khuf (the God Khnum is his protection), Khufu for short the son of Sneferu, known as Cheops through the writings of Herodotus, he reigned for about 32 years.





Considered a prodigious structure even in ancient times and rightfully included among the Seven Wonders of the Ancient World. Khufu's pyramid represents in terms of its size, the technical accomplishment of its construction, the great concern for cardinality and organization. It was another astonishing leap forward. Khufu's pyramid is attributed to him by historical tradition and by the surrounding tombs of his contemporaries. Also, a cartouche of his name and an inscription translated as "17th years of the reign of Khufu" was found on blocks in the five stress relieving chambers above the king's chamber. Khufu's pyramid contains about 2.300.000 blocks of

local limestone, 2.5 tons average weigh. The average height of each block is about 50 cm, but there are blocks as high as 150 cm most of which, strangely, are placed on the higher piers, this might be somewhat exaggerated; the stones certainly get smaller towards the top of the pyramid. The northern side contains an enormous gap and the original entrance, this entrance leads into a descending corridor which after 18m splits into two parts: the upper portion continues as an ascending corridor which at this point is blocked by three large granite slabs, and the lower one descends for another 90m to an underground rock chamber (the first burial chamber), left unfinished.



The present entrance, which follows a tunnel dug by ancient grave robbers, reaches the original corridor where it continues as the ascending corridor, which leads to the Grand Gallery. Two openings at the beginning of the Grand Gallery lead to a second horizontal tunnel, 35m long, which leads to the second burial chamber, the so-called Queen's Chamber (misnamed by Arab explorers), located on the vertical axis of the pyramid, and which was also unfinished in antiquity, and into a tunnel 60 m long which goes down to connect with the descending corridor. It has been theorized that this tunnel was designed to permit workers to leave the burial after it was blocked off with the three large granite slabs.



The entrance the Caliph Al-Mamun

The Grand Gallery is one of the architectural masterpieces of the ancient world: 48 m long and 8.5 m high, it has corbelled walls, with blocks superimposed with such precision that they extend about 6cm from each pier then narrow passage leading to the so-called King's Chamber of red granite from Aswan, (third burial chamber). The sarcophagus is located by its western wall and has no decoration or inscriptions. The ceiling consists of nine slabs of granite, the weight of which has been estimated



The original entrance

at 400 tons. Above the king's chamber there are five stress-relieving chambers reached through a small opening from the grand gallery, were probably built to take the enormous weight of the pyramid off the roof of the burial chamber. On the northern and southern walls of the King's Chamber, two extremely narrow, straight shafts (20×20 cm) called two air vents lead out to the two sides of the pyramid, the two air vents were constructed so the king's soul could leave for its daily ride on the solar barque.



The Grand Gallery



The Sarcophagus in the burial Chamber

#### THE FUNERARY TEMPLE OF KHUFU

It was located to the east of his pyramid, but little of it remains today, which must have had a rectangular plan 52.5m wide. From the age of the middle kingdom the entire temple served as a quarry The processional ramp leading from the temple was 810m long and abruptly changed direction, it led to the valley temple, which probably had already been destroyed in ancient times.



# THE QUEENS' PYRAMIDS

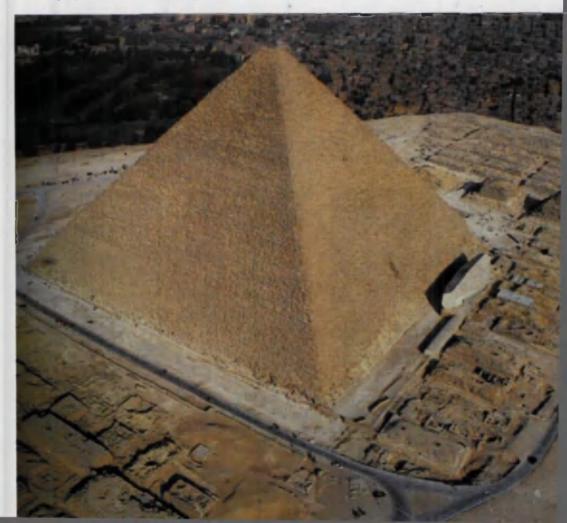
hufu built three pyramids for queens, in contrast to the leveled foundation of his own pyramid; these accommodate the slope of the ground, so that their bases are neither level nor perfect squares. The one to the south is attributed to Queen Henutsen, daughter of Senefru and the halfsister of Khufu .The one in the center to Meritetis, and the third one, to the north to queen Hetepheres , the mother of the King Khufu , whose shaft tomb discovered in 1925, by George Reisner, just a few dozen meters away, provided the beautiful funerary trappings on display in the Cairo Museum. All three have a passage on or near the center axis, sloping to a chamber that makes a westward turn, probably for maneuvering the sarcophagus. The burial chamber, west of the centre axis, were cut out of bedrock and cased with fine limestone.



# MATHEMATICAL RELATION OF THE PYRAMID OF CHEOPS

The side of the pyramid takes the natural directions of north-south and east-west. The relation between sides of right angle (90°) was known as the rates: 3:4:5. The side length of the great pyramid is about 232.96 meters and its height if complete is 148.31 m. The length of two sides of pyramid base divided by the height gives the value of ( $\Pi$ ) which equal to 3.14159( $\Pi$ ) is the relation between area and diameter of a circle. The great pyramid was built on exact latitude 30°, 4500 years ago – this value of latitude differs than now by 102° as the moving of the North Pole. The great pyramid consisted of 162 steps and has the burial chamber of the king at the third height from the base. In his room some things of pyramid appear such as all germs and bacteria die and if a knife put will be sharper. An apple can dray but never get rotten. Also the ratio between the days of the solar year and half of pyramid's base 365.25/ (0.5×232.961)= $\Pi$ (pi)Exactly, 3.14159 Latitude 30° which great pyramid located extended to the most land and population than any other latitudes. The side of Great pyramid 500 Egyptian arms = 500×0.462 m

Last thesis of Prof. Dr. Saud Balbal Faculty of Engineering

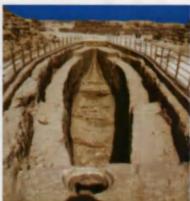


#### THE SOLAR BOAT

The discovery of the boat of king Cheops is considered as one of the most important archaeological finds not only in Egypt, but all over the world, since the discovery of the tomb of Tutankhamun. Its inherent importance lies in the fact that this is the most ancient boat found in perfect condition anywhere in the world. The boat was not only a transportation mean or an instrument used in fishing and hunting, but was also and above all of symbolic importance: it was the mean of transportation of the Gods. The God Amon was led on his

sacred boat during great religious processions, and the sun God Ra himself traveled to the heavens everyday in what was called "The boat of the millions of years', to ensure for humanity the balance of the seasons and the ceaseless succession of day and night. The pharaoh, the son of Ra, followed his celestial destiny and thus needed a boat to navigate through heavens. The boat was also used for funerary purposes, to carry the pharaoh's body in his pilgrimage to the holy places and from his worldly abode to his place of burial.



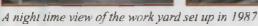




The significance of the boat of Khufu has L been debated at for a long time, it has been asked whether the boat ever sailed, whether it was the only boat or one of the boats used by Khufu during his reign . If it was used to transport the body of the dead pharaoh to his final resting-place, or whether it had a purely symbolic or ritual meaning. In the latter case the boat would have been part of the funerary trappings, along with many other much smaller objects which were buried with the King inside the pyramid, so that they could be used during his trip to the underworld. It may have played yet another role and functioned, as a solar boat like that of the god Ra. The large boat-shaped pits found on the eastern side of the pyramid attest to the ancient presence of boats, in May 1954, during cleaning work on the south side of the great pyramid of Cheops, the young Egyptian architect Kamal El-Mallakh discovered the two southern boat pits, each covered by a roof of huge limestone slabs, when one of the slabs was raised from the first pit, the planking of a great boat was seen, completely dismantled but arranged in the semblance of its finished form. The boat was removed from its pit, piece by piece, under the supervision of Ahmed Youssef, the master restorer. The 1.224 separate parts had numerous U-shaped holes so that the boat could be 'stitched' together using ropes made of vegetable fibers. After many years of painstaking work, the boat was finally reassembled like a giant jigsaw, and is now located in a special museum just a few meters away from the site of its discovery. Among the quarry inscriptions found on many of the blocks are eighteen cartouches of Djedefre Khufu's son and successor who built his own pyramid in Abu Rawash, showing that he was responsible for his father's funeral









The Restorter Ahmed Youssef



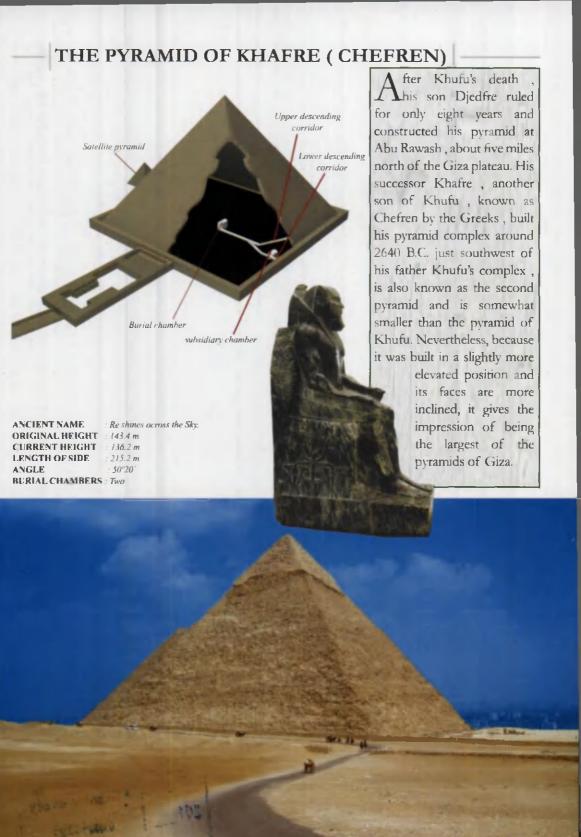
The royal boat, which was built of Lebanese cedar, is one of the largest ancient boats found to date. For instance, the extreme length of the Viking Boats found in Europe was not more than (30m), while the Cheops boat is fully 43.4 m long, with a width of 5.6 m and a draft of only 1.5m, which made it suitable only for river navigation. The boat has two cabins: a main cabin about 9 m long which consists of two rooms; the smaller (about 2m long) in the front, and the inner of the two ceilings is supported by three palm columns, and the cabin is surrounded by 36 columns shaped

like tent-pegs. A small front cabin which probably was for the captain .Propulsion was by means of ten pairs of oars , and steering through two large oar rudders located in the stern . As there is no trace of a mast, it would have been impossible to use a sail.Its prow and stern are in the form of papyrus stalks, the stern one bent over. It is thus a wooden replica of a type of papyrus reed boat perhaps dating back to the pre-dynastic period another example of the Egyptian fondness for simulating their earliest reed structures in more durable materials.









The pyramid complex of Khafre is the most complete funerary complex dating from the old kingdom. It is identified with Khafre through the statues and inscriptions found in the valley temple and relieves from the funerary temple. First opened in modern times by Giovanni Belzoni in 1818, it had already been disturbed in ancient times. It is the only pyramid which still retains a part of its original covering of Tura limestone, which can be seen near its apex.





he casing stones at the top of the pyramid are much smaller than the casing stones which survive at the bottom of Khufu's pyramid and those of his queens. Their outside faces are often staggered by a few millimeters 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. Among its many meanings, the pyramid was conceived as a port from which the voyage to the Netherworld began. There are two entrances on the north side, the first entrance located at a height of 10 m, leads

to an upper corridor, which descends at an angle of 25° for 32 m and then becomes horizontal until it reaches the burial chamber. The other one is located at ground level and is currently used to enter the pyramid. It leads to a lower corridor, which descends at an angle of 21° and then running horizontally for a brief stretch, rises once again and leads into the horizontal portion of the upper corridor. The burial chamber contains a great granite sarcophagus and its lid with no inscriptions or decorations and the signature of Belzoni dated March the 2d, 1818. The Day of its discovery.



#### THE FUNERARY TEMPLE

On the east side of the pyramid there is a colossal funerary temple, which is much larger than that of Khufu (one of its blocks weighs an estimated 400 tons). It was completely excavated by Uva Hölschr in 1909-1919. Set directly on the

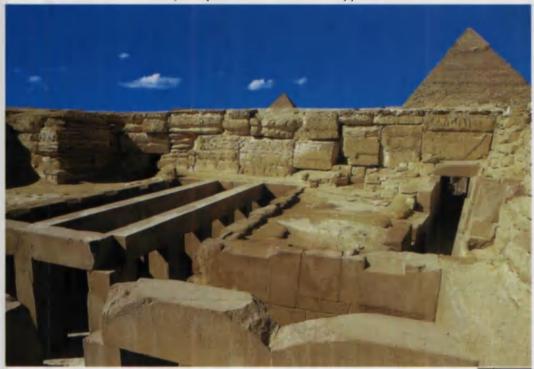
rock of the plateau, it was built of local limestone, with its outer walls faced with granite and the inner walls with Tura limestone. The floor was paved with alabaster and other materials; granite beams supported the limestone ceiling.



#### THE VALLEY TEMPLE

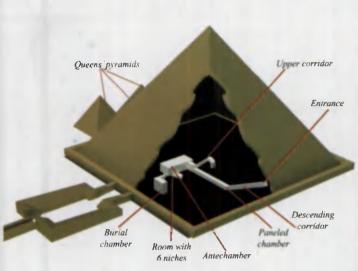
Discovered by Auguste Mariette in 1852; and erroneously referred to as the temple of the Sphinx, it was identified in 1910 by Holschr as the valley temple, this is the only truly well-preserved valley temple we know of. Built of local limestone cased with granite, with huge pillars of red granite and the floors of alabaster inside. Its architectural style is similar to that of the funerary temple; it has

a square layout with two front entrances. The main hall was T-shaped with 16 square pillars in rows. Along the walls of the main structure of this splendid hall, a true architectural masterpiece of the old kingdom, there were originally 24 diorite statues depicting Khafre seated. Except for one discovered by Mariette, which can be seen in the Cairo Museum, they have all disappeared.





# THE PYRAMID OF MENKAURE (MYCERINUS)



ANCIENT NAME : The ka (soul) of Re is dirine.

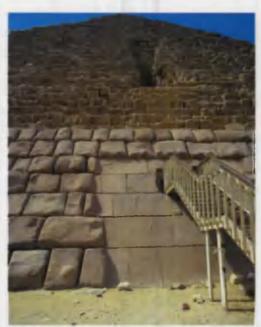
ORIGINAL HEIGHT: 66 m **CURRENT HEIGHT: 65.5 m** LENGTH OF SIDE : 103.5 m ANGLE : 50° 30° BURIAL CHAMBERS: two

pyramid Menkaure, Khafre's son and successor, known to the Greeks as Mycerinus it is the smallest pyramid at Giza . It was opened by Vyse and Perring in 1837. The pyramid is attributed to him through the discovery of his name in red ochre on the ceiling of the burial chamber in one of the subsidiary pyramid as well as through inscribed artifacts found in the area.





Menkaure's pyramid lies at the far end of the Giza diagonal and on the very edge of 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, it represents about 1/10 of the building mass of Khufu's pyramid. Unlike earlier pyramids, its faces were covered with blocks of granite on the first third of its height, with limestone slabs only on the upper two-thirds. Some of this granite covering is still visible on the north side of the pyramid, where the current entrance is located.







The complex differs from Khufu's and Khafre's , partly because it was completed by Menkaure's son and successor Shepsekaf and partly because architectural additions were made during dynasty V and VI.



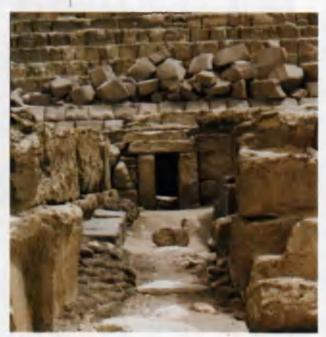


The pyramid of Menkaure differs from Learlier pyramids in the complexity of its funerary apartment, which consists of an antechamber connected to the entry corridor and an almost horizontal tunnel, originally blocked at the entrance by three slabs of stone , which opens out on to a large hall . This room was probably the original burial chamber . From here the tunnel descends west to a room which has a number of deep niches used for the funerary trappings, and then leads to the true burial chamber where Vyse and Perring found the sarcophagus with its palace-façade decoration. The sarcophagus was later lost at the Mediterranean Sea on the ship Beatrice beginning of 20th century ...



## THE FUNERARY TEMPLE

The vestiges of the funerary temple are still visible on the eastern side of the pyramid. It s consisted of a complex structure. Menkaure's causeway runs due east from the funerary temple, and led to the valley temple, now covered with sand.





THE QUEEN'S PYRAMIDS

The Queen's pyramids were built to the south of Menkaure's pyramid, of which the most eastern one, which is also the largest and best preserved, is attributed to the royal wife of Menkaure, Khamerenebty II. All three queens' pyramids had mud brick chapels and presumably all received burials of those queens; the body of a young woman was found in the burial chamber of middle pyramid.



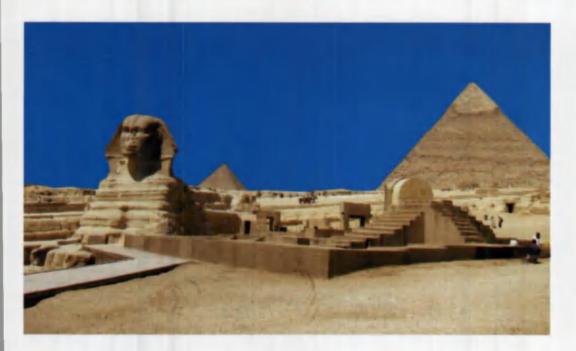


The Great Sphinx is a national symbol I of Egypt, both ancient and modern .But it is more than this . It is an archetype of antiquity whose image has stirred the imagination of poets, scholars, adventurers and tourists for centuries. The Sphinx was the first truly colossal piece of sculpture in ancient Egypt .About 57 m long and 20 m high, the Sphinx is the image of the King who unites human nature with divine and leonine power. The word 'Sphinx', which may come from the Egyptian expression Shesep ankh "living image", means a sculpture which represents a deity with the body of a lion and a human or animal head . The Great Sphinx of Giza that rises out of the desert sands, to which the Arabs gave the strange name of Abu Hol; "the father of terror "; is a unique monument in the history of Egyptian statues, in which sphinxes are typical elements.



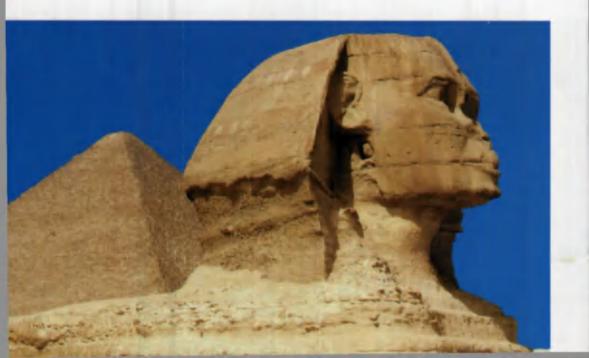






The Sphinx was carved from the natural bedrock at the very base of Khafre's causeway. The rectangular secondary enclosure wall which surrounds Khafre's pyramid complex would, if extended eastwards take in the Sphinx. The south side of the Sphinx

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.





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. 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

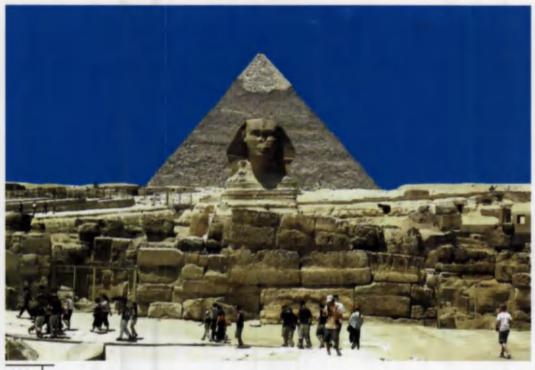
with the lion's chest. There are many theories about the destruction of the Sphinx's nose. Some mistakenly believe that Napoleon's soldiers destroyed it; many Egyptologists give credence to the story written by the Arab historian El-Makrizi in A.D. 1436 that a Sufinamed Saem El-Dahr, who lived in the ninth century A.D., damaged it to show the people that the sphinx was just a stone statue, it was not the sacred object they thought.





uring the 18th Dynasty (1550 – 1397 B.C.), a thousand years after its construction, the desert sand covered the Sphinx, Tuthmosis IV the great-great grand father of Tutankhamen, cleared the sand from the statue. During the period of Ramses II (1300 B.C.). The sand once again gained the upper hand and completely buried the colossal structure. This explains why Herodotus never mentions the Sphinx. As the centuries passed, Marcus Aurelius (160A.D)

carried out new restoration work, still visible today, then the sands once again prevailed, but the head must still have been visible. The famous Arab historian El-Makrizi, who lived around 11th century, had also expressed interest in the Sphinx, and stated that there was secret cavity in the monument which hid a cup that had belonged to Solomon the son of David. In 1798 scientists of Napoleonic expedition excavated the monument.



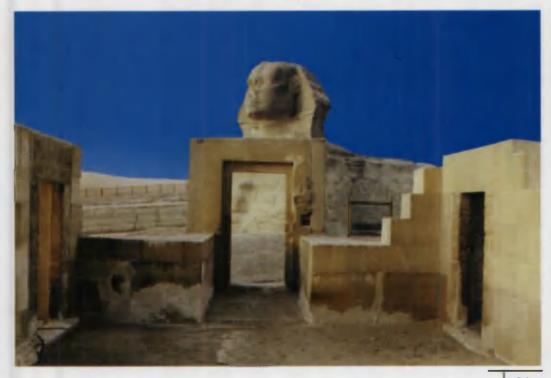


#### THE SPHINX TEMPLE

It was discovered right in front of the Sphinx, it was built of local limestone cased on the inside with Tura limestone, granite and alabaster. The twenty-four pillars surrounding the large courtyard may have represented the twelve hours of day and the twelve hours of night.

# THE TEMPLE OF AMENHOTEP II

Amenhotep II 18th dynasty built a temple on the higher terrace northeast of the Sphinx in the first year of his reign, dedicated to the Sphinx as the God Horemakhet.



# DREAM STELA

Agranite Stela weighing 15 tons and 3.5 m tall, located between the front paws of the Sphinx, erected by Thutmose IV 18th dynasty and dated to the first year of his reign, 1401 B.C. This commemorates his accession to the throne and tells the story of how, as a young 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, Atum, Re and 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 Stella Thotmose etched a scene of himself giving offerings and libations to the Sphinx.

