

= Pyramid of Userkaf =

The pyramid complex of Userkaf was built c . 2490 BC for the pharaoh Userkaf ( reign 2494 ? 2487 BC ) , founder of the 5th dynasty of Egypt ( c . 2494 ? 2345 BC ) . It is located in the pyramid field at Saqqara , on the north @-@ east of the step pyramid of Djoser ( reigned ca . 2670 BC ) . Constructed in dressed stone with a core of rubble , the pyramid is now ruined and resembles a conical hill in the sands of Saqqara . For this reason , it is known locally as El @-@ Haram el @-@ Maharbish , the " Heap of Stone " and was recognized as a royal pyramid by western archaeologists in the 19th century .

Userkaf 's pyramid is part of a larger mortuary complex comprising a mortuary temple , an offering chapel and a cult pyramid as well as separate pyramid and mortuary temple for Userkaf 's wife , queen Neferhetepes . Userkaf 's mortuary temple and cult pyramid are today completely ruined and difficult to recognize . The pyramid of the queen is no more than a mound of rubble , with its funerary chamber exposed by stone robbers .

The complex is markedly different from those built during the 4th Dynasty ( c . 2613 ? 2494 BC ) in its size , architecture and location , being at Saqqara rather than Giza . As such , Userkaf 's pyramid complex could be a manifestation of the profound changes in the ideology of kingship that took place between the 4th and 5th dynasties , changes that may have started during the reign of Userkaf 's likely immediate predecessor , Shepseskaf . Some 1500 years after its construction , the pyramid complex was restored under Ramses II . During the much later Saite period ( 664 ? 525 BC ) , it was used as a cemetery .

= = Discovery and excavations = =

The entrance of the pyramid was discovered in 1831 by the Italian Egyptologist Orazio Marucchi but was not entered until 8 years later in 1839 by John Shae Perring who took advantage of an existing tunnel dug into the pyramid by tomb robbers . Perring did not know for sure who the owner of the pyramid was and attributed it to Djedkare Isesi ( reign 2414 ? 2375 BC ) , a late 5th dynasty pharaoh . After his investigations Perring buried the robbers tunnel which remains inaccessible to this day . The pyramid of Userkaf entered the official records a few years later in 1842 when Karl Richard Lepsius catalogued it in his list of pyramids under number XXXI . Since Perring had already buried the robbers tunnel by that time , K. R. Lepsius did not investigate the pyramid any further .

The pyramid was then neglected until October 1927 when Cecil Mallaby Firth and the architect Jean @-@ Philippe Lauer started excavating there . During the first season of excavation Firth and Lauer cleared the south side of the pyramid area , discovering Userkaf 's mortuary temple and tombs of the much later Saite period . The following year , Firth and Lauer uncovered a limestone relief slab and a colossal red granite head of Userkaf , thus determining that he was the pyramid owner . After Firth 's death in 1931 no excavations took place on site until they were resumed by Lauer in 1948 . Lauer worked there until 1955 , re @-@ clearing and re @-@ planning the mortuary temple and investigating the eastern side of the pyramid . Research on the north and west sides of the mortuary complex was conducted starting in 1976 by Ahmed el @-@ Khouli who excavated and restored the pyramid entrance . The entrance was , however , buried under rubble in an earthquake in 1991 .

More recent work on the pyramid was undertaken by Audran Labrousse in 2000 .

= = Mortuary Complex = =

= = = Layout = = =

The mortuary complex of Userkaf comprises the same structures as those of Userkaf 's 4th dynasty predecessors : a high wall surrounded the complex with its pyramid and high temple and there was certainly a valley temple located closer to the Nile , yet to be uncovered . The valley temple was

connected to the pyramid by a causeway whose exact trajectory is unknown , even though its first few meters are still visible today .

The layout of the complex however differs significantly from that of earlier complexes . Indeed , it is organized on a north @-@ south axis rather than an east @-@ west one : the high temple is located south of the main pyramid and its structures are turned away from it . Furthermore , a small offering chapel is adjoining the eastern base of the pyramid , a configuration otherwise unattested since offering chapels usually occupy the inner sanctum of the mortuary temple . Finally , immediately to the south of Userkaf 's funerary enclosure is a second smaller pyramid complex attributed to his wife , queen Neferhetepes .

The reason for these changes is unclear and several hypotheses have been proposed to explain them :

The first hypothesis is that this is due to a change of ideology . The advent of the 5th dynasty marks the growing importance of the cult of the sun as hinted by the Westcar Papyrus . This is also directly evidenced by the large sun temples built at Abusir throughout the dynasty , a tradition initiated by Userkaf . Finally , the Abusir Papyri demonstrate the strong connection between the cult of the sun and the mortuary cult of the pharaohs of this dynasty : offerings for a deceased ruler were first consecrated in a sun temple before being dispatched to his mortuary temple . Thus , Userkaf located his mortuary temple to the south of the main pyramid so that the sun would shine directly into it all year round .

The second hypothesis holds that Userkaf chose to return to 3rd dynasty ( c . 2670 ? 2610 BC ) traditions : not only did he choose to construct his mortuary complex on the north @-@ east corner of Djoser 's complex but its layout is similar to that of Djoser . Indeed , both are organized on a north @-@ south axis and both have their entrances located at the south @-@ end of the eastern side .

The third hypothesis proposes that Userkaf 's choice is due to practical considerations . Nabil Swelim discovered a large moat completely surrounding Djoser 's enclosure , some places as deep as 25 metres ( 82 ft ) . This moat might be a stone quarry for material used during the construction of Djoser 's step pyramid . If for some reason it was important for Userkaf to locate his mortuary complex on the north @-@ east corner of Djoser 's , i.e. between the enclosure and the moat , then there was not enough space available for the mortuary temple to be located on the east side . Thus the local topography would explain the peculiar layout of Userkaf 's complex .

= = = Mortuary temple = = =

Userkaf 's mortuary temple layout and architecture is difficult to establish with certainty . Not only was it extensively quarried for stone throughout the millennia , but a large Saite period shaft tomb was also dug in its midst , damaging it .

Modern reconstructions of the temple nonetheless show that it shared the same elements as all mortuary temples since the time of Khafra ( reigned ca . 2570 BC ) . However , just as with the complex , the layout of the temple seem to differ significantly from those of Userkaf 's predecessors . The causeway entered the pyramid enclosure at the southern end of the east wall . There the entrance corridor branched south to five magazine rooms as well as a stairway to a roof terrace . To the north a doorway led to a vestibule and then to an entrance hall . That in turn led to an open black @-@ basalt floored courtyard bordered on all sides but the south one by monolithic red granite pillars bearing the titles of the king . A colossal head of Userkaf was found there , the second oldest monumental statue of an Egyptian ruler after the Great Sphinx , now in the Egyptian Museum . The head , which must have belonged to a 5 @-@ metre @-@ high ( 16 ft ) statue , represents Userkaf wearing the Nemes and Uraeus . The walls of the courtyard were adorned with fine reliefs of high workmanship depicting scenes of life in a papyrus thicket , a boat with its crew and names of Upper and Lower Egyptian estates connected to the cult of the king .

Two doors at the south @-@ east and south @-@ west corners of the courtyard led to a small hypostyle hall with four pairs of red granite pillars . Beyond were storage chambers and the inner sanctum with three ( Ricke ) or five ( Lauer ) statue niches where statues of the king would have been placed , facing the pyramid to the north . Contrary to other mortuary temples , the inner

sanctum was thus separated from the pyramid by the courtyard . The only remains of the mortuary temple that are visible today are its basalt paving and the large granite blocks framing the outer door .

### === Offering chapel ===

A small offering chapel is adjoining the eastern side of the main pyramid and is barely visible today . It consisted of a central two pillared room with a large quartzite false door and two narrow chambers on the sides . Like the mortuary temple , the chapel was floored with black basalt . Its walls however were made of Tura limestone and granite and were adorned with fine reliefs of offering scenes .

### === Cult pyramid ===

In the south @-@ west corner of Userkaf 's mortuary complex is a small cult pyramid . This pyramid was destined to receive the Ka of the deceased pharaoh and thus might have housed a statue of Userkaf 's Ka . It stood 15 metres ( 49 ft ) high with a base 21 metres ( 69 ft ) long and its slope is identical to that of the main pyramid at 53 ° . The position of the cult pyramid within the complex is unusual , the cult pyramid being normally located in the south @-@ eastern corner . This difference is certainly linked with the peculiar overall north @-@ south layout of Userkaf 's complex with the south @-@ eastern corner hosting the entrance to the mortuary temple .

The core of the pyramid is made of roughly hewn limestone blocks similar to those of the main pyramid . These were disposed in two layers and finally clad with fine Tura limestone which fell victim to stone robbers . Consequently , the poor quality pyramid core was exposed and degraded rapidly with only the two lowest layers of the pyramid still visible today .

The pyramid has a T @-@ shaped substructure with a descending corridor leading to a chamber with a gabled roof . Similarly to the main pyramid , the substructure was constructed in a shallow open pit dug into the ground before the pyramid construction started and is therefore located just below ground @-@ level .

### === Main pyramid ===

### === Construction ===

Userkaf 's pyramid is located on the northeast corner of Djoser 's step pyramid complex . The pyramid was originally around 49 metres ( 161 ft ) high and 73 metres ( 240 ft ) large with an inclination of 53 ° identical to that of Khufu 's great pyramid for a total volume of 87 @, @ 906 m<sup>3</sup> ( 114 @, @ 977 cu yd ) . The core of the pyramid is built of small roughly @-@ hewn blocks of local limestone disposed in horizontal layers . This meant a considerable saving of labor as compared to the large and more accurately @-@ hewn stone cores of 4th Dynasty pyramids . However , as the outer casing of Userkaf 's pyramid fell victim to stone robbers throughout the millennia , the loosely assembled core material was progressively exposed and fared much worse over time than that of the older pyramids . This explains the current ruined state of the pyramid .

The pyramid core was constructed in a step @-@ like structure , a construction technique similar to that of the 4th dynasty although the building material was of a significantly lower quality . The outer casing of the pyramid was made of fine Tura limestone which certainly ensured Userkaf 's construction an appearance similar to that of the glorious 4th Dynasty pyramids . There was however no red granite paneling over the lower part of the pyramid as in the case of the Pyramid of Menkaure .

### === Substructures ===

The pyramid does not have internal chambers , the chambers being located underground . These

were constructed in a deep open ditch dug before the pyramid construction started and only later covered by the pyramid . The entrance to the underground chambers is located north of the pyramid from a pavement in the court in front of the pyramid face . This is different from the 4th dynasty pyramids for which the entrance to the internal chambers is located on the pyramid side itself . The entrance was hewn into the bedrock and floored and roofed with large slabs of white limestone , most of which have been removed in modern times .

From the entrance a 18 @. @ 5 metres ( 61 ft ) long , southward descending passage leads to a horizontal tunnel some 8 metres ( 26 ft ) below the pyramid base . The first few meters of this tunnel were roofed and floored with red granite . The tunnel was blocked by two large portcullis of red granite , the first one still having traces of the gypsum plaster used to seal the portcullis .

Behind the granite barrier the corridor branches eastward to a T @- @ shaped magazine chamber which probably contained Userkaf 's funerary equipment . The presence of such a magazine chamber , located under the base of a pyramid , is unique of all the 5th and 6th dynasty pyramids .

At the south end of corridor lies an antechamber , which is located directly under the tip of the pyramid . The antechamber is oriented on the east @- @ west axis and leads west to the king 's burial chamber . The burial chamber has the same height and width as the antechamber , but is longer . At the western end of the burial chamber Perring discovered some fragments of an empty and underdecorated black basalt sarcophagus which had been originally placed in a slight depression as well as a canopic chest . The chambers are protected from the pyramid weight by a gabled ceiling made of two large Tura limestone blocks , an architecture common to all pyramids of the 5th and 6th dynasties . The chambers are lined with the same material , while the floor pavement was lost to stone robbers .

= = Pyramid complex of Queen Neferhetepes = =

It was common for Old Kingdom pharaohs to prepare the burials of their family close to theirs and Userkaf followed this tradition . Thus 10 metres ( 33 ft ) to the south of his funerary enclosure , Userkaf had a small separate pyramid complex built for his queen on an east @- @ west axis . The pyramid is completely ruined and only a small mound of rubble can be seen today .

= = = Discovery = = =

The pyramid of the queen was first recognized in 1928 by C. M. Firth following his first excavations to the south of Userkaf 's main pyramid . One year later in 1929 , he proposed that the pyramid be assigned to Queen Neferhetepes , Userkaf 's wife and the mother of Sahure . It was not before 1943 that Bernard Grdseloff discovered the tomb of Persen , a priest at the court of Userkaf and Neferhetepes . His tomb is located in the immediate vicinity of Userkaf 's complex and yielded an inscribed stone giving the name and rank of the queen . This stone is now on display at the Egyptian Museum of Berlin . Further evidence confirming the assignment of the pyramid to Neferhetepes was discovered by Audran Labrousse in 1979 when he excavated the ruins of the temple . Consequently , the small pyramid complex has been attributed to her .

= = = Pyramid = = =

The queen 's pyramid originally stood 16 @. @ 8 metres ( 55 ft ) high with a slope of 52 ° , similar to that of Userkaf 's , with a base 26 @. @ 25 metres ( 86 @. @ 1 ft ) long . The core of the pyramid was built with the same technique as the main pyramid and the cult pyramid , consisting of three horizontal layers of roughly hewn local limestone blocks and gypsum mortar . The core was undoubtedly covered with a fine Tura limestone outer casing , now removed . In fact , the pyramid was so extensively used as a stone quarry in later times that it is now barely distinguishable from the surroundings and its internal chambers are exposed .

The entrance to the substructure is located on the pyramid 's northern side and consists of a descending passage leading to a T @- @ shaped chamber . This chamber was located under the tip

of the pyramid and is oriented on an east @-@ west axis like the rest of the queen 's pyramid complex . It has a pented roof made of large limestone blocks , a construction technique common to all pyramid chambers of the 5th dynasty . The substructure is thus a scaled @-@ down version of Userkaf 's without the magazines .

#### = = = Mortuary Temple = = =

The queen 's pyramid complex had its own separate mortuary temple , which was located on the east of the pyramid in contrast to Userkaf 's complex . This difference may be explained by the small dimensions of the temple which allowed it to be oriented to the east in the usual fashion . Access to the temple was located in the south @-@ east corner of the enclosure wall . The entrance led to an open courtyard that stretched from east to west . The ritual cleaning and preparation of the offerings took place here . Because of the extensive degradation suffered by the temple , reconstruction attempts are somewhat speculative . From the ruins , archaeologists propose that the temple comprised an open colonnade , possibly made of granite , a sacrificial chapel adjoining the pyramid side , three statue niches and a few magazine chambers . No traces of a cult pyramid were found onsite . In the halls of the temple were depictions of animal processions and offerings carriers moving towards the Shrine of the Queen .

#### = = Later alterations = =

The pyramid of Userkaf was apparently the object of restoration work in antiquity under the impulse of Khaemweset ( 1280 ? 1225 BC ) , fourth son of Ramses II . This is attested by inscriptions on stone cladding showing Khaemweset with offering bearers .

During the 26th Dynasty ( c . 685 @-@ 525 BC ) Userkaf 's temple had become a burial ground : a large shaft tomb was dug in its midst thus rendering modern reconstruction of its layout difficult . This indicates that by the time of the Saite period , Userkaf 's temple was already in ruins .