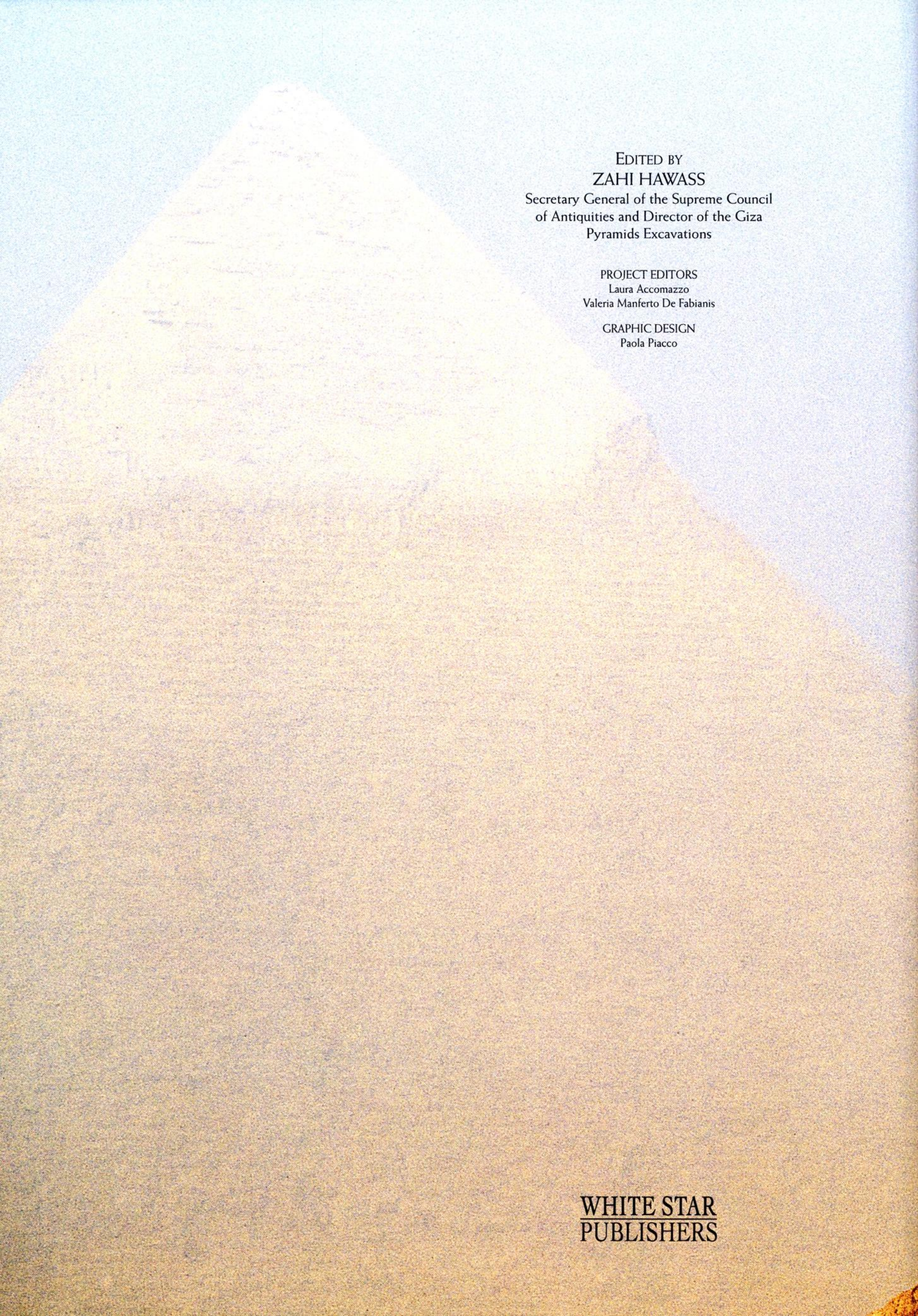


An aerial photograph of the Great Pyramids of Giza in Egypt. The pyramids are constructed from dark, weathered stone blocks, showing significant erosion and some missing sections. The Great Pyramid of Giza is the largest and is positioned in the foreground, slightly to the right. Behind it, the two smaller pyramids of Khafre and Menkaure are visible. 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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Scene showing the 'Meidum geese',  
Egyptian Museum Cairo, Old  
Kingdom.

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# The Secret Doors Inside the Great Pyramid

by Zahi Hawass

**T**he Great Pyramid of Khufu has fascinated people since ancient times; in fact, it is the only wonder of the ancient world that still exists today. Although most people today know that it was built as the tomb of the second king of the Fourth Dynasty, Khufu, alternative theories about its construction and purpose still circulate. The interior chambers of this extraordinary structure are very complex, adding to its mystery, and scholars are still debating their exact functions.

The modern entrance to the pyramid was created in the ninth century AD by al-Mamoun, son of Haroun al-Rashid. They just missed the true entrance, which lies about a third of the way up the north face. From the original entrance, a passage descends through the body of the pyramid, leading to an unfinished chamber carved into the bedrock under the pyramid. From a point partway along the descending passage, a second passage leads upward to a horizontal passage which leads in turn to a second chamber, misnamed the 'Queen's Chamber' (in fact, it was certainly not for any of Khufu's queens, who had their own small pyramids). From the point where the first ascending passage meets the horizontal passage, an incredible corbelled corridor, the Grand Gallery, ascends to a third chamber, the 'King's Chamber,' where the granite sarcophagus of Khufu was found, empty. Scholarly discussion about the building sequence and purpose of these corridors and chambers is ongoing: many Egyptologists believe that the three chambers represent three changes in the interior plan, reflecting changes in Khufu's cult, but others believe that all three chambers were part of the original plan.

A number of early adventurers explored the chambers inside the Great Pyramid, and various Egyptologists have made contributions to our understanding of their layout and purpose. Serious modern scientific work on the Great Pyramid began in 1993, when, for the first time, we closed the pyramid for a full year. This was part of a plan to institute a rotation system at Giza, closing one pyramid for a year while leaving the other two open,

in order to balance conservation with tourism. During our conservation work, we found that the humidity level inside the Great Pyramid was at 85 percent. Most of this was due to tourism, as each person who enters the pyramid breathes out approximately 20 grams of water. This water evaporates and leaves behind salt. The salt leeches into the stone and slowly destroys it: in 1993, we found the surface of the Grand Gallery encrusted with salt, and many cracks could be seen.

We needed to clean the pyramid, and also to develop a system to permanently lower the humidity. One idea was to clean two narrow conduits, each about 20 cm square, known as airshafts, that lead outward and upward to the exterior of the pyramid from the north and south walls of the highest chamber (the King's Chamber) and put machines inside them to create a ventilation system. I talked to Rainer Stadelmann, the director of the German Archaeological Institute in Cairo at that time, who in turn arranged for a robotic expert, Rudolf Gantenbrink, to come and work under the auspices of the Institute. Gantenbrink designed a robot called Wepwawet (an ancient Egyptian god of the dead) to investigate the airshafts in the third chamber. Using the robot, we cleared the shafts and set up fans inside to circulate the air and keep down the humidity.

The robot was also sent inside similar shafts in the second chamber (the Queen's Chamber). These shafts were originally discovered in September of 1872, by British engineer Waynman Dixon. Dixon had pushed a wire through the joints of the masonry of the south wall, and realized there was a hollow space behind it. He then chiseled through the wall and found the southern shaft. He looked for a shaft in the equivalent area of the north wall and found one. When he lit a candle and placed it in the southern shaft, it flickered, telling him that there was a slight draft.

In the northern shaft, Dixon and his associate James Grant found a small bronze hook, a granite ball, and a portion of cedar-like wood. These objects became known as the Dixon Relics. They were taken to England, recorded by the Astronomer Royal of



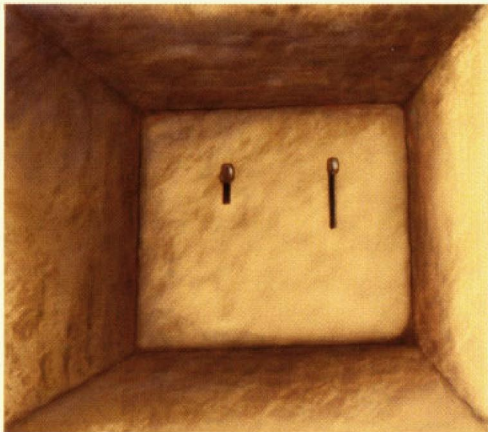
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*Members of the National Geographic staff check the robot that is going to explore the southern shaft in the so-called 'Queen's Chamber.' The Great Pyramid, Giza, Fourth Dynasty.*









158 top  
Drawing of the shaft as it appeared  
before the exploration.

158 bottom  
The National Geographic team  
exploring the southern shaft in the  
Queen's Chamber. The Great Pyramid,  
Giza, Fourth Dynasty.

Scotland, and returned to Dixon—after which they disappeared. Fortunately, drawings were published in the journal *Nature* of December 26, 1872.

In 1993 a concerted search led to the discovery of the ball and hook in the British Museum, where they remain today. The piece of cedar-like wood remained missing until 2001, when it was traced to the Marischal Museum, Aberdeen. (Although they are sure it is in their collection, they haven't yet located it, as they are currently in the process of moving.)

During the 1993 explorations of the Queen's Chamber shafts, Gantenbrink made some intriguing finds. The northern shaft turned sharply to the west after approximately eight meters, and the robot could go no farther. In the southern shaft, Wepwawet was stopped after 63.4 m by a door or small slab with two copper handles that blocked the entire shaft. The left handle had lost a piece sometime in antiquity, which

was lying about two meters in front of the 'door.'

Gantenbrink also found a long piece of wood and a modern metal pole lying in the sloping portion of the northern shaft. Its cross-sectional area and general appearance are similar to the piece of wood found by Dixon. No mention of the pole is made in Dixon's reports, but it is now thought to have been lost when Dixon and his colleagues were 'treasure-hunting' in the shaft. They probably broke the small piece of wood from the longer piece while they were manipulating the metal pole, but did not report this accident. Some suggest that carbon dating the wood would allow accurate dating of the pyramid because they assume that the wood must have been left in the shaft when the pyramid was constructed (given that the shaft was sealed). I do not believe that this is necessarily the case: the wood may also have been placed in the shaft after construction via the shaft's exit, if one exists. He also found a piece of wood





# Secret Doors

with two holes drilled into it that might be the handle into which the bronze hook found by Dixon might once have been set. Gantenbrink has published his information on the web at [www.cheops.org](http://www.cheops.org) (see also [www.guardians.net/hawass](http://www.guardians.net/hawass)).

Egyptologists have multiple explanations for these 'airshafts.' Some believe that they were used for ventilation. This is possible for the shafts in the King's Chamber, which lead all the way to the outside (although they might have been covered by the casing stones), but there are no openings on the outside of the pyramid that might correspond to the shafts in the Queen's Chamber, so this theory is very unlikely. More likely is that they have a religious and astronomical function; the southern shaft aligned with the star Sirius (Orion), and the northern shaft pointed to the circumpolar stars Minoris, Ursa, and Beta. Stadelmann believes that these shafts are tunnels through which the king's soul would ascend to join the divine stars.

I believe that the shafts from the so-called Queen's Chamber are likely to have no function, as they were blocked from the inside. If they had a religious function, they should have been left open, as were the shafts of the third chamber (the King's Chamber). Since these open outside of the pyramid, I believe that Khufu's soul was meant to travel through them. The southern shaft was intended for Khufu to use as the sun god Re. It opens exactly between the two boat pits to the south of the pyramid. Khufu would take the two boats and use them as solar boats—one for the day trip, one for the evening trip. The northern shaft was made for the soul of Khufu as Horus to travel to join the stars.

In order to discover more about the purpose of the shafts of the so-called Queen's Chamber, further work had to be done. The German Institute in Cairo had the concession to the Great Pyramid, and I could see that they were not interested in completing the work on the shafts. It was impossible to assign the concession to Gantenbrink as he is an individual, and the antiquities law in Egypt only allows for concessions to be granted to institutions. So I decided that the Supreme Council of Antiquities (SCA) would do the work instead. I asked Tim Kelly of National Geographic Television to design a robot to probe the shafts, and I would head the expedition. I believed there was nothing behind this door at all but that it was very important for both scholars and

the general public alike to know the truth.

Archaeologists know that even empty space can be important.

The National Geographic Society designed a robot and called it the Pyramid Rover, and the Permanent Committee of the SCA acknowledged the project as an Egyptian endeavor. We decided to look behind the 'door' on live television, and set the date for September 17, 2002. I, as well as my colleagues at National Geographic, wanted to be sure that we were honest and that people were prepared for whatever find (or lack thereof) we might make. Before the show, I went to Hong Kong and Singapore to publicize it, and my colleague Mark Lehner went to Australia, India, and Spain right afterward.

One of the main goals of the documentary was to show the public evidence about the people who built the pyramids. I was to talk about tombs, show graffiti which names the work gangs that built these monuments, and even go inside the Step Pyramid of Djoser for the first time. The substructure of this pyramid consists of tunnels and passages and rooms with a total length of just over five and a half kilometers. I believe that the interior had never been shown in a film before, and that no living Egyptologist had entered this maze of corridors and chambers.

One day before the show, we used ultrasound to determine that the 'door' in the southern shaft of the Queen's Chamber was about six centimeters thick, and that there was something behind it. We decided to drill a hole, three millimeters in diameter, through the door so we could send a camera behind it. In the last minute of the show, the camera was sent in, and we found a second door 21 centimeters behind the first. It is not similar to the first, in that it looks as if it is screening or covering something. There were also cracks all over the surface. I was very happy to see it, but also very surprised.

The show was well received all over the world, and was rated 'great' by Fox Television in the United States. Half a billion people in China watched the show. Newspapers all over the world covered it to a level that had never been done for any television program before.

A few days after the show, we sent the new robot into the northern shaft of the Queen's Chamber. Gantenbrink and Dixon both were only able to probe a little more than eight meters because of a turn in

the shaft. After further investigation, we determined that the turn was made in order to avoid intersecting the Grand Gallery, implying that the shafts were cut after the Grand Gallery's construction. The Pyramid Rover turned and continued through the shaft, only to be stopped in front of another door with copper handles. This is 63.4 m into the shaft, the exact same distance as the door in the southern shaft, and it is very similar to it. Behind this door there is probably another door 0.21 m away from the first, as we found in the southern shaft.

The copper handles in the first doors in both the north and south shafts are similar to those on the box that held the canopic jars of Tutankhamun, now at the Egyptian Museum in Cairo. Ropes used to pull the box were threaded through these handles. The doors in the Queen's Chamber shafts are made of fine white limestone from Tura, and it seems as if their handles allowed them to be pulled inside the shafts.

The presence of these doors in the Great Pyramid raises many questions. One idea is that the doors are challenges that the king must face during his journey to the afterlife. It is written in the Pyramid Texts that the king will face bolts before he travels; perhaps this is a reference to the doors' copper handles. Yet if this is true, why is Khufu's pyramid the only one with such doors? Also, why are there no doors in the shafts of the third chamber? Logically, they should be where the king's body was buried. It is possible that these doors are evidence that Khufu's actual burial chamber might be hidden somewhere inside of his pyramid. An ancient story from the Westcar Papyrus tells of how Khufu searched for the secret documents of the god Thoth in order to design the chambers of his pyramid; we are still trying to understand the complex he and his architects left behind.

We are planning to search again for openings on the outside of the Great Pyramid that correlate with the shafts in the Queen's Chamber. If we find them, then it is possible that these were symbolic doors for the king to use in crossing to the Netherworld. We will also, as soon as we have decided the best and safest way to proceed, look behind the second door in the southern shaft. If the shafts are truly sealed, we will have to consider other theories. Only further research into the shafts and the doors that block them can reveal their function, and help us to solve one of the many remaining mysteries of the Great Pyramid.



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111 Miroslav Verner

**THE PYRAMIDS OF THE FOURTH DYNASTY**  
**Text by Rainer Stadelmann**

Born October 24, 1933 in Oettingen/Bavaria as son of a professor of classical languages, he studied Egyptology at the Universities of Munich and Heidelberg. He first visited Egypt between December 1955 and April 1956 and participate in excavations at the Sun Temple of Userkaf at Abusir. Completed his PhD in spring 1960 with a thesis on "Syrisch-Palästinensische Gottheiten in Ägypten" and became Assistant Lecturer of Egyptology at the University of Heidelberg. In 1967 he completed a second Ph.D., Habilitation, in Heidelberg with a thesis on: "Altägyptische Bauinschriften und Namen von Bauteilen" and became Assistant Professor. In April 1968 he became Scientific Director of the German Institute of Archaeology in Cairo and Honorary Professor at the University of Heidelberg. In 1989 he became First Director of the German Institute of Archaeology in Cairo. He has at Elephantine Island and the Mortuary temple of Sety I at Gurna and the Pyramids of Sneferu at Dahshur. Newest excavation and conservation work at the Temple of Amenhotep III and the Colossi of Memnon. He has published several books about the pyramids and ca. 100 scholarly articles in German, English, and French in international periodicals.

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**THE QUEENS' PYRAMIDS**  
**OF THE FOURTH DYNASTY AT GIZA**  
**Text by Zahi Hawass**

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**Text by Zahi Hawass**

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**THE SECRET DOORS INSIDE**  
**THE GREAT PYRAMID**  
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**THE PYRAMIDION**  
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