# Article #2 – Designer, Builder and Actual Structure of the Pyramid of Giza

A SUMMARY by Maralyn B. Dyck

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We read in <u>Genesis 6</u> that man multiplied over the face of the Earth and Cain built a city, and he named the city after the name of his son. It is also indicated that other cities were built. Underwater exploration revealed cities and various man-made constructions in various parts of the world. There is an underwater city off the coast of Cuba in the Caribbean Sea, one-half mile deep, according to an article titled "Underwater Cities: Noah's Flood Proof?" from <u>Ancient High Technology</u>, which says: "It is stunning. . . . It looks like when you fly over an urban development in a plane." There are rumors of many more cities much deeper in the oceans, cities buried forever by Noah's global flood. We will most likely hear much more about these discoveries as technology allows us to go deeper and deeper into the depths of the oceans.

What has this to do with the Pyramid of Giza? It shows us that there are continuing new discoveries all the time about the history of the past and the Pyramid of Giza is no different in this respect.

New information has come forward providing the details of who may actually have been the builder of the pyramid! This does not negate the fact that Enoch had an initial part in designing the pyramid, but it would mean that Enoch did not build the pyramid. Of course his sons and the sons of Seth could have been there working on it. We have no concrete proof of this yet, but more discoveries could be made as time marches forward. That is part of what makes it so intriguing to keep track of what is being discovered about this amazing Wonder of the World.

King Khufu, known as Cheops to the Greeks, is currently credited with **ordering** the building of the Great Pyramid at Giza, near modern Cairo and Memphis.

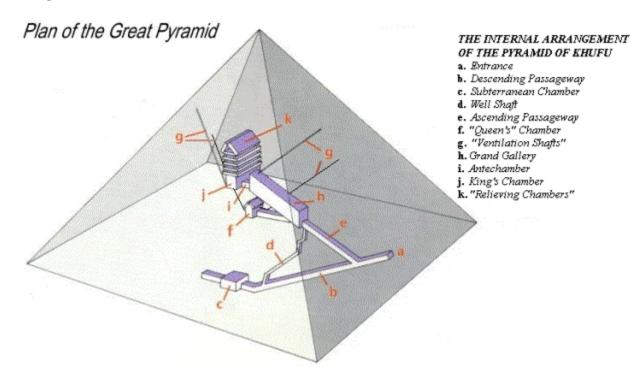
Unlike his grandfather Netjeriket, and his father Sneferu, both of whom were remembered as benevolent and compassionate rulers, Khufu was reported by Herodotus to have been a cruel despot. Khufu's full birth-name was Khnum-Khufu, meaning, "the god Khnum protects me." Khnum was considered the local god of Elephantine, near the first Nile cataract, who created mankind on his "potter's wheel" and was responsible for the proper flooding of the Nile each year.

Cheops disappeared after visiting an island near the falls in the Nile River. Cheops was thought to be a cruel despot but Enoch was a righteous man translated to heaven by God and never found. Both men disappearing seems to be the only similarity at this time. Interestingly other websites state that Cheops was kind and good to the workers! Who do we believe? That type of Cheops would fit Enoch's reputation. However, he would not be worshipping a god called Elephantine. There is no exact fit at this point in time, just bits and pieces of a complex puzzle. It is not impossible that more papyrus scrolls will be discovered, providing more information so we can fill out the picture of this puzzle.

Khufu may have been already on in years when he took the throne. It seems that his kinsman and vizier, Hemiunu, was named as the architect of the Great Pyramid. Khufu's senior wife was named Merityotes, and she and his other two wives were each buried in one of the three smaller subsidiary

pyramids that lie just south of the mortuary temple of the main pyramid. Khufu had several sons, among them Kawab, who would have been his heir, Khufukhaf, Minkhaf, and Djedefhor, Djedefre and Khephren or Khafre.

## Design



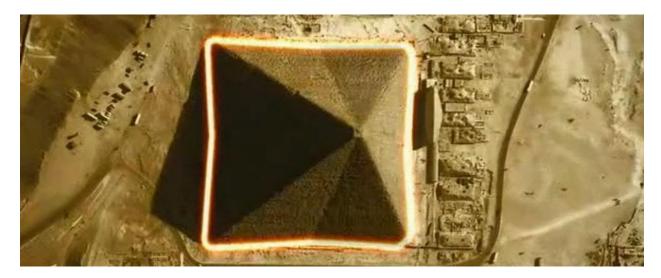
The largest of the three pyramids at Giza, known as the Great Pyramid, is truly an astonishing work of engineering. It was built over a twenty year period. Some believe that it was built by slaves, but it seems that this is not true according to the new papyri that have been discovered. One hundred thousand people worked on the great structure for three to six months of each year, during the Nile's annual flood, when it was impossible to farm the land and most of the population was unemployed. The pharaoh provided good food and clothing for his workers, and he was kindly remembered in folk tales for many centuries.

The pyramid is very large; it covers an area of 23 acres of land! The four corners are oriented to the four cardinal points of the compass. They are off a fraction now because of slight pole shift over the years, but at the time of its construction the points would have been right on track.

The length of each side at the base is 755 feet (230.4 m). The faces rise at an angle of 51º 52' and their original height was 481 feet (147 m). (They currently rise 451 feet [138 m].) At present the top cap stone is missing, unlike all the other pyramids.

It was constructed using around 2,300,000 limestone blocks, each weighing 2.5 to 16 tons. Some blocks weigh as much as 16 tons. For centuries, the Great Pyramid was encased in smooth pure white lime stones; they glistened in the sunlight and they could be seen for many miles. Many of the casing

stones of the Giza pyramids were stripped after a devastating earthquake in the Eighth Century shook them loose, and they were used in rebuilding Cairo for the next several hundred years.



The pyramid is square at the bottom and rising to a peak in the centre. The top "cap" is missing so the figures include where the top of the cap would be when the lines meet at a peak. Each side is concaved in the centre, just enough to make it an **eight-sided** pyramid. Only a couple of other such pyramids exist; not one of them is in Egypt. The concave is not enough to see from the ground but can be seen from above when the lighting is correct. Notice the cap is missing on the peak.

The inside passageways are all very carefully designed. The top of each passageway points to an actual star in the universe, as it was when it was constructed! The math is incredible. Math will be discussed in the next article. From the above drawing you can see where the passages and rooms of the pyramid are located.

### Foundation

- 1 The cornerstone foundations of the pyramid have ball and socket construction capable of dealing with heat expansion and earthquakes.
- 2. There are no hieroglyphics or writing in the Great Pyramid. (Recently, there were some markings in red ochre discovered in one of the inner tunnels (though they appear to be from the laborers rather than 'official' markings).
- 3. The mortar used is of an unknown origin. It has been analyzed and its chemical composition is known, but it cannot be reproduced. It is stronger than the stone and still holding up today.
- 4. The pyramid is estimated to have about 2,300,000 stone blocks weighing from 2-30 Tons each with some weighing as much as 70 tons. There is so much stone mass in the pyramid that the interior temperature is constant; it equals the average temperature of the earth which is 20 Degrees Celsius (68 Degrees Fahrenheit).
- 5. Could it have survived Noah's flood? Yes, the pyramid did survive the flood. It was built to last. There are signs of water damage on both the Great Pyramid of Giza and on the Sphinx which is right next door to the pyramid.

## White Lime Stone Facing

Interestingly enough, the Pyramid of Khafre (one of Khufu's sons) is the only one of the three main pyramids at Giza with some of its original casing blocks remaining. The rest of the casing blocks of all the pyramids have either been removed or are buried in the sands.

Two types of limestone were used for construction. A soft limestone either pure or nummulitic was used for the bulk of the core blocks and a hard white limestone for the mantle. Hard limestone becomes more polished with age. The base of the pyramid covers 55,000m2 (592,000 ft2) with each side greater than 20,000 m2 (218,000 ft2) in area.

The outer mantle was composed of 144,000 casing stones, all highly polished and flat to an accuracy of 1/100th of an inch, about 100 inches thick and weighing about 15 tons each. The average casing stone on the lowest level was 5 ft. long by 5 ft. high by 6 ft. deep and weighed 15 tons. The mortar used is of an unknown origin. It has been analyzed and its chemical composition is known but it can't be reproduced. It is stronger than the stone and still holding up today.

In short: ancient Egyptians made no contribution to science whatsoever in the successive five millennia; not a single scientist has been able to explain the mysteries of the pyramid, let alone reconstruct the Great Pyramid. One man tried to design a 1/4 size copy of the pyramid and had to give it up. It was beyond his mathematical skills to even design it like the main pyramid. Building it would be an even greater challenge, if even possible with today's knowledge and skills. There was tremendous knowledge of many skills involved in the building of this pyramid which you shall see in the next article. Their tools, for instance, are way beyond what we have today. Just more of the mystery needing to be resolved.

The only thing discovered, more recently, was a series of caves discovered at a Red Sea port that had been used for storing boats some distance away from the Pyramid of Giza. A cache of papyrus rolls were found well preserved and intact—the oldest known in history—around 4000-4500 years old. One roll in particular was all about the building of the Great Pyramid of Giza!

The papyri were actually written by men who participated in the building of the Great Pyramid of Giza, the pyramid of Pharaoh Khufu. Among the papyri was the journal of a previously unknown official named Merer, who led a crew of some 200 men who traveled from one end of Egypt to the other picking up and delivering goods of one kind or another.

Merer, who accounted for his time in half-day increments, mentions stopping at Tura, a town along the Nile famous for its limestone quarry, filling his boat with stone and taking it up the Nile River to Giza. Merer mentions reporting to "the noble Ankh-haf," who was known to be the half-brother of the Pharaoh Khufu (Cheops, to the Greeks). He was definitively identified as overseeing some of the construction of the Great Pyramid. Since the pharaohs used the Tura limestone for the pyramids' outer casing, and Merer's journal chronicles the last known year of Khufu's reign, the entries provide a neverbefore-seen snapshot of the ancients putting finishing touches on the Great Pyramid. So far, there is nothing yet learned that could prevent the possibility that Khufu/Cheops was actually Enoch. The only confusing part would be the fact that some thought Khufu was mean. These papyri do not show that at all.

According to the papyri all parts of Egypt were involved in the great building project at Giza. Granite came from Aswan far to the south, food from the delta in the north near the Mediterranean, and limestone from Tura, about 12 miles south of Cairo on the Nile.

Shipbuilding was made necessary by the gigantism of the royal building projects. The great majority of the boats were intended for the navigation of the Nile and the transport of materials along the river. The development of Wadi al-Jarf exactly in the same period allows us to see without doubt the logical extension, this time toward the Red Sea, of this project of the Egyptian state.

How did Merer get his boat close enough to the pyramids to unload his cargo of stone? Currently, the Nile is several miles from Giza. The papyri offer important support that the Ancient Egyptians, masters of canal building, irrigation and otherwise redirecting the Nile to suit their needs, built a major harbor or port near the pyramid complex at Giza. As a result, Merer would be able to transport all his building materials by boat from the quarry to the pyramids at Giza.

Merer refers to the Lake of Khufu, about 10 miles from Giza. However, the building and transportation of materials and goods could only have been done when the Nile was in flood, about six months or so each year.

Some of the other papyri refer to the fact that all shipping for commercial products could only be shipped during the flood stage each year. This fits in well with what would have had to happen for the building of the pyramids. The people were out of work and were able to spend time helping build the pyramids. They did not need to have slaves for this purpose.

Working on the boats was a source of prestige. According to the papyri found at Wadi al-Jarf, the laborers ate well. They were provisioned with meat, poultry, fish and beer.

There were many private inscriptions of officials involved in the mining expeditions to the Sinai. They liked to associate themselves to something that was very important to the king and this was a reason to be preserved for eternity, for the individuals. These workers were valued servants of the state.

The managers would have always traveled with their archives because they were expected always to account for their time. They believe that these papyri were found in the caves because that was the end of their last expedition for the team, probably because of the death or disappearance of the king. The date on the papyri seems to be the last date we have for the reign of Khufu, the 27th year of his reign.

This means of transportation for the pyramids was only used for a short time—just for the period of the early fourth dynasty. The boats were only used in the summer. For the rest of the year the boats were hauled on shore and stored in the huge caverns that had been carved out of the cliffs at the port site where they loaded granite on the boats. They obviously dragged the boats out of the water into the caves for safe keeping during the months when the Red Sea was not calm enough for sailing the huge boats carrying the granite. The regular granite came from the mines on the Sinai Peninsula. Only the white lime stone blocks came from the port of Taru on the Nile.

Of course experts are thrilled by this trove of papyri. Zahi Hawass, the Egyptian archaeologist, and formerly the chief inspector of the pyramid site and minister of antiquities, says that it is "the greatest discovery in Egypt in the 21st century."

Tallet, the founder of the cache of papyri, is careful to speak in more measured terms. "The century is at the beginning," he says at one of his digs along the Red Sea. "One must not enlarge this kind of find." He was inferring that many more finds could yet be discovered as men continue to research for things from the past.

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