

The Adventures of Dr. Tuku & the Lost Pyramids

Done by: Group 16

Group Members: Lim Yuling Jillian-Marie (U020748J)
Ng Kwok Hong (U012385H)
Tan Wei Bin Audrey (U015854E)
Tey Shuwen (U015851W)
Wang Jiayi (U015935X)

Chapter 1

Introduction

Once upon a sunny Saturday afternoon as Dr. Tuku sat sipping his morning cup of tea, he happened to chance upon a rather interesting documentary on the television.

“The pyramids, an ancient mystery up till now. Exactly how and why were they constructed? Well, tonight on ‘Explorers’ Channel’, we will probe into this issue and try and solve this mystery.”

As Dr. Tuku watched on intently, his curiosity grew and grew, and by the end of the programme, he was out the door and in his mini Volkswagen Beetle, zipping off to the library to find out more.



'As Dr. Tuku sat sipping his morning cup of tea, he happened to chance upon a rather interesting documentary on the television.'

He was greeted warmly at the entrance by his trusty assistant, James, whom he had called earlier on his cellular phone. James was a strapping young lad with brownish blonde hair. Inquisitive and always helpful, James was like the son Dr. Tuku never had. Dr. Tuku, on the other hand, was a distinguished professor at the local university with many years of experience. He was much older but also very learned. He was like a second father to James. Always willing to share his knowledge, Dr. Tuku frequently brought James along as an assistant and companion on his many adventures. And on this particular one, they were off to the exquisite Egypt, a country rich in history and the land of the ancient pyramids.

Chapter 2

Brief introduction of the pyramids

As Dr. Tuku and James schemed through the many books made available on pyramids, they made several discoveries. James exclaimed enthusiastically,

“ Dr. Tuku, did you know that throughout the history of ancient Egypt, more than ninety-two pyramids were constructed and still exist on the west side of the Nile, where the western god was located although some are now barely distinguishable from the sand the rubble that surround them!”

“Yes I know James. Here in this book, it tells us of the first pyramid ever built...”

Dr. Tuku went on to talk about the first pyramid built which was the Step Pyramid at Saqqara, built for King Djoser in 2750 BC. Dr. Tuku found it very interesting that At first King Djoser, founder of Dynasty III, followed the pattern of his predecessors by preparing a sun-baked, mud-brick mastaba (a type of tomb with a flat roof and vertical mud-brick walls). But then he constructed a larger limestone complex, which consists of six mastaba superstructures on top of one another, each smaller than the one below. It was fascinating to find out that the monument was the first step pyramid, its four sides rising to a height of 204 feet. This first application of large-scale technology, however, is often attributed to Imhotep, the architect of the Step Pyramid. He was not a pharaoh, but was the Director of Works of Upper and Lower Egypt. The superstructure of the pyramid was made of small limestone blocks and desert clay.

James added in that inside, the burial chamber and storage spaces for Djoser's grave goods were carved out of the earth and rock beneath the structure. Imhotep's intent was to mimic the basic structure of King Djoser's palatial home in the burial chamber. The tomb, like those that followed, was meant to be a replica of the royal palace. In early tombs, the central area was always the burial place. The other surrounding rooms

contained burial artifacts such as furniture and jewelry and other provisions owned by the king. False doors of heavy stone, inscribed with hieroglyphs, represented passageways between rooms. There were no real doors between the rooms, because it was believed the king would be able to move about his rooms, in the afterlife, without the help of structural passageways.

They continued reading and discovered also that among the three pyramids at Giza, the most famous one is the Great Pyramid. It is the only one of the Seven Wonders of the Ancient World still standing. It is one of the oldest structures on the face of the earth and arguably the best built. Its mortar joints are consistently $\frac{1}{50}$ of an inch, which is incredible craftsmanship, considering that of the over two million stones that make up the Pyramid, there is no stone weighing less than a ton, most weighing about two and a half, and some as much as 20 tons! The Pyramid covers over 13 acres and is solid masonry, not hollow or earth-filled like the Central American pyramids.

As Dr. Tuku read on, he slowly unraveled the story of King Khufu, the second pharaoh of the fourth dynasty who commissioned the building of his tomb at Giza around 2,550

B.C. It stated that some Egyptologists believe it took 10 years just to build the ramp that leads from the Nile valley floor to the pyramid, and 20 years to construct the pyramid itself. On average, the over two million blocks of stone used to build Khufu's pyramid weigh 2.5 tons, and the heaviest blocks, used as the ceiling of Khufu's burial chamber, weigh in at an estimated 40 to 60 tons.

“How did the ancient Egyptians move the massive stones used to build the pyramids from quarries both nearby and as far away as 500 miles?”

James asked. Dr. Tuku replied, reading from the book he had,

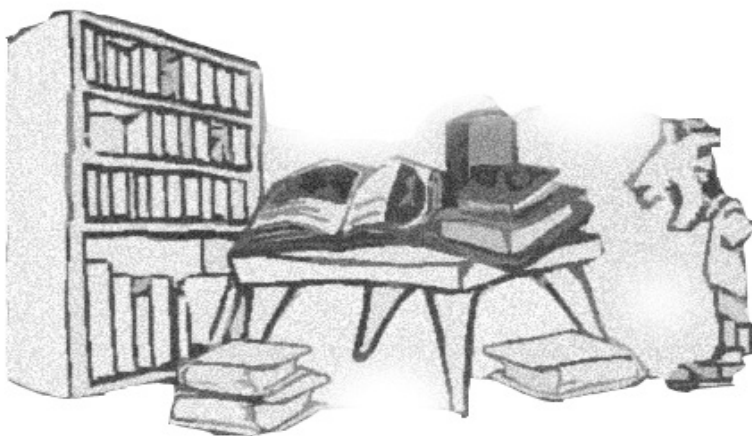
“Well, many Egyptologists agree the stones were hauled up ramps using ropes of papyrus twine. The popular belief is that the gradually sloping ramps, built out of mud, stone, and wood were



used as transportation causeways for moving the large stones to their positions up and around the four sides of the pyramids.”

Apart from the Great Pyramid, there were the other 2 pyramids of Giza. Khufu's son, Khafre, who was next in the royal line, commissioned the building of his own pyramid complex, which includes the Sphinx. James read on to find out that Menkaure, who is believed to be Khafre's son, built the third and smallest of the three pyramids at Giza. Giza, however, is more than just three pyramids and the Sphinx. Each pyramid has a mortuary temple and a valley temple linked by long causeways that were roofed and walled. Alongside Khufu and Khafre's pyramids were large boat-shaped pits and buried boats that were presumably meant to aid the pharaoh's journey to the afterlife. As yet, no vessels have been found beside Menkaure's tomb. In addition, cemeteries of royal attendants and relatives surround the three pyramids. The entire plateau is dotted with these tombs, called mastabas, which were built in rectangular bench-like shapes above deep burial shafts.

As they plumaged through the books and magazines splashed across the library table, they came across an article with some very interesting facts about pyramids. The article read,



‘As they plumaged through the books and magazines splashed across the library table, they came across an article with some very interesting facts about pyramids.’

‘Some have focused on the amazing structural and geometrical properties of the pyramids. First there is their incredible longevity: the pyramids have remained intact while other structures of a comparable age have crumbled away. This is largely attributable to the inherent durability of their characteristic shape. "It is, in fact, the form that a structure takes when it falls down!" James Randi has observed. "In other words, having tumbled to a pyramid-shaped mass, it cannot collapse much further." So their well-preserved state owes more to their architects' wisdom than to any mystical force.

Pyramid enthusiasts have divined remarkable mathematical formulas from the monuments' heights, lengths and angles. This is especially true of the Great Pyramid of Cheops. Writers such as Erich von Daniken and Charles Piazzi Smyth have wrung all manner of figures out of this pyramid's measurements, including the Earth's polar radius and its distance in miles from the sun -- but their calculations take liberties that keep them from holding up under close scrutiny. Furthermore, one can play with any set of figures and eventually produce falsely meaningful results that were never intended to be there. Martin Gardner demonstrated this by calculating the speed of light from the height and capstone

weight of the Washington Monument.

Then again, maybe some geometrical phenomena were built into the pyramids -- if inadvertently. For instance, if you double the length of one base side of the Great Pyramid and divide it by the height, the result is very close to the value of pi. There is no evidence that the ancient Egyptians ever measured pi. One explanation is that the builders used a wheel tool to measure lengths, and using a circle's diameter as a unit of measure could lead to pi being "hidden" throughout the structure.

Pyramids have historically been viewed as repositories or conduits of otherworldly power. Egyptians used them to honor the dead and Aztecs performed ceremonial sacrifices atop them, suggesting that the structures held a great deal of spiritual significance in both cultures. These supposed properties were brought to the attention of the modern world by Karl Drbal, a Czechoslovakian who in 1959 founded the notion of "pyramid power." It became fashionable to use miniature pyramids for the supposed purposes of magical healing, augmented psychic powers, and communion with alien beings. People believed that a wish written on a slip of paper and worn inside a pyramid

pendant would come true, and that old razor blades placed within a pyramid would spontaneously sharpen overnight.’

The article made them realize how closely related mathematics was to the building of the great pyramids. This increased their curiosity and propelled them to research further. As they did, they grew more and more intrigued by these magnificent structures. But exactly what motivated the Egyptians to build these incredible feats of mankind James questioned. Peering over his reading glasses, Dr. Tuku raised his eyebrows and said,

“Well James, Pyramids today stand as a reminder of the ancient Egyptian glorification of life after death, and in fact, the pyramids were built as monuments to house the tombs of the pharaohs. Death was seen as merely the beginning of a journey to the other world. In this society, each individual's eternal life was dependent on the continued existence of their king, a belief that made the pharaoh's tomb the concern of the entire kingdom. However, some people argue that there is no direct evidence that the pyramids were the actual burial sites of the kings, as no pharonic remains have ever been found inside or under a pyramid. The pyramids may have been built as a

memorial and not as a tomb, although, in the absence of direct evidence, the latter purpose seems to be more likely.

One hypothesis, proposed by German/British physicist Kurt Mendelssohn, postulates that the existence of the pyramids was secondary to the fact of their construction. Mendelssohn proposes that the rulers of the recently unified Egyptian kingdom needed some work of national importance to weld together the various regional groups into a cohesive and centralised state. Mendelssohn's theory, propounded in his book *The Riddle of the Pyramids*, argues this case very well and, whether true or not, it is certainly logical and it does explain some of the mysteries that surround these giant structures. This hypothesis falls within the parameters of reasonable speculation, as do many others associated with a period of history which, while better documented than many other ancient eras, is far from comprehensively understood. What surviving texts tell us about the ancient Egyptians is at considerable variance with the popular mythology that surrounds them. They were practical and intelligent people, not given to excessive mysticism which is an error generated by the fact that the majority of surviving literature is concerned with death, which in turn is explained by the fact that their tombs

survived the millennia in far better shape than did their mundane dwellings.”

Immersed in the information they had gathered, and truly fascinated by everything by what they had found in the library, they felt the need to go and experience the real thing itself. This brought our adventurers to their next destination, the great dunes of mystery, Egypt.

Chapter 3

Discoveries which link astronomy to the pyramids

In the aeroplane, as Dr. Tuku and James adjusted themselves into their seats, a rather plump tanned gentleman sat down beside them. He appeared flustered and agitated. James asked the gentleman if everything was alright, and he replied,

“I’m fine. I just hate flying. I’m doing some on site research on the pyramids in Egypt for a paper I’m writing. I’ve been to Egypt a few times for this research but each time is always a headache when it comes to the flying.”

Hearing this, Dr. Tuku’s eyes lit up in delight and immediately questions came pouring out of his mouth. From the friendly and rather excitable ‘interrogation’ session, Dr. Tuku

and James found out a great deal about the gentleman and the pyramids. He was Dr. Ahkbar, an astronomer from Egypt and,



who lectured and taught at a university in California. He had made several discoveries which linked astronomy (the stars) to the pyramids.

Amused by Dr. Tuku and James's desire to find out more about the pyramids, he decided to share with them some of the things he had uncovered.

“Giza's pyramids are oriented to face the four cardinal directions: true north, south, east, and west. Their entrances are all on the north side, and the temples of the pyramids are on the east side. Actually, the star which is the pole star today was not the pole star four thousand years ago. There is a very slow shift of the Earth's axis of rotation, called precession, which causes the pivot of the northern sky to change very slowly, from one century to the next.

The star which was at the pivot of the northern sky when the pyramids were built is a star we now call Thuban, in the tail of the constellation Draco the Dragon. Thuban served the Egyptians the same way our pole star Polaris serves us. They observed the angle of Thuban above the north horizon to find the site they wanted for the Great Pyramids. “

Before Dr. Ahkbar went on, James asked politely,

“But what exactly are the methods to orient these pyramids?”

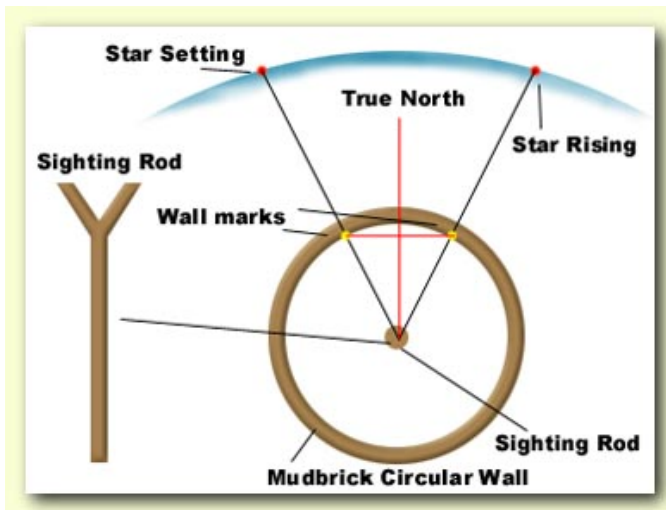
“Well, I’m glad you asked me that question James. In fact, I have some very interesting diagrams to show you exactly this. I’ll explain the methods with reference to them.”

Dr. Ahkbar took out the diagrams and as Dr. Tuku and James



looked at them intently, he continued his explanation. He pointed out that before the physical orientation and layout of a new pyramid took place, considerable planning was needed under the direction of a "royal master builder". Ultimately, the responsibility fell on the vizier, who was typically the head of all royal works. The first step in the process was taken by specialists who would draw up plans for the pyramid on papyrus. After the construction began, plans and sketches were drawn on papyri or flat slabs of limestone. Planners even made models of their projects, as evidenced by a limestone model of a substructure found in the Pyramid of Amenemhet III at Dahshur. After the planning stage, each step of pyramid building was initiated with foundation rituals.

Pyramid alignment may have been carried out through a number of different means. Referring to another diagram, he explained one way which was that of stellar measurements.



This involved building a small, circular wall of perhaps mudbrick that had to be perfectly level at the top. Within the circle, a man would stand and through a straight pole with a forked top called a bay, sight a circumpolar star as it rises. A second man at the perimeter of the small circular wall would then "spot" the wall where the star rose. Using a type of plumb

line, or merkheth, he would also spot the mark at the bottom of the wall. When the star set, the process would be repeated. Measuring between the two spots would then provide true north from the center sighting pole.

Other means included a novel solution to an Egyptian mystery which British archaeologist Kate Spence discovered. It explains how ancient surveyors could have used stars to orient the pyramids at Giza when they had no pole star to guide them. It reduces the uncertainty in the start date for Great Pyramid construction from a century to a mere 5 years.

He continued to say that while the Giza pyramids have not been accurately dated before, investigators have marveled at the accuracy with which they are aligned to the compass' cardinal points. The western and eastern sides of the Great Pyramid, in particular, align with true north to within 3 arcminutes - about a tenth the width of the full moon. No one has explained such surveying skill satisfactorily. Polaris had not yet taken up its position as our North Star guide. A 'Dr. Spence' at the University of Cambridge in England has found two other stars on either side of the pole that, taken together, do the job.

“I’ve heard about that. It talks about Mizar and Kochab, right?”

Dr. Tuku asked. Dr. Ahkbar smiled and replied,

“Why yes! You know your stuff. Well, one - Mizar - is in the middle of the Big Dipper's handle. The other - Kochab - is in the Little Dipper's bowl. Twice a day these stars line up vertically - each lying about 10 degrees from north. An imaginary line between them passes near the celestial north pole. That line ran very close to the pole at the time of Egypt's Old kingdom when the Giza pyramids were built 4,400 to 4,600 years ago. It actually ran through the pole in 2467 BC.(two circumpolar stars (Delta Ursae Majoris and Beta Urae Minoris or Epsilon Urae Majoris and Gamma Urae Minor). To find north, a surveyor had only to wait until the daily rotation of the heavens brought that stellar lineup into coincidence with a vertical plumb line on Earth.

Dr. Spence notes that the Great Pyramid is the most accurately aligned of the Giza group. She also notes that the stellar lineup gave the most accurate northerly direction in 2467 BC. Therefore she picks that date with an uncertainty of 5 years due to pyramid measurement errors as the date for the start of the

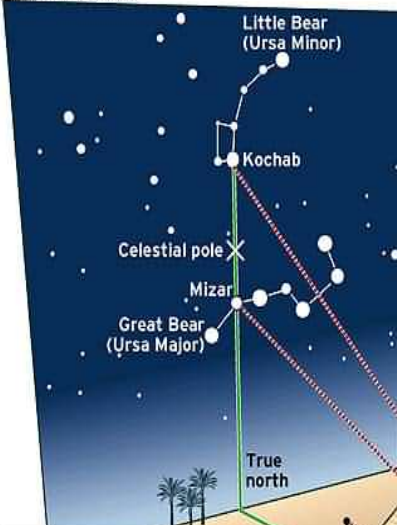
pyramid's construction. Previous dating based on tracing the lengths of the reign of successive kings dated construction to that general period but couldn't come closer than 100 years. Radio carbon dating couldn't do any better.

Another one is that of a Slovak Egyptologist, D. Magdolen, believes that the ancient Egyptians oriented their monuments using the sun, by means of wooden stakes and ropes. There is in fact a reference in ancient text referring to "the shadow" and the "stride of Ra".

The sun rises and sets in equal but opposite angles to true north. Using a plumb line, a pole would have been set as vertically as possible. Then, about three hours before noon, its shadow would be measured. This length then becomes the radius of a circle. As the sun rises higher, the shadow shrinks back from the line and then becomes longer in the afternoon. When it reaches the circle again it forms an angle with the morning's line. The bisection of the angle is true north. However, this method would be less accurate than the stellar method, but could be fairly accurate during the solstices. “

Looking at yet another interesting diagram, the pyramid alignments based on stellar orientation claim was further illustrated.

Graphic: GLENN SWANN



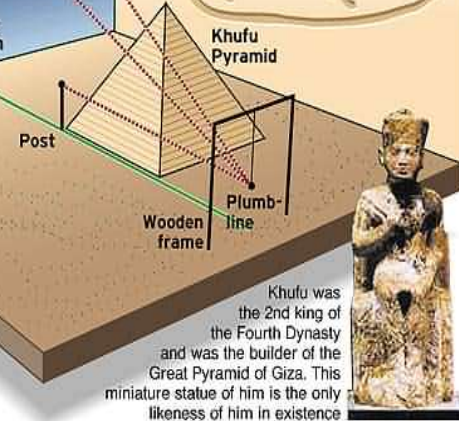
The heavenly alignment

The ancient Egyptians discovered that two stars could be used to identify true north. One is Kochab in the bowl of the Little Bear, the other Mizar in the middle of the handle of the Great Bear. Egyptian astronomers would wait while the heavens slowly pivoted around the unmarked pole until a plumbline hung from a wooden frame exactly intersected both stars, one above the invisible pole and the other below it, and a post in the distance. The sight line between the plumbline and post would then point north. The data suggests they used it to align the west side of each pyramid



Deviation of alignment from true north	
30 arc minutes	Neferirkare
0	Menkaure
-30	Meidum, Bent Pyramid, Red Pyramid, Khufu, Khafre
-60	
2600BC	2400BC

The orientation errors of earlier and later pyramids faithfully track the slow drift of Kochab and Mizar with respect to true north



Khufu was the 2nd king of the Fourth Dynasty and was the builder of the Great Pyramid of Giza. This miniature statue of him is the only likeness of him in existence

It was fascinating for Dr. Tuku and James to find out that one of the great puzzles about the pyramids how the ancient Egyptians were able to align their massive monuments so accurately towards the north may have been solved. New research, based on a re-creation of the night sky as it would have appeared over Egypt 4500 years ago, suggests the builders used two bright stars to work out the position of the North Pole. They also realized that it pins down the beginning of the construction of the Great Pyramid at Giza to a five-year period between 2485 and 2475BC. Previously this date could only be estimated to within 100 years. It was exciting for them to discover that Egyptian engineers built with a precision scientists believed could only have been achieved by using the stars for orientation. The Great Pyramid built for Khufu is the most accurately aligned.

Egyptians used two bright stars in the Big and Little Dipper constellations that sat on either side of the celestial north pole, the point in the sky directly above the earth's North Pole.

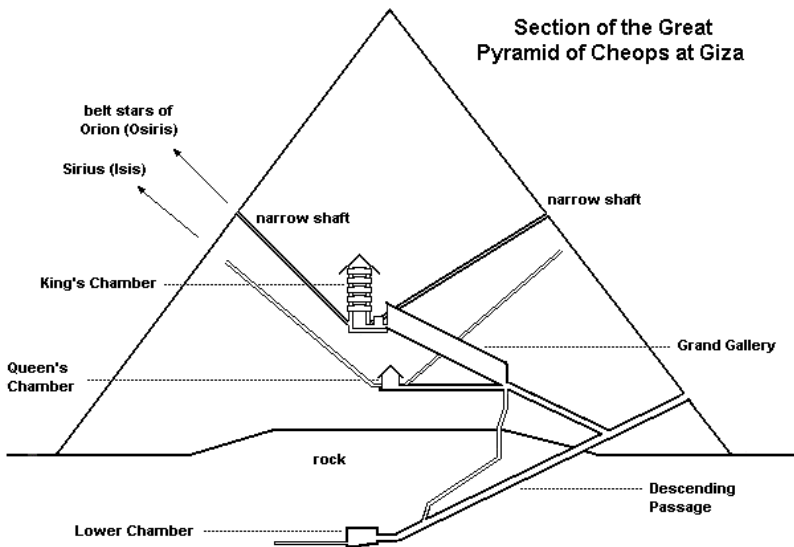
Dr. Tuku added on to what Dr. Ahkbar was saying by asking about the orientation of the internal shaft of the pyramids. They discussed how the Great Pyramid of Cheops at Giza has narrow internal shafts, which slant upwards from the

King's Chamber and the Queen's chamber. The shaft from south side of the King's Chamber is carefully aligned with the stars in the belt of the constellation Orion/Osiris when they reach their highest point in the sky. The shaft from the south side of the Queen's chamber is likewise aligned to the bright star Sirius, which the ancient Egyptians identified with the goddess Isis, wife of Osiris. Evidently, these shafts were designed to ease the passage of the departed Pharaoh's soul on its journey to Osiris, and thence to the circumpolar stars of the Duat. The ancient Egyptians also alluded to the constellation Orion/Osiris in the ground plan of the Great Pyramids, which are laid out in exactly the same pattern as the stars in Orion's belt. They specifically looked at the star alignments of the King's chamber's southern shaft. Dr. Ahkbar added on as well that,

“Reconstructing the ancient skies over Giza reveal that at 2500 BC, the Southern shaft targeted straight at Al Nitak (the brightest of the 3 stars of Orion's belt), symbolising their identification with Osiris, their high God of resurrection and rebirth. As such, the 4 shafts align with high precision to the exact location of the stars in the skies in the 2500 BC epoch. With the 4 starts targeted being of high ritual importance, it is ruled out that the alignments are of mere coincidence or are accidental. The date at which all Egyptologists and

archaeologists believe the pyramids to have been built, is hence 2500 BC.”

They discussed all this while looking at the diagram of the section of the Great Pyramid of Cheops at Giza.



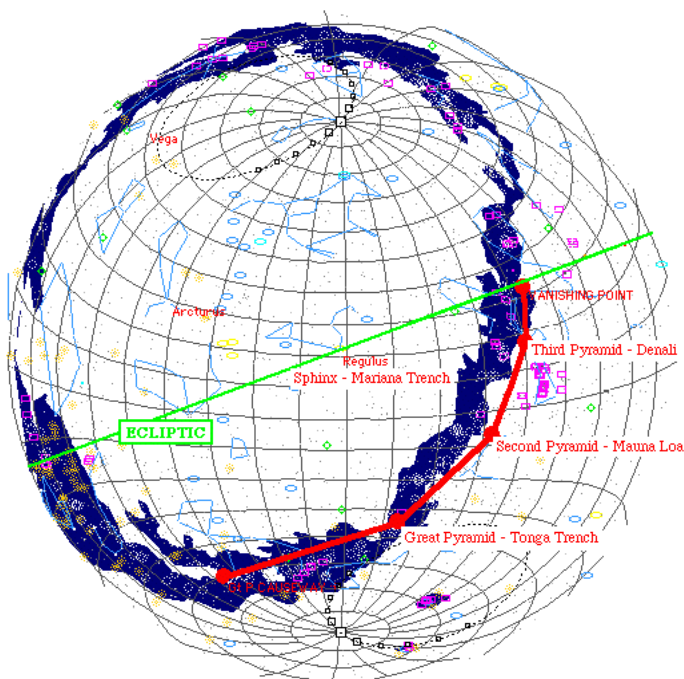
“Where exactly are the pyramids located?”

James asked Dr. Ahkbar while sipping on his tea the air stewardess served them.

“Well James, that I can answer for Dr. Ahkbar. I think his throat is rather parched by now. They are located on the longest land contact meridian on the Earth's surface and is placed at the geographical centre of the total land mass of the Earth. Professor Piazzi Smyth, one of the first of the recent pyramid investigators, made some extraordinary discoveries about the absolute sighting and location of the Great Pyramid. He found that the latitude of its site 30 degrees north, is exactly one third of the distance from the Equator to the North Pole. Placed at the northern extremity of a range of hills commanding the entire plain of Lower Egypt, the Great Pyramid stands at the very centre of Egypt at a place that could also be described as the centre of the world. William Petrie another pyramidologist showed that the meridian line that runs due north and south and bisects the base of the pyramid, contains more land and less sea than any other. He also showed that the latitude, 30 degrees north also contains more land and less sea than any other. Thus the Great Pyramid can be said to be at the very centre of the land mass of the Earth.”

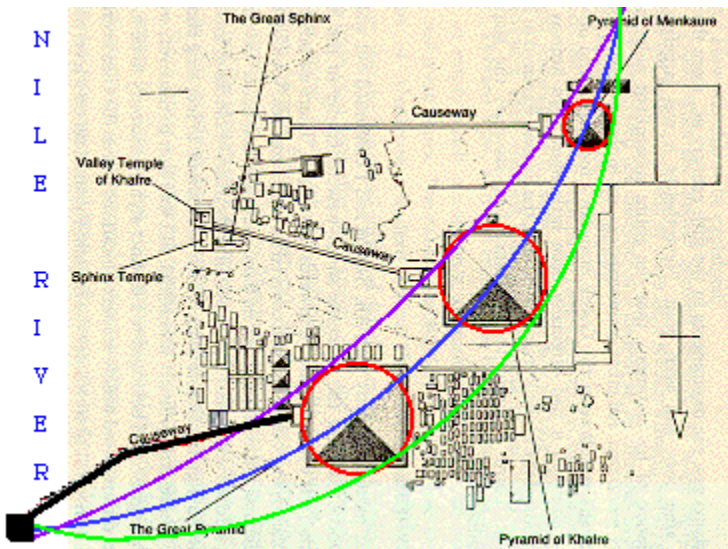
Dr. Ahkbar smiled as he heard all that Dr. Tuku said, and gave an approving nod.

“Oh! I just remembered one more interesting fact about the alignment of the three pyramids at the Giza plateau. Did you know that all three pyramids were positioned or placed in a precise mathematical sequence, the sequence being the Fibonacci Series? The Fibonacci Curve curve passes through the apex of each pyramid. Bob Frissel, in his book "Nothing in This Book Is True But It's Exactly How Things Are", states that Thoth told Drunvalo Melchizedek of this fact. This is a global picture of the star pattern with the reflected plan of Giza.



Now using your imagination, let the River Nile correspond to the Milky Way, and let the pyramids correspond to the stars whereby the Third Pyramid to Betelgeuse (Osiris); the Second Pyramid to Sirius (Isis); and the Great Golden Pyramid to Vela X (Seshat and Thoth). The arc through Betelgeuse, Sirius, and Vela X intersects the ecliptic at the Crab Nebula/Gemina. Just as the Causeway from the Second Pyramid leads to the Sphinx which faces a rising Leo, Sirius faces Regulus, so the Sphinx corresponds to Regulus. It is interesting to compare the reflection that is needed for the correspondence between the plan of Giza and stars in the sky with the reflection that is needed for the correspondence between a Lo Pan and stars in the sky.

Hopefully, you both are not confused yet. Anyway, with all this in mind, consider the alignment of the three pyramids. They are lined up: large; medium; small; so you might ask whether they are lined up in artistic perspective to go to a vanishing point, an idea due to Stephen Goodfellow. The three pyramids are not lined up in a straight line, so there is no linear vanishing point. However, on a 2-dimensional sphere like the surface of the Earth (or the celestial sphere of the sky) elliptic conformal geometry of the sphere allows you to treat circles and lines as the same thing.



Look at this diagram and try to picture what I'm saying in your mind. You see to look at the perspective of the 3 pyramids using elliptic spherical conformal geometry, look at the hemisphere of each pyramid, and project each hemisphere down onto a common ground base elevation, the surface of the Earth sphere. Since the 3 pyramids were built according to the Golden Ratio, they each "squared the circle". That is, the total circumference of the base is the circumference of a circle whose radius is the height of the pyramid. So, the hemisphere of each pyramid is the sphere whose center is the center of the base of

the pyramid and whose radius is the height of the pyramid. The top of the sphere is then the apex of the pyramid.

Then, instead of running straight perspective lines through outside corners of the bases of each pyramid, you should run perspective circle curves through firstly, the center of the circular base of each hemisphere, which is also the pyramid apex projected to the ground; secondly, the outer perspective circle should be tangent to the outside of the circular base of each hemisphere; and lastly, the inner perspective circle should be tangent to the inside of the circular base of each hemisphere.

With this in mind, all three perspective circles will meet at TWO vanishing points. One of the two vanishing points, the Northeast one, is near the end of the causeway leading from the Great Pyramid. It corresponds to the nearest star system, the triple star system containing Rigel Kent, or Alpha Centauri. The other vanishing point is near the southern outer boundary wall of the Giza complex beyond the Third Pyramid. The Southwest vanishing point beyond the Third Pyramid is not particularly near any large known structure at Giza. With respect to the stars, it corresponds to the anticenter of the Milky Way,

the antipodal point on the celestial sphere of the center of the Milky Way in Sagittarius. The Plane of the Ecliptic intersects the Milky Way near its center and its anticenter. One thing near the anticenter is the Crab Nebula pulsar.



I know this might all be hard to comprehend at one time, but with more research, I am sure you both will someday thoroughly understand exactly what I've been talking about.”

“We read somewhere that the alignment of the pyramids has got something to with the stars as well as the Pacific ocean even, that The Giza Pyramids and Sphinx not only correspond to stars, but also to largest feature on Earth, the Pacific Ocean. Please tell us more!”

James said excitedly. Dr. Ahkbar went on to answer James insightful question. He told him that part of the basin of the present Pacific Ocean may be a remnant of an impact crater

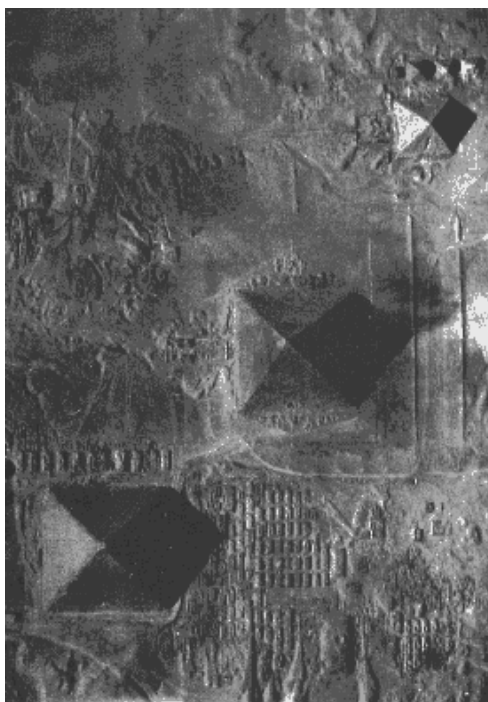
(the Lunar impact crater) of a Mars-sized body with Earth about 4,400 million years ago resulting in the formation of the Moon. If the Giza Pyramids and Sphinx represent the Pacific Ocean, then the central Second Pyramid should correspond to Mauna Loa. An interesting aspect of this correspondence is that the Hawaiian Islands and Giza have similar latitudes with respect to the magnetic North Pole and, if on a great circle between the Hawaiian Islands and Giza, the geographic North Pole is near the midpoint. The Great Pyramid represents the Tonga Trench, 35,433 feet deep, the second lowest point in the Pacific Ocean. The Second Pyramid represents Hawaiian Mauna Loa, 13,680 feet, the highest island in the Pacific Ocean. The Third Pyramid represents Denali, 20,320 feet, the highest point in North America, where the western convergent subduction Pacific boundary meets the eastern transform strike-slip Pacific boundary. The Sphinx represents the Mariana Trench, 35,840 feet deep, the lowest point in the Pacific Ocean. Look at this picture that is in correspondent to the pacific ocean, does what I say make more sense if you refer to it?"

Dr. Ahkbar took a breather while Dr. Tuku and James happily looked at the many pictures and diagrams. He was

truly amused by their immense interest in his work that it finally compelled him to say,

“Since you both are so interested in my work, why don’t you follow me down to one of my pyramid visits?”

Without hesitation, Dr. Tuku and James agreed.



Chapter 4

Analysis: Creation of pyramids possible within human needs?

With the blazing sun above and the great winds blowing, Dr. Tuku and James set out on their adventure with Dr. Ahkbar as their guide. James clicked away on his camera as the two professors discussed further on about the pyramids.

Finally, the moment they had been waiting for came. Standing in awe, Dr. Tuku and James gasped at the beauty and magnificence of the incredible structures of mankind.

“It is magnificent, isn’t it? And to think the Egyptians used the stars to build these structures. Egyptians, from what I’ve learned, have always been interested in astronomy.

However, I remember reading somewhere that ancient Egyptians had limited knowledge of astronomy and geometry. What do you think then Dr. Ahkbar?"

Dr. Tuku asked, waiting patiently for an answer.

“Well, this is a rather controversial topic. Many people have different opinions. I believe that the ancient Egyptians were very intelligent people with the ability to somehow incorporate mathematics and astronomy into the building of these extraordinary structures. However, many may beg to differ. Some, on the contrary, say that the ancient Egyptians had limited knowledge of astronomy because they knew little geometry and complicated mathematical computations. This can be verified from the fact that they recognized 36 decans (groups of stars from constellations) when in fact theory said that there were only 18.”

Dr. Ahkbar went on to say that the construction of these pyramids with such accuracy is a mean feat even with present day knowledge. Many have questioned whether it was against the revolution and progress of technology.

“I’ve read that aliens might have had a hand in building these pyramids. Is that true Dr. Ahkbar?”

James asked.

“In other words, you’re questioning whether the creation of the Egyptian pyramids were really possible with human means, am I right? Well, there are many viewpoints to this. Let’s just say, if pyramids were indeed built some 4,600 yrs ago, then whoever built the Pyramid had access to information beyond that which the people living on earth possessed at that time. In fact, the builders used a technology that we still do not possess this day to cut and transport the building materials and with reasonable knowledge of the Earth, built the Pyramid right at the spot which could support the entire weight of the structure. Properties and parameters relating to the Pyramid indicate that it was built with precision according to the length of a year, the radius of curvature, the average height of the continents, and the location of the greatest land mass on Earth. The Pyramid encompasses all such knowledge in a single structure. It seems impossible now that the builders we are talking about are actually earthlings, so people argue that we were visited by scientifically advanced

beings from outer space who exhibited their technological knowledge on planet Earth.

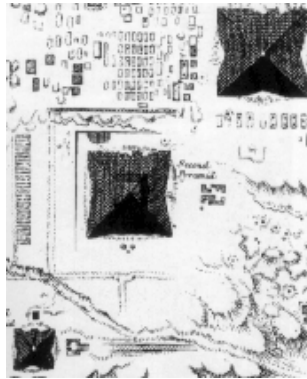
Also, there is proof that the ancient pyramids of Egypt existed long before the Egyptian dynasty and as a result refuting claims that the Egyptians built the awesome structures. Instead, the pyramids of Giza could have also been built by another civilization way before the time of the Egyptians.

Fundamentalist Christians, together with historical figures such as Archbishop James Usher of Armagh and Micheal Nostradamus believe that the world had begun around 4000 BC, very much like what is mentioned in the Bible.

The Great Sphinx has watched over Egypt's prized pyramids ever since time began. Sand and water from the Nile have caused much damage to the actual structure of the Sphinx. Water erosion on the structure can be traced back to thousands of years before the common era. The last time there was a rainy climate in Egypt was between 7,000 and 5,000 BC, though the conditions could not have caused such extensive erosion on the structure. Therefore, it was traced all the way back to the era of rain and floods between 13,000 and 10,000 BC. This is one proof that the Egyptian pyramids existed long before the

Egyptian dynasties. So yes, James, aliens perhaps might have had a hand in building the pyramids. “

“I think you’re right Dr. Ahkbar. I found these pictures, one of the Belt of Orion and the other of the three pyramids.



When I compared the two, I observed that the positioning of the three Pyramids of Giza are exactly aligned with the position of the three stars in the belt of Orion, both in position and relative sizes. This may not seem impossible, but later discoveries that orientation of stars change gradually over the centuries evolved and technology has yielded precise calculations which confirmed that the stars making up the Belt of Orion were not exactly at the correct angle to match up with

the pyramids at the time that the pyramids were said to have been built around 3000 B.C. At around 10,500 BC was when the stars and pyramids were perfectly aligned. No one has been able to come up with the reason as to why the Egyptians built their pyramids aligned to the exact shape of the Orion's Belt centuries before their time.



These other two photographs I have also dwell deeper into this phenomenon. The one with the two red diagonals extend from the pyramid (highlighted in red) to the northeast and northwest. The Delta of the Nile River is represented by the mass of squiggly lines above the pyramid. Obvious from the diagram, the two diagonals encase the Nile almost too neatly. Someone walked hundreds of miles to the delta end and another walked all the way back to the pyramid site. While these two people remained where they were, another two repeated the process on the other side of the Pyramid. Could the Egyptians have done this so as to achieve a structure whose diagonals run along these two lines? This is where James' question comes in because this will be no mean feat to some extraterrestrials. It would have been easy for the aliens in a UFO to fly high enough over the earth to be able to see where the Nile Delta's origin is, and determine the orientation the Pyramid would need to be in order to have such diagonals.

In the other photograph, the pyramid (in dark) is in line with the magnetic North Pole, with a mere discrepancy of a around 16 minutes! It seems almost impossible for the Egyptians to have achieved this prior the invention of a compass. And indeed, the compass was invented only a few thousand years after the ancient Egyptians were long gone.”

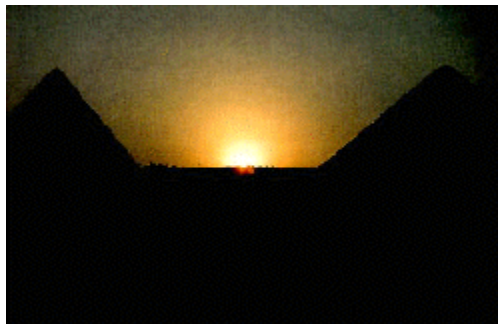
Dr. Tuku looked at the sky and wondered at that moment whether the pyramids really were an act of extraterrestrial forces or that of mankind. James interrupted his train of thought and said,

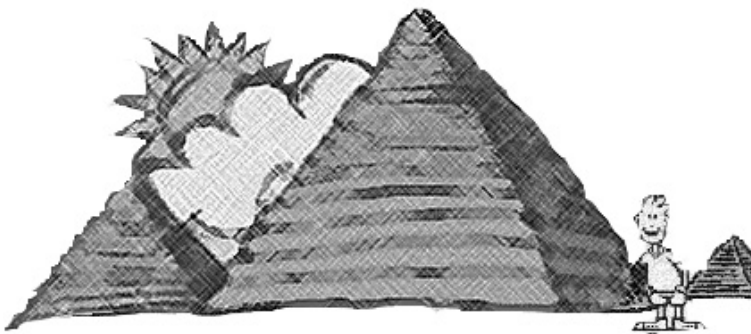
“Well, I found out that maybe it was really done by the ancient Egyptians. But they used an ingenious way of building the pyramids; they used wind power to build the pyramids of Egypt. The question of how the ancient Egyptians managed to erect such enormous structures thousands of years before motors and heavy machinery were invented, provoked a team of scientists at the California Institute of Technology to try and find out. It was suggested that perhaps a large parafoil, a parachute flown like a kite, was used. An experiment was done whereby the scientists attached the parafoil a 3.5 ton concrete obelisk with ropes threaded through pulleys. The pulleys were used to reduce the effort needed to move the loads. A wooden scaffold was then erected next to the concrete obelisk. The pulleys were attached to the top of the scaffold, ensuring that no matter which way the wind blew, the resulting force would pull the obelisk in the proper direction and make it stable once it was in a vertical position. In the experiment, with a steady desert wind blowing at 24 kilometres (15 miles) per hour, the

parafoil raised the obelisk so quickly that it became airborne and swung free for a few seconds. The kite fliers were able to let the swinging obelisk come to a rest, and put it in an upright position. However, increasing the weight of the obelisk to that of the blocks that the ancient Egyptians had to move is another question. But I think this could also be an answer as to how they managed to construct the pyramids.”

After much photographing and rolls of film, along with a truly satisfying day with these wonders of the world, they decided to call it a day. They thanked Dr. Ahkbar and said they were grateful for all he had done and told them.

Gazing one last time at the spectacular sight, they felt ecstatic at all they had seen and all they had learnt. It was a truly fruitful day.





‘Gazing one last time at the spectacular sight, they felt ecstatic at all they had seen and all they had learnt.’

Chapter 5

Conclusion

At their hotel, as they sat drinking coffee, James turned to Dr. Tuku and said,

“This was an adventure Dr. Tuku. Thank you so much for letting me be a part of this.”

“It’s always a pleasure James my good boy. It was an adventure indeed; especially that Dr. Ahkbar, what a delightful character. It’s a pity we are leaving tomorrow morning...”

Just at that moment, a loud voice came booming over the television.

“Intrigued by Egypt? Curious about the pyramids? Well, stay tuned to today’s episode as we dwell into the

pyramids in search of the lost treasures of the Pharaoh. Only here on the Explorers' Channel!"



Almost instantaneously, Dr. Tuku and James looked at each other and a grin fell upon their faces. The twinkle in their eyes marked the beginning of yet another adventure. Another voyage, and another exciting adventure which would bring Dr. Tuku and James further into the pyramids.



‘Almost instantaneously, Dr. Tuku and James looked at each other and a grin fell upon their faces.’

So catch the next book 'The Adventures of Dr. Tuku and the Pharaoh's Treasure'. What will they find? Let your imagination run wild and stay tuned for the book. Out in bookstores soon!

Bibliography

- <http://www.pbs.org/wgbh/nova/pyramid/explore/khufustory.html>
- <http://www.pbs.org/wgbh/nova/pyramid/explore/khafrestory.html>
- <http://www.pbs.org/wgbh/nova/pyramid/explore/sphinxstory.html>
- <http://www.pbs.org/wgbh/nova/pyramid/explore/menkaurestory.html>
- David Appell, October 12 2001, *High as a Kite (possible use of windpower to build pyramids)*
- http://www.findarticles.com/cf_0/m0BFU/4_87/79335778/print.jhtml
- <http://www.100megsfree4.com/farshores/apiram2.htm>
- <http://www.scivis.com/AC/hist/csphere5.html>
- <http://www.pbs.org/wgbh/nova/pyramid/explore/gizahistory.html>
- <http://www.rense.com/general5/newpy.htm>
- <http://www.biblebelievers.org.au/pyramid.htm>
- <http://touregypt.net/featurestories/pyramidorientation.htm>
- <http://www.nature.com/nature/fow/001116.html>
- <http://www.innerx.net/personal/tsmith/pyramid.html>
- <http://www.scivis.com/AC/hist/csphere5.html>