

Article #3 - Mathematics, Physics, Engineering and Purpose of the Great Pyramid

Centre of Land Mass: The Great Pyramid is located at the centre of the land mass of the earth. The east/west parallel that crosses the most land and the north/south meridian that crosses the most land intersect in two places on the earth, one in the ocean and the other at the Great Pyramid. The relationship between Pi (π) and Phi (Φ) is expressed in the fundamental proportions of the Great Pyramid.

Documented history of The Great Pyramid begins in 820 AD, when the Caliph of Baghdad, Abdullah Al Mamoun (786-833), forced his way through the north face in search of a fabled treasure of ancient documents and artifacts. He is reported to be an educated man who tried, without success, **to calculate the true circumference of the Earth**, and who sought to regain ancient navigational knowledge that had been lost when the library of Alexandria was destroyed, by hacking blindly into the base of the Pyramid of Giza. He believed there would be knowledge once known, but now lost, available in the pyramid.

He finally broke into the pyramid at the lower level and found nothing that interested him. He then turned his attention to the Ascending Passage. After remaining sealed for thousands of years, this passage had been exposed when its seal had been dislodged by his excavations.

Mamoun's had his men smash out core masonry and then broke up several smaller limestone plugs which had been placed behind the heavier, harder and more securely wedged granite.

Once he freed the entry he climbed into the heart of the pyramid. Here he found the upper end of the Well Shaft, the Grand Gallery, the King and Queen's Chambers and almost all the other known features located in the upper body of the pyramid.

His departure was followed by a series of unusually powerful earthquakes. They ravaged the area and presumably further damaged the already shattered casing. How bad the actual damage was we will never know,; the quakes transformed the pyramid into a convenient, twenty-two acre, pre-cut limestone supermarket and the casing was looted to rebuild what is now Cairo. When the quarrying finally stopped, over four hundred years later, what little that remained of the casing lay buried beneath some fifty feet of rubble.

In the sixteenth century, the brilliant Italian physician & mathematician, Girolamo Cardano, concluded that the Great Pyramid embodied a system of linear measure that had been derived from the dimensions of the Earth itself. He believed the true size of the earth had been known thousands of years earlier, and that it would be embodied in the pyramid.

By the early seventeenth century, the Great Pyramid was attracting the attention of far more benign and inquisitive visitors.

In 1637, British astronomer and mathematician, John Greaves, came to Giza in search of the true circumference of the Earth.

Davison, a British official vacationing in Egypt, attempted to explore the pyramid. The exterior remained shrouded in rubble and Davison was unable to bypass Al Mamoun's debris in the lower interior. Concentrating instead on the upper passages and chambers, and, after being driven from the Well Shaft by the lack of breathable air, Davison discovered a roughly carved passage, at the top of the Grand Gallery's south wall. Risking almost certain death by scaling the twenty-four foot height of the already elevated gallery, Davison followed the passage to a low, empty and featureless compartment which had evidently been designed to protect the King's Chamber, directly below, from the weight of the masonry above.

He experienced a measure of success in as much as he was able to explore the upper part of the pyramid personally and even spend some time alone in the King's Chamber. The pyramid was now home to thousands of bats, and efforts to explore the Descending Passage and blocked Well Shaft, were prevented by rubble, bat droppings and foul air.

Outside the pyramid, Edme-Francois Jomard, one of the most influential of Napoleon's servants, had cleared away some of the debris at the base and exposed what were believed to be the northeast and northwest alignment sockets (shallow depressions carved into the bedrock). Like many before him, Jomard believed not only that **the base of the pyramid would reflect the Earth's true circumference**, but that it would also reveal the builder's original units of measure.

Howard-Vyse also began his assault from Davison's Chamber, but moved in a different direction. Blasting upwards, he exposed a second chamber and named it after Wellington, under whom he'd served earlier. No taller than Davison's Chamber below, the granite-beamed floor of Wellington's Chamber was, in fact, the roof of Davison's Chamber. The similar, granite beamed ceiling of the second chamber, prompted the assumption that still more lay above, and several months of blasting uncovered third, fourth and fifth Construction Chambers.

Taylor returned and noted that the pyramid's base perimeter had grown considerably over the previous two hundred years. Assuming—quite correctly—that each successive explorer had plunged ever deeper into the debris, Taylor decided to mathematically reconstruct the pyramid using the most recent measurements and to probe it for the geometric poetry he was sure it contained.

Unfortunately, he also assumed the most recent measurements were correct and so was unable to reveal that poetry. Discouraged by the same lack of symmetry between the base and height that had troubled Newton, Taylor explored an earlier claim that the area of each face had been designed to equal the square of the pyramid's vertical height. Then, in assuming the pyramid was a perfectly geometric construction, he plunged headlong into the same quagmire from which even Newton had been unable to emerge unscathed.

As indicated in "The Great Pyramid: Proof of God" by George R. Riffert, measurements and mathematical equations within the Great Pyramid indicate that within the divine cubit, or royal cubit, the English inch is .001 too short. It requires 10,011 English inches to equal 10,000 pyramid inches. The importance of this difference, even though minute, will be referred to later in this article.

In 1880, the **Earth's Polar Diameter was calculated to be 7,898.78 miles**. The newly determined dimension translated into just shy of **500,500,000 British inches**, or an even five hundred million if the inch were lengthened slightly. Herschel had been right. After numerous researchers had spent almost a hundred years digging down to the base of the pyramid (albeit only at the corners and a small section of

the north face), Petrie was now forced to calculate his way back up. In doing so, he found the base length to be 755.75 feet—far too short to support either of Jomard’s Earth circumference or Piazzi-Smyth’s days in a year theories.

David Davidson predicted that, when finally measured accurately, the pyramid’s base perimeter **would be found short of Piazzi-Smyth’s length by exactly 286.1022 inches (23.84 feet)**, and he called this distance the pyramid’s **“Displacement Factor.”** The figure itself is embodied within the pyramid in numerous places.

The original entrance is offset to the east of the north/south axis by this amount; it is exactly the difference in height between the Ascending Passage and the Grand Gallery; and it is also the calculated height of the missing apex.

In 1925, the pyramid was finally cleared of debris, the base accurately surveyed for the first time and the results published as the official size and orientation of the pyramid. Davidson was not only proved correct by the results, but a curious mathematical conundrum was also uncovered.

The actual distance around the base was found to be equal to half of one minute of arc of the Earth’s circumference—which the pyramid’s designers had evidently deemed to be slightly less than our own calculation. **But, when the height of the missing apex was added, the result reflected the number of days in a year and also vindicated Piazzi-Smyth.** It was this figure, ironically, that would be found short of Piazzi-Smyth’s length by exactly 286.1022 inches (23.84 feet), the **“Displacement Factor.”** **The figure itself is embodied within the pyramid in numerous places.**

It was this figure that supplied an original unit of measure, an increment that was within a few decimal places of one we’d used for much of recorded history—the inch!

In the 1960’s and 70’s, a public perhaps forced into readiness by the terrifying revelations of the fifties, was treated to a burgeoning array of ever more outrageous and groundless theories.

The 1980’s and 90’s saw a surge of study that, among other things, tied the very layout of the Giza complex to ancient astronomical data, and set the stage, finally, for finding a reason for the pyramid’s very existence.

Modern researchers, it seemed, were beginning to suspect that the Great Pyramid contained a message of some kind, a message not from God or from space travelers, but from our own ancestors, somewhere in the dim and distant past.

Other small doors and shafts have been discovered, but the results have not been published. Access to the pyramid is already severely restricted and it seems unlikely that Egyptian authorities will comment upon – or even reveal – any discovery which contradicts the official tomb theory.

Mathematics, Physics and Engineering

Numbers of Relevance:

The length of a base is 9131 Pyramid Inches from corner to corner in a straight line.

The length of a base side at the base socket level is 9,131 Pyramid Inches or 365.24 Pyramid Cubits.

The length of a base side at sidereal socket level is 9,131.4 Pyramid Inches or 365.256 Pyramid Cubits.

The length of the perimeter at the sidereal socket level is 36,525.63629 Pyramid Inches.

The perfect formula height of the pyramid including the missing apex is 5 813.2355653763 Pyramid Inches, calculated from perimeter of base divided by 2 Pyramid Inches.

The height to the missing apex is 5,812.98 Pyramid Inches.

The volume of the pyramid is: $V = 1/3 \text{ base area} \times \text{height} = 161,559,817,000 \text{ cubic Pyramid Inches} = 10,339,828.3 \text{ cubic Pyramid Cubits. } [(5,813.2355653 \text{ Pyramid Inches})/3 * 9 131 \text{ Pyramid Inches} * 9 131 \text{ Pyramid Inches}]$

The four faces of the pyramid are **slightly concave, the only pyramid in Egypt to have been built this way**. The centers of the four sides are indented with an extraordinary degree of precision. forming the only 8 sided pyramid in Egypt. The effect is not visible from the ground or from a distance but only from the air, and then only under the proper lighting conditions.

The granite coffer in the "King's Chamber" is too big to fit through the passages and so it must have been put in place during construction. Microscopic analysis of the coffer reveals that it was made with a **fixed point drill that used hard jewel bits and a drilling force of 2 tons. The coffer was sawn out of a block of solid granite. This would have required bronze saws 8-9 ft. long set with teeth of sapphires. Hollowing out of the interior would require tubular drills of the same material applied with a tremendous vertical force.** The Great Pyramid had a **swivel door entrance at one time**. Swivel doors were found in only two other pyramids: Khufu's father and grandfather, Sneferu and Huni, respectively.

If the height of the pyramid is taken as the radius of a circle, then the circumference of this circle is the same as the perimeter of the base. This provided the complimentary squaring of a circle and circling of a square. **The key to this relationship is knowledge of the value of Pi and designing the angle of the pyramid to be exactly 51 degrees, 51 minutes, and 14.3 seconds.**

Embedded Constants:

Tropical Year or Calendar Year: The length of a base side is 9,131 Pyramid Inches measured at the mean socket level, or 365.24 Pyramid Cubits, which is the number of days in a year [$9,131/25 = 365.24$, accurate to 5 digits].

The perimeter of the base divided by 100 = 365.24, the number of days in a year. [$9 131 \text{ Pyramid Inches} * 4 / 100$, accurate to 5 digits]

Tropical Year: The length of the Antechamber used as the diameter of a circle produces a circumference of 365.242 (accurate to 6 digits).

Tropical Year: The ratio of the lengths of the Grand Gallery to the solid diagonal of the King's Chamber times 100 equals the number of days in a tropical year. [$(1,881.5985600 / 51.516461) * 100 = 365.242200$, accurate to 8 digits]

Sidereal Year: The length of the antechamber of the King's Chamber times Pi = length of a sidereal year [$116.26471 \text{ Pyramid Inches} * 3.14159 = 365.25636 \text{ days}$, accurate to 8 digits]

Sidereal Year: The length of a base side at sidereal socket level is 365.256 Pyramid Cubits. [accurate to 6 digits]

Mean Distance to the Sun: Half of the length of the diagonal of the base times 10^6 = average distance to the sun.

Mean Distance to the Sun: The height of the pyramid times 10^9 represents the mean radius of the earth's orbit around the sun, or Astronomical Unit (AU). [5,813.235565376 Pyramid Inches x 10^9 = 91,848,816.9 miles]

Distance to Moon: The length of the Jubilee passage times 7 times 10^7 is the mean distance to the moon. [215.973053 Pyramid Inches * 7 * 10^7 = 1.5118e10 Pyramid Inches = 238,865 miles]

Sun's Radius: Twice the perimeter of the bottom of the granite coffer times 10^8 is the sun's mean radius. [270.45378502 Pyramid Inches * 10^8 = 427,316 miles]

Polar Radius: The Sacred Cubit times 10^7 = polar radius of the earth (distance from North Pole to earth's centre) [25 Pyramid Inches * 10^7 * (1.001081 in / 1 Pyramid Inches) * (1 ft / 12 in) * (1 mi / 5280 ft) = 3,950 miles]

Earth's Polar Radius: The Pyramid embodies a scale ratio of 1/43,200. The height * 43200 = 3,938.685 miles, which is the polar radius of the earth to within 11 mi. Radius of the Earth:

The curvature designed into the faces of the pyramid exactly matches the radius of the earth.

Equatorial Circumference of the Earth: The Pyramid embodies a scale ratio of 1/43,200. The perimeter of the base * 43,200 = 24,734.94 miles, which is within 170 miles of the equatorial circumference of the earth.

Earth's Volume: The product of the pyramid's volume and density times 10^{15} equals the ratio of volume to density of the earth. [10,339,823.3 cubic cubits * 0.4078994 * 10^{15} = 4.21760772 x 10^{21} cubic cubits = 259.93 x 10^9 cubic miles]

Earth's Mass: Mass of the pyramid = volume * density = 10,339,823.3 cubic cubits * 0.4078994 earth density = 4,217,497. The mass converted to pyramid tons = 4,217,607.72 * 1.25 = 5,272,010 pyramid tons. Since the mean density of the earth was defined as 1.0, then the mass of the earth is 10^{15} times the mass in pyramid tons = 5.272 x 10^{21} pyramid tons = 5.99 x 10^{24} Kg

Speed of Earth around the Sun: The Pyramid Inch times 10^8 = the speed of the earth around the sun, circa 2600 BCE

Mass of the Earth: The weight of the pyramid is estimated at 5,955,000 tons. Multiplied by 10^8 gives a reasonable estimate of the earth's mass.

Average Land Height: The average height of land above sea level for the earth is 5,449 inches. This is also the height of the pyramid.

The Light Equation: The height of the Great Pyramid, minus the height of the capstone represents one millionth the time it takes light to travel the mean radius of the earth's orbit around the sun (1 astronomical unit) using 1 Pyramid Inch equals 24 hours (mean solar day). [(5,813.2355653 - 103.0369176) / 10^6 = .0057101986+ days = 493.36116 seconds = 8 minutes, 13.36 seconds]

The Velocity of Light: With distance of one A.U. known and the transit time of light for this same distance the velocity of light can be found. [91,848,816.9 miles / 493.36+ seconds = 186,169.5 miles/sec]

The Sun's Parallax: The size of the earth as viewed from the Sun and expressed as an angle and generally taken to be 1/2 the diameter at the equator (Solar Equatorial Parallax) is 8.9008091 seconds of arc using 91848,817 miles as the mean distance to the sun and 3,963.4914 miles as the equatorial radius. The distance between the mean socket level and the height of the leveled bedrock is 8.9008 Pyramid Inches.

Astronomical Facts: The Descending Passage pointed to the pole star Alpha Draconis, circa 2170-2144 BCE. This was the North Star at that point in time. No other star has aligned with the passage since then. The 344ft length of the Descending Passage provides an angle of view of only +/- 1/3 of a degree.

Alpha Draconis has not been in alignment for thousands of years. The next alignment will be with the North Star, Polaris, in about 2004 CE. Polaris in Greek means "Satan".

The southern shaft in the King's Chamber (45 deg, 00 min, 00 sec) pointed to the star Al Nitak (Zeta Orionis) in the constellation Orion, circa 2450 BCE. The Orion constellation was associated with the Egyptian god Osiris. No other star aligned with this shaft during that Epoch.

he northern shaft in the King's Chamber (32 deg, 28 min, 00 sec) pointed to the star Alpha Draconis, circa 2450 BCE

The southern shaft in the Queen's Chamber (39 deg, 30 min, 00 sec) pointed to the star Sirius, circa 2450 BCE Sirius was associated with the Egyptian goddess Isis and is also part of a unique ceremony practiced by the African Dogon tribe.

The northern shaft in the Queen's Chamber (39 deg, 00 min, 00 sec) pointed to the star Ursa Minor, circa 2450 BCE.

Pyramids Mirror the Orion constellation: the pyramid positions on the ground are a reflection of the positions of the stars in the constellation Orion circa 10400BCE Five of the 7 brightest stars have pyramid equivalents:

The 3 great pyramids of Khufu, Khafra, and Menkaura for the belt of Orion, the pyramid of Nebka at Abu Rawash corresponds to the star Saiph, the pyramid at Zawad al Aryan corresponds to the star Bellatrix. The only two missing star positions are for Betelgeuse and Rigel. Marks Spring Equinox: Due to the angle of the sides of the pyramid vs. its latitude, it casts no shadow at noon during the spring equinox.

Precession of the Equinoxes: The sum of the pyramid's two base diagonals in Pyramid Inches = length of the Precession of the Equinoxes (25,827 years)

Precession of the Equinoxes: The distance from the ceiling of the King's Chamber to the apex of the pyramid = 4,110.5 Pyramid Inches. Which is the radius of a circle whose circumference = the precession of the equinoxes. [4,110.5 * 2 * Pyramid Inches = 25,827]

Precession of the Equinoxes: The perimeter of the 35th course of blocks, which is much thicker than any of the other courses, gives a figure for the precession of the equinoxes.

Units of Measurement: The Pyramid Inch (PI) = 1.0011 present inches, and 1.0010846752 British Inches. The Pyramid Cubit or Sacred Cubit = 25 pyramid inches.

The degree of engineering, mathematical, and astronomical skill and knowledge that was required to build this mighty monument is discussed in even more detail in his book. This is an article, not a book.

For the present, however, try to imagine constructing a building the size of the Great Pyramid with stone blocks weighing up to thirty tons each, and then having the building stand for at least four thousand years without its foundation settling so much as a fraction of an inch, even through a universal flood and earthquakes!

When we consider this, we begin to get some measure of appreciation for its scientific perfection.

The latest date mentioned for the completion of the Great Pyramid is 2170 BC, a date proposed by Dr. John Herschel because of **the fact that in that year a line drawn from the center of the pyramid base through its apex would intersect the star Alcyone in the heavens.**

Also, as of that year, **the long, straight shaft up the subterranean chamber would have pointed exactly to Alpha Draconis, the polar star of that year.** This position of these two stars in the sky in relation to the Great Pyramid will not occur again until the completion of the precession of the equinoxes, or 25,857 years later.

It is also amazing to note that when the length of the diagonals of the pyramid's base (in pyramid inches) is totaled, we have exactly 25,857 inches. The only thing wrong with Dr. Herschel's theory is that the builders of the pyramid could not possibly have known beforehand that it would be completed on a certain date.

Since no bodies were found inside, it was not a tomb. All the other pyramids have turned out to be burial chambers for rulers of Egypt. What was the **purpose** or **reason** for building this Great Pyramid? Was it intended to be for Khufu, until he disappeared and was never seen again? Or, did this pyramid actually have a different agenda?

The lack of hieroglyphics meant no history was recorded in the passageways about Khufu and no furnishings of any kind were discovered within the pyramid.

The reason for the pyramid's existence has been a puzzle for hundreds of years. There are many theories out there, but I am only going to discuss the one I think is best, at least for now. It is a modern theory and possibly more correct than others because it allows for modern technology.

Why is that necessary? Anything as detailed and structured so painstakingly to perfection has to have had a very good reason for existing. It was built to last, again for a purpose. This will be discussed in my next article on the Great Pyramid of Piza.

Sources, Internet and Books

Josephus

Holy Bible

Wikipedia

1. Internet Research – Videos and Articles1 <http://www.ancient-code.com/15-facts-that-prove-the-great-pyramid-of-giza-was-built-by-an-extremely-advanced-ancient-civilization/>

2. <http://www.smithsonianmag.com/history/ancient-egypt-shipping-mining-farming-economy-pyramids-180956619/>

3. Read more: <http://www.smithsonianmag.com/history>

Follow us: @SmithsonianMag on Twitter

4. "Pharaoh Khufu" by Marie Parsons <http://www.touregypt.net/featurestories/khufu.htm>

5. "Inside the Great Pyramid of Giza" by John Zajac; www.europa.com/~edge/giza.html

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BOOKS:

1. Abaddon Rising

2. Hambleton, Chris. Abraham and the Great Pyramid, Kindle Edition

3. Hutchings, Noah. The Great Pyramid: Prophecy in Stone Defender Publishing LLC, Kindle Edition

4. Dead Sea Scrolls – Enosh, Jubilees and Jaresh by Derek A. Shaver

