

Sacred Geometry in Ancient Egypt

The Cosmic Geometry

Herodotus, the father of history and a native Greek, stated in 500 BCE:

Now, let me talk more of Egypt for it has a lot of admirable things and what one sees there is superior to any other country.

The Ancient Egyptian works, large or small, are admired by all, because they are proportionally harmonious and as such appeal to our inner as well as outer feelings. This harmonic design concept is popularly known as sacred geometry—where all figures could be drawn or created using a straight line (not even necessarily a ruler) and compass, i.e. without measurement (dependent on proportion only).

The principles of sacred geometry are of Ancient Egyptian origin, which constituted the basis of harmonic proportions, as evident in their temples, buildings, theology, ...etc. The Ancient Egyptian design followed these principles in well-detailed canons. Plato himself attested to the longevity of the Egyptian harmonic canon of proportion (sacred geometry), when he stated,

That the pictures and statues made ten thousand years ago, are in no one particular better or worse than what they now make.

The key to divine harmonic proportion (sacred geometry) is the relationship between progression of growth and proportion. Harmonic proportion and progression are the essence of the created universe. It is consistent with nature around us. Nature around us follows this harmonious relationship. The natural progression follows a series that is popularized in the West as the "**Fibonacci Series**".

Since this Series was in existence before Fibonacci (born in 1179 CE), it should not bear his name. Fibonacci himself and his Western commentators, did not even claim that it was his "creation". Let us call it as it is—a **Summation Series**. It is a progressive series, where you start with the first two numbers in the Ancient Egyptian system, i.e. 2 and 3. Then you add their total to the preceding number, and on and on; any figure is the sum of the two preceding ones. The series would therefore be: 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, . . .

This series is reflected throughout nature. The number of seeds in a sunflower, the petals of any flower, the arrangement of pine cones, the growth of a nautilus shell, etc...all follow the same pattern of these series.

The overwhelming evidence indicates that the Summation Series was known to the Ancient Egyptians. Many Ancient Egyptian plans of temples and tombs, throughout the history of Ancient Egypt, show along their longitudinal axis and transversely, dimensions in cubits of 1.72' (0.523 m), giving "in clear" consecutive terms of the Summation Series 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, . . .

The Summation Series conforms perfectly with, and can be regarded as an expression of, Egyptian mathematics, which has been defined by everyone as an essentially additive procedure. The summation character of the series, and its use, would be in accord with the practical aspect of Egyptian science. This additivity is obvious in their reduction of multiplication and division to the same process by breaking up higher multiples into a sum of consecutive duplications.

There is evidence about the knowledge of the Summation Series, ever since the Pyramid (erroneously known as mortuary) Temple of **Khafra** (Chephren), at Giza, built in 2500 BCE, i.e. about 3700 years before Fibonacci.

The essential points of the temple [*shown herein*] comply with the Summation Series, which reaches the figure of 233 cubits in its total length, as measured from the pyramid, with TEN consecutive numbers of the series.

The Sacred Ratios

1. The Golden Proportion

The Summation Series was the origin of Ancient Egyptian harmonic design. It offers the true pulsation of natural growth. As an example, the ratio between each group of two consecutive numbers follows the human heartbeat pulsation: sudden increase, a small dip, a rise again, and then even progression, until the next heartbeat. So, as the series progresses, the ratio between successive numbers tends towards the Neb (Golden) Proportion, to which Western academia assigned the Greek alphabet letter ϕ , even though it was known and used long before the Greeks. And what is worse is that there is not even factual evidence that the Greeks knew it at all!

The Golden Proportion can be obtained graphically in several ways, which were all common in the Egyptian buildings throughout its dynastic history.

2. The Circle Index

The Circle Index is the functional representation of the circle. It is the ratio between the circumference of the circle to its diameter. It is popularized by Western academia by the Greek letter π and given a value of 3.1415927.

The Egyptians manifested their knowledge of the circle properties and other curves, as early as their surviving records. A 3rd Dynasty (~2630 BCE) record shows the definition of the curve of a roof, in Sakkara, by a system of coordinates.

This shows that their knowledge of the circle enabled them to calculate the coordinates along this vertical curve. Accordingly, the construction workers followed precise dimensions in their executed circular curves.

Such application was evident in Egypt at least 2,000 years before Archimedes walked this earth.

The Golden Gate

In Ancient Egypt, doorways were built with or without a pylon on each side.

A few examples from different periods show that the simple design of Egyptian doorways conforms to a harmonic analysis. The relationships between the openings and the doorjambs were harmonically proportioned. The height of the aperture and the full height, were also harmonically designed.

Points of interesting harmonic proportions are:

1. The overall outline in the vertical plane is the double-square, 1:2 ratio. [$H = 2B$]
2. The opening width is based on a square inscribed within a semi-circle, the typical Ancient Egyptian way of proportioning a root-five rectangle.
3. Thus, the thickness of the doorjamb is 0.618 the width of the opening.
4. The height of the aperture (h) = $3.1415 = \pi$

The typical Ancient Egyptian doorway layout incorporated both sacred ratios (π and ϕ) in its harmonic design.

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