

Sacred Geometry: The Chain of Transmission

As one embarks upon the study of Sacred Geometry it is reasonable to wonder as to the source and origin of this remarkable subject. Regrettably, at this stage of knowledge one can only speculate. However, one's speculations need not be entirely without some basis in historical fact, and, it must be admitted, enough circumstantial evidence has accumulated to suggest a relatively credible scenario, one admittedly outside mainstream academic thinking, but quite plausible within the context of its own premises.

I think the answer to the question of the source and origin of Sacred Geometry is not to be found in history, rather, it is to be found in prehistory.

After all, at the very dawn and inception of what we call history, between 4 and 5 thousand years ago, we find a widespread employment of a very sophisticated and mature system of Sacred Geometry as the basis upon which the earliest expressions of sacred, monumental architecture were realized. Preeminent examples include the pyramids and temples of Old Kingdom Egypt; the Megalithic stone and earthworks of the British Isles, including, most famously, Stonehenge; the Ziggurats or stepped pyramids of Sumeria and the first phases of monumental earthwork architecture in North America.

Leaving aside, for the moment, the question of the ultimate source of Sacred Geometry in prehistory, it will be enlightening to trace, as best we can, its route and progress through the ambiguities and uncertainties of recorded history. Since this essay is only a short treatise and not a lengthy dissertation we can only give a brief summary of the particulars in respect to the journey of Geometry through the centuries. It may be valuable to bear in mind that in the psyche of the Ancients all Geometry was sacred, and considered to be a heritage imparted by the Gods, or the Supreme Creator, as the case may be.

In regards to the origins of Geometry, mathematician J. E. Thompson wrote, in the now classic *Geometry For the Practical Man* (1934) "The earliest indications of any system of measurement seem to come from the ancient Babylonians or the people who lived before them in the region known as Babylonia . . . Most of the ancient records show that definite methods and knowledge of measurement arose in connection with land measurement, building and astrology . . . the forerunner of astronomy. In this connection the Babylonians supposed that the heavens revolved around the earth and that the year consisted of 360 days. This led them to divide the circle into 360 parts and thus probably originated the present *degree* system of angle measure." p. 3

It may be open for discussion whether the 360 degrees of the circle arose from a belief in a 360 day year or that, conversely, a year was idealized as 360 days based upon a circle measure of 360 degrees. It should be noted that the Babylonians were not the only ancient culture to hold an idealized model of a perfect or sacred year of 360 days. It was conceived as such in ancient Persia, Egypt, India and Mexico among others. I will undertake a much more in depth discussion of this interesting detail of ancient calendrical systems when we explore the Sacred Geometry of Time. Irrespective of the length of the year there is a very practical reason for the division of the circle into 360 degrees. For its magnitude, the number 360 has a large number of

factors, or numbers that can be divided into it with no remainder. These factors include the numbers 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, 18, 20, 24, 25, 30, 36, 40, 45, 60, 72, 90, 120, and 180. Another way of thinking about this property is to imagine how many different ways a circle could be cut up into equal sized sectors, or pie-shaped slices. You will notice that of the first 10 numbers only 7 is not a factor of 360. This fact contributes to the symbolism associated with 7 that we will study later on. As an aside, dividing 360 by 7 yields the value of 51.43 degrees, virtually indistinguishable from the slope to base angle of the Great Pyramid of Khufu, usually taken as 51.85 degrees.

Babylonian geometry, going back to at least 2000 BC, was linked to the study of astronomy and was used to facilitate the study of planetary motion, the prediction of eclipses and the rising and setting of stars. It included knowledge of the means for measuring areas and volumes, including the volume of cylinders. They had determined the value of π to an accuracy of 3.125. A great deal of Babylonian geometry and mathematics was passed on to the Greeks. Apparently Hipparchus, the brilliant Greek mathematician, astronomer and geographer borrowed heavily from the Babylonians. It is significant that Hipparchus is given credit for discovery of the phenomenon known as Precession of the Equinoxes. According to the conclusions of *Hamlet's Mill* (1969) Hipparchus may also have learned of precession from the Babylonians, a subject which, once again, we will return to when we delve into the Sacred Geometry of time.

But for now note that Precession of the Equinoxes is a phenomenon to which we will return again and again, as it marks the passage of the Great Year, the model of Sacred Geometry as expressed in and through Time, and reveals the presence of nested cycles in the unfolding of time through the ages. It carries powerful implications regarding patterns of change manifesting in the world and served as the template for prophetic proclamations throughout sacred history.

The Babylonian architectural expression of Sacred Geometry manifested in the form of the 'peaks of the gods' the seven storied holy mountains called *ziggurats*. They were built in the form of stepped pyramids with seven levels, or stages, representing the forces and attributes of the seven planetary powers. They were painted in one of the seven planetary colors and served as the symbolic, or actual, link between heaven and Earth. Describing these stages, James Fergusson, a Fellow of the Royal Institute of British Architects, wrote in *A History of Architecture in All Countries*: "The temple . . . was dedicated to the seven planets or heavenly spheres, and we find it consequently adorned . . . with the colours of each. The lower, which was also richly paneled, was black, the colour of Saturn; the next, orange, the colour of Jupiter; the third red, emblematic of Mars; the fourth yellow, belonging to the sun; the fifth and sixth green and blue respectively, as dedicated to Venus and Mercury; and the upper probably white, that being the colour belonging to the Moon, whose place in the Chaldean system would be uppermost."

The Moon, being represented by the highest stage of the ziggurat signifies the importance that celestial body had for the ancient Babylonians. This significance regarding the Moon was shared by many other ancient cultures and conceals one of the great symbolic mysteries of the occult and Hermetic traditions with respect to the role of the Moon in the Great Work.

Professor Livio Stecchini surmised that the ziggurats were effigies of the northern hemisphere, the lower, or ground level representing the equator and the peak, or apex, symbolic of the North Pole. This model corresponds to an Egyptian conception of the Great Pyramid of Khufu as representative of the northern hemisphere, an inference borne out by the extraordinary geometry and geodesy enshrined in the dimensions and proportions of that famous structure, a subject to which we will return in due time.

The Egyptians had a well developed system of geometry. There is evidence that they used a value of $22/7$ for π . They also knew the formula for finding the frustrum of a pyramid, a skill that seems logical given that they were inveterate pyramid builders. They also used a base ten system of numeration and utilized fractions in their calculations.

It is not our intention here to examine in depth the most remarkable of all expressions of ancient geometry, the Great Pyramid of Khufu, for that is a matter that is best approached with a deeper level of knowledge of the subjects of geometry, geodesy, metrology and astronomy, all of which we will delve into much deeper as this series progresses. Suffice it to say, the pyramid of Khufu stands as a monument to a powerful and sophisticated knowledge of these subjects long before history acknowledges them to be an attribute of the intellectual heritage of mankind. In that structure we have evidence of a profound understanding of science and mathematics at the very inception of history, a reality ignored by mainstream academia, for to admit the existence of that level of knowledge as mankind emerges from the Stone Age would require overturning all the entrenched models and dogmas regarding the rise of civilization from a barbarous past to the pinnacle of achievement as embodied in modern 21st century American society. The Great Pyramid stands in contradistinction to virtually all of our assumptions as to our status in history and raises compelling questions regarding our own origins and the journey which we, as a species, have undertaken as since we first began to walk this planet several hundred thousand years ago.

Further confirmation of the erroneous models of prehistory entertained by modern academia comes from the work of Alexander Thom, a Scottish engineer and a former don of Oxford University, who surveyed some 500 megalithic structures, standing stones, tumuli, stone circles and monuments in the British Isles over a period of nearly 40 years. His meticulous analysis disclosed the presence of a sophisticated understanding of elliptical geometry and observational astronomy as early as 3000 BC. In many cases the stone rings that he surveyed and measured were constructed with an astounding accuracy, still apparent after all these thousands of years. In his now classic work **Megalithic Sites in Britain** (1967) he commented “... *I am fully capable of making surveys of any required accuracy . . . as the investigation proceeded, it became apparent that the precision with which some of the larger monuments had been set out demanded surveys of a high accuracy such as could be obtained only by a qualified team using high-class equipment.*” Thom found convincing evidence for the use of Pythagorean triangles 2 and 3 thousand years before the birth of Pythagoras. He discovered the widespread use of a unit of measure that he named the Megalithic Yard, later demonstrated to be part of an ancient system of geodetically derived metrology. This is an important topic and represents a highly developed application of Sacred Geometry that will comprise future lessons, after we have become proficient in the use of Dynamic Symmetry.

Even more evidence of a Neolithic understanding of geometry came with the discovery by archaeologists working in Britain during the second half of the 19th century. They discovered

carved stone objects in the form of precise and symmetrical spherical models of the Platonic solids. These objects, some carved in hard granite, were analyzed in detail by the modern master of Sacred Geometry, Keith Critchlow in his essential work **Time Stands Still** (1982).

From ancient Egypt and Babylonia the torch was passed to Greece. Such illustrious names as Pythagoras, Plato, Thales, Archimedes and Euclid will forever connect Classical Greece with the emergence of geometry onto the stage of world history as a highly developed system and methodology. It is known that Pythagoras, Plato and Thales, among others, studied in or were initiates of the Egyptian Mysteries, which included their esoteric traditions of mathematics and geometry. But the Greeks were the first to expound upon the properties of curves, surfaces and volumes and developed geometry into a powerful system of logical deduction, which still informs our use of geometry today. Plato incorporated into his system of metaphysics three classical construction problems that had no exact solution: The Squaring of the Circle, the construction of a cube twice the volume of a given cube, and the trisection of an angle. While it has been proven that exact solutions to these problems is impossible using only the methods of classical geometry, methods of close approximation do exist and were incorporated into some of the pre-eminent examples of sacred architecture where they were given deep symbolic meaning.

As a preface to our next lesson we will shed light upon a new dimension of meaning to the standard interpretation of geometry as 'Earth measure.'

All temple building throughout the ancient world began with the identification of the sacred center, the omphalos, or naval center from which the future temple was to emanate out of the womb of the Earth. This was followed by the erection of a vertical pole, or pillar or obelisk to mark the zone where heaven and Earth were to be united. Due to the particular geographic location of the sacred pillar the angles of the shadows cast by the Sun at auspicious times of the year would be unique to its latitude and planetary position. These angles provided the geometry of the enclosing edifice and served to orient the site to the Cosmos. When we call upon the tapered pillar as an instrument of cosmic orientation we shall realize that we have the capability of measuring the dimensions of our Earth and thereby place within our purview a yardstick for measuring the inconceivably vast domain of the universe. But how does one measure the dimensions of the Earth without the use of advanced technological instruments.

Our rudimentary traverse into the realm of geometry has led us to the 17th Proposition, wherein we learn that **A straight line falling upon parallel lines makes the alternate angles equal**. Let us next discover how the Greek mathematician Eratosthenes used that proposition to measure the Earth.

Vedas

Biblical Geometry

Guilds of Freemasons

Sacred Geometry in the 20th century

Jay Hambidge

George Lesser

Tons Brunes

Buckminster Fuller

John Michell

Keith Critchlow

Robert Lawlor

Sacred Geometry in the 21st century