

THE HORIZON THEORY, PART-II: Internal Design Concept of the Great Pyramid.

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Abstract.

The Giza pyramids plateau, or the horizon of *Hor-Mageed-Don*  (Armageddon), the falcon of the Mighty-God, and its three pyramids, is the most amazing architectonic museum on earth. Understanding the encoded sciences in its architectonic masterpieces, particularly the great pyramid, were, and still are, among the most challenging topics of scientific researches. Until today, many of the scientific research questions concerning pyramids design are unanswered. The condition that made pyramids subject to unsafe excavations that aims merely at finding the treasures of the ancient Egyptian kings and that might still unfound and located some where in secret rooms inside these pyramids. Some scholars believe that those unfound treasures might include the papyri that describe the design of pyramids and the knowledge of their ancient designers. Until today, excavations inside the Great pyramid, even with the use of modern technologies, have led to nothing but further mystifying the road towards understanding the design wisdom inherent in this architectonic masterpiece. Therefore, this paper decodes one of the architectonic files encoded in its architectonic design. This file is on the philosophy behind the pyramidal form, and on the astronomical cross-sectional diagram of the observed sun's motion around the earth that upon which the entrance-passage and the room-shafts in the Great pyramid are positioned and tilted. It shows as well, why some shafts are opened to the exterior and other shafts end in specific positions inside the Great pyramid.

Keywords: Great Pyramid – Pyramid's Shafts – Spherical Astronomy – Archaeoastronomy.

1- Background.

Why the ancient Egyptian designer used the pyramidal form , and from where he got this idea? Some historians and scientists have tried to answer this question; however, their explanations are based on a believe that pyramids' designer was merely a skilled mason, who duplicates only what he sees and cannot create remarkable architectonic designs. Edwards¹ has postulated that the designer had imitated the shape of sunrays when it penetrates the clouds at noontime, during the day of summer solstice. Lately, El-Baz² has suggested that the designer had duplicated the shape of some hills located in the Western Sahara. On the contrary, the

¹ - (B. S. Edwards, 1961)

² - (Farouk El-Baz, 2001).

architects would say that creating the forms of perfect architectonic masterpieces like the pyramids should be based on a scientific notion, particularly if we take into our consideration the geometric accuracy of both their dimensions and perfect mathematical ratios. The pyramids' section in the encyclopedia Americana includes some of the mathematical and abnormal merits that scientists did observe in the Great pyramid; one of them is the inclusion of the modern ratio π (π)= 3.14 between the perimeter of pyramid's base (920.48m) and its height (146.5m). Add to this the lately discovered hidden power of the pyramidal form that prevents the fast rotting of foods, accelerates the growth of plants, empowers the vital system of the human body, and keeps the razor blades sharp³. Moreover, the fall of the experiments that have been done in late sixtieth to discover any hidden rooms inside the second pyramid, using then the latest technology of photographing, using cosmic rays⁴, to come up with any valid results implies that the hidden power of a pyramidal form is unusual phenomena. All of these facts hint to that the scientific community should not neglect the other alternative such that pyramids' designer was likely having excellent scientific knowledge. Such a positive change in the methodology towards discovering the great knowledge behind designing and erecting those marvelous architectonic masterpieces might effectively guide the future excavations inside and outside Giza pyramids.

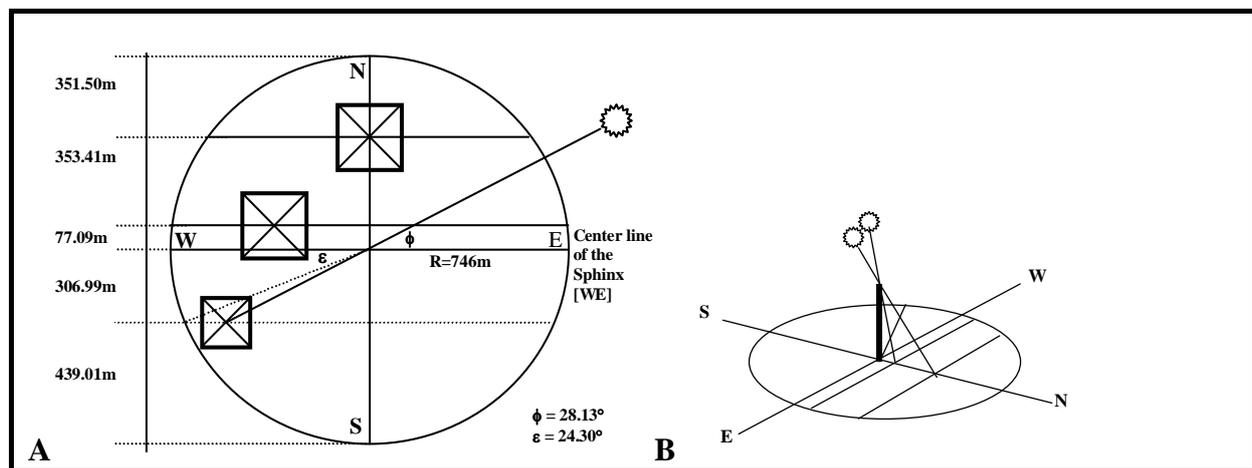


Figure-1: (A) shows the site plan of the horizon of the three pyramids in Giza plateau; and (B) shows a perspective of the three basic astronomical information of the horizon: the meridian angle (altitude) on vernal equinox, the meridian angle on summer solstice and the sunrise angle on summer solstice (Aboufotouh, 2002).

As it have been discussed in Part-I of the Horizon theory⁵, the site plan of the Horizon of Giza pyramids shows that the three pyramids and the Sphinx are among the architectonic elements of one astronomical plan. All of them are coherent parts of one architectonic project. The exact locations of these four elements were chosen carefully by the designer, indicating his strong scientific knowledge in spherical astronomy, as seen in Fig-1. In part-I, the author has double-checked the accuracy of both his hypotheses, using astro-mathematical equations for identifying the design locations of the three pyramids, using the results of the

³-(Encyclopedia Americana, 1978, Vol. 23, p.40).

⁴-(Fathy Al-Bedawy, 1991).

⁵-(Aboufotouh, 2002).

site-survey that was undertaken by Petrie⁶ in 1883. Besides, it has been mentioned in part-I that the designer had encoded his astronomical knowledge in his architectonic design in order to save them for the coming generations, knowing that the earth will inter into one of its frequent cycles of super major disasters. This may imply too that using the pyramidal form was not a random decision, or by imitating a false or unrelated natural image, which does not have perfect architectonic meaning.

In other study on the architectonic mathematics of the structure of cosmic number systems, e.g., the solar system⁷, the author of this paper has discussed in details the origin of any perfect geometrical form. That study supports the Horizon theory and formulates the scientific base for observing the hidden cosmic meaning of pyramidal forms. It proves theoretically that the architectonic law of numbers is the key to observe the geometric forms that represent perfect numbers. Besides it identifies the correlation between these forms and the physical structures of the cosmic systems they represent, e.g., atom, solar system, galaxy, etc. Beyond the mathematical formulas and the architectonic hypotheses of this study, one can summaries its first part, on the architectonic law of numbers, in the coming paragraphs.

We can imagine that the sum of the end, or meeting, points of any geometrical shape in the two-dimensional plane represent a number, starting from just a point. Accordingly, a point indicates one, a line indicates two, a triangle is three, a square is four, and a pentagon is five and so on, until the concentric shape becomes a perfect circle indicating the numbers from 360 until infinity. Any meeting or end-point in these geometric figures in a two-dimensional plane may be observed as it represents an orb (an electron or a planet) rotates around a central body located at the center point of a concentric shape. The simple conclusion of this is that the basic geometric shapes in a two dimensional plane represent basic cosmic systems (*Bs*), similar to, for example, a Hydrogen atom that has only one electron and one proton, i.e.; it thus represents number one⁸.

Furthermore, basic systems may join-together and construct a new complex system (*Cs*). An example, if we glued together the edges of four triangular shapes of equal sides, one's side with the other's side, they construct a pyramid. However, theoretically, the process of constructing a pyramidal complex system in the cosmos is not as simple as the mentioned example.

As shown in fig-2, a pyramidal complex system of four sides is constructed by 41 basic systems: one of basic system 4 (\square), four of basic system 3 (Δ), twelve of basic system 2 ($—$), and twenty-four of basic system one (\bullet). This pyramidal system represents the perfect number 28 that could be generated by multiplying the numbers "1, 2, 3, and 4" that constructed the system and adding to the result the largest number (4) that represents the base of the system. Hypothetically, in any atom, the number of its system is the number of its neutrons; the complex system 28, or we may name it Cs_{24+4} , represents the chromium atom. Fig-2 shows that the center of the basic system 4 (Bs_4) is the center of the pyramidal form.

⁶ - (Petrie, 1883, p.125).

⁷ - (Aboulfotouh, 2004).

⁸ - The study assumes theoretically that, at the atomic level, any basic system contains only electrons and protons; thus, a Hydrogen atom is the only discovered basic system; all the other known atoms in the periodic table are classified in this study as complex systems, see the architectonic law of numbers in (Aboulfotouh, 2004, p.12).

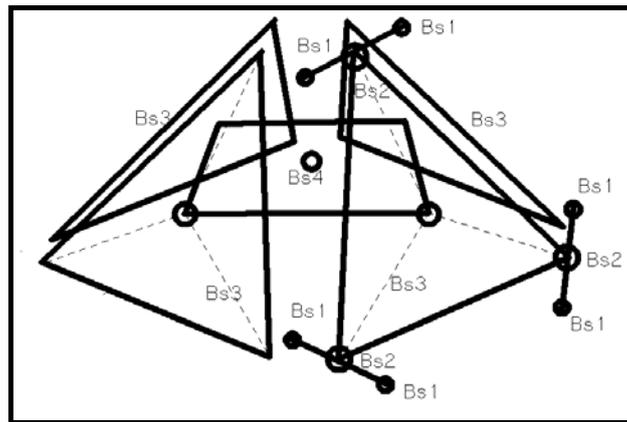


Figure-2: The initial pyramidal form of Cs_{24+4} during the assembling moment. The basic systems (Bs_1 , Bs_2 , Bs_3 , and Bs_4) are not drawn in equal scales.

That architectonic study postulates that the structure of our solar system could be represented by the pyramidal system Cs_{24+4} , like the chromium atom. Accordingly, the author has formulated 39 architectonic mathematical equations for the structure of our solar system, including both the orbital and spin motions of its planets and natural satellites, as well as the architectonic law of music of its spheres. Thereupon it has become obvious that the stories about the relation between the pyramids and the cosmic law of numbers, the base of cosmic structure, which were mentioned by many historians, particularly El-Maqrizi⁹ and Al-Masoudy¹⁰, most likely are not myths nor are they fictions.

The above-mentioned architectonic study¹¹ of the author was supported by the astronomical postulations in the great work of *Plato* that titled *Timaeus*¹² and that was based on the *Pythagorean* philosophy, on both the law of numbers and the law of music of the spheres. *Plato* discussed in this work, the opinion of *Timaeus* on the evolution and the structure of our solar system, which was then representing to him the whole universe. However, the link between the theories of these ancient philosophers and the pyramidal concept, and how the geometry of a pyramid represents the structure of our solar system remained not understood. The hypothesis of these philosophers on the mathematical link between the cosmic structure and both the law of numbers and the law of music of the sphere, were observed for millenniums as a sort of scientific morality. In Aboufotouh (2004), the author has explained in this study what these philosophers meant, using architectonic mathematical analysis.

In fact, both *Pythagoras* and *Plato* had studied in Egypt between the sixth and fourth centuries BC and perhaps they then learned all the sacred sciences of the ancient Egyptians. However, they did not hint to any relation between what they believed on numbers, music, and astronomy; and the pyramids of Egypt or the pyramidal form in general. This may imply three hypotheses. Either many of the sacred sciences of pyramids' design were lost by the time when these philosopher were studying in Egypt. The second is that sacred sciences were

⁹ - (Al-Maqrizi, Bulaque Edition, 1849).

¹⁰ - (Al-Masoudy, 1987).

¹¹ - (Aboufotouh, 2004).

¹² - (Plato, 330BC).

the top secrets of the Egyptian priests and foreign scholars were not given the permission to study it, or they studied only its general ideas. The third is that they had studied all the details of the sacred sciences of the ancient Egyptians, followed their doctrine of keeping them secret, and spook only about their laws in the general manner. No matter what was the true story, the author expresses his gratefulness to these great philosophers for saving the human knowledge, which represents what they have observed it as valuable to be taught to their students, and in order to be kept for the future generations.

Pythagoras thought to his students what he believed on the secret of numbers, music of the spheres, cosmic geometry, and astronomy without writing any book¹³. About hundred and fifty years after the days of *Pythagoras*, *Plato* wrote his great book that titled "*Timaeus*", describing all what he believed on these subjects. On the contrary, about two and half millenniums before the time of *Pythagoras*, the designer of Giza pyramids had chosen different tool for conserving the sacred sciences of the ancient Egyptians. Perhaps, he encoded all his scientific knowledge in his architectonic designs of the pyramids, the first of them is using the pyramidal form that indicates the solar system and the perfect number 28, or as it was called then the "Be-n" System¹⁴.

2- The Astronomical Coordinates System of the Ancient Egyptians.

In spherical astronomy, one can identify the astronomical location of any observed celestial body, using the spherical coordinates System¹⁵. Today as well as in the ancient times, astronomers use a geocentric system wherein the earth represents its center; or it is the point of origin at which the three spherical coordinates *X-X*, *Y-Y* and *Z-Z* intersect. In this system, astronomers imagine that the earth is the center of a sphere representing the observed sky that along which all the other observed celestial bodies like stars, the sun, the moon, and the planets perform their revolutions. The only real case in this system is the revolution of our moon around the earth. The motions of the other celestial bodies are imaginary and only for identifying their locations in relation to an observer standing anywhere on our planet. In this coordinates system, there are two basic circular planes, which intersect with each other, as shown in fig-3. The first is the plane of the earth's equator. The second is the plane of the earth's orbit around the sun; astronomers call it the ecliptic.

The angle between these two planes is called the obliquity angle of the earth. Weigert *et al* said¹⁶, "it fluctuates between two extreme but postulated values ($21.92^\circ - 24.30^\circ$) within a span of time equals to 40 thousand years approximately; and its current value equals 23.45° and diminishes by 0.47 second of arc per year, as now the earth is in its descending path". According to pyramids' designer¹⁷, as I shall prove it hereafter, the minimum value of earth's

¹³ - (Pederson, Olaf, 1993).

¹⁴ - (It is worth mentioning here, because we the human beings are the settlers of the complex system 28, our sound system can only pronounce 28 different sounds that we call each a letter).

¹⁵ - (See the "Arabic edition" of the German Encyclopedia of Astronomy, A. Weigert & Zimmermann, 1990).

¹⁶ - (A. Weigert & Zimmermann, 1990).

¹⁷ -The designer did encode these two values in the design of Giza Pyramids, e.g. he encoded the minimum obliquity value of 21.673° in the lower entrance of the second pyramid. Although, it is less than the nowadays-postulated value, it might be correct.

obliquity angle is 21.673° ; and the maximum is 24.30° . It has been proven in part-I¹⁸ that the value of the earth's obliquity angle was 24.10° at the time of erecting (or designing) Giza pyramids, implying that the date of their erection is 3055 BC approximately; or it might be only an important encoded date.

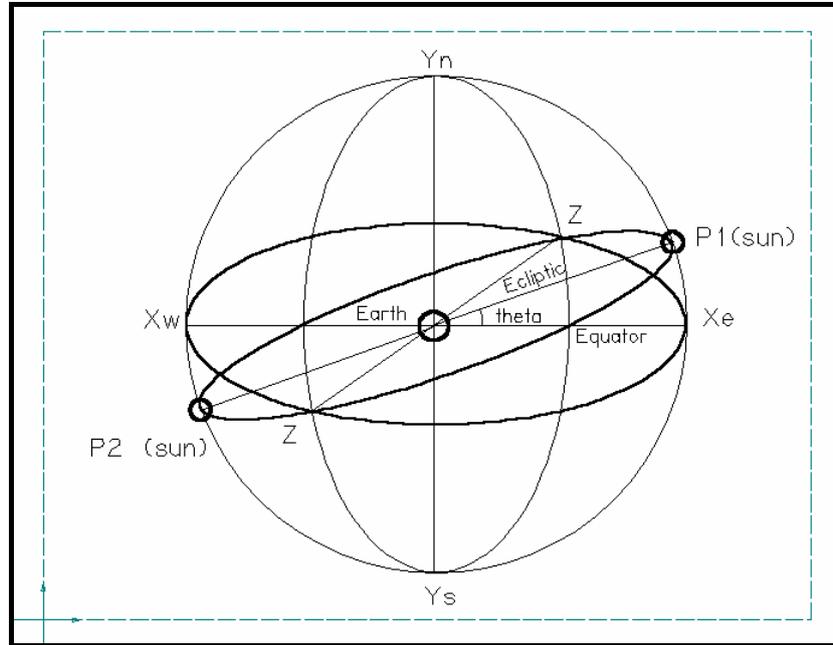


Figure-3: The spherical coordinates system, wherein the earth represents its center, or the point of origin of its three coordinates.

Now, if we draw a cross section in this spherical system wherein the coordinates $Xe-Xw$ and $Yn-Ys$ are located, it will be as shown in fig-4. The additional letters n , s , e , and w indicate north, south, east, and west respectively. The axis $Xe-Xw$ represents the plane of the earth's equator, and the axis $Yn-Ys$ represents the north-south axis of the earth. The line $P1-P2$ represents a cross-section in the ecliptic, or the orbital plane, of the earth around the sun, and θ (theta) is the obliquity angle.

As said earlier, this way of representing the sun's motion is the opposite of reality; thus, it shows that the sun rotates around the earth, imitating its daily motion when observed from the earth. The way this cross-section is being drawn implies that the observer stands at the North Pole of the earth, and observes the sun rotating around it along the plane of $P1-P2$. Thus, in fig-4, the sun will appear to us as it fluctuates between $P1$ and $P2$. If the astronomical position of the sun starts from $P1$, it takes 6 months to arrive at $P2$ and another 6 months to return back again to $P1$, performing by this one orbital cycle in one earth year or 365.25 days.

Moreover, as the earth performs one cycle around its axis in 24 hours (one earth day), the sun will appear too as it performs one daily motion around the earth's axis $Yn-Ys$. Accordingly, as shown in fig-4, if the sun was at $P1$, its observed daily motion around $Yn-Ys$ will make it appear, in this cross-sectional diagram, as it had went to $P3$ and returned to $P1$, or close to it, in one earth day. Similarly, if the sun was at $P2$ it will go to $P4$ and returns back to $P3$ or close to it. In between, the lines $P1-P3$ and $P2-P4$ there are an array of similar lines that each

¹⁸ - (Aboufotouh, 2002).

represents one observed daily motion of the sun around the Y_n - Y_s axis of the earth. The lines $P1$ - $P3$ and $P2$ - $P4$ intersect with Y_n - Y_s at the points P_n and P_s respectively. These two points indicate the projections of the centers of the two extreme-circular-planes of the daily motion of the sun around the axis Y_n - Y_s of the earth. The line $L1$ - $L2$ represents the plane of the ecliptic at its minimum tilt or obliquity angle of 21.673° .

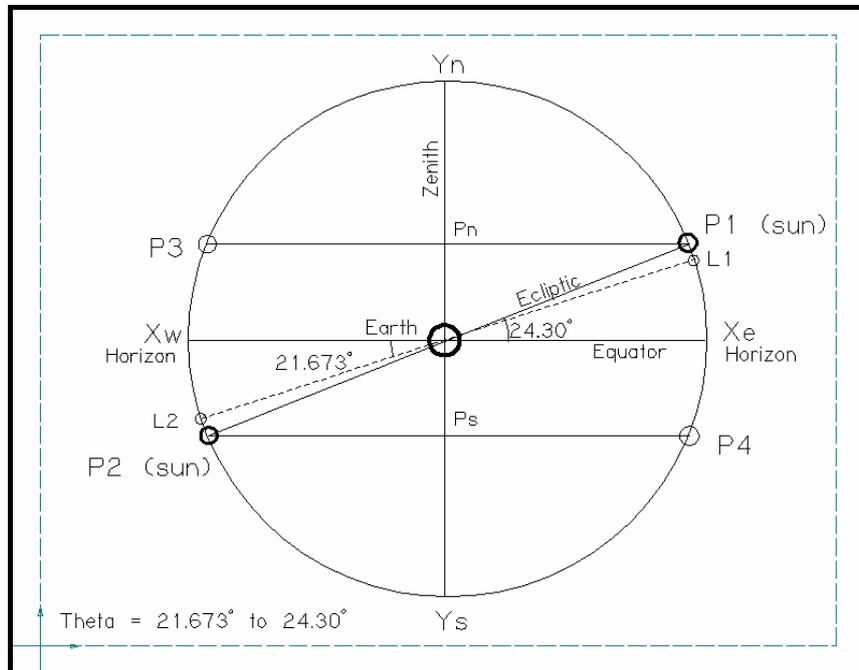


Figure-4: A cross-sectional diagram shows the projection of the observed dual motions of the sun around the earth: its yearly motion between $P1$ and $P2$; and its daily motion along an array of parallel lines in between, and including, $P1$ - $P3$ and $P2$ - $P4$.

The diagram in fig-5 is the simplest cross-sectional representation of the real dual-motions of the earth: its orbital motion around the sun and its spin motion around its axis. However, again, it should be taken into consideration that, for the case of the sun, the diagram shows the opposite of reality because this is the only way to plot the dual-motions of the earth in one meaningful cross-sectional drawing in relation to the sun. It is the simplest architectonic analysis for understanding the observed motion of any celestial body, while the observer stands on earth. As will be discussed hereafter, the designer of the Egyptian pyramids did use this cross-sectional diagram in his design.

In this diagram, the observer is either standing at the North Pole (Y_n) or at the South Pole (Y_s) of the earth; in this case, the line X_e - X_w represents the plane of the horizon at which the observer stands. Suppose that the observer stands at any other location on earth, for example, if he stands at the earth's equator the diagram will be as shown in fig-5. In this case, the line Y_s - Y_n represents the horizon of the observer; i.e., the ground where at he stands.

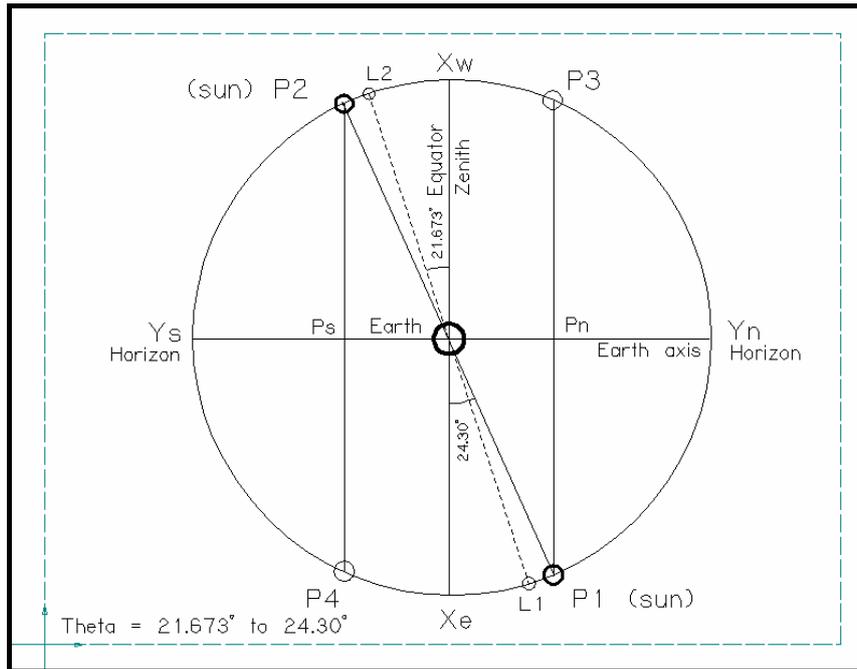


Figure-5: A cross-sectional diagram shows the projection of the observed dual motions of the sun around the earth, while the observer is standing on the earth's equator, i.e., X_w-X_e represents the direction of his zenith.

3- The Pyramidal Form and the Spherical System of Coordinates.

As said earlier, it has been proven architectonically that the pyramid of four sides could be the geometrical form of the initial state of the evolution of our solar system; i.e., a pyramid of four sides is the geometrical cosmic form that represents our solar system. The spherical representation of this notation is that a pyramid is being put inside a sphere, where both the sphere and the pyramid inside it have the same center that represents our sun. When interpreting this pyramidal-spherical system into a diagrammatic system of coordinates as described in section-2 above, the cross-sectional diagram at the latitude of 30° (north) will be as shown in fig-6. Again, in this diagram the earth instead of the sun is the center of it. The angle between the line X_w-X_e that represents the plane of the earth's equator and the line $h-h$ that represents the horizon of where the observer stands will be 60° , which complements the latitude angle of 30° . The line $A-A$ represents the zenith of an observer, which is perpendicular to the horizon line $h-h$.

In this diagram, the upper part of the pyramid appears above the horizon line $h-h$ and its lower part appears below it. The height T of its upper part and the height B of its lower part depend on where exactly the center of the pyramid takes place, which accordingly both identify the exact position of the pyramid within its spherical domain. This center represents the core of the basic system " $Bs4$ " in Cs_{24+4} (as shown in fig-2); thus, the plane of $Bs4$ is located at the level of this center.

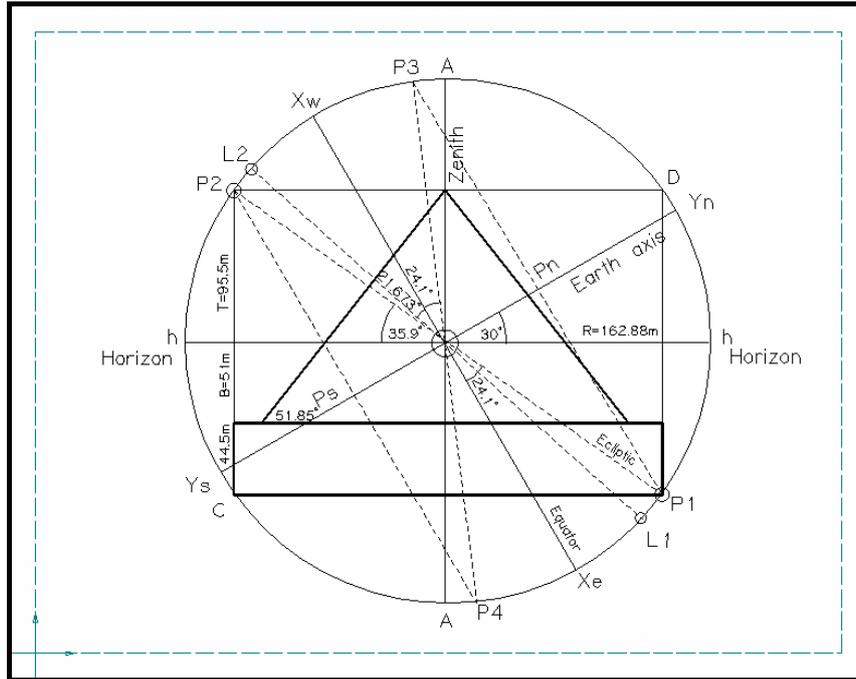


Figure-6: Cross-sectional diagram of astronomical coordinates system that upon which the Great pyramid of Giza has been designed.

Now, suppose that the line $P1-P2$ is the diagonal of the rectangle $P1-C-P2-D$, in fig-6, wherein the north-south cross-section of the pyramid will be plotted. The vertical-side, or in this case the width, of the rectangle equals $2T$, or twice the height of the upper part of the pyramid. Since the line $P1-P2$ represents the ecliptic plane of the observed yearly motion of the sun around the earth, point $P2$ identifies the location of the sun at noontime on winter solstice; it identifies the minimum meridian angle M of the sun at noon of that day. Taking into consideration that the obliquity angle θ in the time of erecting Giza pyramids was 24.10° and the latitude angle of the place is 30° , then this minimum meridian angel is given by,

$$M = 90^\circ - 30^\circ - 24.10^\circ = 35.90^\circ.$$

Accordingly, if R is the radius of the pyramid's sphere then,

$$T = R * \text{Sin } M \quad (1)$$

Based on the analysis, the author found out that the radius of the pyramid's sphere is the radius of the circle that passes by the corners of the square of the pyramid's base. It means that R equals half the diagonal of the pyramid's base. The value of R is an assumption by pyramid's designer. Besides, the author has formulated the architectonic mathematical formulas of the architectonic law of the music of the spheres in previous study¹⁹. Based on this law, it is found that Giza pyramids' designer used for the pyramids' spherical radii, only the numbers that indicate the twelve half tones of the musical octave. The author's numeric analysis on the pyramids' dimensions hints to that the designer probably used for this purpose an astronomi-

¹⁹ - (Aboulfotouh, 2004).

cal measurement unit that we call today a meter, which divides the north-south distance between two succeeding latitudes.

One may summarize the law of the music of the spheres in the coming few sentences. The architectonic frequency (or a musical note) of any radius in meter value is the fourth root of this radius divided by the fourth root of 24, and multiplying the result by one hundred. For example, as shown fig-1, the author proved in part-I that the radius of the horizon of the site plan of the Giza pyramids plateau equals 746m, which indicates a musical note close to *La*-major of 234 cycles. It matches the musical note of the radius of Jupiter's orbit; however, the unit value for the radii of planets' orbits is in million kilometers.

The lion statue of king *Suphis Nquse*  or Sphinx (in Greek tongue) indicates the ancient Egyptian letter *L* that denotes the musical note: *La*-major. For the great pyramid, the designer had set its *R* equals to 162.88m that implies a musical note close to *Me*, and he set its height equal to 146.5m that has a musical note *Me-Re*, which matches the musical note of the radius of the earth's orbit.

Further, the analysis has shown that the designer set the ratio between the radius *R* of the great pyramid's sphere and its height equals to the ratio between the minimum obliquity angle of the earth (21.673°) and its identified value at the time of erecting the pyramids (24.10°). If we take into our consideration, that the designer was planning too to encode the ratio $\pi=3.14$ in his design, then he must have chosen first the value of the pyramid's height that has the accurate musical note *Me-Re*, i.e., the radius *R* of its sphere was a product.

Accordingly, from Eq.1, *T* of the great pyramid is equal to 95.50m. Knowing that the design-height of the pyramid is 146.5m, then, the location of the astronomical center (the core of *Bs4*) of the great pyramid is at 51.0m from its ground level, which equals to the vertical height of its lower part *B* below the horizon line *h-h* in the diagram. Besides, the horizon line *h-h* represents, or takes place at, the level of the highest point of the grand gallery, or very close to it. Then the remaining of the lower part of the rectangle *PI-C-P2-D* will appear as a base for the pyramid. In this diagram, the north-south cross-section of the pyramid and its base indicates the pyramidal symbol that appears in the ancient Egyptian texts .

4- Great Pyramid's Shafts and Entrance-passage, and its Spherical Domain.

Based on the trigonometric analysis and the data of both Petrie²⁰ and Gantenbrink²¹, it is found that the tilt of the northern and shorthorn shafts of the upper room is 32.47° and 45° , respectively, as shown in fig-7. The northern shaft is directed towards the northern point *Yn*, and the southern shaft is directed towards the point *L2* of the minimum obliquity angle. It means that pyramid's designer have encoded the positions of these important astronomical points that are located at its spherical domain in the tilts of these shafts. The first is the point of the North Pole "*Yn*" and the second is the point *L2* that identifies the location of the sun at noon on winter solstice during the year of the minimum obliquity angle. As shown in fig-7,

²⁰ - (Petrie, 1883).

²¹ - (Gantenbrink, 1994).

The value of the tilt of great pyramid's entrance passage belongs to one of the most important astronomical files on pyramids' design philosophy. The author will publish it in another paper. Reckoning the design quantity of this tilt is based on linking two frames of references: the frame of reference of pyramid's spherical domain and the frame of reference of the spherical domain of our solar system. Its mathematical equation matches to some extent the relativistic equation that has been formulated by Albert Einstein in his great and remarkable work that titled "Special Theory of Relativity."

5- Conclusion.

What have been said so far indicates that the pyramid's designer never put any piece of stone in his architectonic masterpiece without encoding scientific information. He encoded his knowledge for us, the settlers of the solar system or the Cs_{24+4} that he was calling it the "Ben" system, in order to let us observe his treasures that are made only by pieces of stones. During the days of *Ahmed Ibn-Toulon*, the excavations for finding treasures at the eastern side of the great pyramid, ended with the discovery of a red granite stele buried in sand. As most of the ancient Egyptian steles, it was written as poetry; and was translated to Arabic verses then²². Here below is a translation from Arabic to English by the author of this paper:

I am the builder of all pyramids of Egypt-y.
 They are my past, and for last is my property.
 I put in them all my sacred knowledge and my wise ideology.
 That will stand anti the evils until a moment in the path of eternity.
 But, the hidden pearly treasures of my majesty,
 Will not be safe due to the ill desire for robbery.
 I thought about I might die, and my sciences may disappear confidentially.
 Hence, I encoded them to be later known thoughtfully.
 My codes will break by the datum line of the path of eternity,
 Which I did quantify astronomically,
 Eight, nine, two, four, and seventy,
 After the mark of a hundred thousand cutely.
 And, then a portion of ninety²³,
 Will throw away the stones of my horizons and vanish quickly.
 Think about the stones that I did cut in deeply.
 They remain, I die, and then, they will collapse completely.

*By Hor-Maged-don, "Armageddon" the great Architectonician
 Designer of the Giza Pyramids.*

²² - Al-Suyuti (1445-1505AD, p.5).

²³ - He meant *Cos* of an angle; i.e., $Acos(0.89274) = 26.78$; which is close to $Acos(21.673/24.3)$. He refers to the date of earth's extinction, at the end of the obliquity range.

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