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PYRAMIDS AND ZIGGURATS AS THE ARCHITECTONIC REPRESENTATIONS OF THE ARCHETYPE OF THE COSMIC MOUNTAIN. Part II

4. The analysis of the data from Mexico

The Nahuatl term for the stepped temple-grave-pyramid *tzaqualli* means (according to W. Lehmann[24]): "hidden" or, "closed in itself."

B. de Sahagun[8] knew this term but he describes the pyramids from Teotihuacan and Cholula as "towers", "great mountains" or "mounds made by the human hand." The same does D. Durán[25], when he mentions the pyramid from Cholula.

The ideo-archetypical pattern of the Cosmic Mountain appears in Prehispanic Mexico in its archaic purity and primitiveness. First of all, there existed very strong and ritually rich cult of the natural mountains which were, at the same time, *vivified, personificated and deified.*

The passages of Sahagun (Libro 1, 1956, op. cit.) about particular gods show a curious association of very important deities, like Quetzalcoatl, Tlaloc, Chalchiuhtlicue, Cihuacoatl and others, with particular mountains, who, regardless that, might lead their own lifes in the religion, as the anthropomorphic figures. This cult has been especially apparent in the calendric feasts, like *Tepelhuitl* (= "the Feast of the Mountains"), so vividly described by both, Sahagun and Durán, *Atlcahualo* (= "a Lack of the Water"), devoted to Tlaloc (= "He Who Causes Germinating"), Matlalcueye (= "She of the Dark Blue Robe") and Chalchiuhtlicue (= "She of the Precious Stone Robe"), otherways called *Cihuailhuitl* (= "the Feast of Women") and, like *Quecholli* (= "Flaming", as the bird of gods).

The quoted texts[26] show unanimously the highly interesting association between mountain, human face and snake, on one hand, and the gods or *the deceased,* on the other.

Essentially, the same complex of the Snaky Living Mountain and the Underworld, we have assessed for Egypt in the figure of the goddess Mertseger, in fact, one of the forms of a more universal *Uatchet* → Hathor. This finds close parallels in the Mexican series of snaky forms of the Great Mother, also related to watery flowers in their attributes (see: Sahagun's description of "atavios de los dioses", 1956, op. cit.).

Among them, a very high position occupy: *Cihuacoatl* (= "Snake Woman"), *Quilaztli* (= "Green Tail"?), *Chicomecoatl* (= "7-Snake"), *Coatlicue* (= "Snakes Are Her Robe") who clearly merge with *Ixcuina-Tlazolteotl* (= "Four Faced—Goddess of Filth") and *Xochiquetzal* (= "Precious Flower"), also associated with serpents (Tlazolteotl with the Serpent of Carnal Emotions and Xochiquetzal with Quetzalcoatl, i. e. "Precious or Feath thered Serpent", which she may wear as her headdress).

Not accidentally, *Topiltzin-Quetzalcoatl-Ce Acatl* (= "Our Prince-Quetzalcoatl-1

Reed"), as the cultural heroe, highest priest and ruler of legendary Toltecs was born by *Mixcoatl-Totepeuh* (= "Cloud Serpent-*Our Mountain*") and *Chimalman* (= "Resting Shield", probably a numen of the Earth as a disc, see: Lehmann[24]). Furthermore, Topiltzin-Quetzalcoatl was bred by *Cihuacoatl-Quilaztli* (!!) and, after killing his father by the relatives, i. e. *Mimixcoa,* he buried his bones in the *temple-pyramid* (sic!) of the same Cihuacoatl-Quilaztli in *Colhuacan* (= "Place of this, who has a relative", i. e. "Place of Descent") represented iconically as the *mountain twisted to the left.* And this pyramid was called: *"the Temple of Mixcoatl's Mountain."* Actually, Quetzalcoatl was the incarnated god of the Wind and Life's Breath (= Ehecatl) and of the planet Venus (= Tlahuizcalpantecuhtli) whose nahualli (= "Alter Ego") and twin-god was *Xolotl* (= "Double One"), the Lord of the Evening Star and, in his dog-like form, the Lightning opening the way to the Underworld and playing the role of a Psychopompos (also, for *Tlachitonatiuh,* i. e. "Dead or Night Sun").

Topiltzin-Quetzalcoatl, with all his mythical biography (so strikingly ressembling the adventures of Goethe's Faust . . .) became the prototype of the Highest Initiate in the Mexican Religion. Therefore, up to the Aztec times, the elected highest priest was called: Quetzalcoatl-Totec-Tlamacazqui, i. e. Quetzalcoatl-Our Lord-Priest.

As the god, he was acting at the beginning of Creation, taking a part in resurrecting the dead mankind from the previous cosmogonic era and bringing the means for its life from *Tonacatepetl* (= "the Mountain of the Means of Life").

He was also closely associated with the Flowery Tree of Life with dragon-like root and with the Divine Precious Bird—Quetzal. As Topiltzin-Quetzalcoatl, *he was living in the stepped temple-pyramid* in Tula-Tollan and was doing his prayers and offerings (only flowers, butterflies and snakes!) to the highest god *Ometeotl* (= "God-Two", a Mexican version of Coincidentio Oppositorum of the Highest Creative Pair). It is said also that he was doing his manifold penancies on *4 mountains:* Xicocotl (= "In Region of Xicotes"?), Huitzcoc (= "Place of Thorns"), Tzincoc (= "Place of Thorny Plants"?) and Nonohualcatepec (= "Place of the Mountain of Dumbs").

It is worthy of further notice that Tonacatepetl has been cleaved by *Nanahuatl* (= "Knobby", who had to become the Sun of the 5-th Era) by use of the lightning what, in turn, might correspond to the moving Twin-Mountains, situated at the entrance to Mictlan (i. e. Underworld) and, that the legendary ruler of *Coatepec* (= "Snake-Mountain") was called *Quetzaltototl* (= "Quetzal-Bird").

With Nanahuatl (or Nanahuatzin), transformed by sacrificial fire in Teotihuacan into the Sun of the Present Era ("the Sun of Our Prince Quetzalcoatl"), we pass into the Sahagun's texts showing the significance of the pyramids.[27]

Thus, it is said that the main and greatest pyramids of the Sun and Moon were the places of making penance by the *Nanahuatzin and Tecciztecatl* (= "He of the Earth of Shells") done before their igneous transformation into the Sun and Moon. Also, the Teotihuacan pyramids served as the graves for rulers and lords, who after their death are going to become gods or spirits incarnated into different celestial bodies.

Unfortunately, there is a lack of verbal documentation for Mexico (at least, it is unknown for the present author) which would deal with the question of a sacral

importance of taking measurements in the rites of the foundation of the pyramids and, with a given unit of linear measure, not speaking about coincidencies of the dimensions with particular calendric cycles.

As for qualitative arguments, we may only rely on the realisation of statements listed in 2.2a−2.2e.

We may add to these general data that the pyramid El Castillo from Chichen Itza has 364 small steps and that 365 nichés appear in El Tajin, as well as, that 9 platforms of the pyramid from Tenayuca have been rhythmically constructed each 52 years, i. e. according to intervals of Xiuhmolpilli (= "the Bundle of Years" = 4 x 13 years), as it was shown by Marquina (see, Lehmann[24]).

Consequently, a certain relation to calendric cycles (here the solar ones) may be reasonably assumed for Mexican pyramids.

But, how to overcome the difficulty of a lack of information about the length of measuring unit?

The point of departure may be the fact that Duran gives all the dimensions in *cubits* which could be Spanisch "vara", equal to 0.832 m., which is very near to the length of "megalithic yard" = 0.829 m. The latter one has been discovered by A. Thom (1962[28]) and assessed by R. Müller (1970[29]) as the measure used by builders of the classic megalithic structures in Great Britain and, perhaps, also in Iberian Peninsula.

At the same time, this author (A. Wierciński, 1972[30]) in a series of his raciological studies on Prehispanic Mexico has found that the best working hypothesis for explaining the undoubted joint presence of African Negroids and Armenoids among "Olmecoid" groups—is to assume a sporadic transatlantic migration from the centers of Western Mediterranean megalithic cultures (for example, Los Millares, San Pedro?). This migration, which probably landed at the mouth of Panuco river (see, Sahagun[31]) could bring an inspiration towards erecting monumental stone sacral architecture together with the use of "megalithic yard". Not without an interest may be a comparison of Sahagun's notice about Toltecs[33] that they were so "speedy" to deserve the name: *Tlanquacemilhuitime* (= "Those Who Make A Journey of One Day By Each Step"!) with the fact that the megalithic yard is also equal to a lengthy human step.

At any rate, this hypothesis appeared very fruitful in preliminary analysis of the dimensions of the Sun pyramid from Teotihuacan, published in this journal (A. Wierciński, 1974−75[32]. Namely, there were demonstrated striking coincidencies with calendric cycles in the diagonals of the pyramid's bodies.

Now the more extensive analysis of this pyramid and the pyramid of the Moon will be presented below.

Both these pyramids have been selected for our numerical study because:

a) Teotihuacan was an old and very important cultic center, as it was shown above and,

b) the dimensions of these pyramids have been the object of an interesting geometrical reconstruction of Harleston (op. cit.[11]).

The departure material of dimensions given in meters and converted into mega-

lithic yards together with the results of suitable calculations are presented in the tables 5—8, and fig. 11.

First of all, it may be immediately seen from tables 5 and 6 that the length of the edge of the highest 6-th body of the Sun pyramid equal to 23 m.y. is repeated again as the height of the lowest, 1-st body. Moreover, the upper edge of the 1-st body measures exactly 10 x 23 m.y.

Secondly, the elevation of the 6-th body is almost exactly 1/6 of 23 m.y. and, it corresponds to the time interval of 13 (sic!) synodical months divided by 100 (13 x 29.5 = 383.5 days). If we connect these findings with the simple proportionalities found by Harleston and, with the observation that the length of the upper edge of the 4-th body amounting ca. 82.8 m.y. times π gives roundly the number 260 (i. e. specifically Mesoamerican Tonalpohualli cycle), it seems reasonable to suspect a very clever geometry which could programme the spatial structure of our pyramid in relation to particular cycles.

Since the measuring error should be the lowest for the small objects and, in any case, we deal with the pyramid (!), let us start from its top . . .

Thus, we may assume that the vertical elevation of the highest 6-th body, so nicely corresponding to the round of 13 synodical months, will be one of the key-lengths for the remaining dimensions of the pyramid.

Having some degrees of freedom in the measuring error for particular dimensions and accepting the principle of possibly simple proportions, there were calculated little refined, new values of bodies' dimensions (the same was done for the Moon pyramid) as multiplications of 3.835 m.y.

The deviations of the new heights in reference to primary Harleston's data *appeared to be almost none.*

Strikingly enough, the number 23.010 is divisible without any rest by 2.60 (23.010 : 2.60 = 8.850).

Also, it is worthy of a greater emphasize that:

$23.010 = 2.950 \times 7.80$ and, that : $3.600 \times 23.010 = 82.836 \simeq \dfrac{260}{\pi} \simeq d_{43}/$ (look for astronomical coincidencies at the table 1).

Consequently:

$$23.010 = 6 \times 3.835 = \frac{82.836}{3.600} \simeq \frac{260}{\pi \times 3.6}$$

Furthermore:

$$23.010 \simeq \frac{5.84 \times 116}{29.5} \simeq \frac{2.60 \times 260}{29.5} \simeq \frac{116 \times 116}{584} \simeq \frac{52 \times 260}{584}$$

Having at disposal the numbers: 3.835, 23.010 and 82.836 m.y., so pregnant with coincidencies with calendric cycles, it would be difficult not to fall to temptation to see their relations with particular heights (see, table 5).

Thus, all the heights h_i generated by 3.835 m.y. are divisible without any rest by 2.60, with the exception of $h_{4(1)}$.

But, $h_{4/1/}$ is simply 1/9-nth of 23.010 and:

$$h_{4/1/} + h_{4/2/} = 7.67 = 2 \times 3.835.$$

Can we approach a calendric meaning of the proportions:

$$\frac{h_{4/1/} = 2.55}{3.835} = 0.666... \quad \text{and:} \quad \frac{h_{/4/2/} = 5.12}{3.835} = 1.3333...?$$

A possible reply is the following one:

$$\frac{520}{780} = 0.666... \quad \text{and:} \quad \frac{780}{584} = 1.336 .$$

At present, after so promising results with the heights, let us see whether it will be possible to derive from them the values of all the horizontal dimensions (d_{ij}) of the edges (see, table 6), if we shall accept the conditions that they should be nearest to primary d_{ij} and simply proportional to 82.836 and so to 23.010, 3.835 and 2.60.

$$\Sigma\, h_i = 21 \times 3.835 = 80.535 = 82.836 - 2.301 \cong d_{43} .$$

Consequently:

$$82.836 + 4 \times 2.301 = 92.04 \cong d_{41}$$
$$92.04 + 5 \times 2.301 = 103.54 \cong d_{32}$$
$$103.54 + 15 \times 2.301 = 138.05 \cong d_{31}$$
$$138.06 + 12 \times 2.301 = 165.67 \cong d_{22}$$
$$165.67 + 18 \times 2.301 = 207.09 \cong d_{21}$$
$$207.09 + 10 \times 2.301 = 230.10 \cong d_{12}$$

(notice here that: $230.10 = 100 \times 2.301$ and that:

$$230.10 + 13 \times 2.301 = 260 \;!!),$$
$$230.10 + 20 \times 2.301 = 276.12 \cong d_{11}$$

and:

$$82.836 - 6 \times 2.301 = 69.03 \cong d_{51}$$
$$69.03 = 10 \times 2.301 = 46.02 \cong d_{52}$$
$$82.836 - 26.0 \times 2.301 = 23.01 \cong d_{62}$$

There remains only $d_{42} = 90.23$ m.y. which can not be so simply approximated.

Assuming that it must obey our rule of being totally divisible by 2.60, the nearest solution could be:

$$d_{42} = 34.800 \times 2.60 = 90.48 \cong d_{42}$$

Ultimately, all the accepted dimensions of the edges of particular bodies or platforms, together with calculated diagonals and relations to π, 828.36, 23.01, 3.835 and 2.60, represents table 6.

There were also calculated the relations of the particular circumferences of squares $4d_{ij}$ to 13 days "weeks" of Tonalpohualli.

In connection with this, it is worthy of notice that the remaining rests of the latter ones correspond exactly to integral products of the divisions d_{ij} or, if they are not integral, they approach ½ or ¼ of 23. $\overline{23.01}$

Of course, the very slight deviations from the primary Harleston's data (with only one strange exception of d_{22}) have caused the fact that all the previously observed coincidencies (A. Wierciński, 1976, op. cit.[32]) between sums of diagonals and the known calendric cycles persisted without any essential change, i. e. those of Mars at the base (780 + 1), Venus (584 + 1), Tonalpohualli (260), Mercure (2 x 117 or 4 x 117) or the simple divisions of Tonalpohualli into ½ , ⅓ , ¼ or ⅛ .

In reference to this, the present author wants to confess that in spite of finding the number 117, instead of 116 for the Mercure cycle, he did not dare to "refine better" the dimension of the edge d_{42}, where it appeared simply as the length of the diagonal.. But, after completing all these calculations for the Sun pyramid, he had an opportunity to receive (at last. .) the excellent study of J. E. Thompson on Maya hieroglyphic writing (1971[34]) who ascertained precisely the undoubted presence of the cycle of 117 days which descends from 9 x 13 i. e. the 9 Lords of the Night times 13 Lords of the Day! And Thompson also supposes that this time-interval is related to the Mercure cycle.

It is worthy of further mentioning that the more complicated shape of the 4-th body with 3 edges is the richest in direct coincidencies with calendric cycles i. e.: with Tonalpohualli (all edges, diagonals of square $4d_{41}$ and by π with d_{43}), Mercure or 9 x 13 interval (diagonals of $4d_{43}$), Mercure and Mars (d_{42}), Lunar (d_{41}) and Solar one ($4d_{41}$ and $4d_{42}$).

Also, shall we be too far reaching, if we would emphasize that:

$\pi \simeq \dfrac{13 \times 29.5 \times 29.5 \ (Moon)}{360 \times 10 \ (Sun)} = 3.142$, what could correspond to a numerical and geometrical expression of the "Mystical Marriage Between Sun and Moon", so important in the astrobiological religons?

But, in Prehispanic Mexico the π-value could be also approximated very closely by the equation:

$$\pi \simeq \frac{260}{7.80 \times 2.95 \times 3.60} = 3.139 \ldots.$$

The fig. 12 represents the idealized architectonic structure of the Sun pyramid according to the refined dimensions of this study. The numerical analysis of the Moon pyramid from Teotihuacan could be only based on the vertical dimensions and the horizontal dimensions of the overall base, which is rectangular. This was caused by the fact that Harleston did not publish direct data for the breadths of particular bodies, and their deciphering from his plans could be burdened by too great errors.

The pyramid consists of 5 bodies and more complicated "adosado" facing North-Western direction.

The table 7 showes the heights of the bodies in main pyramid and in "adosado".

It can be immediately seen that they obey strictly the same rules which were discovered for the heights of the Sun pyramid. Thus, the value 3.835 m.y. is again the leading dimension and 4 heights of the bodies 2-nd to 5-th are quite the same as in the Sun pyramid, i. e.: $M.h_2 = S.h_3$, $M.h_3 = S.h_5$, $M.h_4 = S.h_{4(1+2)}$ $M.h_5 = S.h_{4(2)}$ and: $M.h_1 = 2 \times S.h_3$ while the "adosado's" heights are equal: $M.h_2 = S.h_4 + h_5$ and $M.h_{11} = 2 \times S.h_5$ respectively.

They are also divisible without a rest by 2.60 with 2 exceptions of the heights of "adosado's" bodies.

The total height of 5 bodies of the main pyramid is equal to 53.69 m.y. which expresses clearly its lunar meaning, becauses:

$$5369 = 14 \times 383.5 \ (= 13 \times 29.5) = 28 \times \frac{13}{2} \times 29.5.$$

Also, the dimensions of overall base presented in the table 8 are not devoided of time-spatial coincidencies.

The length is divisible without a rest by 23.01, 3.835 and 2.60. The breadth which is simply 6 x 28 or 60 x 2.80, when divided by 23.01 gives 7.30 which is 2 x 3.65.

The sum of diagonals divided by 3.835 is a half of Tonalpohualli and, consequently, when divided by 2.60 is a half of the "Lunar Year".

Thus, the length seems to be bound with the synodical month of 29.5 days, while the breadth—with the rounded stellar month of 28 days, and both these lunar cycles are included, at the same time, in the total height of the pyramid.

It is worthy to mention that "a style" of possible coding of time-spatial relations in the architecture of both Mexican pyramids is different in comparison to the Egyptian pyramids or the Etemenanki ziggurat. Firstly, the circumferences do not seem to include a variation of specific summing of the particular cycles and, secondly, the proportions of side-edges or diagonals to heights are devoided of interesting meanings in this respect.

It should be also firmly emphasized that both Mexican pyramids show the presence of coincidencies with the calendric cycles of Sun, Moon, Venus, Mars, Mercure (if represented by the cycle: 9 x 13 days) and, especially, with Tonalpohualli (= Mayan Tzolkin), being so specifically Mesoamerican, while there is a lack of evidencies for relations to Saturn or Jupiter. These data distinguish Teotihuacan buildings from those of Egypt and Mesopotamia.

All these is one of the arguments against a pure randomness of the discovered time-spatial relations.

Another valid argument, in this respect, is the fact that in the case of a convertion of the dimensions into another linear unit of measure, for example into meters it, will cause an immediate decrease of the coincidencies. If even some of them would appear (see, for example, the circumference of overall base of the Moon pyramid equal to ca. 585 m. or edge d_{31} of the Sun pyramid near to ca. 116 m.), the wholeness of the data will be devoided of any "structural" logics.

5. Conclusions

The qualitative and numerical analysis of the architectonic structure of 28 Egyptian pyramids, Entemenanki from Babylon and the two main pyramids from Teotihuacan, carried out in this paper, has shown a high probability of the statement that this type of sacral buildings were the representations of the pattern of the archetype of the Cosmic Mountain. The selected and quoted texts also richly supported this hypothesis.

It appeared that time-spatial relations were simply coded numerically in particular dimensions, especially, in diagonals, heights or circumferences.

The null-hypothesis of purely random coincidencies between time and space seems to be far less probable than the opposite statement, though, a proper statistical testing of significance could not be applied. A necessity of converting the dimensions into native units of linear measure, in order to obtain a richness of such coincidencies, supports the ascertainment of their not accidental presence.

At the end of this paper, its author hopes that he has approached to its reader the meaning of the expression used as the motto ...

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ANMERKUNGEN

24 Die Geschichte der Königreiche von Colhuacan (translated and commented by W. Lehmann). Kohlhammer, Stuttgart 1974.
25 Durán D. Fray: Book of the Gods and Rites and the Ancient Calendar (translated by F. Horcasitas and D. Heyden). University of Oklahoma Press, Oklahoma 1971.
26 Fragments of texts referring to the cult of mountains:
"1. — Todos los montes eminentes, especialmente donde se arman nublados para llover, imaginaban que eran dioses, y cada uno de ellos hacien su imágen según la imaginación que tenian de ellos."
"7. — el que habla hecho voto a algunos o algunos montes o de estos dioses hacia su figura de una masa que se llama tzoalli y ponianlos en figura de personas."
"9. — Los que las hacian ponian les dientes de pipitas de calabaza y las ponian en lugar de ojos unos frijoles negros que son tan grandes como babas, aunque no de la misma hechura, y *llámanlos* ayocotli;"
"10. — en los demás atavios ponianselos según la imagen con que los imaginan y pintan, *al dios del viento, como Quetzalcoatl; al aqua, como a la diosa del agua; a la lluvia como al dios de la lluvia, y a los otros montes según las imágenes con que los pintan;"* (Sahagun, libro 1, cap. XXI).
"1. — Al decimo tercero mes llamaban tepelhuitl. En la fiesta que se hacia en este mes cubrian de masa de bledos unos palos, que tenian *hechos como culebras,* y hacian unas imágenes de montes, fundadas sobre unos palos hechos a *manera de ninos,* que llamaban hecatotonti; era de masa de bledos la imagen del monte, poniale delante junto unas masas rollizas y larguillas de masa de bledos a *manera de huesos,* y estos llamaban yomio."
"2. — Hacian estas imágenes a *honra de los montes altos* donde se juntan los nubes, y *en memoria de los que habian muerto en agua o heridos de rayo, y de los que no se quemaban sus cuerpos sino que los enterraban."*
"6. — Algunos hacian estas imágenes de noche, antes de amanecer cerca del dia. La cabeza de *cada un monte tenia dos caras, una de persona y otra de culebra,* y untaban la cara de persona con ulli derretido, y hacian unas tortillas, pequeñuelas de masa de bledos amarillos, y ponianlas en las mejillas de la cara de persona, de una parte y de otra; cubrianlas con unos papeles que llamaban teteuitl; ponianlos unas corozas en las cabezas, con sus penachos."

"9. — En esta fiesta mataban algunas mujeres a honra de los montes o de los dioses de los montes. A la de una de ellas llamaban Tepéxoch, a la segunda Matlalcue, y a la tercera Xochitécatl, y la cuarta Mayáuel que era imágen de los maqueyes. El quinto era hombre, y llamabanle Minauatl; este hombre era imagen de las culebras." (Libro 2, cap. XXXII).

"A los diez dias de este mes, iban todos los mexicanos y tlatelulcanos a aquellos montes que llaman Zacatepec y dicen que es *su madre aquel monte.* El dia que llegaban hacian xacales o cabanas de heno y hacian fuegos, y ninguna otra cosa hacian aquel dia" (this fragment refers to the feast Quecholli, Libro 2, cap. XIV). Duran's chronicle includes similar information together with some other interesting details: Chapter XVII and XVIII:

"It should be known that when the solemn day of the feast (i. e. Tepelhuitl) of this hill (i. e. Popocatepetl) arrived a great multitude of people from the locality dedicated themselves to the grinding of amaranth seed and maize kernels, and with that dough they formed a hill representing the volcano. They gave him his eyes, his mouth and they placed him in a honoured spot in the home. And around him were set many snaller hills of the same amaranth-seed dough, each with *his eyes and mouth, each one possessing its own name: one, Tlaloc; another Chicomecoatl or Iztactepetl, Matlalcueya; together with Cihuacoatl and Chalchiuhtlicue,* the latter the goddess of rivers and springs which flowed from this volcano . . . and offerings and ceremonies were made to them. After the dough had been dressed with the same solemnity customary in slaying and sacrificing the men who represented gods, *the dough representing the hills was sacrificed in the same way. The ceremony concluded, this dough was eaten as a sacred thing.* On this day, the priests went to the woods to seek the most distorted and quarled branches they could find, carrying them to the temple and covering them with dough. These were called *Coatzintli, which means a Twisted Thing like a Snake.* They were adorned with eyes and mouth and were honored with the same rites and offerings . . . This repast was called *Nicteocua which means I Eat God.* (!!)."

27 Sahagun's texts referring to significance of pyramids in Teotihuacan:

"114. — Desde Tamoanchan iban a hacer sacrificios al pueblo llamado Teotihuacan, *donde hicieron a honra del sol y de la luna dos montes,* y en este pueblo se elegian los que habian de regir, a los demás por lo cual se llamó Teotihuacan, que quiere decir Ueitiuacan, lugar donde hacian señores."

"115. — Alli también *se enterraban los principales y senores, sobre cuyas sepulturas se mandaban hacer tumulos de tierra, que hay se ven todavia y parecen como montecillos hechos a mano;* y aun se ven todavia los hoyos donde sacaron las piedras, o penas de que se hicieron los dichos tumulos. Y los tumulos que hicieron *al sol y a la luna, son como grandes montes edificados a mano,* que parece ser montes naturales y no lo son y aun puede ser cosa indecible decir que son edificados a mano, y cierto lo son, porque los que los hicieron entonces eran *gigantes* (see Duran below) y aun esto se ve claro en el cerro o monte de Chollullan que se ve claro estar hecho a mano, porque tiene adobes y encalados."

"116. — y se llamó Teotihuacan, el pueblo de Teotl que es dios, *porque los senores que alli se enterraban despues de muertos los canonizaban por dioses* y que no se morian sino que despertaban de un sueño en que habian vivido; por lo cual decian los antiguos que cuando morian los hombres *no perecian, sino que de nuevo comenzaban a vivir, casi despertando de un sueno, y se volvian en espiritus o dioses.*"

"117. — Les decian: "Señor señora, despiértate que ya comienza a amanecer, *que ya es alba, que ya comienzan a cantar las aves de plumas amarillas, y que andan volando la mariposa de diversos colores.*" Y cuando alguno se moria, de él solian decir que ya era teotl, que quiere decir que ya era muerto; para ser espiritu o dios; y aun creian los antiguos, engañandose, que los señores cuando morian se volvian en dioses, lo cual decian porque fuesen obedecidos o temidos los señores que eran regian, y que *se volvian en sol y otros en luna, y otros en otros planetas.*" (Libro 9, adiciones, cap. XXIX).

Furthermore, Sahagun says:

"4. — Decian que antes que hubiese dia en el mundo que se juntaron los dioses en aquel lugar que se llama Teotihuacan, que es el pueblo de San Juan, entre Chiconauhtla y Otumba, dijeron los unos a los otros dioses: "Quien tendrá cargo de alumbrar al mundo?""

"11. — A cado uno de éstos (i. e. Tecciztecatl and Nanahuatl-Nanahuatzin) *se les edificó una torre, como monte;* en los mismos montes hicieron penitencia cuatro noches. *Ahora se llaman estos montes tzaqualli,* (y) éstan ambos cabe el pueblo de San Juan que se llama Teotihuacan." (Libro 7, cap. II).

Duran adds about Cholula:

"In Cholula there was a man-made hill called *Tlachihualtepetl* (= "Artificial Mound"). Today it is called Man-made-Mountain. It was called thus because it is said that *the giants built it in order to climb to the heavens;* today it stands in ruins. This hill was much hallowed; there were the usual and unceasing adoration, the prayers, offerings and slying of men "...." The principal aim in honouring these hills, in praying and pleading, *was (not to honor) the hill itself. Nor should it be considered that (hills) were held to be gods or worshipped as such. The aim was another: to pray from that high place to the Almighty, the Lord of Created Things, the Lord by Whom They Lived* (= Ipelnemohuani)" (Chapter XVIII).

28 Thom A.: The megalithic unit of length. Journal of Royal Statistical Society, vol. 125, p. 243, 1961.

29 Müller R.: Der Himmel über den Menschen der Steinzeit. Springer, Heidelberg 1970.

30 Wierciński A. An anthropoligical study on the origin of "Olmecs". Swiatowit, vol. 33, p. 143, Warszawa 1972.

Wierciński A.: Inter—and intrapopulational racial differentiation of Tlatilco, Cerro de las Mesas, Teotihuacan, Monte Alban and Yucatan Maya. Swiatowit, vol. 33, p. 175, Warszawa 1972.

31 Relation of Sahagun about legendary landing of first inhabitants of Mexico at the Golf Coast:
"107. — Ha años sin cuenta que llegaron los primeros pobladores a estas partes de la Nueva España, que es casi otro mundo, y viniendo con navios por la mar aportaron al puerto que ésta hacia el norte; y porque alli se desembarcaron se llamó Panutla, casi Panoayan, lugar donde llegaron los que vinieron por la mar, y al presente se dice aunque corruptamente Pantlan. Y desde aquel puerto comenzaron a caminar por la ribera de la mar mirrando siempre las sierras nevadas y los volcanes, hasta que llegaron a la provincia de Guatimala siendo guiados por su sacerdote, que llevaba consigo a su dios de ellos, con quien siempre se aconsejaba para lo que habian de hacer."
"108. — Y fueron a poblar Tamoanchan, donde estuvieron mucho tiempo y nunca dejaron de tener sus sabios o adivinos que se decian amoxoaque, que quiere decir hombres entendidos en las pinturas antiguas, los cuales aunque vinieron juntes, pero no se quedaran con los demás en Tamoanchan, porque dejándolos alli se tornaron a embarcar y llevaron consigo todas las pinturas que habian traido de los ritos y de los oficios mecánicos"(Libro 9, cap. XXIX).

32 Wierciński A.: Megalithic yard in Teotihuacan? Almogaren vol. V—VI, p. 271, Hallein 1974—75.

33 Sahagun says about Toltecs of Topiltzin-Quetzalcoatl:
2.8 — ". . . y los vasallos que tenia (i. e. Quetzalcoatl) eran muy ligeros para andar y llegar a donde ellos querian ir, y se llamaban Tlanquacemilhuitime (= "those, who make a journey of one day by each step")" (Libro 3, cap. III).

34 Thompson J. E.: Maya Hieroglyphic Writing. University of Oklahoma Press, Norman 1971.

Maya-Archäologie

HARTUNG, HORST — Die Zeremonialzentren der Maya
EIN BEITRAG ZUR UNTERSUCHUNG DER PLANUNGSPRINZIPIEN

Lieferbar — Available

In der vorhandenen Literatur über Zeremonialzentren der Maya ist oft davon die Rede, daß Unregelmäßigkeiten der Anlagen auf jene des Geländes oder auf ihr langsames Wachsen ohne vorgefaßten Plan zurückzuführen wären. Andererseits wird auch oft eine angeblich genaue (oder fast genaue) Orientierung nach den Kardinalpunkten angeführt. Nur gelegentlich ist ein Hinweis darauf zu finden, daß es wahrscheinlich eine bewußte städtebauliche Planung gab, die auf bestimmten Prinzipien basiert haben muß; niemals wurde jedoch bisher der Versuch unternommen, diese Prinzipien zu definieren oder die Annahme ihrer einstigen Existenz durch eine exakte Beweisführung zu stützen.

Der Verfasser des vorliegenden Werkes hat nach Studium des vorhandenen planimetrischen Materials und unter Berücksichtigung von möglichen astronomischen Bezugspunkten einerseits die bestehenden Interpretationsversuche der Hieroglyphentexte, andererseits visuelle Beobachtungen an Ort und Stelle dazu benutzt, um Bezugslinien im Plansystem der Zeremonialzentren aufzuzeigen.

AKADEMISCHE DRUCK- u. VERLAGSANSTALT
GRAZ – AUSTRIA
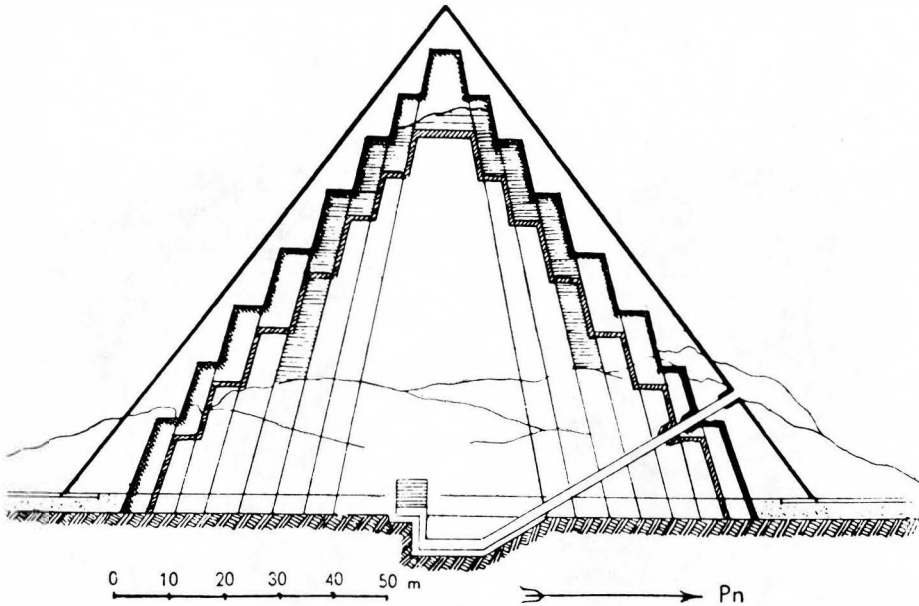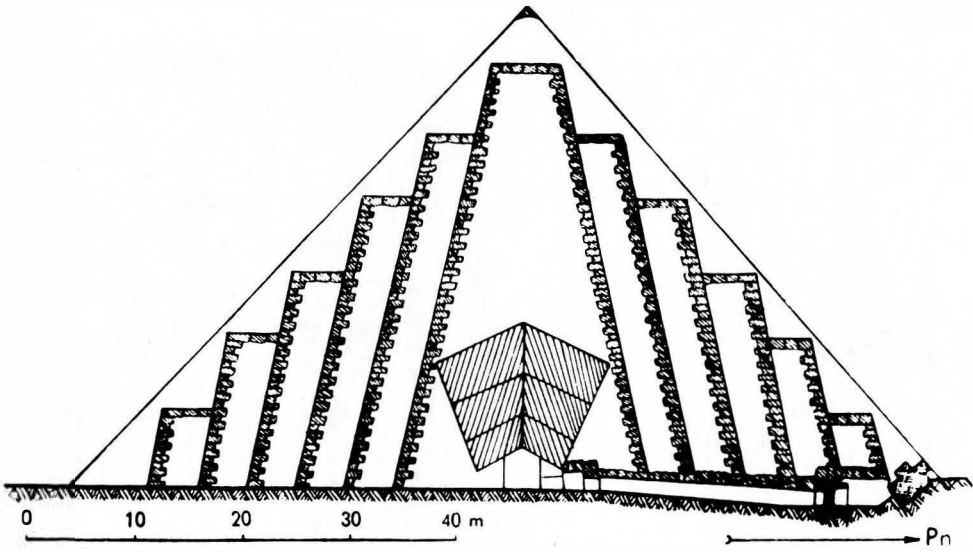
Figs. 1–2: The true Egyptian pyramids from Meidum and Abusir showing hidden stepped structure (according to Fakhry, 1965, op. cit.).
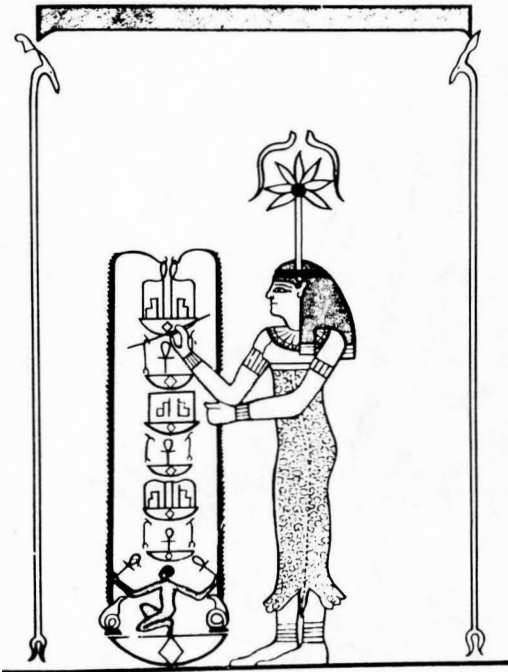
Fig. 3: The goddess Sesheta (according to Budge, 1969, op. cit.).

4

5

6

Figs. 4–6: Different forms of goddess Mertseger — the Living Mountain of the West (steles from Deir et Medina).

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Fig. 7: The Bennu-Bird on the pyramid's top (according to Fakhry, 1965, op. cit.).
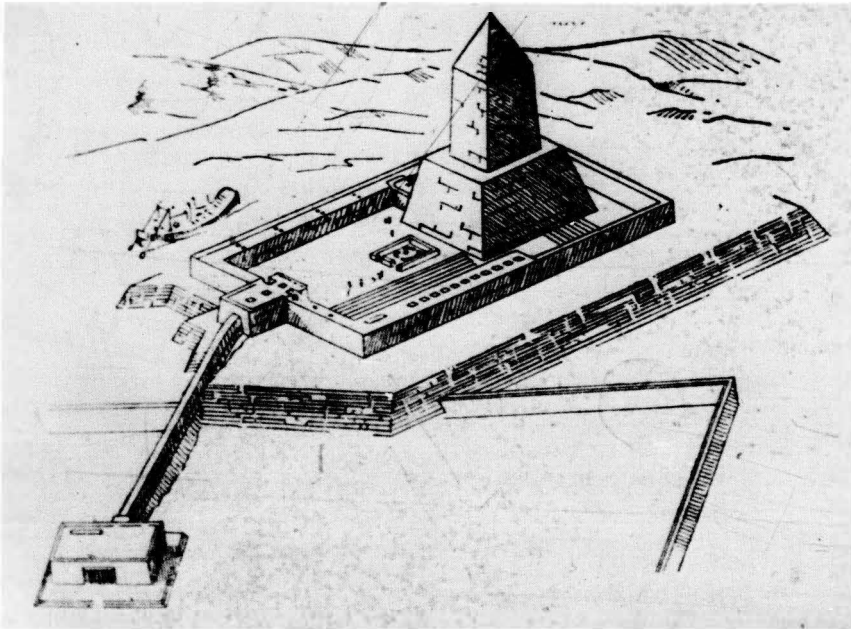
Fig. 8: The temple from Abusir (according to Daumas, 1973, op. cit.).

Fig. 9: Hathor-Nut pouring the Water of Life for the Soul Ba of the deceased (according to Budge, 1969, op. cit.).

Fig. 10: The deified Imhotep (according to Budge, 1969, op. cit.).
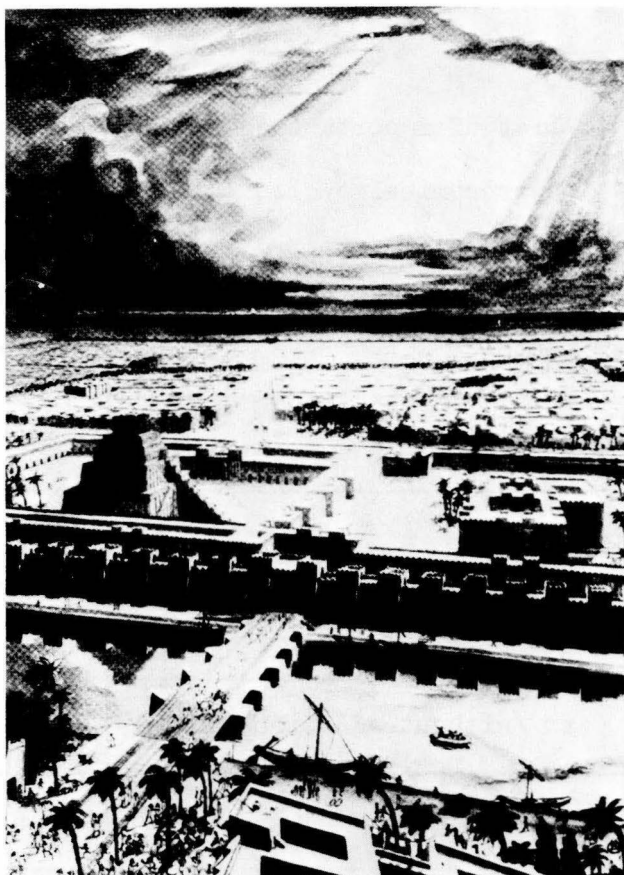
Fig. 11: A general view of Babylon with Etemenanki ziggurat (according to Parrot, 1949, op. cit.).
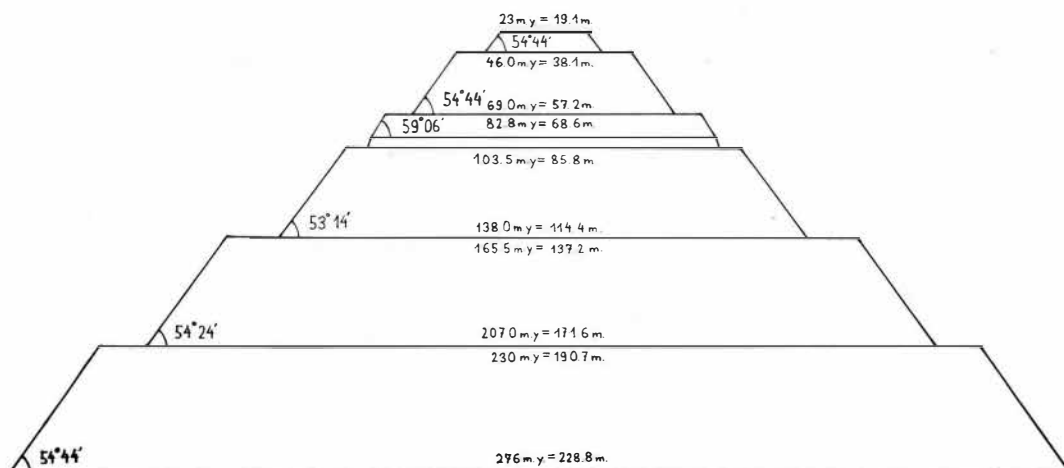
Fig. 12: The idealized Architectonic structure of the Sun Pyramid from Teothihuacan.

Table 1. List of important calendric astronomical cycles /in days/

Stellar month	27.6 ≃ 28
Synoclical month	29.5 ≃ 30
Mercure cycle	116
Tonalpohualli	260
Solar year /without additional days/	360
Solar year	365
13 months "Lunar year"	383.5
Saturn cycle	378
Jupiter cycle	399
Venus cycle	584
Mars cycle	780

Table 2. Comparison of the Lords of first 14 Finger Breadths
of the Royal Cubit with the Lords of Waxing Moon and
the Ennead from Heliopolis.

Lords of Finger Breadths	Lords of Days of Waxing Moon	Ennead from Heliopolis /a cosmogonic order/
1. Ka	1. Atum	1. Atum
2. Shu	2. Shu	2. Shu
3. Khent /= Hathor as Tefnut/	3. Tefnut	3. Tefnut
4. Geb	4. Geb	4. Geb
5. Nut	5. Nut	5. Nut
6. Osiris	6. Horus	6. Osiris
7. Isis	7. Isis	7. Isis
8. Seth		8. Seth
9. Nephthys	8. Nephthys	9. Nephthys
10. Horus	9. Heru-em-het-Aa	
11. Mest /= Amseth of the South/	10. Amseth	
12. Hapi /of the North/	11. Hapi	
13. Tuamatef /of the East/	12. Tuamatef	
14. Gebhsennuf /of the West/	13. Gebhsennuf 14. ? /not identified/	
15. Toth	15. Toth	

Table 4. Time and space in dimensions of Etemenanki ziqqurat from Babylon.

Body	Side of base	Height of body	Circum-ference of base	Circum-ference of side-wall	Diagonal of base	Diagonal of wall	Total diagonal of the body	Probable patron of the body
I	180a. = 5400u. = 15 x 360	66a. = 1980u. = 5.5 x 360	720a. = 2 x 360 = 21600u. = 60 x 360	492a. = 378 + 116 = 14760u. = 41 x 360	254.55a. = 509.2a. = ?	191.7a. 2xd = 383.4 = 29.5 x 13	262.97a. 4xd = 1051.88 = 31556u. 272 x 116	Mercure
II	156a. = 4680u. = 13x360 = 6x780	36a. = 1080u. = 3x360	624a. = 18720u. = 52x360 = 24x780	384a. = 11520u. = 32 x 360	220.6a. 2xd = 441.2a. = 13235u.	160.1a. 2xd = 320.2a. = 9606u.	223.5a. 4xd = 894a. = 26820u. 74.5 x 360	Mars
III	120a. = 3600u. = 10x360	12a. = 360u. = 360	480a. = 14400u. = 40 x 360	264a. = 7920u. = 22 x 360	169.7a. 2xd = 339.4a. = 10182u. = ?	120.6a. 2xd = 241.2a. = 7236u. = ?	170.13a. 4xd = 680.5a. = 20415u. 35 x 584	Venus
IV	102a. = 3060u. =8.5 x 360	12a. = 360u. = 360	408a. = 12240u. = 34 x 360	228a. = 6840u. = 19 x 360	144.25a. 2xd = 288.5a = 8655u. = ?	102.7a. 2xd = 205.4a. = 6162u. = ?	144.75a. 4xd = 579a. = 17370u. = 48.25 x 360 ≈ 49 x 354 ?	Moon
V	84a. = 2520u. = 7 x 360	12a. = 360u. = 360	336a. =10080u. = 28 x 360	192a. = 5760u. = 16 x 360	118.8a. 2xd = 237.6a. = 7128u. = ?	84.9a. 2xd = 169.8a. = 5094u. = ?	119.4a. 4xd = 477.6a. = 14328u. = 39.8 x 360	Jupiter
VI	66a. = 1980u. = 5.5x360	12a. = 360u. = 360	264a. = 7920u. = 22 x 360	156a. = 4680u. = 13 x 360 = 6 x 780	93.3a. 2xd = 186.7a. = 5601u. = ?	67.1a. 2xd = 134.2a. = 4026u. = ?	94a. 4xd = 376a. / ≈ 378; = 11280u. = 30 x 376-60	Saturn
VII	48a. = 1440u. = 4 x 360	30a. = 900u. = 2.5 x 360	180a. = 5400u. = 15 x 360	144a. =4320u. = 12 x 360	63.8a. 2xd = 127.6a. = 3828u. = ?	51.6a. 2xd = 1032a. = 3096u. = ?	70.5a. 4xd = 282a. = 8460u. = 23.5 x 360	All planets ?
	42a. = 1260u. =3.5 x 360			156a. = 4680u. = 13 x 360 = 6 x 780		56.6a. 2xd = 113.2a. = 3396u. = ?		

Table 3. Time and Space in main dimensions of Egyptian Pyramids.

Locality, Pharaoh, Dynasty	Depar- ture data in m.	Sugges- ted di- mensions in r.c.	Diffe- rence in m.	Diago- nal in r.c.	Relations of side to height, and diagonal to height	Circumference of the basis	Other probable coincidencies	Angle of wall: pri- mary sugges- ted
Sakkara, Zoser, III	125.3/E/ 109.1/E/ 62.2/E/	239.43 208.57 119	+0.11 +0.15 +0.13	317.5	$\frac{239.43}{119} = 2.012 = ? \frac{208.57}{119}$? $\frac{317.5}{119} = 2.668 \simeq \frac{2 \times 780}{584}$	$\underline{896} = 32 \times 28 = 780 + 116 = 3 \times 28 + 7 \times 116 = 3.5 \times 28 + 2 \times 399$	$\frac{10 \times 116}{3.175} = 365.3$; $119 \times 3.16 \simeq 378$	–
Sakkara, Sekhem- khet, III	120.4/E/ 70.1/E/	230 134.3	+0.07 +0.25	325.3	$\frac{134300}{230} = 583.9$ $\frac{325.3}{134.3} = 2.424 = ?$	$\underline{320} = 5 \times 28 + 780 = 12 \times 28 + 584 = 6 \times 28 + 2 \times 376 = 20 \times 28 + 360 = 8 \times 28 + 6 \times 116$	$13 \times 28 = 364$; $12 \times 28 + 23 = 359$; $20 \times 28 + 23 = 583$; $27 \times 28 + 23 = 779$; $14 \times 28 + 7 = 399$; $\frac{325.3}{28} = 116.2$	–
Zawiyet el Aryan Khaba /?/ III	84.1/E/ –	161 –	+0.21 –	227.7	–	$\underline{644} = 23 \times 28$	$2 \times 227.7 \simeq 28 \times 2 + 399$	–
Meidum, Seneferu/?/ IV	144.2/E/ 92 /P/	276 175.2	+0.40 -0.23	390/1/	$\frac{276}{175.2} = 1.575 \simeq \frac{365.3}{2 \times 116}$ $\frac{390}{175.2} = 2.226 = ?$	$\underline{1104} =$	$390 \times 2 = 780$; $1752 = 3 \times 584$	51° 53′ 51° 49′
Dahshur, Seneferu, IV /Bent Pyra- mid/	189/E/ 49.1/P/ – –	360 93.5 224.5 101.5	-0.42 +0.12 – –	509.1 317.5	$\frac{224.5}{101.5} = 2.212 \simeq \frac{2 \times 399}{360}$; $\frac{360}{93.5} = 3.850 = ?$ $\frac{317.5}{101.5} = 3.128 = ? \frac{509}{93.5} = 5.444 = ?$	$\underline{1440} =$ $\times 28 + 10 \times 116$ $\underline{898} = 6 \times 28 + 2 \times 365$	$360 + 224.5 = 584.5$; $3 \times 195 = 585$; $4 \times 195 = 780$ $\frac{360}{224.5} = 1.604 \simeq \frac{584}{365}$; $\frac{10 \times 116}{3.175} = 365.3$; $\frac{365.3}{360}$ 101.5	43° 21′ 42° 8′ 54° 31′
Dahshur, Seneferu, IV	219.2/E/ 99 /P/	419 188	+0.31 -0.52	592.6	$\frac{419}{188} = 2.229 = ?$ $\frac{592.6}{188} = 3.152 \simeq \frac{365.3}{116}$	$\underline{1676} = 32 \times 28 + 780 = 39 \times 28 + 584 = 2 \times 376 + 33 \times 28 = 47 \times 28 + 360 = 6 \times 28 + 13 \times 116$	$188 \times 2 = 376$	43° 40′ 41° 54′
Giza, Cheops, IV	230.4/E/ 146.6/E/	440 280	+0.04 + 0.05	622.25	$\frac{440}{280} = 1.571 \simeq \frac{365}{2 \times 116}$ $\frac{622.25}{280} = 2.222 = ?$	$\underline{1760} = 28 \times 35 + 780 = 42 \times 28 + 584 = 50 \times 28 + 360 = 49 \times 28 + 365 + 23$	$280 = 10 \times 28$; $2 \times 622.25 = 1244.5 = 31 \times 28 + 376.5$	51° 50′ 51° 49′
Giza, Chephren, IV	215.7/E/ 143.6/E/	413 273.5	+0.61 -0.30	584/1/	$\frac{413}{273.5} = 1.510 = ?$ $\frac{584}{273.5} = 2.135 \simeq \frac{780}{365.3}$	$\underline{1652} = 59 \times 28 = 56 \times 29.5 = 28 + 14 \times 116$		53° 10′ 52° 50′
Giza, Mycerinoe, IV	108.5/E/ 66.5/E/	206.5 127.3	-0.35 +0.23	292/1/	$\frac{206.5}{127.3} = 1.622 \simeq \frac{584}{360}$ $\frac{292}{127.3} = 2.294 = ?$	$\underline{826} = 28 \times 29.5 = 7 \times 116 + \frac{28}{2}$	$2 \times 292 = 584$	51° 51°
Abu Roash, Djedefre, IV	97.5/E/ to 100 – /P/	188 –	in bet- ween	265.9	–	$\underline{752} = 6 \times 28 + 584 = 14 \times 28 + 360 \simeq 2 \times 28 + 6 \times 116 = 13 \times 28 + 365 + 23$	$2 \times 266 = 532 = 19 \times 28$; $2 \times 188 \simeq 378$	–
Sakkara, Userkaf, V	70.4/E/ 44.5/P/	133 85.6	-0.33 +0.31	188/1/	$\frac{133}{85.6} = 1.554 \simeq \frac{584}{378} \simeq \frac{360}{2 \times 116}$ $\frac{188}{85.6} = 2.196 = ?$	$\underline{532} = 19 \times 28$	$2 \times 188 \simeq 378$	52° 11′
Abu Sir, Sahure, V	78.3/E/ 49.4/E/	150 94	+0.24 -0.14	212.1	$\frac{150}{94} = 1.596 \simeq \frac{584}{365.3}$ $\frac{212}{94} = 2.256 = ?$	$\underline{600} = \qquad 9 \times \times 28 + 3 \times 116$	$4 \times 94 \simeq 378$; $2 \times 212 = 424 = 11 \times 28 + 116$	50° 36′ 51° 27′
Abu Sirs, Neferikare, V	109.7/E/ -106.9/ 69.5/E/	206.5 133 133	in bet- ween, +0.04	292/1/	$\frac{206.5}{133} = 1.553 \simeq \frac{584}{378}$ $\frac{292}{133} = 2.195 = ?$	$\underline{826} = 28 \times 29.5 = 7 \times 116 + \frac{28}{2}$	$2 \times 292 = 584$	53° 52° 11′
Abu Sir, Neuserre, V	83.5/E/ 52/P/	160 100	+0.29 +0.38	226.3	$\frac{160}{100} = 1.600 = \frac{584}{365}$ $\frac{226.3}{100} = 2.263 = ?$	$\underline{640} = 2 \times 28 + 584 = 10 \times 28 + 360$	$2 \times 226 = 452 = 12 \times 28 + 116$	51° 5′ 50° 48′
Sakkara, Isesi, V	80.8/E/ –	154.2 –	0 –	218.1	–	$\underline{617} = 28 \times 9 + 365$	$\frac{436}{1.16} = 376$	–
Sakkara, Unas, V	128.1/E/ 44/P/	129 83	+0.47 -0.52	182.4/ /1/	$\frac{129}{83} = 1.554 \simeq \frac{584}{378}$ $\frac{182.4}{83} = 2.198 = ?$	$\underline{516} = 6 \times \times 28 + 3 \times 116$	$2 \times 182.4 = 364.8$	52° 11′
Sakkara, Teti, VI	64/E/- 65/P/	123 –	in bet- ween	174/!/	–	$\underline{492} \simeq 378 + 116$	$2 \times 174 = 348 = 3 \times 116$	–
Sakkara, Merenre, VI	95/P/	181	-0.19	256	–	$\underline{724} = 5 \times 28 + 584 = 13 \times 28 + 360$	$2 \times 256 = 512 = 10 \times 28 + 2 \times 116$	–
Sakkara, Pepi II, VI	76/P/ 52/P/	146 99.75	+0.52 +0.24	206.5	$\frac{146}{99.75} = 1.464 = \frac{584}{399}$ $\frac{206.5}{99.75} = 2.070 = \frac{780}{378}$	$\underline{584} = 8 \times 28 + 360$	$99.75 \times 4 = 399$	53° 53° 48′
Sakkara, Ibi, VII	31/E/ –	59.5 –	+0.17 –	84.2	–	$\underline{238} = 8.5 \times 28$	$84 = 3 \times 28$	–
Deir el Ba- hari, Mentu- hotep, XI	21.4/E/ –	41.3 –	+0.30 –	58.4 /?/-	–	$\underline{165.2} = ?$	$58.4 \times 10 = 584$	–
Lisht Amen- emhat I, XII	90.2/E/ 58/P/	171 110	-0.73 -0.38	241.8	$\frac{171}{110} = 1.554 \simeq \frac{584}{378}$ $\frac{241.8}{110} = 2.198 = ?$	$\underline{684} = 12 \times 28 + 3 \times 116$	$242 \times 2 = 484 = 9 \times 28 + 2 \times 116$	54° 52° 11′
Lisht, Senu- seret I, XII	107.3/E/ 61/E/	204 116/1/	-0.43 -0.20	288.5	$\frac{204}{116} = 1.759 = ?$ $\frac{288.5}{116} = 2.487 = ?$	$\underline{816} = 584 + 2 \times 116$		49° 48° 40′
Dahshur, Amenemhat III	101.8/E/ 58/P/	195 109.5	+0.34 -0.64	275.8	$\frac{195}{109.5} = 1.781 = ?$ $\frac{275.8}{109.5} = 2.519 \simeq \frac{584}{2 \times 116}$	$\underline{780/!/} = 3 \times 28 + 6 \times 116$		48° 45′ 48° 20′
El Lahuna, Senueret II, XII	105.8/E/ 48/P/	202 92	+0.07 -0.19	285.7	$\frac{202}{92} = 2.196 = ?$ $\frac{285.7}{92} = 3.105 = \frac{360}{116}$	$\underline{808} = 8 \times 28 + 584 = 780 + 28 = 16 \times 28 + 360$		42° 35′ 42° 19′
Dahshur, Senueret III, XII	106.7/E/ –	203.5 –	-0.09 –	287.8	–	$\underline{814} = 3 \times 28 + 2 \times 365 = 584 + 230$		–
Sakkara, Khendjer, XIII	55/P/ 37.4/P/	105.25 72	+0.13 +0.37	148.9	$\frac{105.25}{72} = 1.462 = \frac{584}{399}$ $\frac{148.9}{72} = 2.067 = \frac{780}{378}$	$\underline{421} = 2 \times 28 + 365$		55° 53° 48′
Zawiyet el Aryan Neb-ka, III,	200/P/ 180/P/ –	382 344 –	+0.09 +0.19 –	514	–	$\underline{1452} = 24 \times 28 + 780 = 31 \times 28 + 584 = 39 \times 28 + 360$		–

Table 5. Time and space in vertical dimensions of the Sun Pyramid

related to 828.36, 23.01, 3.835 and 2.60

Description of dimensions	Primary heights h_i in meters (Heyerdahl, 1961)	Refined heights h_i' in megalithic yards	$\dfrac{828.36}{h_i'}$	$\dfrac{23.01}{h_i'}$	h_i' 3.835	h_i' 2.60	Difference in meters $\lvert h_i - h_i' \rvert$
First body, vertical elevation h_1^x	19.070	23.010	36	1	6	8.850	0.005
Second body, vertical elevation h_2^x	15.892	19.175	43.20	1.20	5	7.375	0.004
Third body, vertical elevation h_3^x	12.714	15.340	54	1.50	4	5.900	0.003
Fourth body, vertical elevation /lower/ $h_{4/1}^x$	2.119	2.550	324	9	0.67	0.981 x/	0.005
Fourth body, vertical elevation /upper/ $h_{4/2}^x$	4.238	5.120	162	4.50	1.33	1.969	0.006
Fifth body, vertical elevation h_5^x	9.535	11.505	72	2	3	4.65	0.003
Sixth body, vertical elevation h_6^x	3.178	3.835	216	6	1	1.475	0.001

x/ This is only one height which is not divisible by 2.60 without a rest.

Table 6. Time and space in horizontal dimensions of the Sun Pyramid.

Description of dimensions /north to south/	Primary d'_{ij} in megalithic yards	Refined d'_{ij} in megalithic yards	$\pi \times d'_{ij}$	$\dfrac{828.36}{d'_{ij}}$	$\dfrac{d'_{ij}}{23.01}$	$\dfrac{d'_{ij}}{3.835}$	$\dfrac{d'_{ij}}{2.60}$	Diagonal $\sqrt{2 \times d'^2_{ij}}$	Rounded sum of both diagonals	Squares $4\,d'_{ij}$	Circumferences of squares divided by Tomalpohualli "weeks" $\dfrac{4\,d'_{ij}}{13}$	Difference in meters $/d'_{ij} - d'_{ij}/$
First body, lower edge /d11/	276.05	276.12	867.0	3	12	72	106.200	390.49	781	1104.48	84 + 12	0.068
First body, upper edge /d12/	230.04	230.10	722.5	3.600	10	60	88.500	325.41	651	920.40	70 + 10	0.050
Second body, lower edge /d21/	207.04	207.09	650.3	4	9	54	79.650	292.87	585	828.36	63 + 9	0.045
Second body, upper edge /d22/	163.58	165.67	520.2	5	7.200	43.20	63.720	234.38	468	662.68	50 + 12.5	1.729 xx
Third body, lower edge /d31/	138.02	138.06	433.5	6	6	36	53.100	195.25	390.5	552.24	42 + 6	0.029
Third body, upper edge /d32/	103.52	103.54	325.1	8	4.500	27	39.025	146.43	292.5	414.16	30 + 23	0.018
Fourth body, lower edge /d41/	92.02	92.04	289.0	9	4	24	35.400	130.17	260	368.16	28 + 4	0.020
Fourth body, central edge /d42/	90.23	90.48	284.1	9.155	3.932	23.59	34.800	127.95	256	361.92	27 + 11.5	0.210
Fourth body, upper edge /d43/	82.56	82.83	260.1	10	3.600	21.60	31.860	117.15	234	331.34	25 + 6	0.225
Fifth body, lower edge /d51/	69.01	69.03	216.7	12	3	18	26.550	97.63	195	276.12	21 + 3	0.015
Fifth body, upper edge /d52/	46.01	46.02	144.5	18	2	12	17.700	65.08	130	184.08	14 + 2	0.009
Sixth body, lower edge /d61/	30.67	30.68	96.3	27	1.333	8	11.800	43.39	86.8	122.72	9 + 5.7	0.007
Sixth body, upper edge /d62/	23.00	23.01	72.2	36	1	6	8.850	32.54	65	92.04	7 + 1	0.005

x/ Worthy of notice is that: $\dfrac{828.36}{d'_{ij}} = \dfrac{2600}{\pi \times d'_{ij}}$

xx/ This is only one bigger deviation from Harleston's departure data.

Table 7. Time and space in vertical dimensions of The Moon Pyramid.

Description of dimensions	Primary heights in meters $/h_i/$	Primary heights in megalithic yards	Refined heights in megalithic yards $/h'_i/$	$\dfrac{828.36}{h'_i}$	$\dfrac{23.01}{h'_i}$	$\dfrac{h'_i}{3.835}$	$\dfrac{h'_i}{2.60}$	Difference in meters $\|h_i - h'_i\|$
Height of main pyramid	44.497	53.676	53.69	15.43^x	0.43^x	14	20.650	0.012
" " 2 - nd body	12.714	15.337	15.34	54	1.5	4	5.900	0.003
" " 3 - rd body	9.535	11.502	11.505	72	2	3	4.425	0.003
" " 4 - th body	6.357	7.668	7.67	108	3	2	2.950	0.002
" " 5 - th body	4.238	5.112	5.12	162	4.5	1.33^x	1.969	0.007
" " 1 - st adosado	25.427	30.672	30.68	27	0.75	8	11.800	0.008
" " 2 - nd adosado	16.951	20.448	20.48	40.45^x	1.12^x	5.34^x	7.877^x	0.027
" " each body, 1 - st adosado	8.476	10.224	10.24	80.90^x	2.25^x	2.67^x	3.939^x	0.013

x/
    This dimension is not divisible without a rest.

Table 8. Time and space in horizontal dimensions of the base of the Moon Pyramid.

Description of dimensions	Primary dimensions in meters $/d_i/$	Primary dimensions in megalithic yards	Refined dimensions in megalithic yards $/d'_i/$	$\dfrac{828.36}{d'_i}$	$\dfrac{d'_i}{23.01}$	$\dfrac{d'_i}{3.835}$	$\dfrac{d'_i}{2.60}$	Difference in meters $\|h_i - h'_i\|$
Length of overall base	152.563	184.003	184.08	4.5	8	48	70.8	0.039
Breadth of overall base	139.849	168.696	168 = = 60×2.80	4.93^x	7.30^x = =2×3.55	43.81^x	64.62^x	0.577
Diagonal x 2$^{xx/}$	413.884	499.305	498.44	1.66^x	21.66	129.97$\cong$ $\cong$ 130	191.71^x $\cong$ 191.75	0.040
Circumference	584.824	705.458	704.16	1.176^x	30.60^x	183.61^x	270.83^x	0.001

x/
    This dimension is not divisible without a rest.

xx/
    It should be noticed that diagonal = 249.22 x$\sqrt{\pi}$ = 782.55 m.y. $\cong$ 780