

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

“Is there a man of you who by anxious thought can add a *cubit* to the *age* of his life? “(The Gospel of St. Matthew, 6, 27, according to Greek text)

1. *Explanation of the problem*

The astrobiological religion played the role of a main ideological system which regulated societies of the formative-theocratic phase of cultural development of mankind which was distinguished by the rise of cultic centers of the monumental architecture. The latter ones were the cores of early urbanisation process.

This religion has precised a model of the world with well defined position of man within it, and the sense of his activities. Its essence consisted of a dynamical and informational principle of transformation of an Absolute One into pairs of polarised opposites which, in turn, create an universal frame of reference of Cardinal Points organizing the time-spatial order of rhythmically repeating and mutually synchronised cosmic, biological and socio-cultural processes and, at last, the psychic processes of the human individual.

All these was *vivified*, *personificated* and *deified* (for the main assumptions of the model see: A. Wierciński, 1976¹). The astrobiological model of the world and man was statically patterned in mutually equivalent, due to a symbolical analogisation, archetypal (in Jungian sense) and iconic-numerical representations. Among them, the main position has been occupied by:

- the Cosmic Mountain,
- the Cosmic Tree \approx Cosmic Ladder \approx Cosmic Pillar,
- the Mandala,
- the Cosmic Man \approx man as Microcosmos and,
- the Lambdoma, as a triangular system of Light-Tunes.

Dynamically, this model was patterned in the rigorously periodical ritual performances of the Sacral Calendar. Contemporarily, an integration of all these representations is fully expressed in the Siva-Sakti Tantric system and, in particular, in the Kundalini Yoga (see: A. Avalon, 1962²). This type of integration may be called further the Initiation into Ascending or Winged Serpent³.

Worthy of mention is that due to directives of subconscious thinking, i. e.:

- the harmonisation of opposites,
- the identification per analogiam,
- the association per synchronisation,
- post hoc ergo propter hoc, and
- pars pro toto,

all the cited above archetypal representations are not only mutually equivalent and exchangeable but also each one of them may function as a component of the other.

The purpose of this paper is to demonstrate the assumption that stepped or true pyramids and ziggurats, as one of the greatest and most impressive sacral buildings, were the architectonic representations of the archetype of the Cosmic Mountain (CM). Thus, first of all, the structure and organisation of this archetype should be described, what may be presented as follows:

- 1.1 – the CM represents Primary Earth which emerged from the waters of Primordial Chaos due to a creative deed of the Highest Deity in the role of a Demiurg;
- 1.2 – the CM is situated in a Cosmic Frame of Reference of Cardinal Points, and its top lies on the axis Above-Below, defined by the Polar Star and Earth's Center and, so, it becomes a place of a transmission between the highest zone of Heavens with the Earth, at the same time, playing the role of supporting the Firmament;
- 1.3 – consequently, the top of CM is a place of various theophanies of an uranic, solar, atmospheric or, sometimes, volcanic type of the Highest Deity and his closest surrounding:
 - from here, further creative activities proceed in cosmogony,
 - here a hierogamy of a Creative Pair or its more detailed manifestations is performed,
 - here a Phoenix-Bird is cyclically staying which personifies resurrection and/or reincarnation, and
 - here may be the place of rising or setting Sun, Moon or other celestial bodies in their periodical wanderings on the Firmament;
- 1.4 – a material, of which the CM is built, is the Element of Earth and the precious minerals or metals, in particular, as well as, a creative-destructive energy of Fire-Light-Sound is included in the CM;
- 1.5 – the CM is closely associated with the Underworld (in this, with specifically distinguished component of a Snake-Dragon), because the CM stands over it and its entrance is placed in the depths of CM; the CM is also stratified according to the accepted division of Heaven into a number of zones, being most frequently divided into 3, 7, 9 or 12 steps; the CM may include within itself its Alter Ego in the form of an internal CM;
- 1.6 – the CM is associated with the Water of Life, of which Spring or a Fountain is gushing forth, inside or at the top; from CM, 1–3 Main Rivers may flow out and a World's Ocean may be associated while, over the top are the Upper Waters of the Firmament;
- 1.7 – the CM steeply elevates to Heavens and climbing on it is full of the greatest difficulties and dangers which can be surmounted only by gods, initiated heroes from among the mortals or, by the purified souls of the deceased;
- 1.8 – the CM is also associated with the Tree of Life and, in general, it includes all the means for life;

1.9 – the CM may be externally represented by:

- a distinguished natural mountain on which the archetype of CM has been socio-culturally superprojected or,
- by the psycho-nervous organisation of man and, in particular, by his spinal cord together with brain, with their usually 7 to 12 main regulating centers, closely associated with the heavenly zones, what constitutes the realisation of an equivalence between Macro- and Microcosmos.

All these descriptive statements about the CM have been precised on the basis of a large material of the verbal texts descending from different centers of ancient civilisations of both, the Old and New World (especially, from Egypt, Western Asia, Iran, India, China and Mexico). The analogical information is included in innumerable fables and fairy-tales⁴.

At present, some general premisses may be formulated which will constitute a conceptual frame-work for departure to further, more detailed reasonings presented in particular chapters dealing with the data from selected regions of the Old and New World (i.e.: Egypt, Mesopotamia and Mexico). These premisses and first assessments run as follows:

2.0 – the buildings of the type of stepped or true pyramids or ziggurats represent architectonically the archetypical pattern of the Cosmic Mountain;

2.1 – this representation is realised qualitatively,

2.2 – this representations is realised numerically.

The first attempt of a demonstration runs as follows:

ad 2.1:

- a) quadrangularity in the form of a rectangular (rarely) or a square (frequently) → well known geometrical symbol of the Element of Earth (see 1.1);
- b) rigorous orientation of walls (Egypt) or corners (Mesopotamia) according to the system of Cardinal Points or, according to a strictly derivative system (Mexico) (see: 1.2);
- c) the opposition of the top against the base or a ground under the latter one – as a main reflection of the opposition between Heaven and the Underworld, supported by texts and the presence of a real or symbolical grave (see: 1.5);
- d) an expression of the idea of ascension to Heaven in the form of successive bodies or steps, decreasing in size upwards, visible or hidden (as in Egyptian true pyramids), supported by texts;
- e) an association with the phases of cosmogony, evidently supported by texts dealing with Tatenen-Benben-Ra complex in Egypt, Enuma Elish in Mesopotamia and by a significance of Teotihuacan in relation to the 5-th Sun-Era (see: 1.1);
- f) a large material of texts and art's representations which assess directly the associations of the analysed buildings with the World's Mountain or its characteristic elements, i. e. with the Tree and Water of Life, Phoenix, a descension of a deity to the top etc. etc. (see: 1.3, 1.6 and 1.8);

ad 2.2:

- a) the assessment of a great, sacral importance of making the architectonic plans and numerical dimensions of the buildings appearing in texts and rituals of the foundation;
- b) the number of the bodies or steps refers to planetary or zodiacal zones (3, 4, 5, 7, 9, 12–13);
- c) an association of the linear measuring unit of space used in determining of dimensions of the building with the astronomical measuring unit of time (a day or a month);
- d) the numerical values of main dimensions of the analysed building, when expressed in the native measure, represent the astronomical calendric cycles, in a possibly simple way.

The last statement (2,2 d) will be of a special concern in this paper.

In reference to this, the present author is fully aware that he must sail between the Scylla of “pyramidology”, with its improbable mysticism of numbers, and the Charybdis of a neglect of any ideo-numerical architectonic programme of professional scientists who take mainly care only upon technological problems, what is conditioned by their mentality of contemporary, urbanized man. . . .

However, in order not to fall into purely random numerical coincidences between time and space, in the face of a lack of a proper statistical test of significance suited to our problem, the following solution may be proposed:

- 3.0 – there will be considered only the simplest dimensions of base or edges of the platforms, heights and diagonals (expressed in native units of measure) which could represent most important astronomical cycles;
- 3.1 – directly, i. e. their lengths are equal to time intervals of given cycles expressed in days or in months (I-st degree of credibility);
- 3.2 – by integer foldness (II-nd degree of credibility);
- 3.3 – by equality of simple proportions (III-rd degree of credibility);
- 3.4 – by concordance of specific summing of the cycles with a given dimension or, by multiplication or division by π -value (IV-th and the least degree of credibility).



Of course, we may never know with certitude how and how many significant numerical coincidences with time have been consciously programmed in the structure of a given building; we want only to show the probability of the same fact of their programming in the architectural project.

The main sources for the cited texts in this paper were: E. L. W. Budge (1969)⁵ for Egypt, A. Parrot (1949)⁶ for Mesopotamia and the collective translations edited by J. B. Pritchard (1969)⁷ for both these areas while, for Mexico it was B. de Sahagun edited by A. M. Garibay (1956)⁸.


The numerical material analysed in this paper consists of the dimensions of 28 Egyptian pyramids taken from the synthetic publication of J. S. E. Edwards (1961)⁹, supplemented by A. Fakhry (1965)¹⁰, the dimensions of ziggurat Etemenanki from Babylon published by A. Parrot (1949, op. cit.) and the dimensions of two main pyramids from Teotihuacan, i. e. those of the Sun and Moon,

published by H. Harleston (1974)¹¹. All these and the other sources of information are quoted in the notes at the end of this paper. The most important astronomical, calendric cycles are presented in the table 1.

2. The analysis of the data from Egypt.

The meaning of the Egyptian term for the pyramid *M/e/r*, defined by the sign , is impossible to decipher exactly. However, it includes “r” ≈ “to ascend”, of which determinative is the sign . Therefore, J. E. S. Edwards (1961, op. cit.) suggest that *M/e/r* might mean an *instrument or a place to ascend*. This suggestion is well supported by the selected here sample of the Pyramid Texts¹² which say clearly about the ascension of the soul of the deceased pharaon to the Heaven and they also bear close associations with cosmogony (Ra-Ben-House-Benben-Bennu Bird complex from Heliopolis).

The height of the pyramid is denoted by the expressions *pr-m-ws*, what according to T. E. Peet (1923)¹³ denotes: “that which comes forth from the saw”. It is regarded as one of the possible etymological sources for the Greek word: pyramid.

The Egyptian pyramids were built with the use of the Royal Cubit which amounts to 0.5238 m. (see A. E. Berriman, 1955¹⁴, and it was denoted by the sign , a. o. the pedestal of the goddess Maat (= “That what is straight” ≈ Greek *κανών* “straight rod”, later “law or principle”) who was the Lady of the Cubit but also the deified personification of the Wisdom and Truth of the Highest God and all the other gods, the Cosmic and Moral Order and all natural laws as well (look for analogies in Old and New Testament, with Sumerian *Me*, Chinese *Te* etc.). She merges into innumerable forms of generative and all embracing Hathor and, through the latter, with a notched palm branch in hand, into the goddess of Sesheta, the most interesting and important figure for our problem.

It is so, because one of the main functions of Sesheta (see: next vol.) was to patronize the great ceremony of “stretching of the cord”, i. e. the measuring the foundation of the pyramid (what ritually has been executed by the same pharaon in her company¹⁵).

Her cult as the Lady of Measurements and Architecture, Scripture, Literature and *Counting of Time* precedes that of Thoth and goes back to the times of the III. Dynasty. Her symbol was the hieroglyph of a flower (or a star?) with 7 lobes appearing in the frame of a reversed pair of horns but the transcription of her name is uncertain. According to Brugsch (Budge, 1969, op. cit.), it should be red Sefkhet-a-abut what may mean “she who has inverted her horns” or “she who is provided with 7 horns”. The second meaning is suggested by a phonetic similarity to number seven.

The functions of the goddess manifest themselves in her representations and titles. Usually, she wears her flower-or starlike symbol on the head and her body is dressed in panther skin garment. She holds the palette of the scribe and the writing reed. In this form, she is called: “the Great One, the Lady of the House of Books” and is the Lady of Scripture and Library.

In other representations, she holds notched palm branch and is counting the notches. The lower end of the branch rests on the back of a frog seated on the symbol of Eternity Ω while, from the upper end hangs the symbol of the feast Set. Consequently, here she appears as chronographer and chronologist, especially, since the notched palm branch is the symbol of counting years, dated yet to predynastic period.

In her other form, the goddess stands before the column with hieroglyph of “Life” and “Power” and the feast of 30-ties which rests on the seating creature with ankhs in both hands, what denotes “the millions of years”. The associated text says that she declares to the pharaon that his life-span will last “hundreds thousands of 30 years’ cycles” and that these years will pass as the years of Rā. In the text cited by Budge (1969, op. cit.), she tells Seti that her words will last for ever and that her hand will describe his question in the way of *her brother Thoth*, everything according to the verdict of Atum.

In the 8 hour of the wandering of Rā through Tuat, he sees all the gods in their circles and, precisely, the doors of the circle embracing Atum, Khepera and Shu, are called: “Sesheta”.

One of the texts describes her as the Builder of the House of the Deceased¹⁶ and in this form she merges into the goddess Mertseger (“She Who Loves Silence”), the Lady of the Western Mountain (nota bene recalling the pyramid in shape) which stands near the Theban necropolis. Mertseger appears also in the form of cobra or twelve snakes or half women and half snake (see: next vol.) and one of the funeral texts¹⁷ describes the very great importance of the goddess for the life and afterlife of the people. She is the “Living Mountain” who punishes the sinner and rewards the just.

Now, all these archetypical associations between time-counting, Cosmic Mountain and foundation of pyramids may be more strengthened in a detailed way.

Namely, the Royal Cubit was divided into 7 spans and 28 finger breadths what immediately leads to the interval of the stellar month (see: table 1) of 28 days divided into 4 weeks. This hypothesis can be easily verified by the comparison of the gods of successive finger breadths with the sequence of the Lords of the first (which could be identified) 14 days of the waxing Moon and, with the cosmogonic sequence of Ennead from Heliopolis (see: table 2). The undoubted striking coincidences fully confirm this direct relationship of time interval and space distance measures. Consequently, the Royal Cubit will represent the measure of time too !!

At present, worthy of considering is the complex of Rā-Ben-House-Benben-Bennu-Pyramid from Heliopolis. The information given by Budge (1969, op. cit.) and the quoted texts¹⁸ reveal very meaningful symbolism.

Thus, Bennu-bird is identified with the Soul of Rā and the living symbol of Osiris which comes out from the essence of his heart. Rā in the form of Bennu was sitting on the top of Primaeval Mound in the form of Benben (i. e. the obelisk-pyramidion!) of which deified personification was Ptah-Tatenen.

The Bennu as the Soul of Rā is the leader of gods in Tuat and the deceased is identified with Bennu representing also the Morning Star (i. e. Venus) what is not

strange, since Osiris was the Lord of this planet. The sanctuary of Bennu in Heliopolis was, at the same time, the holy place of Rā and Osiris and it was called: Het-Benben, i. e. “the House of Obelisk”.

Rā as the morning Sun is hatching in the form of Bennu from the egg laid by Geb and Nut.

The Bennu-Phoenix from the fairy-tale of Herodotus has yellow and red feathers (as the rays of Ra) and is conspicuously associated with the idea of rebirth by Fire and with the Sirius cycle of 1460 years or the cycle of 500 years (a cycle of metempsychosis?).

The representation quoted by A. Fakhry (op. cit., see: next vol.) shows Bennu sitting on the top of a pyramid. Also, the oldest known temple associated with the pyramid in Abusir has Benben as its main architectonic element (see: next vol.). At last, it is said that Bennu-Rā (also identified with Horus) as the Morning Sun will enlight the world from the top of Turquoise Sycamore Tree, where it renovates itself. On such a tree stands also Hathor-Nut who pours from a pot the Water of Life which the Soul Ba of the deceased is drinking, (see: next vol.). Then, it should be noticed that the conception of creative Thought-Sound is clearly expressed in the famous memphitic version of cosmogony, referring to Ptah and, so, to Tatenen-Primaeval Mound (→ Benben).

In this way, the totality of the specific pattern of the archetype of the Cosmic Mountain is incorporated in the pyramid, together with a close relationship between time and space.

In order to complete this concise and logical picture, the figure of Imhotep (“he who cometh in peace”), the builder of the first, stepped pyramid in Sakkara, ought to be shortly described.

The inscription on socle of the statue of Seneferu says: “Vezir of King of the Lower Egypt, First after King, Manager of the Great House, Hereditary Senior, *Great Priest of Heliopolis*, Chief Sculptor, Chief Carpenter” (A. Fakhry, 1965, op. cit.) He bore also the titles: “the Superior of the Town of Pyramids, Chief Ritualist of the King Zoser and the Scribe of the Divine Book”.

His cult is evidenced already in the IV. Dynasty since Mycerinos built the temple devoted to Imhotep. His undoubted deification is ascertained for the Saitic period as the second son of Ptah and Sekhmet (see: texts¹⁹) and, so merging into Nefertum, i. e. “Completely Perfect One”. As the latter, he personifies the lotus flower bearing Child Amon-Rā when it was emerging from the waters of Nun. He was represented with the feathers of Maat or a lotus on the head or, as Imhotep, he was in the form of a sitting man without any headdress but with Ureus between the brows.

Thus, there is no doubt that Imhotep as the builder of the first stone pyramid, *was the Great Initiate in Heliopolis Mysteries, which were just characterised by the mentioned above CM complex of Rā-Benben-Bennu.*

After all this information, the dangerous problem of the numerical time-spatial coincidences imbedded in the dimensions of 28 pyramids may be considered. However, all the restrictions listed in 3.0–3.4 should be kept in mind, together with that one, that in the case of badly preserved pyramids, the measuring error may

sometimes exceed 0.5 m., for over 100 m. of a distance. The same Egyptians, as it was shown for the pyramid of Cheops (Edwards, 1961 op.cit.), did not make greater error than 20 cm.!!!. Also, the results of mathematical exercises with the pyramid (Papyrus Rhind), which consisted of finding out 1 of the 3 given data (i. e. side, height or inclination of wall), were expressed accurately *even in the finger-breadths*. It should be noticed too, that the Egyptian Pi (π) was equal to 3.16 being deduced from the equation:

$$\frac{8}{4} \frac{2}{(9)}$$

May be, worthy of mention is that:

$$8 = \frac{3,16 \times 28}{100}, \text{ and that: } \frac{365}{116} + \frac{116 \times 10}{365} = 3.16 = \sqrt{10} \text{ ("Arabian value")}$$

(Rā versus Seth?).

The short space of this paper does not allow to analyse all the details of the coincidences shown in the table 3 (next volume).

We want only to emphasize the importance of the number 28 (also demonstrated above) which belongs to the the so-called "perfect numbers", and the variability of coincidences with calendric cycles, from a pyramid to a pyramid.

However, the Solar and Mars cycles, as well as, those of the Venus, Mercury and Saturn do appear most frequently indicating the great importance of Ra, Osiris, Seth and Horus respectively, what is fully concordant with our knowledge of the Egyptian pantheon.

The Moon, as represented by 28 days period, is present everywhere and, especially, in the height of the Cheops pyramid equal to 280 cubits (common gestation period?).

The least number and uncertain coincidences shows the Jupiter, which was the planet without a god.

Also, we did not find the Sirius cycle as expressed by the number 1460, though, it can be simply hidden in Venus i. e.: $\frac{584}{4} \times 10 = 1460$.

Finally, it might be concluded that the same fact of the numerical coincidences between the dimensions of Egyptian pyramids in cubits and the simple astronomical, calendric cycles in days, as shown in the table 3, are highly probable since all the degrees of credibility (see again: 3.1–3.4) have been assessed.

3. The analysis of the data from Mesopotamia

The terms *ziggurat* descends from the word *zagaru* i. e. "to be high" or "lifted up" while, *zigguratu* demotes: "top of the mountain" or "temple-tower" (see: Parrot, 1949, op. cit.).

There exist direct relationships with the Cosmic Mountain in the same names of particular ziggurats, as for example: "House of the Mountain of the Universe" (Assur), "House of the Foundation of the Heaven and Earth" (Etemenanki, Baby-

lon), “Houghty House of Zababa and Innina the head of which is as High as Heaven” (Kish), “House of Chins Between Heaven and Earth” (Larsa), “House of the Seven Guides of Heaven and Earth” (Birs Nimrud) or simply: “House of the Mountain” (Nippur). At the same time, various texts²⁰, dealing with the construction of ziggurats clearly indicate almost all the essential components of CM archetype.

Thus, the oldest text of Gudea (2144–2124 B.C.) describes the construction of 7-stepped ziggurat for Ningirsu, the “Brave Warrior of Enlil” of which the top supports Heaven like a tiara. The ziggurat is compared to the Mountain, a Star in the center of Heaven and to a Tree growing up from the primordial Abyss. Also, the cistern of Nannar as the reservoir for Enki and the trees were placed below the temple.

The cosmogonic sense of ziggurat appears in *Enuma Elish* where Annunaki, the gods of destiny, constructed ziggurat for Marduk to please him for their deliverance. It was lifted up from the chaos of Apsu and included sanctuaries for Marduk, Enlil, Ea and for the same Annunakis, *who have drawn before the scheme of the ziggurat*.

This typical structural complex of CM, associated with ziggurats is also well evidenced in the glyptic material, selected by Parrot (1949, op. cit.). The personification and deification of the archetype of CM excellently represents Enlil, one of the highest gods of the Sumerian pantheon, whose specific name was: “Great Mountain” (!!), and who “was born in the mountains”. He incorporates also “the Holy Word” (compare: Ptah-Tatenen), far-reaching and irreversible and determining fates for ever.

Fragments of the hymns to Enlil as the Great Mountain and “the Angry Wind of Terrible Force”, cited by M. Bielicki (1966²¹), show his undoubted supremacy over all other gods, nature and man.

The connexion between World’s Mountain and the Underworld describes an old Sumerian text²².

A great sacral importance of taking measurements, at the beginning of constructing a ziggurat, or before its renovation, is clearly expressed in the documents of Asarhaddon (680–669 B.C. and Nabopolassar (625–605 B.C.), dealing with famous Etemenanki, a huge ziggurat from Babylon²³.

The latter king plainly declares that he himself took the measurements guided by Shamash, Adad and Marduk and, that “he kept the measurements in his memory as a treasure”.

It is known that the used unit of linear measure was the Old Babylonian Cubit called “ammatu” (= 0.503 m., see: Berriman, 1955, op. cit.) which was divided into 30 “ubanu” (i. e. inches) what suggests again a correspondence to the 30 days’ Babylonian month. In the Chaldean times it was shortened to 24 ubanu, together with introduction of the division of the day into 24 hours. Thus, also for Mesopotamia, a direct relationship between time and space may be assumed, though, there is a lack of such nice evidencies as it was in the case of Egyptian Royal Cubit.

Fortunately, the dimensions of Etemenanki were directly documented in native measures (garu and suklu) in the tablet of Esagila, analysed carefully by Parrot. The tablet was discovered in Uruk and dated to 229 B.C. but, surely, it was the copy of a much older, original text.

Therefore, due to a greater degree of uncertainty of the dimensions of the other ziggurats republished by Parrot, what was evidenced so conspicuously for Birs Nimrud by great differences between Rawlinson and Oppert, our analysis of numerical coincidences between time and space in ziggurats will be based only on the example of Etemenanki. It should be so, especially, because of a possibility that the days could be expressed by urbanu, what needs great accuracy of the numerical data.

The table 4 presents the results of the calculations. Thus, Etemenanki consisted of 7 bodies of which 6 were built on the square base, while only the last 7-nth on the top was rectilinear. The side-walls were always rectilinear, due to far shorter heights of the bodies, in relation to the dimension of the base. The total height of the ziggurat was equal to to the side of its base = 180 ammatu = 15 gar.

A first glance at the numerical data of the table 4 demonstrates a great importance of the number 360, included in all the circumferences of bases and the side-walls which are simply its integer multiplications. The cycle of 780 days of Mars occupies the second place. It is present in the circumference of the base of the 2-nd body, side-wall of the 6-th body, and in the side-wall of the 7-nth body.

Contrary to the Egyptian pyramids, all the diagonals and their mutual quotients do not seem to play any role in Etemenanki (what could be recognized as an argument in favour of non-randomness of such coincidences in Egyptian pyramids). The one exception represents the sum of internal, spatial diagonals of the particular bodies. Thus, these diagonals of the 1-st body give the sum = 31556 urbanu which is very near to 272×116 , in the 2-nd body, it is = $26820 \text{ u.} = 74.5 \times 360$, in the 3-rd one = $68052 \text{ u.} = 35 \times 584$, in the 4-th = $17370 \text{ u.} = 48.25 \times 360 = 49 \times 354$ (Babylonian Lunar Year), in the 5-th = $14328 = 39.8 \times 360$, in the 6-th = $11280 = 30 \times 376$ and, in the 7-th body, it is equal to $8460 \text{ urbanu} = 23.5 \times 360 = \frac{376}{16} \times 360$.

If we accept these coincidences as the credible and the leading ones, the particular bodies of the ziggurat could correspond to particular “planets”, as it shows table 4 (next vol.).

It is also probable that there were coded the whole series of calendric cycles in the particular circumferences, as it was the case in Egyptian pyramids. However, here the fitting number as the integer multiplier would not be number 28, but number 30.

Unfortunately, the dimensions expressed in urbanu are very great numbers, what increases a probability of random coincidences. It is very easy to obtain very large series for each dimension and therefore, they were not presented in the table 4.

It is enough to give here one example of such a sum. Thus, the circumference of its base of the 6-th body is equal to $7920 \text{ urbanu} = 4 \times 30 + 10 \times 780 = 131 \times 30 + 10 \times 399 = 76 \times 30 + 15 \times 376 = 45 \times 30 + 18 \times 365 = 28 \times 30 + 20 \times 354 = 32 \times 30 + 60 \times 116$, and there is only a lack of the Venus cycle!!

In conclusion, it seems highly probable that in the Etemenanki ziggurat, at least, the solar cycle 360 of days and Mars cycle of 780 days could be coded in its dimensions. May be that the coincidences shown for the the spatial diagonals of the bodies are also not accidental ones. The first coincidences would agree very well with uranic-

solar and war nature of Marduk, the main patron of the ziggurat. (The following part, tables and illustrations will be published in the next volume).

NOTES AND REFERENCES

- 1 Wierciński A.: Time and space in the Sun Pyramid from Teotihuacan. Zeszyt Amerykanistyczny UJ, Kraków 1976 (in press).
- 2 Avalon A. (Sir John Woodroffe): The Serpent Power. Ganesh, Madras 1964.
- 3 The present author is able to demonstrate on the basis of available verbal and iconic documentation that the highest initiation in astrobiological religion was essentially the same, at least, in Egypt, India and Mexico.
- 4 See, for example: Hutz O.: Glasberg. Symbolon, Bd. 2, p. 15–31, Basel 1961.
- 5 Budge E. A. W.: The Gods of the Egyptians or Studies in Egyptian Mythology, Dover, New York 1969.
- 6 Parrot A.: Ziggurats et Tour de Babel, A. Michel, Paris 1949.
- 7 Ancient Near Eastern Texts Relating to the Old Testament. (edited by J. B. Pritchard), Princeton University Press, Princeton-New Jersey 1969.
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- 9 Edwards J. E. S.: The Pyramids of Egypt. M. Parrish, London 1961.
- 10 Fakhry A.: The Pyramids (Polish edition), Państwowe Wydawnictwo Naukowe, Warszawa 1965.
- 11 Harleston H. Jr.: A mathematical analysis of Teotihuacan. XLI Intern. Congress of Americanists, Mexico D. F. 1974.
- 12 Fragment of Pyramid Texts (taken from Edwards, 1961, op. cit.): “A staircase to heaven is laid for him so that he may mount up to heaven thereby” (Spell 267 and 619); – “I have trodden those thy rays as a ramp under my feet whereon I mount up to that my mother, the living Ureus on the brow of Rā” (Spell 508); – “Heaven hath strengthened for thee the rays of the sun in order that thou mayest lift thyself to heaven as the eye of Rā” (Spell 525); – Pyramid Text carved inside the pyramids of Mer-ne-Re and Pepi II (Nefer-ka-Re), VI. Dyn., ca. 2400 B. C., translated by I. A. Wilson, published in op. cit.⁷: – “O Atum Kheprer, thou wast on high on the (primeval) hill; thou didst arise as the Ben-bird of the Ben-stone in the Ben-House in Heliopolis; thou didst spit out what was Shu, thou didst sputter out what was Tefnut. Thou put thy arms about them as the arms of a Ka for thy Ka was in them. – (So also), O Atum, put thy arms about King Nefer-ka-Re, about this construction work, about this pyramid, as the arms of Ka. For the Ka of King Nefer-ka-Re is in it, enduring for the course of eternity. O Atum, mayest thou set thy protection over this King Nefer-ka-Re, over this his pyramid and this construction work of King Nefer-ka-Re. Mayest thou guard lest anything happen to him evilly throughout the course of eternity as thou didst set thy protection over Shu and Tefnut. O Great Ennead which is in Heliopolis, Atum, Shu, Tefnut, Geb, Nut, Osiris, Isis, Seth and Nephthys, whom Atum begot, spreading wide his heart (in joy) at his begetting (you) in your name of the Nine Bows (= enemies of Egypt), may there be none of you who will separate himself from Atum, as he protects this King Nefer-ka-Re, as he protects this his construction work – from all gods and from all dead, and as he guards lest anything happen to him evilly throughout the course of eternity”.
- 13 Poet E. T.: The Rhind Mathematical Papyrus. Hodder-Stoughton, London 1923.
- 14 Berriman E. A.: A new approach to the study of ancient metrology. Revue d’Assyriologie et d’Archéologie Orientale, Vol. XLIX, p. 193–207, 1955.
- 15 Murray M. A.: The Splendour that was Egypt, Sidgwick and Jackson, London 1954.
- 16 From the Book of the Dead, Budge, 1969, op. cit.: “My mouth and my nostrils are opened in Tattu and I have my place of peace in Heliopolis, wherein is my house; *it was built for me by the goddess Sefekh-āabut and the god Khnemu set it up for me upon its walls*”.
- 17 The inscriptions of Neferabu on the stela from Theban necropolis (XIX. Dyn.) devoted to the goddess Mertseger; taken from: Daumas F.: From Narmer to Cleopatra (Polish translation). Państwowe Wydawnictwo Naukowe, Warszawa 1973:
 “Praise be to the *Mountain of the West*,
 Hommage to her Ka.
 I praise you,
 Listen my call!

I was just on the Earth, I, son of the servant in the Place of Truth, Neferabu, justified by voice, an unconscious man, devoided of reason; – I was not able to distinguish between good and evil. I did violation against the *Mountain* and she punished me. – I was in her hand, by day and night; I was sitting on adobes like a woman giving birth, trying to call the vivifying breath but, it was not coming (to me). Then, I humiliated in the face of the *Mountain of the West* whose power is great in the face of every god and every goddess. Thus I shall speak to the great and small (people), who are in the working groups:

“Beware of the *Mountain*.
because a lion is in her top!
She attacks as an infuriated lion.

She runs after everybody who made a violation against her.

When I called, however, to my Mistress, I saw that she was coming to me with a mild breath, and she was kind with me, and she showed me her hands. She turned to me with her favour. She did that, that a sickness disappeared, this, which plagued me. Look, how *the Mountain of the West* brings favours when she is called! Neferabu is speaking, justified by the voice: “Look! Listen to me! Strain your ears! You who are living on the Earth! *Beware of the Mountain of the West!*”

- 18 Fragments of the Book of the Dead, taken from Budge, 1969, op. cit.: “I go in like the Hawk, and come forth like the Benu, the Morning Star of Rā”. – “I am the Benu which is in Heliopolis”. – “I am the Benu, the Soul of Rā, and the guide of the gods in the Tuat”. – “Let it be so done unto me that I may enter in like a Hawk, and that I may come forth like Benu, the Morning Star”. – “I am in the form of the Benu which cometh forth from Het-Benbenet in Heliopolis” (And the Venus as the planet was called: ‘star of the ship of the Benu-Osiris’); – For the cosmogonic meanings, see again the text of Pepi II¹². Fragment of the hymn to Osiris, Budge, 1969, op. cit.: – “My purity is the purity of that Great Benu which is in the city of Suten-henen (Herakleopolis M.), for behold, I am the nose of the god of the winds who maketh all mankind to live on the day when the Eye of Rā is full in Heliopolis at the end of the second month of the season Pert (= “of growing”) in the presence of the divine Lord of the Earth”. – From “Chapter of the stinging (of scorpions)”, Budge, 1969, op. cit.: Isis says to Horus: “Thou art the Great Benu who wast born on the Incense Trees in the House of the Great Prince in Heliopolis”. – Selected parts from the hymn to Rā inscribed on the walls of the royal tombs in Thebes (XIX–XX. Dyn.), Budge, 1969, op. cit.:

- (3) “Praise be to thee, O Rā, exalted Sekhem, *Ta-tenen, begetter of his gods*. Thou art he who protecteth what is in him and thou maketh thy creations as Governor of thy Circle”.
- (5) “Praise be to thee, O Rā, exalted Sekhen, the *Word-Soul* that resteth on his high place. Thou art he who procteth thy hidden spirits and they have form in thee”.
- (62) “Praise be to thee, O Rā, exalted Sekhen, *Mighty One of journeyings, Thou orderst thy steps by Maāt*, thou art the soul that doeth good to the body, thou art Senk-ḥra (= “Face of Light”) and thou art indeed the bodies of Senk-ḥra”.
- (73) “Praise be to thee, O Rā, exalted Sekhem, *thou art the Lord of Souls who art in the House of Thy Obelisk*, thou art the chief of the gods who are supreme in their districts, and thou art indeed the god Nebt-bain (= “Lord of Souls”).
- (74) “Praise be to thee, O Rā, exalted Sekhem, thou art the double Sphinx-god, *the double Obelisk god, the Great God who lifteth up his two Eyes*, and thou art indeed the bodies of the double Sphinx-god Huiti”.

Fragments from the hymn to Ptah-Tatenen (XIX–XX. Dyn.), Budge, 1969, op. cit.: – “There was given a Sekhem upon the Earth in its things which were in a state of inactivity and then didst gather them together after thou didst exist in thy form as *Ta-tenen* in thy becoming the “Uniter of the Two Lands” which thy mouth begot and which thy hands fashioned.”

“The feet are upon the Earth and thy head is in the heights above in thy forms of the dweller in the Tuat. Thou bearest up the work which thou hast made, then supportest thyself by thine own strength, and thou holdest up thyself by the vigour of thine own hands. The upper part of thee is Heaven and the lower part of thee is the Tuat. The winds are forth from thy nostrils and the celestial water from thy mouth, and the staff of life proceeds from thy back”. “*Lord of Years, Giver of Life at Will.*”

- 19 Texts referring to Nefertum and Imhotep, according to Budge, 1969, op. cit.: – “Unas hath risen like Nefertum from the lotus to the nostrils of Ra, and he goeth forth from the horizon in each day, and the gods are sanctified by the sight of him” (line 354 of the Pyramid Text of King Unas from the V-th Dynasty). – “I am the pure lotus which springeth up from the divine splendour that belongeth to the nostrils of Rā.” – “Hail, thou Lotus, thou type of the god Nefertum! I am he who knoweth you, and I know your names among the gods, the words of the Underworld, and I am one of you” (Book of Dead). – “Thy soul uniteth itself to Imhotep whilst thou art in the funeral valley and thy heart rejoiceth because thou didst not get into the dwelling of Sebek, and because thou art like a son in the house of his father, and doest what pleaseth thee in the city of Uast (= Thebes)” (Theban version of the Book of Dead). – “Great one, son of Ptah, the creative god, made by Tatenen, begotten by him and beloved by him, the god of divine forms in the temples, who giveth life to all men, the mighty one of wonders, the maker of times, who cometh forth unto him that calleth upon him wheresoever he may be, who giveth sons to childless, the chief Kher-heb (i. e. “the wisest and most learned one”), the image and likeness of Thoth the Wise” (Inscription of Ptolemy V Epiphanes over the door of the temple of Imhotep on the Island of Philae).
- 20 Text of king Gudea dealing with the construction of a ziggurat, taken from Parrot, 1949, op. cit.:
- (25) le couffin (comme) une tiare pure sur la tête porta,
(26) il posa les fondations, construisit les murs,

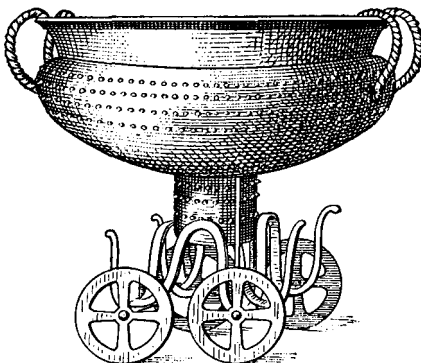
- (27) un étage, il plaça (avec ce nom): “Recouvert de briques avec une parure”.
 (1) sur le temple, un second étage il plaça:
 (2) “Sa parure, ce sont les presentes qui sont portes sur la tête”.
 (3) Sur le temple un troisieme étage il plaça:
 (4) “*Imgig qui eploie ses ailes* sur un taureau”;
 (5) Sur le temple un quatrieme étage il plaça:
 (6) “La panthère, qui se dresse sur une fauve terrible”.
 (7) Sur le temple, un cinquieme etage il plaça:
 (8) “Le Ciel clair d’une parfait splendeur”.
 (9) Sur le temple, un sixieme étage il plaça:
 (10) “Le jour d’offrande d’une parfait magnificence”.
 (11) Sur le temple, un septieme étage, il plaça:
 (12) “L’Enimu est la lumiere, qui remplit le monde de son éclat”.
 (13) Le tympan de la porte qu’il avait mis en plaçe
 (14) *supportait le ciel pur comme une tiare,*
 (15) elle était placée sur le tympan.
 (16) *L’Emah s’étendit jusqu’au au ciel.*
 (17) Il construisit le temple, *des arbres il plaça dessus.*
 (18) *La cisterne de Nannar était comme le reservoir d’Enki*
 (19) *le temple que comme une montagne il avait édifié,*
 (20) que comme une astre, qu milieu du ciel, il avait fait briller,
 (21) dont, comme d’un boeuf, il avait élève la corne,
 (22) dont, comme de l’arbre sacré del’abime, il avait élève la faite au-dessus des contrées.
 (23) *ce temple, comme une montagne, dans le ciel et sur la terre, il l’éleva vers le ciel”.*
 The cosmogonic sense of ziggurat is evident from this fragment of Enuma Elish, taken from Parrot, 1949, op. cit.:

- (45) “Après que Marduk, le roi, eût fixé les lois de tous les dieux,
 Et qu’aut Annunaki ouvrirent la bouche
 Et dirent à Marduk, leur Seigneur:
 “Eh bien, Nannar, Seigneur, qui as réalisé notre delivrance,
 (50) Que pourrions-nous faire d’agréable por toi?
 Eh bien, nous allons faire un sanctuarie dont le nom sera:
 “*Sois la chambre de notre sommeil*”, oui, nous y prendrons notre repos;
 Qui nous allons fonder un sanctuarie, qui sera ta demeure.
 Le jour où arriverons, nous y prendrons notre repos;
 Qui nous allons fonder un sanctuarie, qui sera un demeure.
 Le jour où nous arriverons, nous y prendrons notre repos.”
 (55) Lorsque Marduk entendit (ces paroles)
 Ses traits, comme le jour, grandements, resplendissent;
 “Comme une autre Babylone, dont l’oeuvre est désirée,
 Qu’on construise la ville, qu’on bâtisse solidement le santuarie”.
Les Annunaki saisirent le pioches;
 (60) Une anne durant, ils en (moulèrent) les briques;
 Lorsqu’arriva une seconde anné,
 Ils eleverent la faite de Esagil, *en replique à l’apsu;*
Ayant construit la ziggurat elevée de l’apsu;
Pour Marduk, Enlil et Ea, ils y fonderent une maison, sa demeure.
 (65) Avec admiration (Marduk) vint s’asseoir devant eux,
 Et, de ces fondations, regarda les cornes de l’Esagil.
 Après qu’ils eurent achevé l’oeuvre les cornes de l’Esagil.
Les Annunki y tracèrent eux-memes leurs santuaries.
 A l’Ensagil, voûte de l’apsû, tous, ils alierent se reunir;
 (70) Dans la grande chapelle, qu’ils avaient construire, pour être sa demeure,
 Sur son ordre, il y fit asseoir les dieux, ses perès;
 “Voici Babylone, siège de votre séjour,
 Venez vous réjouir en ce lieu, celebrez sa fête”.
 Les grands dieux alors prirent place,
 (75) Servirent la (bière) Zarbaba, s’installèrent au festin
 Après, qu’ils curent a l’interieur celebré cette fête,
 Et dans l’Esagil, bu la bière au banquet.
Les lois furent fixées et les destines determinés”.

21 Bielicki M.: The Forgotten World of the Sumerians (in Polish), Panstwowy Instytut Wydawniczy, Warszawa 1966; see: chapter: Prayers to Enlil, p. 187–190.

- 22 The classic association of the Cosmic Mountain with the Underworld in Mesopotamia represents the following Sumerian text: “There stands a *House under the Mountain of the World* a road runs down, the *Mountain covers it*, and no man knows the way.
It is a House that binds bad men with ropes and clamps them into a narrow space.
It is a House that separates the wicked and the good; this is a House from out of which no one escapes, but just men need not fear before its Judge, for in *this river of Spent Souls* the good shall never die although the wicked perish.
This is my House, *on its foundations stand the Mountains of the Sunrise*, but who shall see into the Pit?
It is a House that separates the wicked and the just;
It is a House that smothers in clay the souls that come to it.
It is the House of the Setting Sun, the pallid god in vivid splendour; the sill is a monster with jaws that gape and jambs of the doors are a sharp knife to slash down wicked men.
The two rims of the River of Hell are the rapier thrust of terror, a *raging lion guards it* (compare with Mertseger!!), and who can face his fury?
Here also lie the Rainbow Gardens of the Lady”
(taken from: Sanders N.K.: *Poems of Heaven and Hell from Ancient Mesopotamia*. Penguin Books, London 1971).
- 23 The texts referring to Etemenanki in Babylon plainly assess the great sacral importance of taking measurements and making plans: “Pour ce qui concerne Esagila, le temple des dieux, ainsi j’ai posé son fondement . . . sa pierre de fondation comme l’entaînement d’une *puissante montagne*, j’afermis . . . Etemenanki, sa zigurrat . . . j’ai restauré” (tablet of Assarhaddon, Parrot, 1949, op. cit.). “Marduk, le seigneur, m’ordonna à propos d’Etemenanki, la tour à etages de Babylone, qui avant mon temps était devenue d’élabrée et était tombée en ruines, *d’assurer son fondement dans le sein du monde inferieur et son sommet, de la faire semblable au ciel*” . . . “Je fis fabriquer des briques cuites. Comme s’il s’agissait des pluies des cieux qui sont sans mesure, ou des grandes torrents, je fis apporter par le canal Arahtu des flots de bitume. . . . *Je pris un roseau et je mesurai moi-même les dimensions* (à donner à la tour) *suivant le conseil des dieux Shamash, Adad et Marduk, je pris des decisions que je gardais dans mon coeur et je conservai les mesures (de la tour) dans ma memoire, comme un tresoir. Je répandis (dans les fondations) sous les briques, de l’or, de l’argent et des pierres precieuses de la montagne et de la mer. Je fis executer ma propre image royal portant le dupshikku et le plaçai dans les fondations. Pour Marduk mon seigneur, je pliai ma nuque; j’otai ma robe, insigne de mon rang royal et je portai sur ma tête brique et terre*”, (from declaration of Nabopolassar, Parrot, 1949, op. cit.).

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