

ON THE NUMBERS 54 AND 108 IN ANCIENT WORLDWIDE TRADITIONS

by

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Summary

In this paper we consider worldwide occurrences of the numbers 54 and 108 used without any explicit motivation in ceremonies, monuments etc. Possible astronomical justifications are considered.

1. INTRODUCTION

THE NUMBERS 54 and 108, and some of their multiples (216, 540.....) or their divisor 27, appear in ancient rituals, traditions, features of sacred structures....., as far as we know, never with an explanation of why they are chosen, as if the origin of their choice was forgotten or a secret not to be revealed. Here we provide a partial list of such occurrences, found in books we read in recent years. Such a list is of course incomplete; a full recording might lead to a list several times longer. The numbers have been found mainly in oriental sources (China, Japan, Mongolia, Tibet, India.....) but they also occur in

Middle East, in Europe and in South America.

An astronomical origin for such numbers is a working hypothesis worth to be considered. Here we list, without comments or endorsing any of the given possibilities, four of them:

- according to Patten and Windsor [1,2,27,28, 47] in ancient times, precisely until the year 701 BC corresponding to the last of such events (in that year the army of the Assyrian king Sennacherib was destroyed by a very special "supernatural" event while he was

- keeping Jerusalem under siege) planet Mars, then revolving the Sun on a quite elliptical orbit according to these authors, would have come sufficiently close to the Earth every 54 years, alternatively by day or by night on a given longitude, hence every 108 years either by day or by night. Such a close passage would lead to catastrophic events on our planet. The intensity of the catastrophes depended on how close was the passage, such a distance depending on the relative position of the other planets, then revolving along a system of resonant orbits. Patten and Windsor base their theory on the existence, in the biblical record, of a sequence of almost twenty catastrophes that are temporally spaced by multiples of 54. Notice that resonant orbits are not stable, according to recent analysis by Damgov et al. [39,40] and by Bass [42]. Notice also that Woelfly and Baltensperger [5] have proposed a catastrophic interaction between our planet and a Mars-sized body moving in a very elliptic orbit, and now probably disappeared inside our Sun. They attribute to the close passage of this body the the Earth glaciation episodes in the last 3.2 million years, including the last one that ended circa 9500 BC.
- the ratio of the Solar diameter (km 1.392.000) to Earth diameter (km 12.756) is 109.1, close to 108 to an error less than 1% (notice moreover that variations of Solar diameter are suggested by measurements taken during over a century at Greenwich Observatory)
- the Saros period is the period after which Sun, Moon and node arrive back at almost the same position, so that an eclipse would repeat. Such a period amounts to 6585,321 solar days, about 18 years and 11 days. Hence 3 Saros are about 54 years.
- according to Ackerman [48] planet Mars passed close to the Earth 99 times (hence the origin of the sacred 99 names of Allah in Islam), in a scenario that extends the one considered by Patten and Windsor. Now we know that Shakti, the highest divinity in the Hindu pantheon, reincarnated 10 times, every time as a terrible goddess (Kali,...); taking a clue from Velikovsky [49] we may associate Shakti with planet Venus, which possibly interacted with Earth 10 times, one time together with Mars, event that led to the end of the close passages of Venus and Mars with Earthy, see Dixon [50]. Thus we would have 99 plus 9 distinct close passages, giving a total of 108. However a problem is that the last passage (both Venus and Mars coming close to Earth) happened in 701 BC at the time of Sennacherib's siege of Jerusalem, while the number 108 is documented from times predating that date. Hence this explanation would not be acceptable, unless it was possible to estimate in advance the number of close passages, which requires existence of sophisticated astronomical knowledge among some ancient scholars or priests.

IN ADDITION to the question of the origin of the number in the worldwide traditions reported below, the presence of this number in the widely spaced continents of Europe, Africa, Asia and America, suggests the investigation of the problem: did such traditions arise independently or by cultural

diffusion, possibly related to human migrations?

In the following we will list occurrences of such numbers in various geographical locations.

2. CAMBODIA

ANGKOR WAT was built in present Cambodia by a people whose culture came from Vedic India. For some reason the ancient society at Angkor failed. The jungle took over and grew upon this former great city, concealing its amazing architecture, until it was rediscovered in the 19th century.

Angkor Wat incorporates the numbers 54, 108 and 540, in its planning, architecture and engineering. The city has a diameter of about two miles, and was surrounded by a moat with five bridges. It has five gates, and to each of them leads an avenue, bridging over that water ditch which surrounds the whole civic area on a flat plane. A row of huge stone figures, 108 per avenue, 54 on each side, a total of 540 statues of the Indo-Aryan deities Deva and Asura, border each of these roads, and each row carries a huge Naga serpent with nine heads. One half of the statues were replications of the Vedic deity Deva. In Zoroastrian mythology, Deva was a demon, an evil spirit. The Latin word "diabolus" and the English word "devil" are semantically and linguistically related to Deva. In Sanskrit, "div" means "from the sky" (meaning "from the region of the planets", not from Earth's stratosphere). Deva is a deity in Hindu, Jainistic and Buddhist literature.

3. CHINA, MONGOLIA AND TIBET

ONE OF THE most mysterious and archaic societies in China is the Hung League or Triad, presently the most important of the secret mafia-type societies in China. While the name Hung refers to the Buddhist monk who led the rebellion against the Yuan dynasty and who became the first Ming dynasty emperor, the rituals of the Triad are believed to go back to pre-Buddhist religions of the Chinese. One ritual involves 108 plants in a pot. Another involves 108 groves of red bamboo. The number 108 appears in several other items associated with the Hung league, see the book by Fei Ling Davis [35].

- punished with 108 strokes of whip (quoted book, pages 113, 115, 117, 160, 167, 181, 218, 271); highest penalty was decapitation
- Different roles in the society were associated with a number: the President had the number 108 (above, p. 162)
- During the festival of the Gods of Earth 108 coins were offered to the divinities (above, p. 184)
- The society had a plan of the sacred Buddhist city of paradise, containing exactly 108 buildings, only 5 of which were inhabited (above, p. 194)
- The cost of the membership diploma was 108 coins (above, p. 202).

IN 1120-21 AD the peasant rebellion in the marshes of Shandong, to which the classic novel *The water margins* refers, was led by the famous team of 108 outlaws, whose chief was Liang Shan Po.

The Buddhist rosary, in sale e.g. in Chinese Buddhist temples, consists of 108 grains (so it should be and so the vendors state; but if you count them they are often less, a common way of cheating). The cheapest rosaries are made of seeds. More special rosaries, like the one used by Alexandra David Néel, the first European woman who entered Lhasa (in the twenties of 20th century, disguised as a Buddhist woman), consist of grains in the form of skulls, typically used by hermits [6].

NICHOLAS DANZIGER traveled to China via Iran, Afghanistan and Pakistan in the seventies. He was the first westerner to enter China from Pakistan via the newly opened Karakorum highway through the Khunjerab pass. The following occurrences of number 108 are found in his book [7]:

- p. 309: *I noticed particularly one Golok woman from Changthang (the Tibetan plateau), her waist-length hair braided into 108 plaits to reflect the 108 blessings of Buddha.*
- p. 379: the boat he took on the Yangtze Kiang had a dormitory with 108 beds; he commented: *anything to do with Buddhism again?*

A funeral ritual in the 18-th century, described in the classic book *The dream of the Red Chamber* [44], involved on the third day the participation of 108 buddhist monks.

The Golok, or Ngolok, are a tribe living in northeast historical Tibet, now a part of Quinghai, near the Anye Machen mountain range, surrounded on three sides by the Yellow River, locally called Maqu (pronounced as Machu). That is a region of

great importance in the archaic history of Tibet, being related to the original land of the epic hero Gesar de Ling and, according to Hummel [8], being the original land of the Zhang Zhung, a people whose language was lingua franca in Tibet until the 8th century. The Anye Machen range has been proposed by Spedicato [9] to be the Mount Mashu that Gilgamesh reached in his second trip, where he met Utanapishtim, a survivor of the Flood who is usually considered to be an alter ego of Noah but who from many considerations might have been a distinct survivor of the Flood, in the original land wherefrom Sumerians moved away after the Flood (Dilmun, claimed to be located in the East).

The Ngolok, also called Black Tangut, numbered about 120,000 people around the middle of the 20th century but now are only about four thousand (see Deshayes, [23]), since most of them were killed while resisting the Chinese occupation of Tibet. This fierce people of horsemen, living partly on banditism, was visited by Leonard Clark, an American officer who stayed with the Muslim general Ma Pufang, the last war lord to be defeated by the Red Army led by Lin Biao. Clark had the task to evaluate the possibility to continue resistance against communists from the Tibetan territory. The religion of the Ngolok was Bon, the pre Buddhist religion of Tibet that still survives in some parts of Central Asia and that has deeply influenced Tibetan Buddhism. In [10] Clark relates how he visited a Ngolok chieftain, in his tent, where 108 lamps were burning in front of the statue of a Bon divinity.

THE MOST FAMOUS temple in Tibet is the Jokhang Temple, in Lhasa, where the Jowo statue is kept, Jowo meaning *Lord* in Tibetan. This temple contains a very ancient statue of a young man, deemed by some when it was visited by David Néel, to be the young prince Gautama, before he began his religious life.

The temple was a famous place for fortune tellers. The first act before meeting one of these persons was to light 108 small lamps in front of the statue, see David-Néel [20]. Lighting 108 lamps is any way a current practice in Tibet.

THERE ARE 108 ways to build a *chorten*, which is a mausoleum like structure, often build over the grave of a holy man. See *The Tibetan book of dead*, version by Tucci [22].

In Tibet a "mystery rite", named *chod*, was performed near special places. In David-Néel [19] we read that: *Some lamas undertake tours to perform near a hundred and eight lakes, and a hundred and eight cemeteries.*

Camels in caravans bringing tea from China to Siberia via Mongolia were loaded with two or three boxes of tea bricks; each box contained exactly 108 (Chinese) pounds of tea, see Prjevalski [13].

A collection of sacred books in Tibet is named *Kangyur* (from Tibetan *Bkha hgyur*, meaning *Translated words*, see Néel [11], the original texts being written in Sanskrit, the content being related to the Bon religion, see Hummel [8]). It consists of 108 volumes, see this passage in Néel [12]: *Il existe, à Choni, une gompa qui jouit d'une certaine réputation parce que son imprimerie possède les planches gravées permettant l'impressions des 108 volumes formant la collection des livres canoniques appelée Khagyur.* The commenatries of the Kangyur, called, *Tangyur*, consist of 225 volumes (notice $225 = 108 + 108 + 9$, all special numbers....), see Maraini [37].

THE KANGYUR can be printed on paper, on skin, on silver or gold foils. The increase in price from one type of material to the next more expensive one was traditionally exactly 108 times, see Prjevalsky [13]. A copy of Kangyur was preserved at their great risk by Buddhists in the Buriat province of Soviet Union, written on 108 skins, preserved in a laquered box, see Thubron [32].

Fortune telling is an ancient profession in Asia, often transmitted from father to son by uncountable generations. In the year 1993 the Italian journalist and writer Tiziano Terzani, who had been told not to fly during that year by a fortune teller in Hong Kong in 1976, followed that advice (incidentally, the helicopter that should have taken him to a meeting in Cambodia crashed....) and devoted some time in contacting fortune tellers in various parts of Asia. In Mongolia he visited the monastery of Ghisir, where in former times (i.e. before communism almost completely eradicated Buddhism in Mongolia killing most of the monks) a school for astrologers was located. The interview with the monk now doing fortune telling started with the monk asking him to tell a number not greater than 108. See Terzani [14].

FROM AN article by J. Van Dyk: *One walk around Kailas, Ted explained, washes away the sins of life; do it 108 times (an inauspicious number to Tibetan Buddhists) and you can achieve nirvana in this life.*" (National Geographic, November 1999).

One of the traditional gambling in Tibet used 108 small carved bones in a hollowed out skull (dice are also used in other cases, being also one of the implements of the deity Pelden Lhamo).

Buddhism entered Tibet in the 7th century in the region of Lhasa. Initially 12 temples were built in certain key geographical points, starting with the Jokhang temple in Lhasa, that were associated with special bodily parts of a certain female demon, and the 12 temples were used to pin her down. This is linked with the belief that local gods had to be subdued before Buddhism could take root. Then the construction program was incremented by the addition of further 108 temples, at the end of the 7th century, see Allen [18], p. 90.

NEAR THE RUINS of an ancient important temple in Milan, in the south-western part of Tibet, where the Guge empire flourished several centuries ago, chorten are present in rows of 108, see Tucci [25] and Tucci [36], where reference is made to 108 *chapels*.

The main temple of Lhasa is the Zuglakan (or Tsuglakhang, which is the true original name of the Jokhang); here 108 episodes of the life of Buddha are represented by frescoes, see Tucci [26].

One of the oldest temples in Tibet is located in Samye (it was badly damaged during the Cultural Revolution; now it has been restored to its former beauty). It was founded by king Khrisong Detsen, who adopted Buddhism as state religion; the famous lama Padmasambhava was called, with Shantarakshita, to assist in the construction. The temple contained 108 chapels; not far from it another temple, the Ngari Tratsang, contained frescoes of the 108 "works" of Buddha, see Tucci [26]. Near the temple 108 caves are found, whose entrance was closed during the Cultural Revolution, restoration

being now under way; see Pachon and Donnelley [38].

4. JAPAN

In the middle of the first millennium before Christ, Buddhism spread outward from India into Ceylon, Tibet, China, Cambodia, and eventually into Japan. Everywhere Buddhism went it adopted ideas and themes from the ancient indigenous religions.

Even in our century in Japanese cities, on Buddha's birthday, there are precisely 108 bongs gonged out on a large gong at Buddhist shrines. Bells are sounded 108 times in Buddhist temples nowadays also just past midnight of 31 December, relayed live from the television, see Bornoff [31].

The *Tale of Genji* is a great classic of Japanese literature, written by lady Murasaki Shikibu (c. 980-c.1014), a complex story of life and loves of the *shining prince* Genji, developed in some thousand pages divided into 54 books. One wonders if there is an association between the character of the *shining prince* so much interested in sexual affairs and the similar character of Mars/Aries in the Latin/Greek tradition. Again in 54 chapters is another later classic, the *Life of an Amorous Man*, by Saikaku, published in 1682. See Bornoff [31].

Another curious survival of number 54 may be seen in the booklet *The description of the desired Japanese*, published by the Public Instruction Ministry in 1964, with a yellow cover, the Bible for every school teacher. It consists of 54 pages. See Terzani [15].

BOWING EXACTLY 108 times is a tradition in Japan. Here is the description of how the Japanese explorer Kawaguchi behaved when

in the spring of 1900 he saw for the first time the sacred source of the Ganges, the *Chumik Thonga Ranchung*, or *The Spring of Joy*, see Allen [17]: *It inspired me with the profoundest feelings of pure reverence.....I addressed myself to this sacred pillar of nature, confessed my sins, and performed to it the obeisance of one hundred and eight bows.*

JUST AS A curiosity we notice that the great Italian orientalist Fosco Maraini, when he returned to Italy at the end of Second World War after several years in Japan doing anthropological research and being imprisoned when he refused the oath of fidelity to Mussolini government in Salò, packed the material he had collected in 54 wooden boxes. See Maraini [45].

5. INDIA

The number 432,000 appears not only in Germanic traditions (the Eeinherier entering Valhalla, see below) and in Chaldea (the Chaldean king list in Berossus) but also in the Rig Veda of India. The Rig Veda has 10,800 stanzas with 40 syllables per stanza, a total of 432,000 syllables. There are 10,800 bricks in the Indian fire altar (Agnacayana), a funeral pyre, a number of fate.

In the Ramayana (prose version by Buck [21]), the monkey Hanuman breaks the skull of the demon Lighting Tongue into 108 pieces. The hermit Pulastya gets angry when he is disturbed for the 108th time. Indrajit, the son of the demon Ravana, who takes away Sita from Rama, wins 108 kinds of illusions from Brahma. In a battle between Rama and

the Rakshasas in the Dandaka forest, a Rakshasa soldier hit a brass plate 108 times.

At variant with the number 108, but this might be easily explained by a memory slip when, after several years, he told his story to Rustichello of Pisa while in a Genoa prison, Marco Polo (Il Milione, third book, chapter 23, Latin version of 1485 by Pipino, with notes by Cristoforo Colombo; Italian edition by Edizioni Paoline, 1985) states, with reference to the king of Maabar, in southern India: *on his neck there is a silk band adorned with 104 pearls and rubies. Every day he has to recite 104 prayers in the morning and 104 in the evening.*

Mustang is a secluded province of in north-west Nepal, which the Nepalese government is still trying to keep out of the main tourist directions by charging a quite high entrance visa. The local religion is mainly Buddhism and that land is rich of monasteries (gompas) with extremely ancient and rare documents (a copy of the Kangyur written on pure gold foils, weight 40 kilos, is kept in the fortress of the town of Tsarang). The famous gompa of Lo Gekar is located in a mountain area in the middle of 108 chorten. See Terzani [15].

Muktinath is a temple town in Nepal, where Buddhism and Hinduism coexist with several temples. Near the Vishnu temple the water of a holy source is distributed by a system of 108 outlets, see Tucci [24].

THE HINDU rosary has 108 grains as does the Buddhist rosary (perhaps it is worth recalling that Buddhism can be seen just as a variant of Hinduism; this was the opinion of Gandhi for instance). Curiously, Allen [17] notes that the Survey of India Office was able to send his agents incognito into Tibet for land

measuring where the agents counted the number of their passes, the basic length unit, using a modified rosary with 100 instead of 108 grains.

According to Yoga precepts, man should breathe exactly 21600 times per day; since night and day can be considered of equal length in tropical India, this would mean 108 multiplied by 100 two times (one breathe every 4 minutes).

6. MIDDLE EAST

SARGON THE GREAT, usually dated at about 2200 BC (but according to Pincherle [45] he lived before the Flood, in the 4th millennium BC), had 5400 men in his special body guard and 5400 men attending his banquets. See Pincherle [44].

Eight tablets were found near Nippur by the 1949-50 expedition of the Oriental Institute of the University of Chicago containing a document, translated by Landsberger, Jacobsen and Kramer, titled *The first almanac of agriculture*. The document was written in 108 rows. See Semerano [46].

From a recently translated tablet, dealing with creation myths (Pettinato, communication at Accademia dei Lincei meeting, Rome, June 2000) we know that *Enki gave 108 "essences" to Inanna*. Now *essences* is a term referring to spiritual capacities. This may be the earliest reference in literature to the number 108.

Gudea, a Sumerian king of the city of Lagash, built a temple to Ningirsu employing 216,000 workers (see Sitchin [4], p.45 in Italian

edition by Edizioni Mediterranee, 1996). His meal usually consisted in 108 different servings.

In offerings to the gods in Uruk 108 types of common dates were included (plus an unspecified amount of bigger special dates imported from Dilmun, a region in the East, whose location is still point of debate). See Sitchin [33].

The following list of antediluvian kings involves the number 108 (in the so called W-B text/144, see Sitchin [4], above quoted Italian edition, p.264):

....the
sovereignty was
moved to Bad
Tibira.

In Bad
Tibira

EN.MEN.LUAN.NA was king for
43,200 years

EN.MEM.GALAN.NA was king for
28,800 years

Divine
shephard *DUMU.ZI* was king for 36,000
years

The three
kings reigned for 108.000 years

ONE MAY note that 108,000 is 30 times 3,600, which is the length of the Sumerian long year *SAR/SHAR*. 30 is also one of the "sacred" numbers, having a natural association with the revolution period of Saturn (a little less than 30 now, exactly equal to 30 in the quoted Patten and Windsor

scenario on the original organization of the Solar System, that according to them involved orbits in resonant periods, 2 years for Mars, 12 for Jupiter, 30 for Saturn...). According to Sitchin [4] 3,600 is the orbital period of the *twelfth planet*, named *Nibiru*, by him associated to crucial events in the history of the Solar System and seen as the original abode of the *Anunnaki*, the beings involved in the "creation" of man.

AT THE TIME of the Assyrian king Tiglatpilaser the smallest unit of the Assyrian army consisted of a team of 10 soldiers. The equipment of this unit was listed in a document found in Guzana and is given in Pettinato [29]. It includes exactly 108 items (weapons and miscellanea like 4 horses, 2 asses, 1 ox and 10 sheep). A text of Calah is read as stating that the basic company of chariots included two distinct groups of 53 chariots and 53 men. The number 53 is given by the sum of 30, 12 and 11. While 30 and 12 are "sacred" numbers, 11 is not so, hence it is natural to suspect an error either in the text or in the translation. Changing 11 to 12 would give two groups of 54 elements, hence again the special number 108.

Baalbek (Lord Baal) is the name of a very ancient city in Lebanon. Its Greek name was Heliopolis. It is located on the way from Beirut to Damascus, inland from the Mediterranean Sea. Its extensive ruins consist of buildings of several periods, Roman columns and structures being found over much more ancient structures, including huge megalithic blocks, among the biggest known in the world. Long predating Roman and Greek structures on the site, the three that make up the so-called *Trilithon* are as tall as five-story buildings and weigh over 600 tons

each. A fourth megalith, abandoned in its quarry before completion of the cutting, is almost 80 feet in length and weighs 1100 tons. Amazingly these giant blocks were cut, perfectly shaped and somehow transported to Baalbek from a quarry several miles away. In addition they were skillfully incorporated, at considerable height. The temple had 54 massive columns during Phoenician times.

The book of Enoch, a canonical biblical book for the Christians and the Hebrews of Ethiopia and Armenia, maybe also for the Essenes in Qumram, but not included in the present Christian or Masoretic canon, consists of 108 chapters. In 1947 Athanasius Yeshue Samuel, Metropolitan of the Syrian Orthodox Archdiocese in Jerusalem, bought from beduins the first four scrolls of the rich cache from Qumram. It included a complete book of Isaiah, written in 54 columns, of 30 lines each. See Samuel [30].

Rabbi Eliezer (Rokeach), a teacher of the Nachmanides kabbalistic school, lists number 54 as *the way of skipping* in the search of hidden information in the Bible, see Satinover [34].

In Kabbalah it is stated that the name of God consists of 216 letters.

7. NORTHERN EUROPE

IN THE FINAL battle of the gods in the old Germanic sagas, the massed legions on the side of "order" are the dead warriors, the *Einherier*, who once fell in combat on Earth and who have been transferred by the Valkyries to reside with Odin in Valhalla, a theme much rehearsed in heroic poetry. On

the last day, they went forth to battle in martial array. One reads in the Grimnismal: *Five hundred gates and forty more- are in the mighty building of Valhalla - eight hundred Einherier come out of each one gate - at the time they go out on defense against the Wolf.*

There were 540 gates to the mythical Norse/Germanic warrior's heaven called "Valhalla". But from whence came the number "540"?

The 800 Einherier were courageous warriors who died in battle, and in so doing had automatic reservations at the gates of Valhalla at the end of time. There were 800 Einherier at each gate, and 540 gates, making 432,000 a count of courageous warriors who died in battle, and who are to enter Valhalla. This is of interest because this large strange number also appears in the Chaldean kings list of Berossus, where 432,000 is often thought to be 432,000 years.

IN EDDA, a collection of Nordic myths by Snorri Sturluson, there are 54 chapters. In chapter 21, Thor is said to possess a great palace, called Bilskirnir, having 648 great beams, a number that from the relation $54 \times 12 = 648$, connects the two "sacred" numbers 54 and 12.

Statues of mother goddess datable to neolithic times have often 27 eye lashes over each eye, thus 54 lashes (as referred by Jurgen Spanuth, in his books locating Atlantis in the North Sea),

8. GREECE AND ROME

The number 10,800, that occurs often in Indian tradition, also appears in Greek culture, as the number that has been given by Heraclitus for the duration of the Aeon, according to Censorinus (*De die natali*). It is usually supposed that the duration of the Aeon is 10,000 years. The number might however have a different origin, since it is the product of 360, at least a conventional length in days of the Earth year, by 30, the length of Saturn year, in Earth year units.

Pythagoras was a Greek mathematician and philosopher in the 6th century B.C., who lived over a century after the 701 BC event. He inspired an organization, somewhat secret, with cultic aspects that have survived for many centuries. According to their belief, there were five catastrophic cycles of 108 years in a 540-year megacycle. On those occasions, on a heliocentric model of the Solar System, Saturn had five different locations in the cosmos. When those positions are plotted on paper, and when sequential lines are drawn to connect those five points, the result is an equilateral pentagon.

Some secret societies from Europe date back past the Middle Ages, and this probably includes Pythagorean societies dating from much earlier. Thus ancient agnostic ideas have been perpetuated. In secret societies, overtones of the previous era can still occur. For instance, Rosicrucian tradition speaks of cycles of 108 years (72 plus 36) according to which the secret brotherhood makes its influence to be felt.

Perhaps more surprisingly number 108 seems to have made some inroads even in modern

catholic world. For instance a Virgin Mary golden statue has been put on the top of Milan cathedral in Italy at the height of exactly 108 meters. One of the encyclicas written by the present Pope Paul John II contains 108 chapters. Once he ordained 108 bishops....

ZOSIMUS was a pagan officer in Rome early in the sixth century A.D., about whom little is known, except that he was clearly against the Christian emperors who had introduced new religious rites, while the empire was under great crisis. He was an admirer of emperor Julian. In his work "New History", in 13 chapters, there is yet another indication of an ancient reverence for the numbers 54 and 108. He referred to secular games that were held in Rome on occasions somewhere between 105 and 110 years apart.

THE LOCATION was the Field of Mars in the northern part of the city of Rome. The games were organized following a ritual described in the Sybillian books, albeit the text was somewhat corrupt and not easily understood at his time (one should recall that the Sybillian books were the among the about 600 prophetic books collected by Augustus when he came to the power; all were destroyed by him except the Sibyllian books, destroyed later by Theodosius). Among the elements of the ritual, hymns were sung by 27 young ladies and 27 young lads, who were chosen under the condition of being *amphithaleis*, i.e. both their parents had to be alive. Thus the ceremony involved 54 youngsters and 108 parents. See Zosimus [16].

9. MEXICO, GUATEMALA AND PERU

The so called "Pyramid of the Magician" is located in Uxmal, Yucatan Peninsula. This Mayan pyramid is approximately 35 meters high, like a 12 stories building. Its appearance is unique, as it is oval (elliptical) in shape, while most Maya pyramids are square or rectangular. On each of two sides, this Mexican pyramid has staircases that lead to the top, where the temple is located. These two tall, wide staircases each have 54 steps.

The temple of the Grand Jaguar, also known as *Temple 1*, is located in Tikal, Guatemala. This temple, a four-sided pyramid with a single grand staircase, is by modern standards approximately 13 stories high, about 40 meters high. Stacking a squared-off level story on top of a lower, larger level of the same form forms this pyramid, like almost all Maya pyramids. They bear an uncanny likeness to Mesopotamian ziggurats. In almost every case, the number of levels on these massive structures is nine. It is interesting that nine happens to be a divisor of 54, 108 and 540. Also many short staircases in smaller Maya buildings consist of nine steps as well. The Maya culture loved this number, nine, and expressed it consistently in civic architecture.

Tikal's Temple of the Jaguar has four sides and nine levels, $4 \times 9 = 36$. In addition, on both the right and left of the pyramid's single grand staircase are indentures, discernible protrusions, which are actually extensions on each side of the stairwell's balustrade. There is one on each of the two sides of the temple, and at nine levels. Now $2 \times 9 = 18$, hence $18 + 36 = 54$.

ANOTHER case where the numbers 54 and/or 108 seem to have been important in ancient architectural planning is the city of Machu Picchu, high in the Andes, in Peru, time of construction not known with certainty. In the book *Machu Picchu* by Simone Waisbard, Laffont ed., 1974, on page 200 it is written: *Machu Picchu ...had two sectors, the high one named Hanan and the lower one named Hurin. There were twelve quarters and 216 buildings. We do not know presently if the 216 buildings were evenly divided, 108 buildings in Hanan, the upper city, and another 108 buildings in Hurin, the lower city.*

On the great gateway to the so called *Sun temple of Kalasaya* there appear 54 jaguar heads and 108 condors.

10. ANCIENT EGYPT

THE GIANT statue of Ramses II (the Memnon colossus) has on his legs 108 inscriptions (a giant statue of Buddha located in a temple in Bangkok has 108 inscriptions on the soles of the feet).

When the great library of Alexandria was opened, it contained 54.000 scrolls.

The number later increased to some 700.000.

Along the sides of the Great Gallery in the Great Pyramid of Giza (attributed to Cheops, but probably built around 3500 BC, at the same time as the Sphinx, 300 years before the Noachian Flood) there are 54 niches.

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Riassunto

In questo lavoro consideriamo casi in cui nel mondo intero appaiono i numeri 54 e 108, senza esplicita giustificazione, all'interno di riti, cerimonie, monumenti ... Consideriamo anche possibili giustificazioni di natura astronomica.

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