

Identifying the central figure of the Piedra del Sol

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Abstract. The central and most important piece at the National Museum of Anthropology in Mexico City, known as the ‘Piedra del Sol’ or the ‘Calendario Azteca’, is one of the most important artistic creations of the Aztecs and has been the subject of countless studies. Among these, there is certainly no shortage of highly debatable or far-fetched studies and hypotheses, but there are also scientific, documented, logical and acceptable studies that at the very least deserve attention and critical reading. This paper addresses the problem of identifying the central figure of the ‘Piedra del Sol’.

The central piece at the Museum of Anthropology and History in Mexico City, known as the ‘Piedra del Sol’ or the ‘Calendario Azteca’, is one of the most important artistic creations of the Aztecs and has been the subject of countless studies.¹ There are several hundred articles and many full books written and published that deal directly with it. Among these, there is certainly no shortage of highly debatable or far-fetched studies, but there are also scientific, documented, logical and acceptable studies that at the very least deserve attention and critical reading. I will not go into all the elements and details of this complex composition here, but would just like to review the problem of identifying the central figure of this monolith.

¹ For my previous work see Arnold Lebeuf, 'Dating the Five Suns of Aztec Cosmology', *The Inspiration of Astronomical Phenomena: Proceedings of the fourth conference on the Inspiration of Astronomical Phenomena*, Magdalen College, Oxford, England, 3-9 August 2003, special issue of *Culture and Cosmos* 8, nos. 1 and 2, Spring/Summer-Autumn/Winter 2004, pp.183–94.

Arnold Lebeuf, ‘Identifying the Central Figure of the Piedra del Sol’, *Culture and Cosmos*, Vol. 29 no 1 and 2, Spring/Summer and Autumn/Winter 2025 (Papers from the INSAPXII conference, Corfu, 2024), pp. 61-70.
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Fig. 1. The central face on the Aztec Sun stone. Museo Nacional de Antropología, Mexico.

Generally speaking, since the peremptory declaration by Seler: “‘Aztec Calendar’ is only an image of the sun, no more and no less’.² The central figure represents Tonatiuh, the face of the sun, hence its more common name of ‘Piedra del Sol’, the Sunstone. This interpretation has been accepted by most authors, and by many others like Beyer³ and Matos Moctezuma.⁴ Beyer wrote in 1921:

The fact that the ‘Aztec Calendar’ has almost always been regarded as a unique artefact, a sui generis monument, is the main reason why so many different and strange opinions have been expressed about it.... In reality the Museum stone is neither a unique monument, nor

² Eduard Seler, *Collected works in Mesoamerican linguistics and archaeology*, English translation under the supervision of Charles Bowditch (Labyrinthos, Vol. III, 1992) p.128; Ursula Schlenker, ‘Eduard Seler, Gesammelte Abhandlungen zur amerikanischen Sprach- und Altertumskunde, Graz 1960-1961, 5 Bände, 2880 Seiten’, *EAZ–Ethnographisch-Archaeologische Zeitschrift* 3, no. 2 (1962): 212-214. ??? *Gesammelte abhandlungen zur Amerikanischen sprach- und altertumskunde* (Graz: Akademische Druck- u. Verlag-sanstalt. II, ,1960) pp.795 – 801.

³ Hermann Beyer, *El Llamado Calendario Azteca* (Centenario, Mexico.1921), pp.1–22.

⁴ Eduardo Matos Moctezuma and Felipe Solís, *The Aztec Calendar and other Solar Monuments* (Mexico: Conaculta, INAH, 2004) p.64.

does it hold any secrets. It is an object intended for the worship of the sun and all, absolutely all its ornamental motifs refer to the sun.⁵

Nevertheless, some other researchers have noticed a dark aspect of this supposed solar representation, and suggested that it might represent a 'nocturnal sun' or the 'sun of the underworld', or the sun in danger of death or being attacked by celestial monstrous beings. The sun in eclipse. In 1974 Carlos Navarrete and Doris Heyden recognised in this face a representation of 'Tlaltecuhli', a chthonian goddess, goddess of the earth, of the subterranean world, a telluric monster.⁶

In 1976, Cecilia Klein considered the relations of the central face of the Piedra del Sol with Xochipilli, Yoaltecuhtli, Piltzintecuhtli, Cihuacoatl, the Tzitzimime, and several aspects related to death, destruction, darkness and the underworld, the centre of the earth. She also insisted that the general complex of the stone refers to Venus and the end of the 52 year and 104 year cycles. The binding of the years was celebrated every 52 years at the congruency of the 260 days cycle and the 365 days cycle ($52 \times 365 = 73 \times 260$) and was called Toxihmolpilli. Every 104 years the conventional Venus cycle of 584 days was added to the congruency of these two first: ($146 \times 260 = 104 \times 365 = 65 \times 584$), this period was called Huehuetiliztli, the old or venerable one. These years were also those of the New Fire Ceremonies. Her conclusion is that the central face represents the dying sun and relates it to Yohualtecuhli, a solar god of the underworld. She writes that the Calendar Stone refers to

the darkened sun and planet Venus at the centre of the earth at the moment of cyclic destruction and completion in which they fused to create the hybrid deity Yohualtecuhli, the great Aztec Lord of the Night.⁷

Cecilia Klein draws a relation between the figure, Venus and the destructions of successive worlds.⁸ Michel Graulich also points out the combination of solar and earth/death imagery with nocturnal elements,

⁵ Hermann Beyer, *El Llamado Calendario Azteca* (Mexico: Centenario.1921), pp.1–2.

⁶ Carlos Navarrete y Doris Heyden, 'La cara central de la Piedra del Sol. Una hipótesis', *Estudios de Cultura Náhuatl* 11 (1974): pp.355–76.

⁷ Cecilia Klein, 'The Identity of the Central Deity on the Aztec Calendar Stone', *The Art Bulletin* 58, no. 1 (1976): pp.1–12.

⁸ Klein, 'The Identity of the Central Deity'.

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indicating that the central face embodies a union of opposites characteristic of the solar god Xochipilli.⁹ He sees in the face a black lunar mirror at the zenith at midday:

the celestial body we see in the evening sky could be called the lunar sun; it is halfway between the real sun and the night... the identity of the central face becomes obvious: it represents the noonday sun, the sun of the union of opposites, sometimes called Xochipilli. The circular shape of the central face may allude to the black mirror of noon.¹⁰

All these associations of the central face with lunar aspects, black mirrors, death, darkness and the underworld, Venus and night, stars, of the so-called face of the sun Tonatiuh led Susan Milbrath in 1995 to identify in this figure the sun in eclipse, she writes :

I find Klein's analysis compelling, but interpret the face as that of the Sun God, Tonatiuh, in the embrace of the Tzitzimime during a solar eclipse. The human hearts, claws, and knife tongue are all elements seen in imagery of the creature identified as Tzitzimitl on Codex Magliabechiano ,76r (Figure 3), which leads me to suggest that Tonatiuh is the dying sun with the Tzitzimime, the stellar demons that appear during eclipses.¹¹

Milbrath also sees the relation to New Fire ceremonies and the bounding of the years. She insists that the figure is indeed the face of Tonatiuh but that the iconography of the Piedra del Sol is strongly associated with eclipses. In my opinion, Milbrath is absolutely right, but she sees the sun in eclipse, which we will see is disputable.

⁹ Michel Graulich, 'México City's "Templo Mayor" revisited', in *Ancient America: Contributions to New World Archaeology*, ed. Nicholas Saunders (Oxford: Oxbow Books, 1992). p.18.

¹⁰ Michel Graulich, 'La piedra del Calendario y el Teocalli', in *La Piedra del Calendario Azteca (De hombres y dioses)*, coords. Xavier Noguez, Alfredo López Austin.— 2^a ed.— Zinacantepec, Estado de México: El Colegio Mexiquense, A.C. Gobierno del Estado de México: El Colegio de Michoacán, A.C., 2013), p.152.

¹¹ Susan Milbrath, 'Eclipse Imagery on the Aztec Calendar Stone', *Mexicon* Vol. XXXIX (2017): p.18.

Personally I completely agree with the identification of this face as that of Tlaltecuhltli, first proposed by Heyden and Navarette. and also that it has strongly to do with the sun in eclipse, as proposed by Milbrath. All the other associations with attacks – by tzitzimime, darkness, lunar-sun, an obsidian black mirror in the middle of the sky – are in some way confirming the eclipse symbolism proposed by Milbrath.

To recognize Tlaltecuhltli in the central figure of the 'Piedra del Sol,' it is sufficient to compare its elements with those of other representations of this goddess that have been identified as such and accepted without opposition. Especially important for comparative elements was the discovery by José Alvaro Barrera in 2006 of a very large representation of Tlaltecuhltli at the foot of the Templo Mayor.



Fig. 2. Tlaltecuhltli, Templo Mayor, Mexico.

A comparison of the two images indicates that:

- both are represented by a frontal face and not a profile as Tonatiuh the Sun is generally pictured.
- both have the same type of ear pendants.
- both are equipped with terrific claws
- both present a protruding tongue in the shape of a flint knife.

Unfortunately the nose and cheeks of the figure on the 'Piedra del Sol' have been hammered, but it seems to me that we can detect on the cheeks the same circular motifs of the precious stones called chalchihuitl, which are found on representations of Tlaltecuhltli. After writing these words, I found in the paper by A. Wiercinski the following:

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the present author during his stay in Mexico in 1974 has had the opportunity to look carefully again at the original of ASC deposited in the National Museum of Anthropology. After this examination he observed on the damaged left cheek of the physiognomy something as the trace of a chalchihuitl what should be verified by a more detailed, possibly photogrammetric investigation. If this observation is right, the Tlaltecuhli's affinities would be safely established.¹²

Of course, the literature on the subject is so vast that it is impossible to mention all the variations of interpretations proposed. The few authors I have mentioned here have already presented reviews of other opinions and references, a repetitive exercise. However, there is another way of arriving at this same conclusion, reinforcing and confirming it.

Let us first mention that the 'Piedra del Sol' does not represent only the central Sun 4-Ollin, but rather the five Suns of the Aztec cosmology: 4-Ocelotl; 4-Ehecatl; 4-Quiahuitl; 4-Atl; 4-Ollin. Thus, the central deity concerns the complete Aztec cosmology of the five Suns and not just the 4-Ollin Sun.

Tlatecuhtli as a feminine goddess, a goddess of the earth, is not only an aggressive and destructive Tzitzimitl but is also necessarily associated with fecundity, birth, rebirth, renewals, because all celestial bodies, Sun, Moon and stars rise up from the earth in the eastern horizon. The stars rise up from the underworld, from the deepness of the earth just as the plants do, as well as human beings in several tales, and therefore Tlaltecuhli is represented in a birth giving position. But this goddess is of course also associated with death in the west – swallowing stars, the sun, the moon, fallen fruits, and dead bodies of humans and animals. She is then a dreadful monster with a sacrificial knife for a tongue, skulls on her elbows and knees, blood in her mouth, which is a large, very large mouth open at the surface of the earth.

If Tlaltecuhli is associated with creation and destruction and is here in this monumental 'piedra del Sol', represented at the centre of the five suns of Aztec cosmology, it should also mean that she is the creator and destructor of the five consecutive Suns. Each Sun was doomed to be destroyed or die in a catastrophe on the very same day name of its birth. Susan Milbrath claimed that the Aztecs feared that their Sun, the fifth Sun,

¹² Andrzej Wierciński, 'Dark and light side of the Aztec Stone Calendar and their symbolical significance', *Contributions in New World Archaeology*1 (1977): p.109.

the last and present one of this cosmology, should have finished and been destroyed with the appearance of a solar eclipse on a day 4-Ollin.

Let us now explain the system of those creations and destructions, the birth and death of the five successive Suns. Many years ago I published the results of my investigation on the subject and will only briefly recall my conclusions.¹³

1. The Aztecs came to the Central region in the fourth and last Sun of the previous cosmology shared by local populations. They introduced various reforms for the profit of their imperial ideology. The main one being the introduction of a fifth Sun, the Sun 4-Ollin specific to the Aztecs. It means they added a fifth Sun to an ancient system of four Suns and divided differently the long era of 5200 years.¹⁴ They created five Suns of equal length.
2. Each of these suns lasted for 1040 years.
3. Altogether, five times 1040 years equals 5200 years, the length of the era known as the Long Count among the Maya. This means that the Long Count was known also on the Altiplano of Central Mexico. I have presented this elsewhere.¹⁵
4. Knowing that the fifth and last Sun, the Sun 4-Ollin, started in the year 1040 AD, we can calculate that the beginning of the First Sun 4-Ocelotl started in 3119 BC, which corresponds to the start of the Venus table in the Dresden Codex.

Let us now see how this works. Since 1930, thanks to the work of Hans Ludendorff, we know that the 260 day calendar is congruent with the eclipse seasons, because twice 260 is 520 and a third of 520 is 173.33333 days, which is almost equal to the time needed for the sun to pass from one node of the Moon orbit to the other.

¹³ Arnold Lebeuf, *Les eclipses dans l'ancien Mexique* (Krakow: Jagiellonian University Press, 2003)

¹⁴ Yes, the Long Count of 5200 years was known in Mesoamerica beyond the Maya area. See my study, Arnold Lebeuf, 'La cuenta larga en el altiplano mexicano', *Estudios Latino Americanos*, 2025, in press.

¹⁵ Arnold Lebeuf, *La Cuenta Larga*, 2025.

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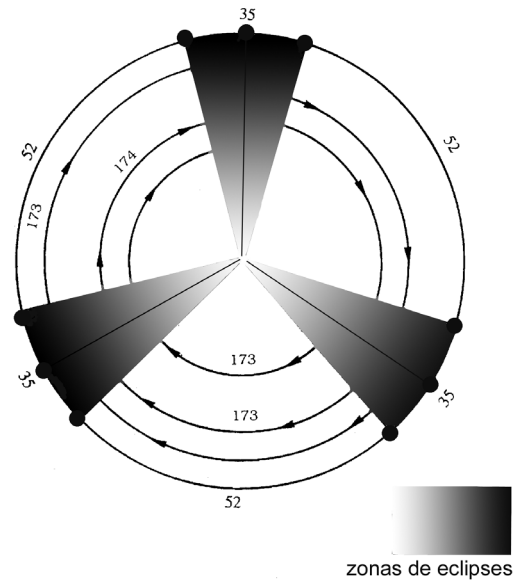


Fig. 3. The eclipse zones in the 260 day almanac. Author's image.

It is then enough to determine one day of central eclipse in the almanac to deduce the three positions of all the sun passages by the nodes. This means that the 260 day almanac works as a small computer for eclipse prediction. Any Full Moon within 17 days of the node will be eclipsed. Any New Moon within 17 days of the node will eclipse the Sun.

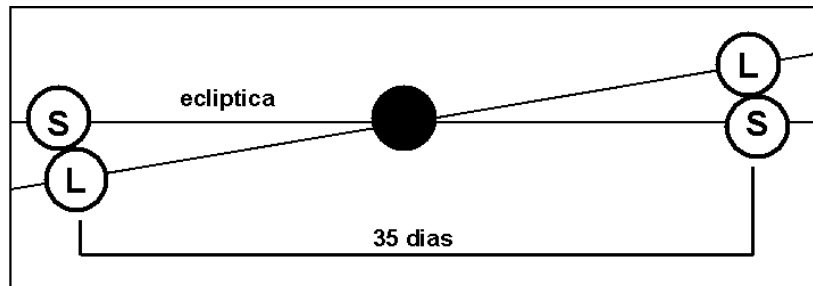


Fig. 4. Eclipse limits on both sides of the nodes of moon orbit. Author's image.

Because of the inclination of the Moon's orbit on the ecliptic, eclipses can take place in the limits of 17 days (17 degrees) from the nodes. Further away the sun from the nodes and of smaller magnitude will be the eclipse.

This congruency of the eclipse season and the 260 day almanac was a beautiful discovery by Hans Ludendorff in 1928, but Ludendorff also adds that because the time for the Sun to pass from one node to the other is slightly inferior to a third of 520 (173.31 instead of 173.33), the three days of Sun-nodes conjunctions regress in the calendar at the rate of one day every 20 years. Altogether, 260 times 20 years produces 5200 years. The small eclipse clock makes one turn in 5200 years. Ludendorff concludes that the Long Count is the modulo of correction of the 260 days almanac and they constitute together an everlasting eclipse computer.

The eclipse zones are of 35 days, 17 days on each side of the central one of the Sun-Node conjunction. The three eclipse windows of 35 days each are then separated by three zones of 52 days, free of any possibilities of eclipse. The drift in the almanac being of 20 years for a day, it will take 1040 years for any day in the almanac to cross these 52 days free of eclipses and enter in the next eclipse window. It happens that the first sun 4-Ocelotl was born in 3119 BC. It means that the day 4-Ocelotl was then escaping a dangerous eclipse zone in the 260 day almanac. The first Sun was born. Please notice that when 4-Ocelotl was escaping an eclipse zone, the day 13-Acatl was just entering another eclipse zone, a date found at the top of the Piedra del Sol, between the tails of the two serpents framing the composition.

When the day 4-Ocelotl died in 2080 BC, the day 4-Ehecatl, the name of the second Sun, was just escaping another eclipse zone and would also be free of eclipses for the next 1040 years, leading to the year 1040 BC. When 4-Ehecatl died, entering into the next eclipse zone, the day 4-Quiahuitl came out for the next 1040 years, leading to the year zero AD. When 4-Quiahuitl entered the next eclipse zone, in the year zero, then came out the day 4-Atl, and so was born the fourth sun of the Aztec cosmology. Finally, when 4-Atl died in the year 1040 AD, this started the fifth Sun 4-Ollin which would also last for 1040 years, until the year 2080 AD.

With their drastic reform of the Mesoamerican cosmology, the Aztecs planned an empire free of destruction that could not be eclipsed for the next thousand years. Unfortunately for the Aztecs, their empire collapsed much earlier.

Please note that this system is in accord with the Venus table in the Dresden Codex for the dates 3119 BC and 1038/9 AD and so casts light on

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the Venus iconography associated with this monument and mentioned insistently by several authors.

The dates of these cataclysmic events of world destructions and renewals are very strongly documented in Mesoamerican sources and fall invariably on Xiuhmolpilli at the ends of cycles of 52 and 104 years as well as on the celebrations of the New Fire Ceremonies, which are structurally associated with Venus cycles. The relation of Venus to eclipses is another problem which will not be addressed here. But believe me, this celestial mechanic works perfectly, and the well-known order of the five suns is here also perfectly respected.¹⁶

This all confirms that the central figure in the 'Piedra de Sol' is logically Tlatecuhtli, creator and destructor of the successive worlds. The earth mother giving birth to the sun every morning and also the earth Monster devouring and swallowing, eating up the Sun every evening when it sets and disappears under the horizon. A divinity of the underworld, she is the divinity of darkness, of shadows. Sometimes, in her aspect of death and darkness, she also attacks the sun during the day, that is when an eclipse is occurring. She is the creator and destructor of consecutive world eras. The second most common name of that monument is 'Calendario Azteca', the Aztec Calendar. In some way it is correct – it is the calendar of cyclic cosmic creations and destructions of the Universe. It is an eclipse computer, a clockwork model of celestial mechanics.

¹⁶ Arnold Lebeuf, '4-0llin, the Aztec Creation of a Fifth Sun', in *Image and Ritual in the Aztec World*, ed. Sylvie Peperstraete, *British Archaeological Reports International Series* (2009), pp. 70-