

## Ameyalli Xiuhcóatl - The Sun In The Snake

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Probably “The Sun in the Church: Cathedrals As Solar Observatories” - the title of a bestselling-book, written by J. L. Heilbron - is more familiar to you. Certainly, the sun in the snake is a rare, unusual project! José C. Montes J., Humberto Torres Orduña and Martha A. Villegas V. invited friends and authorities of Torreón/Coahuila in Mexico during evening hours for the unveiling of their project. I must admit this was an unusual idea also for me, as we would think daytime with bright sunshine would be an appropriate occasion to show a new Meridian sundial to the public. However, this object is not only an unusual Meridian; it is more!



If you look at this photo from the opening ceremony you can see three jets of water coming out of a snake's head in the foreground, which makes the snake's skin look very lively. And there is something which looks a bit like a stone wall on the right side. This is the tail of the rattle snake, which contains a cave and inside this cave a carefully crafted meridian line is hidden.



A sundial within the tail end of a rattle snake? This is certainly at first sight a curious idea. In Europe Meridian lines were installed in churches – see the fine essay by Giovanni Paltrinieri about the Meridian of Cassini in Bologna S. Petronio Cathedral in The Compendium 12-3! Also nowadays people gather at noon in the Italian cathedrals and churches for example of Santa Maria degli Angeli in Rome, in Santa Maria del Fiore in Florence or in San Petronio in Bologna – as the photo of Riccardo Anselmi shows.



Giorgio Mesturini has collected the data specifications of more than 70 still existing meridian lines (See <http://www.mesturini.com>). And still nowadays old Meridians are rediscovered as it happened to Pier Giuseppe Lovotti who found a simple Meridian line in 2005 in a room of an old Italian Palazzo in Villa Mansi di Segromigno in Monte (Capannori) near Lucca, partly covered by a carpet.

If we have a close look to the Torreón Meridian line you will notice four date indications which are not used in European Meridians: February 12, April 30, August 13 and October 30. They are related to the traditional Mesoamerican calendar. The Spanish conquerors had in their greed for gold almost completely wiped out a distinguished culture. With the systematic destruction



30 Abril  
Siembra  
1er paso del  
sol por el cenit  
en Izapa

12 Febrero  
Inicio del año  
Mexica.  
Comienza ciclo  
de 52 años.



of the precious documents also the old knowledge of the myths of the subjugated people was destroyed. Almost all the precious calendar calculations were either burned or robbed and taken to Europe. The Spaniards also tried to destroy the calendar calculations cut in stone. However old myths are strong, stronger than fire and guns and they survive in remote places and are handed down to next generations and suddenly appear again in public as here in Torreón.

This Meridian line is not a common Meridian as we know them from European churches and private palaces. It is also not a naturalistic replica of a rattle snake, apart from the head and the tail. The rest of the body of the snake is formed like a curved path. Here the three Mexican gnomonists tried to create a much more comprehensive cultural image. The elements of fire, water (The water jars which sparkle slightly out of the snake's mouth show that water is precious!), mother earth, the deep meaning of caves in Mesoamerican culture, the plants from the desert - all are assembled in this project. You can see some of the ideas very beautifully in the top view drawing, done by Martha A. Villegas.



In the center you see the winding snake body, four curved walls which open to four





destinations. If you have a closer look at these walls you will find little green plants. Torreón is situated in a dry and hot area and these slowly growing plants were taken from the desert and planted there with special permission. They don't need much water, and grow slowly. This is however also a handicap as playing children don't care much about them and step on them when they are playing with their balls. Sundials in public areas are, as we all know, threatened species like these little cacti plants from the desert.

Soon after the inauguration, the two carefully carved snake's teeth were vandalized and partly broken off.



But now let us have a look into the meridian cave! The sun enters at the little gnomon hole in the back of the snake's tale and shows the dates throughout the year on a carefully carved and polished green granite path of 10 to 71 centimetres.

If you want to see this sundial you have to go to the big city of Torreón which is in Coahuila province. Its coordinates are 25° 31' North and 103° 25' West. The next two photos show the snake meridian in the beginning of its construction and as it looked when it was finished.



In Torreón you could as well see a very beautiful analemmatic sundial which was also built by Martha A. Villegas and her friends José C. Montes J. and Humberto Torres Orduña. You will find a rich illustrated story about it at the link of Frans W. Maes' homepage at <http://fransmaes.nl/torreon/welcome-e.htm>.

If I had a free wish to come true in the end of my story, this would be it: The town officials ought to give some Pesos to a snake "dentist" to repair the two broken teeth and so

recreate the originally beautiful view to the rattlesnake's head!



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### Digital Bonus: Ozanam's Problems et al.

(For a limited time, Print subscribers may download these bonuses from <http://sundials.org/compendium/bonus>)

The digital edition of this issue of *The Compendium* includes 7 bonus items! The **first** is a copy of the dialing portion of Jacques Ozanam's *Récréations mathématiques et physiques*; this is from the 1844 English translation, in which the number of problems discussed was (unfortunately) reduced to 25.

Because the 1844 edition eliminates what was problem 11 (perhaps the first printed discussion of the analemmatic dial to describe it as a dial to be done on the ground) in the edition discussed by André Bouchard in this issue, we have also included as a **second** digital bonus the English translation of this 1694 problem that appeared in NASS' *Analemmatic Sundial Sourcebook*.

The **third** bonus item is a revision and correction of Roger Bailey's notes *Sundial Design with a Programmable Calculator*. Please see Roger's letter in *The Tove's Nest* for an explanation of the changes.

Next, we provide two bonus PowerPoint presentations by John Bercovitz (see his letter in *The Tove's Nest*). The **first** of these presentations gives a slide show of the stereographic layout technique presented by Fred Sawyer in our last issue. The **second** presentation gives a similar showing of the layout technique advocated by Albert Waugh in his well-known book *Sundials*.

The **sixth** bonus item is Tony Moss' PowerPoint self-instructional program detailing a method for laying out horizontal, direct vertical, and declining vertical sundials using dialing scales. Stainless steel dialing scales are available from Tony; printed versions have appeared in earlier issues of *The Compendium* as well as several different articles on their history and use. The reprint of Middleton's instructions, which Tony mentions in his slide presentation, was included as part of the digital bonus with the March 2003 (10-1) issue of *The Compendium*; the reprint is still available as part of NASS' Repository CD.

Finally, the **seventh** bonus item is Frank King's *The Gnomonic Cipher*, a clever 10-page homage to the work of author Dan Brown, so familiar from *The DaVinci Code* and *Angels & Demons*. This chapter is also available from <http://www.cl.cam.ac.uk/users/fhk1/Maggiore.pdf>.