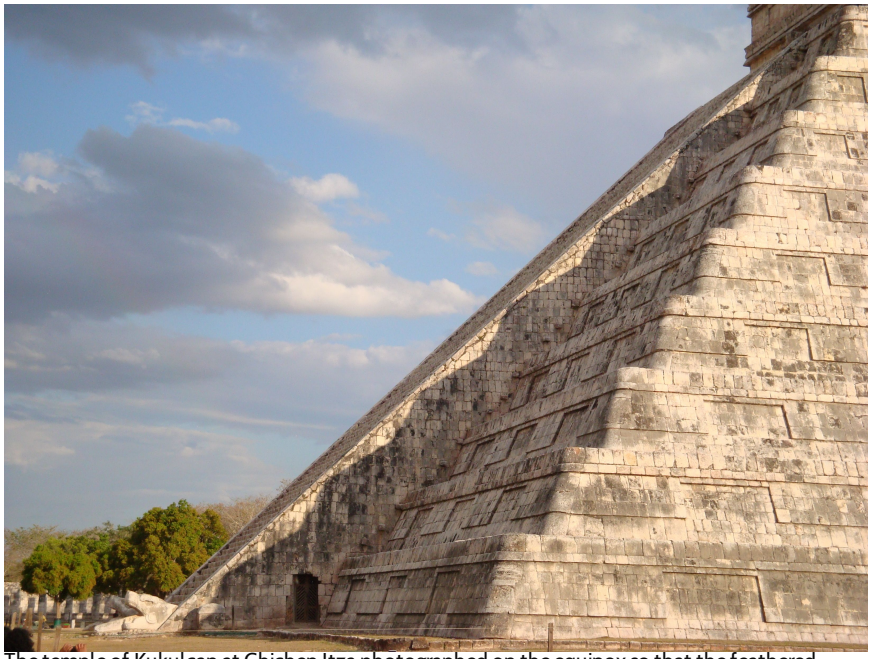
Gerardo Aldana: The Descent of the Feathered Serpent

Podcast Title: The Descent of the Feathered Serpent

This podcast features Professor Gerardo Aldana, pictured here.



The temple of Kukulcan at Chichen Itza photographed on the equinox so that the feathered serpent is visible along the side of the 365 steps.

Nahuatl words and locations used in the podcast

Yucatan - Peninsula in eastern Mexico

Quetzalcoatl - Feathered serpent

Mayan words and locations used in the podcast

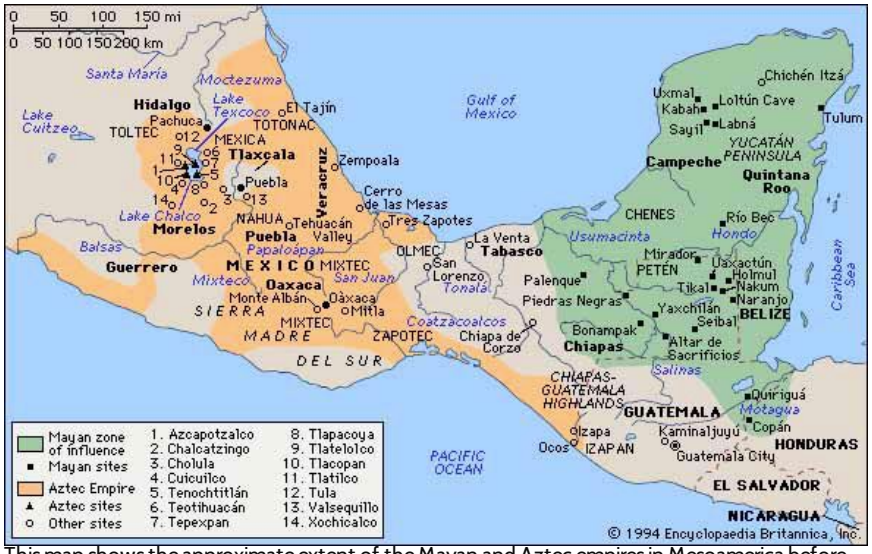
Kukulcan - Feathered serpent

Spanish words used in the podcast

Quintana Roo - Mexican state on the Yucatan peninsula

Partera - Midwife

Conquistadores - Spanish colonizers who took the land from the indigenous people



This map shows the approximate extent of the Mayan and Aztec empires in Mesoamerica before colonization by the Spanish.

Transcript

Professor Aldana
If you were to go into a rural Mayan community, say, you were to go into rural Yucatan or your rural Quintana Roo, and you were to talk to farmers there, what they do is they practice very traditional agricultural approaches.

Now, what's fascinating is if you go and you talk to farmers in these communities today, they'll tell you that they don't just plant as soon as the rains start, and they don't just plant as soon as the Sun gets to a certain point. They wait for the Moon. They wait for the first full Moon after the rains start.

Narrator
That was Gerardo Aldana, a professor of Anthropology and Chicana and Chicano Studies at the University of California in Santa Barbara. We sat down with him to find out more about what he studies and how the ancient Mayan people used patterns in the sky to set the rhythms of their lives.

We asked Gerardo how he ended up in the field of cultural astronomy.

Professor Aldana
Being Latino within the field of science technology had me asking these questions that eventually led me to wonder more about the more abstract level of what is the relationship between science and culture. Is it possible that science and math are part of cultural systems?

They're part of worldviews, how groups of people come together and look at the universe.

Those are the questions that really drove me in the end. And I didn't feel like I could understand them by going back and just learning more about European astronomy or European math or European physics. So the only place that I could really find something independent, something that did not engage what we know about Western science, was Mesoamerica. So the focus of my research is on Mayan astronomy, astronomy that was developed within that region that we think of as the Yucatan Peninsula, mostly Guatemala, the Pacific coast of Guatemala and Mexico and places like Belize and Honduras.

Narrator
The Mayans are famous for developing a complex writing and number system that they used to record the phases of Venus and the Moon and the movements of planets and stars with great precision. But despite this, most of what we know about Mayan astronomy came from the Europeans who colonized Mexico.

Professor Aldana
In the 16th century, when Spaniards arrived, there were a lot of books still around. The Christians came with the Conquistadores, and they basically said, this type of religion that you practice and everything that goes along with it needs to be removed

They decided in Yucatan that they were going to collect as many of these books as they could find and have a big, gigantic bonfire and destroy them. The Mayan people were greatly troubled by this burning of their knowledge and their culture. But a couple of the books escaped the flames. One of them was taken out of Yucatan, out of this specific region, and it looks like it was transported on one of the first ships to go back to Spain from the Americas.

Narrator
These rare Mayan texts that escaped the violence of 16th century colonization are what Professor Aldana studies.

Professor Aldana
It preserves indigenous perspectives recorded for indigenous audiences. There's no interaction there with translators, there's no need for somebody to come in and say, we're going to try and interpret what you are trying to tell these people.

Narrator
The Mayans had a calendar with 365 days, just like we do. We asked Gerardo how the Mayans chose a 365 day calendar. He told us that the Mayans tracked the location of sunrise over time using a series of distant volcanoes.

Professor Aldana
As time progressed through the year, the Sun would rise further and further south. And it would rise behind different prominent geographic features, other volcanoes, other mountains as it worked its way down towards the coast, so that by the time you get to the winter solstice, it's actually rising over the ocean. And what you do then is you have this really nice division of the solar year into periods that you mark by sunrises.

Narrator
But this 365 day calendar was not the only system that the Mayans used to keep time.

Professor Aldana
We have this thing called the Chole key by K'iche Maya, it's a 260-day count. Sometimes it's also referred to as the ritual calendar, the sacred count. The count itself is incredibly straightforward. It's just 13 numbers and 20 days, and so when you put 13, the other was 20. You get 260 combinations.

[Mayan] *Allah, it's image yq Akbar Khan, chick Chan, Kimmy Monica, Matt, Luke Hawk Chu, and then eesh men cube, cabana, it's not Kodak Aha [Mayan]*. So that 20-day sequence gets combined with 30 numbers, and you end up with a 260-day cycle that repeats over and over and over again.

There are communities in Guatemala today, Mayan communities that still use the 260-day count that we see all the way back into the formative period. This ethnographer went in and asked people, where does it come? From the 260 days, and they found out that it took them back to the question, took them back to the midwives, parteras, OK. So midwives are in charge of making sure that women have births that are healthy. So they know a lot about women's cycles and about women's health. And it turns out that there's this really interesting phenomenon, cultural and biological, that we find throughout indigenous communities in the Americas.

Narrator
The midwives told researchers that 260 days corresponds to a human gestation cycle, the length of time from conception to birth.

The Mayans used a combination of the 260 day calendar and the 365 day calendar to keep track of time. Every day will be a unique combination of a day from the first calendar and a day from the second calendar, until 52 years have passed, at which point the system restarts.

So the Mayans used these two calendars simultaneously to create a complex calendric system that tied together a fundamental rhythm of the sky with a fundamental rhythm of the Earth.

Professor Aldana
It looks like the very first uses of the lunar cycle was to bring people together for festivals and for doing things like playing the ball game.

Narrator
Professor Aldana explained that for some Mayan rulers, astronomy was not just a way to keep track of time. The patterns in the sky were a political tool that was used to unite people in cities across Mesoamerica.

Professor Aldana
There's 10, 20, 30,000 people in one location. That's not going to be good enough to just say, let's look at the next Moon cycle, right? You need a much more precise system to start timing your events, agriculturally and socially. And so that's when things really start to get interesting in terms of the relationships between astronomy, what they observe in the sky, calendric systems that they create, and then the agricultural systems that are all tied together with those.

What happens in the late formative period is that these cities already have social stratification and they realize that there's a utility for astronomy, to have political influence, not just practical influence, it's not just agriculture. It's also that you can now read signs in the sky. And you can have those have meaning within either political debates or ideological debates.

Now, astronomy takes on political meaning. And people will say something like, oh, if there's going to be this kind of eclipse, then it means that there's a tough time ahead. And if there's a tough time ahead, we need to plan accordingly.

Narrator
The intimate relationship between sky and Earth is embodied by the Mayan story of Kukulcan, known to the Aztecs as Quetzalcoatl, the feathered serpent.

Professor Aldana
Quetzal is the name of a bird, and it's combined with the word *coatl*, which just means "serpent" in Nahuatl. So it's a bird serpent or the feathered serpent, OK? In Mayan, there's different words for it. It's either Kukulcan in Yucatan. Kukulcan is the same thing. Kuk means Quetzal and can mean "serpent". So it's feathered serpent, and in K'iche Maya it's Gukumats.

Quetzal has access to the celestial realm and to the middle realm because it can fly between the sky and the middle world and the trees. And the serpent has access to the underworld because it can go down underground but can also come into our realm and the middle world. So the Quetzalcoatl, the Kukulcan can actually move between all three realms of the code of the cosmos, of the universe.

Narrator
The temple of Kukulcan at Chichen Itza, a popular tourist site, ties the legend of Quetzalcoatl to the 365 day astronomical calendar in an unforgettable way.

Professor Aldana
It's a radially symmetric pyramid. It's got four sides to it, each with its own staircase. Each staircase has 91 steps on it. So 4 times 91 means there's 364 steps on this building. And then there's a platform at the very top, which looks like it's the final step. So 365 steps, the solar year.

If you go on the equinoxes the setting Sun casts shadows along the balustrade of the northern staircase. And it creates a diamond pattern. So it looks like there's a long diamond pattern going down the entire length of the northern staircase, and at the end of the staircase, there's the head of a feathered serpent. When you're standing there it looks like you're seeing the feathered serpent as a rattlesnake descending from the sky onto the ground heading towards the underworld.