

The Order of Days: The Mayan 2012 Phenomenon

David Stuart

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Dallas Museum of Art
Horchow Auditorium

Roslyn Walker: Good evening. I'm Roslyn Walker, Senior Curator of the Arts of Africa, the Americas, and the Pacific and The Margaret McDermott Curator of African Art. It is my delight, my pleasure, to welcome you to tonight's Boshell Family Lecture Series on Archaeology, which is held in conjunction with our wonderful new exhibition *The Legacy of Plumed Serpent in Ancient Mexico*. And by the way, those of you who missed John Lunsford's tour this evening can join him on Wednesday, September 12th for a noontime gallery talk.

I would like to thank Mr. and Mrs. Ned Boshell and the Boshell Family Foundation for underwriting this lecture series and the Adolphus Hotel for their support. And you can't see Mr. Boshell, but he is in the audience tonight. Thank you.

[Applause]

He is shy. Just stand. Take a bow. Thank you. I also welcome members of the Dallas-Fort Worth Chapter of the Archaeological Institute of America to this event. And thank Kathy Windrow and her colleagues for their partnership on this lecture. And I know Kathy is sitting right there. Maybe she will stand.

[Applause]

Thank you. Tonight's speaker is David Stuart, the David and Linda Schele Professor of Mesoamerican Art and Writing in the Department of Art and Art History at the University of Texas at Austin. Professor Stuart received his PhD in Anthropology from Vanderbilt University in 1995 and taught at Harvard University for eleven years before arriving at UT Austin in 2004.

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In addition to teaching, Professor Stuart directs the Mesoamerica Center at the University of Texas at Austin, which fosters multi-disciplinary studies on ancient American art and culture and oversees the activities of the newly established Casa Herrera, the university's academic research

center in Antigua, Guatemala, which is devoted to studies in the art, archeology, and culture of Mesoamerica. When do you sleep?

Professor Stuart's interests in the traditional cultures of Mesoamerica are wide ranging, but his primary research focuses on the archeology and epigraphy of ancient Maya civilization. And for the past three decades, he has been very active in the decipherment of Maya hieroglyphic writing. Over the past two decades his major research has centered on the art and epigraphy at Copán in Honduras, Palenque in Mexico, Piedras Negras in La Corona and San Bartolo in Guatemala. Professor Stuart's early work on the decipherment of Maya hieroglyphics led to a MacArthur Fellowship in 1984 to 1989. His books include *Palenque: Eternal City of the Maya*, published by Thames & Hudson and most recently, *The Order of Days: The Maya World and the Truth About 2012*, which is the subject of his lecture.

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Following his lecture, Professor Stuart will take questions and after that, he will gladly and delightedly sign your copy of his new book. Please join me in welcoming Professor Stuart, David, to the podium. Where are you?

[Applause]

And I want to make sure I get mine signed, too. Thank you.

David Stuart:

Thank you very much Roz. Thanks to all of you for coming out this evening. It's a great pleasure to come up to Dallas from Austin and talk to you all for a little bit about a pressing topic, I guess in some respects, which is the supposed upcoming end of the world or transformation of consciousness or -- it goes by various descriptions, right? That supposedly the Maya calendar is coming to an end later this year. Well, I'm going to talk a bit about that, not so much, however, the idea of end of the world, the ideas of -- or various interpretations that had been put on this by people who are not Maya, by people who are not really serious students of ancient Maya culture.

What I want to try to do tonight is convey something about what we do know as scholars, as archeologists, as historians, as students of Maya religion. What we really know about their sense of timekeeping and their sense of the calendar and really what 2012 is all about in terms of the Maya calendar, right? I don't want to say that it's irrelevant or that it had no meaning for them, because it did have a certain meaning for them.

And I want to try to explain that tonight. It's something that gets lost in all of the nonsense that's out there.

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So, Maya time and the meaning of 2012 is kind of the idea here. The title of my book and also of the talk tonight, "Order of Days," comes from a -- it's the translation of the Maya word *tzolkin*, which means order and day, it's how they describe the calendar, right? Very nice simple description of their sense of how time worked, it was very ordered, it was very structured. And it's a calendar that has many facets to it and I want to kind of go through some of that. I will warn you that there are some numbers here that I will be talking about. There's a little bit of numerology. I'm not very good with numbers. So, it's not something I'm going to be assuming that everyone will understand. I'm going to try to make it as clear as possible, but I'm not a mathematician. I know Maya math better than I know my own math from my own culture. So, maybe that will come through, I don't know.

I'll begin with kind of the cultural baggage of 2012 right now. This is pretty much familiar I think to everyone in the room. A few years ago, we had this Hollywood movie *2012* with the tag line "We were warned" down below. And I guess, people were maybe wondering what that meant. And I did see the movie on Netflix or something. I didn't see it in the theater but it was -- there were about ten seconds devoted to the Maya in this movie. The rest of it was buildings falling down and as you can see, I guess New York City falling into the Atlantic Ocean. Cool special effects but nothing to do with Maya culture, nothing to do with what the Maya actually had to say about anything, of course. But it really did plant or help plant in the popular culture this idea that this year the Maya prophesied something that was going to happen.

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There's been this huge industry of books especially in the internet now of books purporting to explain the meaning of the 2012. I guess mine is in their too now, right? But here you've got *Mayan Prophecy 2012*, *Planet X Forecast*, *The Idiot's Guide to 2012* which I think is a great one, *2012: The Return of Quetzalcoatl*, which is I guess relevant to the exhibit here at the museum. This is just a small fraction of all the stuff that's out there. You know books, every one of them is different from the other, which I think tells you something about how nobody really knows what they're talking about. There is no consistency between them in terms of how they're talking about the meaning of it. None of the authors of these

books are Mayanists. None of them is really serious students of ancient Maya culture, but that's not the point, right?

This is coming from somewhere else. This is coming from a whole other area of New Age thinking and so forth. And actually, not long after my book came out, I was happy to see a copy at Barnes & Noble in the new age section, right next to *Beyond 2012* right there. I was really upset when I saw this. In fact, I went to the guy at Barnes & Noble and I was like, you know like he could do anything, right? And I think my son Richard was with me—Richard is here in the audience—and he said, “Dad, don't worry about it. You're going to sell more books if it's in the New Age section.” So, I said, “Yeah, maybe right.” Anyway, it's kind of taken over the world of pop culture. There was a skit on “Saturday Night Live” a few months ago about the Maya calendar.

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I think it was Charles Barkley dressed up as Maya priest or something. Really bad. But I've been kind of keeping track of a lot of this, I'm fascinated by the current interest in the Maya. I mean, it helps in terms of education about the Maya archeology and so forth. I guess next year things will really die down. But, there are all these really wonderful little things that -- it's gone beyond just what the Maya have to say, right? I love this little graphic. So, it's turned into something beyond just ideas about prophecy and so forth. It's interesting too in terms of -- you might say the iconography of 2012 in pop culture. This image is everywhere. The Aztec sun stone or calendar stone, it goes by various names, prominently on display in Mexico City in the National Museum, of course this is a national symbol of Mexico. And it's been known for centuries. This has really been implanted in the minds of most people I think as an emblematic symbol of ancient Mesoamerica and of ancient Mexico.

In here, you see this wonderful image of it being looked at by -- it looks like something of a Jane Austen novel. This is actually a picture of an exhibit of Mexican art held in London in the 1820s. By the way, it's in the Egyptian hall in London. You see with the Egyptian columns and so forth. But it was this fascinating kind of grab bag of ancient Mexican material that was put on exhibit. And we're still kind of living in the consequences of that because more often than not, the Aztec calendar stone is described as a picture of the Maya calendar. If you Google “Maya Calendar” you get countless images of this.

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And you see it in cartoons, I mean there are a countless examples of these things, countless. We're going to see more of this, I mean, I have a feeling in the last few months of -- in the last few months of this year especially once the election is over and there is no more to talk about in the news and stuff, I think there's going to be a lot of media pop culture references to this. It's just going to keep going. Well, I have a pet peeve about this, right, and I really want to make it clear. I'm not the expert in Aztec art and iconography. John Pohl, who's here, he is going to be talking later. He is really the guy to talk to about this. But the simple point I want to make is that, this is Aztec. Better said, this is Meshika, I mean it's not Maya. This is not a Maya sculpture. It's not a depiction of Maya time or how they thought about time.

So, it's helpless trying to describe that this is not a Maya image. It's out there everyone is going to think of it that way. So, getting back to reality here, let's talk about Maya time. Let's talk about Maya conceptions of their calendar and how time was structured. We've known about this for a really long time. This is not necessarily new research at all. In fact, the earliest decipherments in Maya writing, for example here on the pages of the Dresden Codex one of the very few Maya books that have survived. The first work that was ever done was teasing out the mechanics of the numerology here. All of the bars and dots you see here in the Dresden are numbers that are part of calendrical notations, these are almanacs that are giving you information about cycles in the natural world of planets, Venus, the moon, of various gods and activities of various gods.

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So, this was worked out back in 1870s, in the 1880s, in the 1890s, and so some of it I'm going to be talking about today is quite old and quite well established. But it hasn't filtered out into kind of the world of popular knowledge. I want to start with a couple of quotes here, too. Eric Thompson, a very famous scholar in Maya circles. He was sort of the dean of Maya studies for many decades in the 20th century. He wrote in his great work, one of this great works on Maya hieroglyphs. He wrote about the endless progress of time being the supreme mystery of Maya religion. And that it pervaded Maya thought to an extent without parallel in the history of mankind. This is a kind of romanticized view of the Maya as these sort of ancient egg heads, who are just completely obsessed with the mechanisms of time.

This really started from that seed that was planted earlier where scholars had worked out the calendar in the Dresden but they couldn't read the

hieroglyphs. They couldn't read any of the words that surrounded the numbers. And what this did is it created this idea in Thompson and in others that the Maya were really all about time, and that's really what they were into. And part of me really thinks that this idea of 2012, and this idea that the Maya had some sort of special insight into 2012, comes from that romanticized view, that they were these great mathematicians and these great astronomers. Yeah, they were for sure but, so were the Aztecs and so were the Mixtecs and so were the Hopi, and so were a lot of other Native American cultures. Something else I want to kind of point out that Thompson wrote in that very same work, in fact, was that, there was no such thing -- there was no such thing I should say or I should have written here, as an initial point of departure for the Maya calendar.

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But rather timeless conceived of as without beginning or end. Okay, that's very important. And therefore, one can project one's calculations farther and farther into the past without ever reaching a starting point. So, in 1950, Thompson makes the claim that the Maya calendar does not end, okay? So, why are we talking about the end of the Maya calendar? All right, it's coming from somewhere else. It's coming from outside Maya studies. It's coming from outside scholarship. And it's coming from this apocalyptic mind set which pervades our culture. The Maya didn't have that mind set as far as we know. The larger point here being that the whole 2012 phenomena that we're experiencing says a lot more about our culture than it does about the ancient Maya, right?

But, what I want to try to do tonight is talk about really what the Maya had to say and what they thought about this stuff. So, let's talk about Maya time. There are three kinds of calendars that intermeshed for the ancient Maya, and the Maya were not alone in some of these, in fact, they were shared with throughout Mesoamerica by the Zapotecs, and the Mixtecs, and the Aztecs, and various cultures that define Mesoamerica. One of these cycles is 260 days long. And it's a continuous endless kind of cycle of days made up of 20 named days and 13 numbers, 13 times 20 makes 260, right? So, these kind of go click one day at a time, you know these combinations. So, you got one Imix, two Ik, three Akbal, four Kan, and so forth. The combinations, any combinations of a number and a day won't repeat for 260 days, that's just the math, right?

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So, any day can be expressed in terms of its station in the 260-day calendar and this is all over the place in Mesoamerica. One of the earliest examples we have of a date written in this cycle is from a painted mural

at the site of San Bartolo in Guatemala where I've been working for over ten years now. And my colleague Bill Saturno excavated this really nice piece of stucco with a painted glyph on it, and it's really one of the earliest painted dates we have in the Maya world that dates to about conservatively, about a hundred or 200 B.C., this is very early for the ancient Maya. And this is the day one Ahau in the Maya 260-day cycle.

Here is another neat example again from a painted wall from a site in Guatemala that shows a scribe who is writing down days in a whole line, a whole sequence. Does everyone see that? Read from left to right. Here is the numbers across the top and then the signs for the individual 20 days, right? So, you have 10 Chuen, 11 Eb, 12 Ben, 13 Ix, right? All along here, so this is one day, the next day, the next day, the next day. And on 10 Chuen, something notable happened and so he writes down, it's like a Daytimer or some sort of like little calendar he's got. This is a very simple way of structuring time, right?

There's another one of 365 days, and this is something that's a bit more familiar to us, right? Because that approximates a year, a solar year and when we're talking about Maya numerology of time, one of the things we really have to sort of do I think in prepping ourselves, we have to get rid of our sense of a calendar, right? We know that 365 days is kind of out there in nature, it's a year, it's a solar year.

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But in our culture we have these things, these days and you know seven days of the week, and 12 months of the year. These subdivisions are very much cultural artifacts, they are not really based in any kind of natural cycle. There is no reason to have a seven-day week really in terms of nature. I mean, that's just something that comes from the fact there were seven classical planets or heavenly bodies in the ancient Mediterranean world. So, a lot of this is cultural baggage. So, what we need to do is kind of clear our minds about time. We have to think about -- okay, well, a day is pretty natural, right? Of course, a year is pretty natural. But beyond that, lunar cycles, those are pretty observable. And all cultures make use of these cycles in various of different ways and then they subdivide them differently.

And so, the 260-day cycle is not necessarily something you see in terms of the cycles of heavenly bodies or of the sun itself. It's probably tied into the human gestation period of 260 days, it's probably about nine months, right? So, actually there are some reasoning behind this that

comes from modern anthropology and ethnography in Mesoamerica where this calendar still survives, believe it or not.

The 365-day calendar we can understand, but it's divided up a bit differently. There were eighteen months we call them, although there were twenty-day periods. They weren't full months in the sense of the moon. Eighteen periods of twenty days plus five tacked on at the end, that was the Mesoamerica way of thinking about that, right? So, one of the months was called [?] or Zotz and this is a date expressed on a painted vessel. And this is in the 260-day cycle, the day 13 Ahau, and that day fell on the eighth day in the month Bat.

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Okay so, 13 Ahau, 8 Zotz is how we would express this. It's a combination of the 260 and 365-day cycles. And we find these records all over Maya monuments. This is a very famous carving from the site of Copán in Honduras showing the seeded kings, the king, it's a visual kinglist of the whole royal dynasty of the kingdom of Copán. And here you have the founder, the George Washington of Copán as it were handing over the emblem of office to the final king who dedicates this monument and his inauguration date is right here, 260, 365. And if you look at any Maya text, you'll see these dates all over the place.

Okay, those are the simple ones. The other one that I really want to spend most of my time talking about tonight is called the Long Count. And it is a bit more complicated, okay? But bear with me please. I don't want this to get too crazy here. It's actually fun. The Long Count is really common in ancient inscriptions. They often will start with this long very elaborate record that we call the Long Count. And they are composed of five numbers, right? We've known about this for a long time, the bars and the dots that we saw in the Dresden Codex. So, for example here, you've got a sequence and you read them this way, right to left, oh, I'm sorry, left to right and down in double column, 9, 2, 11, 16, 17, right? With a bar as a unit for five and the dot is one. Does everyone see those numbers? So, 9, 2, 11, 16, 17, this is how we would transcribe a Long Count date.

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What in the world are those numbers telling us? Well, it's a place notation system. And it is designating multiples of set periods going from large to small. And I will explain the natures of these periods with some other examples. Here is another Long Count date painted in a tomb at

Tikal in Guatemala. This is a photograph of the tomb when they opened it back in the late 1950s. And very conveniently for us, archeologists there is a date painted on the wall, 9, 1, 1, 10, 10. Does everyone see those? Okay. So, this is how we would transcribe it down here and that day happens to be in the 260-day system the day, 4 Ok. So, these are again intermeshed, right? All of these cycles kind of go concurrently.

Here is another one from another tomb wall at another site not too far away in Guatemala, 8, 19, 1, 9, 13, it is the day, 4 Ben in the 260-day system. There's a lot of stuff here about the lunar count and then they say it's the 16th day of the month Mol. So, 4 Ben, 16 Mol, Long Count, 260, 365. It's okay if you don't understand the mechanics of all of this internally but do you understand kind of what's there, right? It's these three different calendars.

Okay. So, what do these numbers really talk about? Well, as I mentioned they are place notation records, they are -- the numbers are giving you multiples of set amounts. So, let's go from the smallest to the largest. Kin right here is a day, that is a single day and there are 13 of those units.

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The next highest one is called a Uinal and each Uinal is composed of twenty days, and there are nine of those. The next highest unit is called the Tun, and there are 360 days in a Tun or eighteen Uinals and there're one of those. Twenty Tuns makes up what's called the Katun and there're nineteen of those, and twenty of those, 20 Katuns makes up what's called a Baktun and they're eight of those. Does that make any kind of sense?

These are set-established units of time. And if you start at the end and wrote backwards it goes from smallest to largest, okay. Day, 20 days, 360 days, 7,200 days, 145,000 days and then you put numbers in front of those as multiples. That's what a Long Count is. So, this is just a big number of days. 1,289,353 days, that's all it's telling you. That's what any Long Counts date is telling you.

Now, why are they giving you that? Because this is expressing elapsed time. It's giving you elapsed time from the beginning of the Long Count. And based on the correlation that we know these days about the Maya calendar or that we think we know about Maya calendar, that beginning point was on August 13th in the year 3114 BC. Long before there were any Maya to speak of. It's a mythological date and they wrote that as 13,

0, 0, 0, 0, 4 Ahau, 8 Cumku. I'll come back to that number 13 up here, it's kind of odd they would do that.

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But think of this is like an odometer on your car, okay? That top date there, that 4 Ahau, 8 Cumku date, that's your new car, that is zero mileage. This is -- well, not very high mileage, this is moderate mileage on a car, right? It's the same idea but the units are different, right? The Maya and other Mesoamericans used a base-20 system, not a base-10 system. And they're kind of shoving their base-20 system into the idea of a solar year which is why there is a little bit of a kink in it of 360 days, but that's the basis for it, okay? So, we can correlate any Long Count date that we see archeologically written on a Maya monument or in Maya history to a date on in our calendar. So, September 26th in the year of 417 is this date, really, really cool to have that for us Maya historians.

Now, one of the things that the Maya were very keen on were something called period endings when these stations would come along in the calendar. It's like when your odometer hits 10,000 miles or 50,000 miles, right? It's kind of time to take note of that. Well, they sure took note of these kinds of stations in their calendar, we call them period endings. This is an image of a king who is celebrating the end of a Katun, one of the 15 Katuns, the Long Count of 9, 15, 0, 0, 0, is how the Maya would have expressed this, right? That's a really important period ending. The next Katun ending will take place twenty years later. So, here he is casting incense on top of a -- or in front of a brazier that has the stuff to burn inside.

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David Stuart:

So, we can put any date into -- oh, I have a computer program that does it for me. But, we can plug any date in here, August 17th today, right? That's today right? 12, 19, 19, 11, 14, 8 Ix, 17 Yaxkin, that is our date today in the Maya calendar. It's just a pure mathematical reality right? So, Long Count, 8 Ix in the 260-day cycle and it is the 17th day of Yaxkin, the month and the 365-day calendar. Now, notice something interesting about this long count date. There are only twenty possible units here in these places. So we are approaching a point very soon where it's going to click over. Does everyone see that?

Let me put it this way. If we go back to that original zero date, what I've done here is I've compiled a list of endings of Baktun cycles, that first number, 1, 2, 3, 4, 5, 6, 7, 8, 9, blah blah blah, we are about to hit this on

December 23rd, 2012. Notice that this date in the Long Count is identical to that one. This is what all the brouhaha is about. We are coming up to the 13th Baktun and that is thought by some to be, "Well, that's got to be it." If it started on a 13, it's got to end on a 13. Maya history by the way is right in here. All of ancient Mayan history is pretty much in this area. You see?

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The conquest took place between Baktun 11 and Baktun 12, and we're now very, very late in Baktun 12 approaching Baktun 13. Well, I'm here to tell you that the Baktuns will keep going, okay? There will be a Baktun 14, 15, 16, 17, 18, 19 until it comes up to the next whole period. There is a period above the Baktun, twenty Baktuns makes up what's called a Pictun and that's going to happen in 4220 something AD. Yeah, here it is. We have a record of it. The Maya actually talked about this in the tablet from Palenque. Here are the hieroglyphs that mention it, the day 10 Ajaw, 13 Yaxkin right here, and that is the upcoming change over of the next higher period in the year 4772. This is beyond Star Trek folks. This is way in the future.

Point being, the Maya or talking about something happening in 4772 AD, the Maya calendar is not ending in 2012. Now, I'm going to blow your minds a little bit. Because it turns out and we've just found this out in the last twenty years or so, that the five numbers I just talked about, the Baktun, Katun, Tun, Uinal, and Kin of the Long Count, that is a small truncated calendar of a much, much bigger system. How do we know this? Because they wrote this creation or starting date out in some monuments at the site of Coba in Quintana Roo in Mexico, using much bigger numbers. I don't know if you can see this. It's a bit eroded and this is a technical drawing of the tablet. Here's 13, 0, 0, 0, 0, 4 Ahau, 8 Cumku is down there. This is the creation date. This is not the 2012 date. This is the creation in 3114 BC. Well, look what's above it, 13, 13, 13, 13, 13, 13, all the way up.

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Here's another one, 13, 13, 13, 13, 13, 13, all the way down, 0, 0, 0, 0. So, what are they telling us? Okay? Now, it may be hard to -- you may have to squint here. But, this is the highest unit of the Long Count as I was describing it to you, 144,000 days or about 400 years, a Tun is about a year. Exponentially, each of these periods they're recording at Coba are of these quantities of days and of these quantities of years. So, that top unit recorded here and up in here, just mathematically corresponds to

that number of years. Okay, just think of them as years and there are 13 of each one. That's it.

Now, why do they love 13 so much? I think a lot of it goes back to the 260-day calendar, because if you look at it, there're twenty 13s. That's a 2013 thing going on again. It's not exactly the same system but they're using the same numbers and then their 4, 0 [?] and four is also a sacred number, the four-wall directions and the sun and so forth.

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So this is a really important sacred number that expresses when things take off in terms of the calendar. That number is giving you this many days and this many Tuns, again a Tun is a 360-day period. You can just substitute year for that roughly. That's an amount of elapsed time that not many other calendars in human history have even conceived of. I don't think there are any other calendars in human history that have conceived of time on this scale.

Now, coming back to 2012, we just saw that the upcoming date, coming up right before Christmas of this year, is an anniversary kind of a re-expression of that earlier creation date, and this is something very special, and this is something that the ancient Maya did actually talk about in a couple of inscriptions. They actually mentioned the year that we're living in, in a couple of texts. That's a remarkable thing. It turns out that they're not predicting anything however. What they're doing is they're saying, "Oh, this many thousands of years in the future, there will be another 13 Baktuns. Isn't that cool?" That's what they're saying.

Now, I got into some trouble here because this is a tablet from a site called Tortuguero, which is in Mexico, not too far from Palenque. You can see it's very elaborate. It ends up here with a record of -- I don't know if you can see here, the number 13 and this is a Baktun symbol, so it will end the 13th Baktun. It's actually in future tense, the verb here is written in the future tense, on the day four Ahau, three Kankin.

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So, this is December 23rd, 2012. This was about five or six years ago, someone wrote me an e-mail. It was on a UT listserv or something. It was like, "Are there any references to 2012 in Maya text?" and I was like, "Yeah, they are there, yeah. And there's one in Tortuguero. It may say something about this god who descends or something like that. We can't really read it very well." It was viral on the internet in about two weeks.

It was all over the place and you can still Google that and you can, "David Stuart said, that you translated this thing blah blah blah." It turned out I was wrong. I was just kind of answering an e-mail. Well, we can't really read it but it might say this, it might say that.

It turns out it's not really about 2012, at least the glyphs that I thought were down below here, at least I don't think so. There is a healthy debate going on. But the point is that they're mentioning this upcoming date because it's mathematically interesting. It's not that they're predicting anything will happen. They love symmetry of time. They'll often talk about deep past mythology and in terms of current contemporary history for their kings, and then they'll project forward to kind of balance things out and they'll talk about the distant future too but not in terms of prophesy, not in terms of predicting stuff, and that's the case here.

Now, I want to end up with a couple of neat things that have happened this year. It turns out to be kind of relevant. I'm involved with a couple of other field projects in the Maya area and it just so happens that out of luck, blind luck, that both of these projects came up with stunning discoveries, both this year and last year. I was very busy this spring, kind of darting between these two places. One of them is called La Corona up here in Northern Guatemala in the jungle. The other one is called Chultun. I'm going to talk about each one of them.

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La Corona, you may have heard something about this in the news not too long ago, because in April of this year, my colleagues at Tulane University and University of del Valle in Guatemala discovered a hieroglyphic staircase. It's like really cool. So, I'm the epigrapher on their project and the guy who reads the glyphs so I was like, "I'll be there next week." They sent me some photographs. So, it was right after classes at UT. I ran down, and you can see here some of these beautiful carvings and just stunning images of Maya kings and little captions on them that talk about what they're doing here. A lot of historical detail and here I am with Marcello Canuto, who's directing the project here, and I'm explaining to him what these glyphs are saying.

Well, the day this picture was taken. In fact I was looking at this one stone here, somewhat eroded but very cool looking and very elaborate hieroglyphs. I was reading this thing. It got some really neat history in it, stuff about a king from La Corona and this ally of his from Calakmul comes and visits and they play a ball game and there's all this neat stuff

going on. I'm reading this thing and I get to the end and I just clam up and I'm like looking at this stone. It was like, I'm thinking to myself, "Is this for real?" and here's my drawing of this thing. You can see some of the line work is very elaborate and you can see there's a date. At the very end, there's a cartouche here. This is the 260-day, the 365. Here's a blow-up of it, 4 Ahau, 3 Kankin. I saw that I was like "Holy crap." That is 13, 0, 0, 0, zero, 4 Ajaw, three Kankin which is December 23rd, 2012.

[00:42:02]

This was the second known example in all of my archeology of a reference to the 2012 Baktun ending, and they found it in the year 2012. That's what I just still can't get over. And so I just started laughing and Marcello is saying or going, "What Dave, what's wrong?" I said, "You're not going to believe this. This thing talks about 2012." And we all just started giggling because it was outrageous to think that anything like this would be found. Of course the Ministry of Tourism in Guatemala loved it and we had to have a press conference about a month ago in the Presidential Palace in Guatemala City to announce this thing, which was why it kind of made a little bit of a media splash at least as much as archeology can. So, it was kind of cool.

But again, no prophesy, no record of what they think is going to happen in 2012, nothing like that. What they're doing here is they're orienting this local history of kings and alliances and of war, very earthly stuff. They're orienting that in terms of cosmology, in terms of cosmic events. What they're saying is all of this stuff that's happening will take place before what will happen in the future, which is the end of the 10th Baktun and in the year, it's some time in the 9th century. And then ultimately, this will be three Baktuns before this date.

So, they're just talking about the mechanics of time, because they want to orient what the kings are doing in terms of this cosmic structure. Maya Kingship, the ideology behind it was really all about timekeeping. It was about harvesting time. It was about nurturing time. The Long Count calendar was really the linchpin of the ideology of authority for the classic Maya. This is why they're talking about these neat numbers in the past and the future all of the time. It just so happens we just have two examples of the 2012 record.

[00:44:23]

Now, that's all I'm going to say about 2012. I will close a little bit about it. But I just want to say that we have this new tablet. We're very excited by

it but no prophesy. No description of anything that's going to happen. The other site I want to mention is a place called Chultun, which is a huge Maya site, no one has ever heard about it, a big site in the rainforest in Northern Guatemala. This is a tiny little structure that was investigated last year and here we are in the excavation. You might be able to see in the background there on the wall, some painted murals. It turned out that this was a small room that was painted with a scene of a king and some priest and attendants. This is me very dirty with Heather Hurst, who's doing a copy of the paintings and Franco Rossi, a grad student who was actually doing the excavations.

What we found here was pretty remarkable, too. A bunch of scribbles on the wall. Not in great condition but you can see there are some numbers. You can see there are some maybe calendrical information. These are tiny little notations on the plaster wall. In fact, you see these numbers right here? It's kind of funny for me to see them so big on the screen right here. Those red bars and dots are no wider than my pinky on the wall. This is a scan. We used a flatbed scanner on the wall to scan the images. So this is the digital scan a little bit enhanced. These are tiny little notations.

[00:46:09]

What we have here is not some royal proclamation written on a hieroglyphic stairway or on a big standing stele or anything. These are much more intimate texts and they're calendrical notations in this room and they're done over some of the figural painting. In other words, you see some of these formal murals back here. These are added on later and they cover some of the figures, in fact. What we think -- this is a terrible photograph. It looks like a terrible photograph but I'll explain why it's so cool.

What we think is going on is that this room was a workspace. It was an office for a Maya calendar priest who lived around the year 800, and he was making little notations on the wall next to him, copying stuff out of books, mathematical tables, mathematical notations, just ephemeral kinds of information that you would never see on any kind of formal monument. We were talking about this and I was in the room with Heather and Franco and we were looking down. This is actually a space on the wall. It doesn't look like much here. A lot of the notations are right up in here. This is the area of the wall that's rubbed out, where people were sitting, leaning against the wall, against the plaster while they were working.

So they're sitting on their behinds, leaning against the wall and working with probably with things like the Dresden Codex and from time to time, they would turn around and just write stuff on the wall like a whiteboard. It's like having a Maya whiteboard. And they had red markers and they had black markers. Really cool stuff, right?

[00:48:09]

So I spent a lot of time in there squinting, trying to copy these things and it doesn't look like much. The condition is terrible. But here are some calendrical records. They look like Long Count dates, just using bars and dots. This is the condition of them but there's something really cool here. These are legible. You can actually make them out, 13, 5, 4, 12, 14, 6, 12, 5, and then that one is kind of gone. But there are others that are kind of salvageable a little bit.

Well, with two of these numbers or maybe three of them, I'd crunched some numbers last year. There are some intervals here that are really important. 177 days are between each of these numbers. I was like, "177 days, what does that mean?" Well, it turns out that is the number, and we've known this for a long time, by which the Maya grouped lunar months. Six lunar months of 29 or 30 days equals either 177 or 178 days, and the ancient Maya grouped lunar months in units of six. So, two sets of those equals about a year. These are about half-year intervals.

On top of each column is a moon hieroglyph. If it was just a numerical coincidence, I would kind of be wondering but they're actually saying, "No, this is the moon." They're being very clear about this. It turns out on the Dresden Codex there are tables that are doing exactly the same thing, with exactly the same numbers. So, at Chultun, in this workspace, around the year 800, someone was copying a table out of a book and putting it on the wall, and it was a lunar calculator.

[00:50:04]

Based on just these few numbers, we were able to reconstruct the whole thing. We just published this in *Science* about four or five months ago as the earliest known astronomical tables for Maya civilization. Eight hundred is kind of late in Maya history but it's much earlier than the Dresden Codex. The Dresden Codex dates to -- we're not exactly sure, probably around 1100 or 1200 AD. It was old when it was collected by the Spanish in Yucatán, probably in Cozumel in 1519. But this stuff is much earlier. So the Chultun discovery is not about 2012. It got a lot of press and it got a lot press because of 2012, I think. People were saying,

"Oh, they found the earliest Maya calendar." I'm like, "No, we didn't find the earliest Maya calendar. It was the earliest astronomical tables."

The other thing was they're writing Long Count dates here, using 17 Baktuns. That's a giveaway that are more Baktuns out there than just 13. So, the press picked up on this and they were like, "Ah, the Maya calendar is not going to end", claimed scholars. It was in the *USA Today*, it was all over the place. I was like, "No, no, no. This is not about 2012 people." We're trying to say, No, this is much cooler for nerds like us. It's much cooler! Of course, nobody listened that it was all about 2012.

Okay. So, I wanted to bring in the La Corona find and the Chultun find partly because I'm working on those sites and I was very lucky to be involved now in both projects. But they both resonate with this interesting stuff going on now, kind of revisiting the Maya calendar and what it all is about. We used to think it was old, dusty kind of scholarship. But because of 2012, because of all the popular interests, the academics like me are getting back into this. They're getting back into the numbers and the cosmology and the numerology in a way that I never -- I didn't like this stuff before but now I kind of do.

[00:52:13]

So, I'm going to end here just by giving you one last big number. Okay. The Coba stele is here, with its record of the creation date. If I played a little mathematical game here and I said, "Okay. Well, if this number is so big. Let's take each one of these periods to its largest possible extent." Let's go to 14 and 15 and 16 for each one of them, because this has all just stopped at 13. If you do that calculation, then you're calculating the absolute capacity of the Maya calendar. 71 octillion, 803 septillion, 136 -- blah blah blah. I can't even say it, years. Let's round it up and just say, "72 octillion years."

Our universe according to modern physics will dissipate into nothingness in maybe 10 or 15 billion years. Someone can probably correct me on that, but that's nothing compared to this future projection of Maya time. When our universe is long gone, long gone, the matter of our universe is long gone, conceptually, Maya calendar will still be clicking away. So, that's the final joke. When people talk about the end of the Maya calendar, it is a joke because it will still be going long after we're gone. Thank you.

[Applause]

[00:54:03]

Now, I suppose there are some question opportunities here, right? So, I'll be happy to answer a few. Yes, in the black shirt.

Female: This is in the late Maya Calendar [inaudible] do you mean this? What was the ball game all about?

David Stuart: The ball game. The question is what was the ball game all about? Good question. In fact, I didn't mention this in kind of turning through my slides but the find at La Corona, we all paid attention to this block that we found because it mentioned this date, right? But it turned out that some of the images on this carved step show a ball game. In fact, this is an image here, these two stones go together. You have two seated lords who are each holding this curious kind of mitt in their hand and they're playing a ball game. Ball games were highly ritualized. They were highly politicized in terms of being real events of history, of royal history, and in visitations between kings and royal courts. There would be these ball games that would be played.

We don't know the rules of many of them. This is a very different kind of game because they're sitting on the ground, probably bouncing something back and forth with these mitts. Very different from the big alleyways that we see at Chichen Itza or the Mesoamerican ball game, where you think of is this big ball courts with the rings and so forth.

[00:56:02]

They're different kinds of games clearly that were being played. Yeah, they were very important in the ritual and ceremonial life obviously. I think a lot of the ball games were also for entertainment. I don't think we should over-interpret these too much in terms of ritual and ceremony. Our ball games are pretty ceremonial too. I think we just found that out looking at London. But there's a lot still to study about it, yeah. Yes? Yes, no, yeah, you.

Question: Did they ever make any glyphs about volcanoes or earthquakes because they're right in the middle of the, you know?

David Stuart: Did they write down anything about volcanoes and earthquakes? Yes, but not much. There's one reference I know of I think to an earthquake in a temple at Palenque where they talked about the earth shaking. So I think that's an earthquake. The funny part of that is that it's on a stucco glyph that fell off of a temple wall probably during an earthquake.

So, we don't know what's around it. We can't reconstruct the whole text. But a volcano I know, the word for volcano in Mayan language is q'aq'awitz, which is fire mountain and there is a glyph at Tikal that talks about a fire mountain, probably one of the volcanoes in Highland Guatemala. Yes?

Female: Are you familiar with Greg [inaudible] work I think he tries to take those periods and relate them to astronomical time? Are you familiar with that?

David Stuart: In the Long Count?

Female: In all the like -- looking at days and sort of saying, "Well, it's not the end of the world but it's the same period where the sun is going to be in another place."

David Stuart: Right. There are a whole lot of ideas out there. One of the most prominent is an interpretation of the 2012 Baktun ending as corresponding to not just the winter solstice but also to the appearance of the sun in the galactic rift or in the center of the Milky Way Galaxy.

[00:58:13]

Every astronomer that I've talked to about that says it is not true and that that's just over-interpreting the data. I personally don't think that the December 23rd or 21st or 26th or whatever has anything to do with the solstice. I think it's coincidental, some people disagree with me. But other Baktun endings float in the solar year. And so, I just don't see it as a meaningful occurrence, but others think differently. The people who really are the best to judge that stuff are not necessarily the archeologists but the astronomers and the astronomers say, "No, it's just not. There is no alignment with galactic center or anything like that." Yes?

Female: Towards the beginning of the lecture you said that we should clear our minds of time, to kind of open to these different senses and the link that you're talking about here seems to defy or challenge our idea of linearity. So, I'm wondering if it's possible to be numerical. They're being very numerical but it seemed like they're just defying linearity. So, is this a way that we can start to think about of releasing ourselves from linearity? Starting to imagine --

David Stuart: Well, I'm not the one to say. But yeah, I know exactly what you're saying. It's a fascinating thing you bring up. I should say too that that big number in my last slide, that's not a Mayan number. That's not what they're thinking. Okay. That's me just kind of playing a numbers game.

[01:00:09]

What the Maya are really interested in is numerical symmetry with these repeating 13s. It's a linear system in a sense because it's accumulation of time. But built into that is an inherent cyclical system, because these 13s keep repeating. So, there has been discussion for a long time, "Oh, the Long Count is a linear calendar and the other ones are cyclical." No, no. That's not true. The Long Count is linear and cyclical. It's a red herring to try to come up with A or B there. We come with this, I think, cultural baggage of thinking in those terms as mutually exclusive. But the Maya are meshing them better than anyone else that I've seen in terms of those concepts. Yeah?

Male: I'm sorry but in [inaudible] base-20 thinking about it. We don't see our own cycles but we're using a base point system, something that's foreign to us. We start seeing those cycles so it looks more cyclical than otherwise is but mathematically, I see no difference between what you presented. And what we have with our Babylonian [inaudible] are just normal base type system that we're all used to, it's just that we're so used to base-10 that we don't see the other cycles except when we watch our odometer.

David Stuart: Yeah. That's -- yeah, which is why the metaphor is kind of overused about the odometer. Yeah, thank you. I think you might wonder like, "Why a base 20 system?" It's interesting in Mayan language that the word for 20 is the same as the word for person. That is because there are 10 digits and 10 toes, In Northern Europe, people wore shoes. In the Tropics of the Americas, you wear sandals. And so you're very conscious of your toes. Throughout Mesoamerica you have a base 20 numerical system.

[01:02:29]

Male: Actually, I've got a question.

David Stuart: Yeah.

Male: Over here on the picture on the far right here, if you take a look at the two sides there is one part that looks like it's deliberately missing a third little section.

David Stuart: This one right here?

Male: Yeah. It looks like that's almost purposely, intentionally.

David Stuart: It's possible. Yeah. You're right. There was a glyph that was here originally. It ran down right here. It looks like a pattern, perhaps a breakage that kind of goes across these two stones in this direction. So I'm not sure how intentional it is but there are very few cases where you see inscriptions that have rubbed out components that look purposeful. This might be one of them but it would be hard to say why if that was true. This is very hard but also very brittle limestone and the slightest kind of whack at it will produce a lot of breakage. That's why you see all this up here. They were probably broken before they were even and reset. These were reset by the ancient Maya long after there were first carved and they were broken in antiquity. So, we're not sure why exactly. Yeah?

Male: Going back to the [inaudible]. Have you made much use of digital kinds of software to these to try and improve the recovery of images that were [inaudible]?

[01:04:17]

David Stuart: Yeah, we've done -- I'm not the person to talk to about that necessarily but the folks who have done the scanning do have some pretty sophisticated software. The other thing we've been doing too, not so much for the reds but for the blacks is looking at infrared imagery which I haven't even looked at yet, hoping that the blacks will pop out. But yeah, the revolution in this stuff is -- for my money has been Photoshop. I mean not in the sense that I can add stuff, but you can enhance these scans in ways that -- I mean 20 years ago, we could never have imagined.

Male: [inaudible]

David Stuart: Yeah, exactly, exactly, right. One more question? Yes in the black shirt. Yes, sir?

Male: Are the hieroglyphics of the Mayas and early Egyptians related?

David Stuart:

Yeah. The systems of writing are completely different. We use the word hieroglyphs, in fact we borrowed the word hieroglyph from Egyptology. It was applied back in the early 1800s, not too long after Champollion did his decipherment of Egyptian. So, we tend to call them glyphs or hieroglyphs but there's no relationship to ancient Egyptian. I will say though that Maya hieroglyphs, we tend to think of hieroglyphs as symbols, no it is full-blown writing. It was completely phonetic. Every text that you see that's written using Maya hieroglyphs is spoken Mayan. We know what language it is. We call it Classic Mayan. We know the verb morphology. We know the phonetics. They were very precise about writing stuff down. So it's a full-blown writing system that's really revolutionized our understanding of Mayan languages and their history.