Re: hypothetical Yangshao calendar (early China)

Source: http://sci.tech−archive.net/Archive/sci.anthropology/2005−03/1380.html

---

From: Franz Gnaedinger (*frgn_at_bluemail.ch*)
Date: 03/22/05

Date: 21 Mar 2005 23:44:33 −0800

The Maya combined a Solar Year of 365 days, 18 x 20 days plus 5 "unlucky days" with a Sacred Calendar of of 260 days. A Calendar Round lasted 73 Sacred Cycles or 52 Solar Years or 18,980 days, allowing to calculate and name dates for thousands and millions of years ahead or back in time. In Quirigua near Copan the cosmic order was based on a fictive date which lies 90 millions of years in the past.

The cycle of 260 days was called tzolkin by the Maya, tonalpohualli by the Aztecs, and is believed to have had only ritual purposes. Really? I checked the number 260 and found the following relations:

46 tzolkin equal 405 lunations

1 lunation equals 46 x 260 / 405 days

mistake less than 24 seconds

59 tzolkin equal 42 years

1 year equals 59 x 260 / 42 days

mistake less than 6 minutes

I checked alternative numbers for the tzolkin, 240 250 270 280 253 255 180 200 160 days, but none provided such a good double − both lunar and solar − solution as does the given number 260. So I assume that the tzolkin served not only for ritual purposes but was a lunar and a solar calendar, with a mistake of less than one day in some 240 years.

Actually I should check all the numbers, say, from 21 to 364 or so, but I leave this task to an expert on Maya astronomy, mathematics and calendar cycles. If you wish to try yourself you may use the following numbers, modern

values from 1988:

1 lunation 29 days 12 hours 44 minutes 2.9 seconds

1 solar year 365.24219879 days

–

Regards Franz Gnaedinger www.seshat.ch

–

> No electricity at home, a short−circuit somewhere,
> so I couldn't print out my prepared message on Sumer
> and China, and will have to improvise.
>
> Let me tell you about two marvellous Babylonian values
> for the lunation of 29 days 12 hours 44 minutes 2.9
> seconds, or 29.53058912 days.
>
> Naburi' Annu, by the end of the third millennium BC,
> used the value 29.530641 days, mistake less than five
> seconds. Kidinnu, in around 380 BC, used a value of
> 29.530594 days, mistake less than half a second!
>
> How can we possibliy explain these very fine values?
> Have a look at the following fractions and try to
> find the generating rule before reading on:
>
> 59/2 443/15 502/17 945/32 1447/49 2392/81
>
> 2 lunations are about 59 days, 15 lunation about 443
> days. Add the numbers and you obtain the next value:
> 2 plus 15 are 17 lunations, and they equal 59 plus 443
> yielding 502 days. And so on. The value 1447/49 has
> a mistake of only two seconds. The value by Naburi'
> Annu lies in between that fraction and the next one,
> closer to 1447/49 than to 2392/81.
>
> Now let us go for another sequence. Begin with 502/17
> and add repeatedly 1447 in the numerator, and 49 in
> the denominator:
>
> 502/17 (plus 1447/49) 1949/66 3396/115 4843/164
>
> and so on 32336/1095 33783/1144
>
> The value of Kidinnu lies between the last fractions.
> Add the numerators and demoninators and you obtain
> 66119/2239 or 29.53059402... days.
> −
> Regards Franz Gnaedinger www.seshat.ch
> −
>

> > Picture yourself as a Mesopotamian astronomer, over
> > 7,000 years ago, living on Tell Arpachiyah, observing
> > the sun as it rises from and sets on the flat horizon
> > of the wide river plain. You will make a marvellous
> > discovery. The directions North, rising midsummer sun,
> > rising midwinter sun, South, setting midwinter sun and
> > setting midsummer sun divide the circle of the horizon
> > into 6 perfectly equal angles ... Now you may divide
> > each angle into 60 fine angles and call them degrees.
> > Thus you obtain a circle of 360 degrees, which goes
> > along with a year of 360 days. Add 5 and occasionally
> > 6 days and you obtain a whole year of 365 and sometimes
> > 366 days. You will of course also observe the moon.
> > One moon or lunar cycle or lunation or synodic month or
> > lunar year is between 29 and 30 days; a little closer
> > to 30 days, and so you call a period of 30 days a month.
> > By observing the sky for years and years you notice
> > that 64 moons equal 63 continual months or 1890 days,
> > namely 9000 plus 131 days. From these relations you can
> > get fine numerical values for the lunar and solar year.
> >
> > The famous tiles from the House of Tiles at Lerna in
> > the Argolis, Early Helladic period of time, came from
> > Asia Minor. The numbers provided by the decorative
> > patterns evoke the above calendar: the numbers 5 10 15
> > may perhaps indicate short weeks of 5 days; the numbers
> > 6 12 24, as divisors of 360, may indicate a year; while
> > the numbers 4 8 16, as divisors of 64, would indicate
> > a cycle of 64 lunations.
> >
> > The gold signet ring from Tiryns divides the circle of
> > the sun into six angles: www.seshat.ch/home/ring.gif
> > while the front of a bull−head from a Mycenaean tomb
> > is decorated with a flower of 16 long and narrow petals.
> > The number 16, belonging to the sequence 2 4 8 16 32 64,
> > may be a lunar number (the bull being a lunar symbol)
> > and stay for a cycle of 32 lunations that equal 21 long
> > months of 45 days or 945 days (assuming that the Middle
> > Minoan calendar from the Mesara plain in southern Crete
> > was also used in the Argolis from the Middle Helladic
> > onward).
> >
> > Preview: Sumer − China / Maya calendar / brillant
> > historical Babylonian values for the lunation /
> > replying to Paul