



MAYAN CALENDAR ARITHMETIC BASICS

By Johan Oldenkamp

In the Mayan calendar arithmetic, the numbers 13 and 20 play a central role. The Maya consider these numbers to be Holy. To me, these are indeed Wholly Numbers. They show for instance that 13 tones together form the whole of an octave, consisting of 5 semitones in between the 8 whole tones (which are named Do, Re, Mi, Fa, Sol, La, Si, and again Do).

Tzolk'in

The most famous Mayan calendar is called the *Tzolk'in*, which means counting (*tzol*) of the natural days (*k'in*). This calendar gives each following day both the next Tone and the next Seal. In total, there are 13 Tones and 20 Seals. The Tzolk'in distinguishes, therefore, 260 different codes for each unique combination of a Tone and a Seal ($13 \times 20 = 260$). Please note that there are two distinct interpretations of this Mayan calendar. Next to the authentic Tzolk'in, there is also the Dreamspell interpretation of this calendar. Both should not be confused, because there are essential differences between them. The Dreamspell excludes the intercalary day, and has a different starting date.

The Mayan Long Count Calendar

The arithmetic of the so-called Long Count Calendar of the Maya is also based on the numbers 13 and 20. This is in fact a countdown calendar, consisting of multiple counters. The maximum value of each counter is 20. This value is however shown as a zero (0) for that counter, and an increase with one (1) of the adjacent counter to the left. This is in fact a kind of *vigintimal* system, which is a doubling of the decimal system (*decem* is Latin for ten, and *viginti* is Latin for twenty). When we add 1 to 9, the most right counter becomes a 0 and the adjacent counter to the left is increased with 1. Written in a Mayan way, this would be: $0.9 + 0.1 = 1.0$. Please note that the dot in the Mayan arithmetic is placed in between all the counters. The Mayan Long Count Calendar has five counters, which I here refer to as 'a' up to 'e':

e.d.c.b.a

The table below shows the length each of these five counters count.

Counter:	Counts:	Length:	in natural days:
a	K'in	a natural day	1
b	Winal	20 K'in	20
c	Tun	18 Winal	360
d	K'atun	20 Tun	7,200
e	B'aktun	20 K'atun	144,000

The values of these counters corresponding to the start of this long count are:

0.0.0.0.0

The values of these five counters corresponding to the end of this count down are:

13.0.0.0.0

In total, it takes these counters $13 \times 144,000$ natural days to change from this starting configuration of 0.0.0.0.0 to this ending configuration of 13.0.0.0.0. In years, that is 5,125.36.

It is generally assumed that the Mayan civilization is not older than 2,000 years before our common era (bce). When we, however, conclude that the countdown configuration of 13.0.0.0.0 corresponds to a date in 2012, then the first Maya did not start counting at 0.0.0.0.0 (which corresponds to a day in 3,113 bce), but at 2.16.9.3.14 (which corresponds to a day 1,113 years later, in the year 2000 bce). Does this make any sense at all?

What is so important about counting down until the end of a period of 5,125 years and 133 days? The current Maya say that this period corresponds to the end of the 'Fifth Sun'. When we assume that there is some kind of long solar cycle of about 5,125 years, then the length of five of these cycles is 25,626.82 years. Is that also the reason why four dots become a line in the Mayan number system? This length of five periods of each 13 B'aktun is remarkably close to the length of the precession cycle, which length according to many researchers corresponds to 25,920 years.

About 13,000 years ago, the ice age suddenly ended. In a similar way, major changes occurred on this planet 26,000 years ago. These radical changes happened during the transition of the Iron Age into the Golden Age (i.e. the transition of the dark period of 13,000 years into the light period of 13,000 years) and during the transition of the Silver Age into the Bronze Age (i.e. the transition of the light period of 13,000 years back into the dark period of 13,000 years) as I present in the online video of *The Clock of Giza*:

<http://youtu.be/fNpfc3-m0fQ>.

Does the Long Count Calendar indeed mark the end of the current precession cycle, and the beginning of a new one?

Is that why also the one-dollar bill refers to 2012? See:

<http://www.pateo.nl/PDF/1dollar.pdf>.

Many people believe that 2012 is about physical changes. To my understanding, it is all about upgrading our consciousness. By remembering who we really are, we will start living from our True Selves.

According to my calculations, we are already beyond this special 13.0.0.0.0 end day. To me, that particular long count calendar code corresponded to July 14th, 2012. Some think this end date is on December 21st, 2012, while others assume it is on December 12th, 2012 (which is 12-12-'12). My advice is not to wait until a so-called end date. Any moment is good to start or continue the journey inwards.