Esteemed CALNDR-L list members!

A new calendar has been born. It is called the 'Archetypes Calendar'.
It is a lunar calendar with years of 12 or 13 months, each with 29 or 30 days.
The rules for when a year has 13 months and when a month has 30 days are
fairly simple and not hard to remember.

The mean month is 29.530583 days and the mean year is 365.24237 days.

The months track lunations fairly closely. On average, midnight at
the start of a calendar month occurs within one hour of the corresponding
dark moon, and in 95% of cases the dark moon occurs either on the 1st day
of the month or on the last day of the preceding month.

The years accord more or less with the seasonal years. New Years Day in
the Archetypes Calendar occurs anywhere from December 13 to January 13 in
the CE Calendar. The month and day numbers of the CE dates of New Years Days
in the Archetypes Calendar which are exactly 19 years apart are usually
the same, or if not then they differ by one day. This is an expression of
the 19-year Metonic Cycle.

Each month in this calendar consists either of three 10-day weeks or
of two 10-day weeks followed by a 9-day week.

2010-02-24 CE in the Archetypes Calendar is 2010-03-12 ARC, or more fully,
Mars Day, Hermes 12, 2010.

A complete explanation of the Archetypes Calendar is given at:
  http://www.hermetic.ch/cal_stud/arch_cal/arch_cal.htm

A few properties of the calendar are given there, and list members are
invited to seek further properties of this calendar which may be of interest.

Regards,
Peter Meyer

Dear Peter and Calendar People,

Greetings. Peter, the nice your idea - 'The Archetypes Calendar' inspired the list.
   was late (trip to Egypt). The list have already said their comments, therefore I offer
you should create 2 calendars simultaneously :
   -    'The Archetypes Calendar',
   -    'The Super Archetypes Calendar'
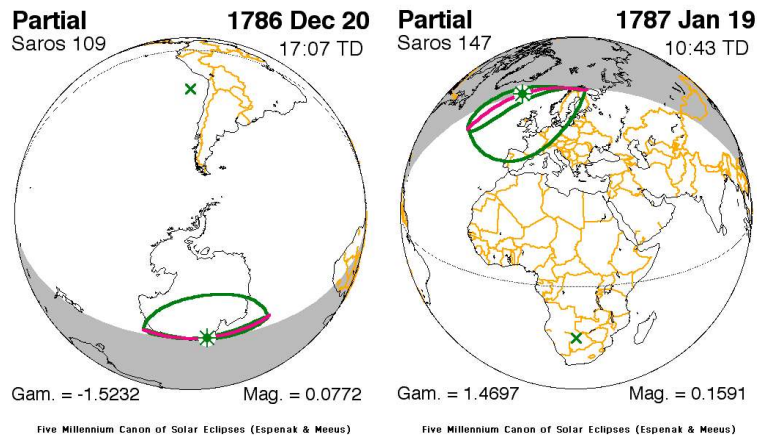
   and then define what is better.
      I agree to take part in two variants.

The Super Archetypes Calendar should differ from The Archetypes Calendar, for example:

   -    definite astronomical position in the cosmos,
        Five Millennium Catalog of Solar Eclipses
        (Fred Espenak & Jean Meeus)
        http://eclipse.gsfc.nasa.gov/SEcat5/SE1701-1800.html

Description	Plates	Years	File Size	File Name
maps	451 to 500	+1784 to +2213	21.2 MB	5MCSE-Maps-10.pdf

| 09006 | 1786 Dec 20 17:07:24 | 17 -2635 | 109 | P | -1.5232 | 0.0772 | 66.0S 89.9E | 0 |
| 09007 | 1787 Jan 19 10:43:13 | 17 -2634 | 147 | P | 1.4697 | 0.1591 | 63.4N 20.1W | 0 |

Partial   **1786 Dec 20**   **Partial**   **1787 Jan 19**
Saros 109   17:07 TD   Saros 147   10:43 TD

Gam. = -1.5232   Mag. = 0.0772   Gam. = 1.4697   Mag. = 0.1591

Five Millennium Canon of Solar Eclipses (Espenak & Meeus)   Five Millennium Canon of Solar Eclipses (Espenak & Meeus)

        (see further)

- improved duration of the mean lunation (29,5305888531 day instead of 29,530583 day),

- improved duration of the weeks (7 and 8 day instead 10 and 9 or 7 day),

- improved duration of the lunar years (354, 355, 384 days instead of 354, 355, 383, 384, 385 days),

- improved placing of the lunations in the Meton-cycle,

- improved placing of the Meton-cycles in:

a) Hippachos-cycle,

b) Palmen-cycle,

c) Petin-cycle,

d) Grand Meton-cycle,

e) etc,

- terms and symbols, used in the calendar:

Terms and symbols,

used in the calendar

Natural cycles:

- natural solar sutki (day + night) **-** a time interval between two consecutive same culminations of the natural Sun centre at daily rotation of the Earth around its own axis.

Owing to non-uniformity of the year movement of the Earth on an orbit, and also non-perpendicular of Earth axis to a plane of its orbit the natural solar sutki duration are changeable within one year.

- natural tropical year **=** 365,242192 natural solar sutki - a time interval between two consecutive passages the centre of the natural Sun through the East equinox's point at annual movement of the Earth on an orbit.

- solar Meton cycle = 19 solar years = 6939,6017 sutki - the period of time, practically equal to the lunar Meton cycle, i.e. 235 lunar sinodic months (6939,6883 sutki),
- solar Grand Meton cycle = 341 solar Meton cycles = 6479 solar years = = 2 366 404,2 sutki - the period of time, after which the Earth and the Moon (on the Southern solstice day) come back to the initial position concerning the Sun,

- mean lunation (mean lunar sinodic month) = 29,5305888531 sutki – the mean value of the time interval between two consecutive identical phases of the Moon,
- lunar year = 12 (13) mean lunations – the time intervals according to types LYA, LYB, LYC,
- lunar Meton cycle = 235 mean lunations = 6939,6883 sutki – the period of time, practically equal to the solar Meton cycle, i.e. 19 solar years (6939,6017 sutki),
- lunar Grand Meton cycle = (341 235 – 1) mean lunations = 2 366 404,2 sutki – the time interval, after which the Earth and the Moon (on the Southern solstice day) come back to the initial position concerning the Sun.

- 1 precession cycle = 25 796,178 solar years (tropical) is the period of movement the Earth axis on the cycle cone about stars (precession). In the World Dual PETIN– METON Calendar the influence of precession is taken into account by means of the solar years (tropical).

- d - the drift of the lunar cycle relatively the solar cycle.

$$d = \frac{(6939{,}6883 - 6939{,}6017)\ \text{sutki}}{19\ \text{solar years}} = 0{,}00456\ \frac{\text{sutki}}{\text{year}}\ (\text{or } 0{,}0866\ \frac{\text{sutki}}{\text{Meton cycle}})$$

Calendar cycles:

) solar calendar:
- mean Sun - on the Earth's equator the fictitious point moving within the year in regular intervals with such speed, that it always passes through the Eastern equinox point simultaneously with natural the Sun,

- mean solar sutki = 1 mean sutki (further: sutki) - a time interval between two consecutive same daily culminations of the mean Sun,

- calendar tropical year (further: tropical year) **=** 365,242192 sutki - a time interval between two consecutive passages of the centre of the mean Sun through the Eastern equinox point.

Its duration slowly changes and equal to

365,24219879 - 0,0000000614 (N - 1900) mean solar sutki,
where: N - the current year.

- Equation of time - a difference between the mean and natural solar sutki.
The Equation of time continuously varies.
    Four times in the each year, namely: about April 16, June 14, September 1 and December 25 the Equation of time is equal to zero and achieves the greatest value (on absolute size) 4 times:

      About February 12 - ....   + 14,3 minutes,
                  May 15 - ....   -   3,8 minutes,
                  July 27 - ....   + 6,4 minutes and
             November 4 - ....   - 16,4 minutes,

- solar month - a time interval determined, for example, by the Gregorian solar calendar,
- week = 7 (or 8) days – an industrial cycle, i.e. 5 days of work and 2 (or 3) days for rest,
- weekdays can be named, for example, in the following way: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, Lunaday.   Weekdays are synchronized with phases of the calendar mean Moon,
- solar year = 365 sutki,
- solar leap-year = 366 sutki,
- an intercalary day = 1 sutki,
- solar Meton cycle   = 19 solar years = 6940 sutki,
- solar Meton cycle   =   - 1 sutki = 6939 sutki ,
- solar Grand Meton cycle GMet = 6479 solar years = 2 366 404 sutki.

Note. In the World Dual PETIN-METON Calendar the rules of the solar (seasonal) calendar correspond to the rules of the Gregorian Calendar.

b) lunar-solar calendar:
- sutki - the period of time equal to the mean solar sutki,
- week (short) = 7 sutki,
- week (long) = 8 sutki,
- weekdays can be named, for example, in the following way: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, Lunaday,
- lunation (long) = 7+8+7+8 = 30 sutki = LA - a time interval between two consecutive identical phases of the calendar mean Moon cycle (=29,5305888531 days), approximated to an integer to the greater side,
- lunation (short) = 7+8+7+7 =29 sutki = LB - a time interval between two consecutive identical phases of the calendar mean Moon cycle, approximated to an integer to the smaller side,
- weekdays are synchronized with the phases of the calendar mean Moon.

- lunar year (short) = LA+LB+LA+LB+LA+LB+LA+LB+LA+LB+LA+LB =
                                  = 354 sutki = LYA,
- lunar year (leap)   = LA+LB+LA+LB+LA+LB+LA+LB+LA+LB+LA+LA =
                                  = 355 sutki = LYB,
- lunar year (long) = LYA + LA   = 384 sutki = LYC,

- lunar Meton cycle (long) = 235 natural lunations =
                 =LYB+LYA+LYC+LYC +
                + LYB+LYA+LYC+LYA +
                + LYB+LYA+LYC+LYC +

$$+ LYB+LYA+LYC+LYA +$$
$$+ LYA+LYA+LYC = 6940 \text{ sutki} = \quad ,$$

- lunar Meton cycle (short) = 235 natural lunations =
$$= LYA+LYA+LYC+LYC +$$
$$+ LYB+LYA+LYC+LYA +$$
$$+ LYB+LYA+LYC+LYC +$$
$$+ LYB+LYA+LYC+LYA +$$
$$+ LYA+LYA+LYC = 6939 \text{ sutki} = \quad B,$$

- correcting lunar Meton cycle = (235 - 1) natural lunations =
$$= LYB+LYA+LYC+LYC +$$
$$+ LYB+LYA+LYC+LYA +$$
$$+ LYB+LYA+LYC+LYC +$$
$$+ LYB+LYA+LYC+LYA +$$
$$+ LYA+LYA+LYA = 6910 \text{ sutki} = \quad corr,$$

- base lunar cycle   = MA+MB+MA = 20 819 sutki = Met   ,
- lunar Hipparh cycle = 3 Met   + MA + 2 MetABA =
$$= 111\ 035 \text{ sutki} = HA$$
- lunar Petin cycle   = 4 HA = 444 140 sutki = PA,
- lunar Palmen cycle = HA + MetABA + Mcorr + MA =
$$= 145\ 704 \text{ sutki} = Palmen$$
- lunar Grand Meton cycle = 3 PA + Palmen + 2 PA =
$$= 2\ 366\ 404 \text{ sutki} = GMet.$$

- accuracy of a lunar-solar calendar (+/- 1,4 sutki) – the maximal time misalignment between the moment of the top culmination of the centre of the natural mean Moon and midday   of any calendar Date on the chosen long time interval.

The date 20 December 1786 is a boundary between the Grand Meton cycles 1 and 2 (see, please, criterions below):

a) The 2 solar eclipses follow at a short distance (one lunar cycle)
    after the Southern solstice date

09006 1786 Dec 20 17:07:24   09007 1787 Jan 19 10:43:13

Partial   **1786 Dec 20**
Saros 109   17:07 TD
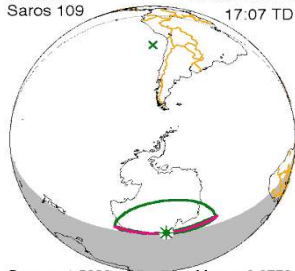
Gam. = -1.5232   Mag. = 0.0772

Five Millennium Canon of Solar Eclipses (Espenak & Meeus)

Partial   **1787 Jan 19**
Saros 147   10:43 TD
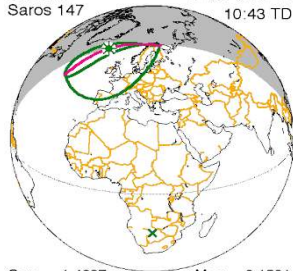
Gam. = 1.4697   Mag. = 0.1591

Five Millennium Canon of Solar Eclipses (Espenak & Meeus)

a) The lunar eclipse is placed correctly in the ecliptic plane
   after the Southern solstice date

09040 1749 Jan 03 17:03:06   09091 1768 Jan 04 04:29:31

09138 1787 Jan 03 23:53:37
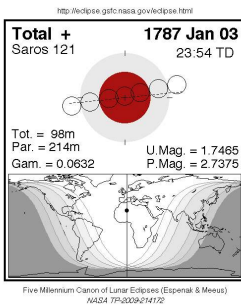
09185 1806 Jan 05 00:02:04   09233 1825 Jan 04 23:31:53
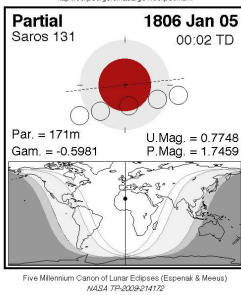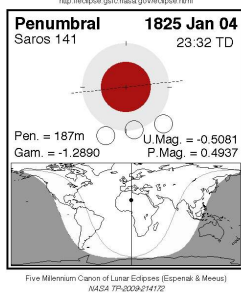
a) The beginning dates of the Meton cycles
in the Hipparchous cycle – 1 (1786 – 2090) are the following:

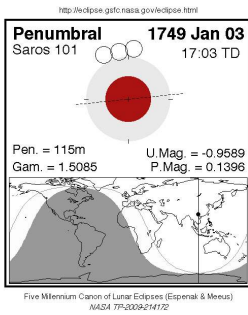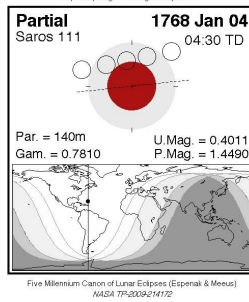| Year	New Moon	First Quarter	Full Moon	Last Quarter	Meton cycle
1786	Dec 20 16:50 P	Dec 28 08:24			
1787			Jan 3 23:53 t	Jan 11 07:01	MA – 1
1805	Dec 21 00:07 A	Dec 29 04:23			
1806			Jan 5 00:08 p	Jan 11 17:30	MB - 2
1824	Dec 20 10:39 A	Dec 28 12:20			
1825			Jan 4 23:45 n	Jan 11 16:02	MA - 3
1843	Dec 21 05:09 H	Dec 28 14:53			
1844			Jan 5 17:35	Jan 12 21:32	MA - 4
1862	Dec 21 05:04 P	Dec 27 23:45			
1863			Jan 5 03:32	Jan 13 00:07	MB - 5
1881	Dec 21 05:07	Dec 27 20:42			
1882			Jan 4 10:59	Jan 12 15:48	MA - 6
1900	Dec 22 00:01	Dec 29 01:48			
1901			Jan 5 00:13	Jan 12 20:38	MA - 7
1919	Dec 22 10:55	Dec 30 05:25			
1920			Jan 5 21:05	Jan 13 00:08	MB - 8
1938	Dec 21 18:07	Dec 29 22:53			
1939			Jan 5 21:30	Jan 12 13:11	MA - 9
1957	Dec 21 06:12	Dec 29 04:52			
1958			Jan 5 20:09	Jan 12 14:01	MA - 10
1976	Dec 21 02:08	Dec 28 07:48			
1977			Jan 5 12:10	Jan 12 19:55	MA - 11
1995	Dec 22 02:22	Dec 28 19:07			
1996			Jan 5 20:51	Jan 13 20:45	MB - 12
2014	Dec 22 01:36	Dec 28 18:31			
2015			Jan 5 04:53	Jan 13 09:47	MA - 13
2033	Dec 21 18:47	Dec 29 00:20			
2034			Jan 4 19:47	Jan 12 13:17	MA - 14
2052	Dec 21 04:15	Dec 29 02:28			
2053			Jan 4 17:46	Jan 11 18:09	MB - 15
2071	Dec 21 11:47	Dec 29 17:16			
2072			Jan 5 18:13	Jan 12 09:54	MA – 16

Year	New Moon	First Quarter	Full Moon	Last Quarter	Meton cycle
2090	Dec 21 01:29	Dec 28 21:36			
2091			Jan 5 15:50	Jan 12 12:34	MA - 17

The alternation and the duration of the lunation for the MA-13 Meton cycle (2015 CE – 2033 CE)

Table 1

Calendar cycles		The duration of the lunation for the lunar year, *day*													A comparison of the lunar cycles, *day*		
Meton	Grego-rian	1-LA	2-LB	3-LA	4-LB	5-LA	6-LB	7-LA	8-LB	9-LA	10-LB	11-LA	12-LB 12-LA	13-LA	Calen-dar	Natural	Misalign-ment
1-LYB 21.12.2014	2015	30	29	30	29	30	29	30	29	30	29	30	30	-	355	354, 367	-0, 633
2-LYA 11.12.2015	2016	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
3-LYC 29.11.2016	2017	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
4-LYC 18.12.2017	2018	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
5-LYB 06.01,2019	2019	30	29	30	29	30	29	30	29	30	29	30	30	-	355	354, 367	-0, 633
6-LYA 27.12.2019	2020	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
7-LYC 15.12.2020	2021	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
8-LYA 03.01.2022	2022	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
9-LYB 23.12.2022	2023	30	29	30	29	30	29	30	29	30	29	30	30	-	355	354, 367	-0, 633
10-LYA 13.12.2023	2024	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
11-LYC 01.12.2024	2025	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
12-LYC 20.12.2025	2026	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
13-LYB 08.01.08	2027	30	29	30	29	30	29	30	29	30	29	30	30	-	355	354, 367	-0, 633
14-LYA 28.12.08	2028	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
15-LYC 17.12.09	2029	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
16-LYA 05.01.11	2030	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
17-LYA 25.12.11	2031	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
18-LYA 13.12.12	2032	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
19-LYC 02.12.13	2033	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
Total MA-13 Meton cycle:															6 940	6 939, 688	-0, 312

The alternation and the duration of the lunation for
the MB-12 Meton cycle (1996 CE – 2014 CE)

Table 2

| Calendar cycles | | The duration of the lunation for the lunar year, *day* | | | | | | | | | | | | | A comparison of the lunar cycles, *day* | | |
Meton	Grego-rian	1-LA	2-LB	3-LA	4-LB	5-LA	6-LB	7-LA	8-LB	9-LA	10-LB	11-LA	12-LB 12-LA	13-LA	Calen-dar	Natural	Misalign-ment
1-LYA 22.12.1995	1996	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
2-LYA 10.12.1996	1997	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
3-LYC 29.11.1997	1998	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
4-LYC 18.12.1998	1999	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
5-LYB 06.01.2000	2000	30	29	30	29	30	29	30	29	30	29	30	30	-	355	354, 367	-0, 633
6-LYA 26.12.2000	2001	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
7-LYC 15.12.2001	2002	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
8-LYA 03.01.2003	2003	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
9-LYB 23.12.2003	2004	30	29	30	29	30	29	30	29	30	29	30	30	-	355	354, 367	-0, 633
10-LYA 12.12.2004	2005	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
11-LYC 01.12.2005	2006	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
12-LYC 20.12.2006	2007	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
13-LYB 08.01.2008	2008	30	29	30	29	30	29	30	29	30	29	30	30	-	355	354, 367	-0, 633
14-LYA 28.12.2008	2009	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
15-LYC 17.12.2009	2010	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
16-LYA 05.01.2011	2011	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
17-LYA 25.12.2011	2012	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
18-LYA 13.12.2012	2013	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
19-LYC 02.12.2013	2014	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
											Total MB-12 Meton cycle:				6 939	6 939, 688	+0, 688

The alternation and the duration of the lunar cycles
for the PA-1 cycle (1786 CE - 3002 CE

Table 3

Calendar cycles				The duration of the calendar lunar cycles, *day*				A comparison of the lunar cycles, *day*					
Solar	Lunar			MA-1	MA-2	MA-3	MA-4	Calendar		Natural		Misalignment	
	Petin	Hippar-chus	Meton					Meton	Hippar-chus	Meton	Hipparchus	Meton	Hippar-chus
21.12.1786 CE - - 20.12.3002 CE	PA-1	HA-1	1 - 3	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			4 - 6	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			7 - 10	6940	6939	6940	6940	27 759		27 758,754		-0, 246	
			11 - 13	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			14 - 16	6940	6939	6940	-	20 819	111 035	20 819, 065	111 035, 014	+0, 065	+0, 014
		HA-2	17 - 19	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			20 - 22	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			23 - 26	6940	6939	6940	6940	27 759		27 758,754		-0, 246	
			27 - 29	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			30 - 32	6940	6939	6940	-	20 819	111 035	20 819, 065	111 035, 014	+0, 065	+0, 014
		HA-3	33 - 35	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			36 - 38	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			39 - 42	6940	6939	6940	6940	27 759		27 758,754		-0, 246	
			43 - 45	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			46 - 48	6940	6939	6940	-	20 819	111 035	20 819, 065	111 035, 014	+0, 065	+0, 014
		HA-4	49 - 51	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			52 - 54	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			55- 58	6940	6939	6940	6940	27 759		27 758,754		-0, 246	
			59 - 61	6940	6939	6940	-	20 819		20 819, 065		+0, 065	
			62 - 64	6940	6939	6940	-	20 819	111 035	20 819, 065	111 035, 014	+0, 065	+0, 014
			Total PA-1:					444 140		444 140, 056			+0, 056

The alternation and the duration of the lunation
for the Mcorr Meton cycle (5795 CE – 5814 BCE)

Table 4

Calendar cycles		The duration of the lunation for the lunar year, *day*													A comparison of the lunar cycles, *day*		
Meton	Grego-rian	1-LA	2-LB	3-LA	4-LB	5-LA	6-LB	7-LA	8-LB	9-LA	10-LB	11-LA	12-LB / 12-LA	13-LA	Calen-dar	Natural	Misalign-ment
1-LYB 21.12.5794	5795	30	29	30	29	30	29	30	29	30	29	30	30	-	355	354, 367	-0, 633
2-LYA 11.12.5795	5796	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
3-LYC 29.11.5796	5797	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
4-LYC 18.12.5797	5798	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
5-LYB 06.01,5799	5799	30	29	30	29	30	29	30	29	30	29	30	30	-	355	354, 367	-0, 633
6-LYA 27.12.5799	5800	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
7-LYC 15.12.5800	5801	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
8-LYA 03.01.5802	5802	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
9-LYB 23.12.5802	5803	30	29	30	29	30	29	30	29	30	29	30	30	-	355	354, 367	-0, 633
10-LYA 12.12.5803	5804	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
11-LYC 01.12.5805	5805	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
12-LYC 20.12.5805	5806	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
13-LYB 08.01.5807	5807	30	29	30	29	30	29	30	29	30	29	30	30	-	355	354, 367	-0, 633
14-LYA 28.12.5807	5808	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
15-LYC 17.12.5808	5809	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
16-LYA 05.01.5810	5810	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
17-LYA 25.12.5810	5811	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
18-LYA 13.12.5811	5812	30	29	30	29	30	29	30	29	30	29	30	29	-	354	354, 367	+0, 367
19-LYA 02.12.5812	5813	30	29	30	29	30	29	30	29	30	29	30	29	30	384	383, 898	-0, 102
Total Mcorr Meton cycle:															6 940	6 939, 688	-0, 312

The alternation and the duration of the calendar lunar cycles for the Grand Meton cycles:
GMet-1 (4694 BCE proleptic – 1786 CE) and
GMet-2 (1786 CE – 8265 CE)

Table 5

Calendar cycles				The duration of the calendar lunar cycles, *day*						A comparison of the lunar cycles, *day*		
Solar	Lunar			HA-1	HA-2 MA--209	HA-3 MA--210	HA-4 MA--211	- Mcorr--212	- MA--213	Calendar	Natural	Misalign-ment
	Petin	Hipparchus	Meton									
21.12.4694 BCE – - 20.12.17 GMet-1 86 CE	PA-1	1- 4	1 - 64	111 035	111 035	111 035	111 035	-	-	444 140	444 140, 056	+0, 056
	PA-2	5- 8	65 -128	111 035	111 035	111 035	111 035	-	-	444 140	444 140, 056	+0, 056
	PA-3	9-12	129-192	111 035	111 035	111 035	111 035	-	-	444 140	444 140, 056	+0, 056
	Palmen-4	13	193-208 209-213	111 035 -	- 6 940	- 6 939	- 6 940	- 6 910	- 6 940	145 704	145 703, 926	-0, 074
	PA-5	14-17	214-277	111 035	111 035	111 035	111 035	-	-	444 140	444 140, 056	+0, 056
	PA-6	18-21	278-341	111 035	111 035	111 035	111 035	-	-	444 140	444 140, 056	+0, 056
								Total GMet-1:		2 366 404	2 336 404, 056	+0, 206

Calendar cycles				The duration of the calendar lunar cycles, *day*						A comparison of the lunar cycles, *day*		
Solar	Lunar			HA-1	HA-2 MA--209	HA-3 MA--210	HA-4 MA--211	- Mcorr--212	- MA--213	Calendar	Natural	Misalign-ment
	Petin	Hipparchus	Meton									
GMet-2 21.12.1786 CE – - 20.12.8265 CE	PA-1	1- 4	1 - 64	111 035	111 035	111 035	111 035	-	-	444 140	444 140, 056	+0, 056
	PA-2	5- 8	65 -128	111 035	111 035	111 035	111 035	-	-	444 140	444 140, 056	+0, 056
	PA-3	9-12	129-192	111 035	111 035	111 035	111 035	-	-	444 140	444 140, 056	+0, 056
	Palmen-4	13	193-208 209-213	111 035 -	- 6 940	- 6 939	- 6 940	- 6 910	- 6 940	145 704	145 703, 926	-0, 074
	PA-5	14-17	214-277	111 035	111 035	111 035	111 035	-	-	444 140	444 140, 056	+0, 056
	PA-6	18-21	278-341	111 035	111 035	111 035	111 035	-	-	444 140	444 140, 056	+0, 056
								Total GMet-2:		2 366 404	2 336 404, 056	+0, 206
								Total GMet-1 + + Gmet-2:		4 732 808	4 732 808, 412	+0,412

The Time diagrams
of the Meton cycles in the World Dual Calendar

Block 1

Solar + lunar years			Solar + lunar years																	Solar + lunar years								
MA-126	MB-127	MA-128	MA-129	MB-130	MA-131	MA-132	MB-133	MA-134	MA-135	MB-136	MA-137	MA-138	MA-139	MB-140	MA-141	MA-142	MB-143	MA-144		MA-145	MB-146	MA-147	MA-148	MB-149	MA-150	MA-151	MB-152	MA-153
HA-8			HA-9																	HA-10								
PA-2			PA-3																									

Block 2

Solar + lunar years			Solar + lunar years																Solar + lunar years					Solar + lunar years			
MA-190	MB-191	MA-192	MA-193	MB-194	MA-195	MA-196	MB-197	MA-198	MA-199	MB-200	MA-201	MA-202	MA-203	MB-204	MA-205	MA-206	MB-207	MA-208	MA-209	MB-210	MA-211	Mcorr-212	MA-213	MA-	MB-	MA-	MA-
HA-12			HA-13																Additional Meton cycles					HA-14			
PA-3			P-4 Palmen																					PA-5			

Block 3

Solar + lunar years				Solar + lunar years				Solar + lunar years				Solar + lunar years				Solar + lunar years				Solar + lunar years			
Meton cycles 1 - 64				Meton cycles 65 - 128				Meton cycles 129 -192				Meton cycles 193 - 213				Meton cycles 214 - 277				Meton cycles 278 - 341			
HA-1	HA-2	HA-3	HA-4	HA-5	HA-6	HA-7	HA-8	HA-9	HA-10	HA-11	HA-12	HA-13	Add.Meton cycles	HA-14	HA-15	HA-16	HA-17	HA-18	HA-19	HA-20	HA-21		
PA-1				PA-2				PA-3				P-4 Palmen		PA-5				PA-6					

GMet – 1 (6479 solar years = from 21 December 4694 BCE prolepic up to 20 December 1786 CE)

Block 4

Solar + lunar years				Solar + lunar years				Solar + lunar years				Solar + lunar years				Solar + lunar years				Solar + lunar years			
Meton cycles 1 - 64				Meton cycles 65 - 128				Meton cycles 129 -192				Meton cycles 193 - 213				Meton cycles 214 - 277				Meton cycles 278 - 341			
HA-1	HA-2	HA-3	HA-4	HA-5	HA-6	HA-7	HA-8	HA-9	HA-10	HA-11	HA-12	HA-13	Add.Meton cycles	HA-14	HA-15	HA-16	HA-17	HA-18	HA-19	HA-20	HA-21		
PA-1				PA-2				PA-3				P-4 Palmen		PA-5				PA-6					

GMet – 2 (6479 solar years = from 21 December 1786 CE up to 20 December 8265 CE)

0_____ Year