CODE 6000

Evidence for the "End of 6,000 Years"

by Floyd R. Cox (3-16-2017)

Over four out of every seven people on earth are expecting someone to arrive from another world to solve the earth's problems. Two billion Christians await the second coming of their Messiah while 13 million Jews await His first coming and two billion Muslims await the twelfth Imam.

That makes well over four out of the seven billion around the world trying to figure out when this intervention will happen.

Google for the "time of the end", and you'll get 779 million hits. Needless to say, that is quite an audience, and everyone seems to have a book spouting the latest theory. Nevertheless, without solid evidence, speculation has become a favorite pastime, like a can kicked endlessly down the road, searching and searching for clues about when an unseen hand from the Higher Realm may reach into our lower realm.

One clue is that time is divided into sevens: seven days, seven weeks, seven months, seven years, seven times seven years, 70 times seven years, and 7,000 years. Allegedly, mankind has been granted 6,000 years of strife to try all forms of self-governments before the Higher Realm intervenes to create a type of Sabbath or sabbatical lasting 1,000 years.

This was taught in the Epistle of Barnabus (chapter 13), which was allegedly considered authoritative in Alexandria and was quoted elsewhere by Origen, Eusebius and Jerome.

Perhaps, in the first century, the epistle of Barnabus was somehow related to the context of the Greek Septuagint text written in Alexandria and used by Classical scholars to date the Creation around 5500 to 5200 BC, not 4004 BC.

The most common theories say the "time of the end" is somehow related to the 19-year lunar-solar alignments or the 7-year sabbaticals or the 49-year jubilee periods since the time of "the beginning", which the Jews say was in 3761 BC. Is there any evidence for believing this?

Sabbaticals and Jubilees based upon 3761 BC

The Hebrew calendar, the 19-year and 7-year cycles allegedly began in 3761 BC (the rabbinical date of Creation). When is the sabbatical cycle? The answer is really a no-brainer. It doesn't take a genius to discover, but it has been hidden in plain sight, and researchers seem totally oblivious to it.

When is the sabbatical cycle? Nobody seems to know.

When is the 19-year cycle? Again, nobody seems to know.

Pick any date BC, subtract it from 3761, divide it by 19, and the remainder is the year of the 19-year cycle (if you don't use a calculator). Which year is the sabbatical? Just pick any date BC, subtract it from 3761, divide it by seven, and the remainder is the year of the 7-year cycle (if you don't use a calculator).

Cycles based upon 37 BC

An important clue comes from Josephus, a first century Jewish Levite historian. He said that Herod captured Jerusalem in a sabbatical year, which we know was in 37 BC. If so, then it must merge with the Jewish date for Creation in 3761 BC, and it does as in the following chart.

TABLE 1a. Time Pattern of 37 BC

From	To	Years
3761 BC (rabbinical Creation)	37 BC	3724 (4 jubilees x 19)
3761 BC	37 BC	3724 (196 19-year cycles)
3761 BC	37 BC	3724 (532 x 7)
968 BC (temple)	37 BC	931 (19 jubilees)
968 BC	37 BC	(49 19-year cycles)
968 BC	37 BC	(1 jubilee x 19)
331 (Alexander's sabbatical grant)	37 BC	294 (6 jubilees)

TABLE 1b. Calendar: 1460 Years before the Flood

	49	3957 BC	Adam BC
	49		
	49		
	49	196	
49 x 4	196	3761 BC	Calendar BC
	365		
	365		Enoch lives 365 yrs
	365		
	365	1460	
365 x 4	1460	2301 BC	Noah's Flood BC
	1656		Yrs after Adam

Note that no years begin in the winter in TABLE 6 because the 19 years in the calendar are not allowed to begin before 3/20 or begin after 4/19.

TABLE 1 suggests there were 196 years from Adam to 3761 BC mistakenly called Creation, the beginning of all cycles. It could also be called the beginning of a calendar, the beginning of time in another sense.

As mentioned above, the Hebrew calendar had omitted 196 years.

3761 BC is 196 Years Off

Very simple, right? No, the problem is that 196 years (28 sabbaticals or four jubilees) have subtracted from the Hebrew (rabbinical) date of Creation, as in TABLE 2. Therefore, the actual date for Creation should be 196 years earlier, in 3957 BC, instead of 3761 BC, as in the following chart:

TABLE 2. *196 years Missing in the Hebrew Calendar*				
	Conventional View		*Rabbinical View*	
From Abraham's father's birth to Abraham' birth	130	-60	=	70
From 1 BC to Solomon's temple	968	-136	=	832
		-196		

The 196 missing years are made obvious by the rabbinical date for the temple, 832 BC, instead of 968 BC. 136 years are missing as in TABLE 2.

The kings of Israel actually overlapped 30 years, and 60 years are missing between Abraham and his father (130 – 60 = 70). Therefore 196 years are missing (-136 + -60 = -196), which are equal to four jubilees (49 x 4 = 196).

3957 BC, the Revised Date of Creation

3957 BC is 196 years before 3761 and was likely when the sabbatical and jubilee calendars originally began, but the 19-year cycle commonly used today goes back to 3761 BC or 190 years before that, to 3951 BC as in TABLE 3. This is another problem.

What is the evidence that 3761 was the beginning of the 7-year, 49-year and 19-year cycles? There are three main clues.

1. The *Book of Jubilees* says Adam died in his 931st year, after 19 49-year jubilees, that is, after 49 19-year cycles.

2. Joseph's seven fat years and seven lean years in Egypt ended 2303 years after Adam. In other words, he was in sync with the 47th jubilee since Adam.

3. Josephus, the Jewish Levite historian, said that Herod conquered Jerusalem, which we know happened in 37 BC; therefore, 37 BC should align with the Jewish date of Creation in 3761 BC, or the revised date in 3957 BC, and it does, as in TABLE 1 above.

Converting the Gregorian Calendar to the Hebrew Calendar

Of course, events of the past cannot be dated without using a calendar. We cannot control the orbit of the moon around the earth or the earth around the sun, but a calendar can be created and adjusted to represent the time to complete their orbits.

It can be observed that a year, in 4,000 BC, had 365.2425 days, and, in 2,000 AD, it has 365.24219878125 days, that is, the earth's orbit around the sun has decreased .00031 of one day in 6,000 years. Not much has changed. The average is 365.2422038 in 200,000 years.

The Gregorian calendar is based upon having 365.2425 days per year.

Moreover, the Gregorian calendar has: 83,275.29 days in 228 years.

In contrast, the Hebrew calendar has: 83,276.25 days in 228 years.

The Gregorian calendar has: 124,912.93 days in 342 years.

The Hebrew calendar has: 124,914.38 days in 342 years.

Therefore, since we cannot control the new and full moons, we can only adjust the Gregorian calendar <u>one day every 228 years</u>. <u>It is off 9 days from 37 BC to 2016 AD, that is, in 2052 years (228 x 9)</u>. Naturally, this would affect Gregorian dates applied to history of the Hebrews, such as, when the temples were burned or when Christ was born or crucified.

It is also interesting that the Nabonassar calendar introduced in 747 BC began 1368 years (228 x 6) before the Islamic calendar was introduced in 622 AD.

How is the Gregorian calendar adjusted?

First of all, it is related to the spring equinox March 21. There is a year when the Hebrew calendar began on March 21. After this, there is a 13th month inserted (intercalated) during the next 19 years, in years 3, 6, 9, 11, 14, 17 and 19. This produces a pattern that goes from March 21 to April 18 every 19 years. To adjust the calendar by adding one day every 228 years, one must change the 4-28 in one 19-year cycle to make it appear as 3-21 during the next 19-year cycle. This is done by swapping the 11 and 18 during the next 19 years, as in the following TABLE 3b:

TABLE 3a. 228-Year Cycle 3957 BC to 622 AD (3-08-2017)

BC	New Moons Without Correction		New Moon	New Moon
3939	3-15			
3711	3-15			
3483	3-15			
3255	3-15			
3027	3-15			
2571	3-15			
2343	3-15			
2115	3-15			
1887	3-15		3-25	4-24
1659	3-15		3-24	4-23
1431	3-15		3-24	4-22
1203	3-15		3-24	4-22
973	3-15		3-23	4-21
747	3-15		3-22	4-20
519	3-15		3-21	4-19
291	3-15		3-21	4-19
63	3-15		3-20	4-18
AD				
166	3-15		3-19	4-17
494	3-15		3-18	4-16
622	3-15		3-17	4-16
850	3-15		3-17	4-16
1078	3-15		3-16	4-14
1306	3-15		3-15	4-13
1534	3-15		3-14	4-13
	11 days		11 days	
1762	3-26		3-25	4-24
1990	3-26		3-26	4-25

Keys to Understanding the Lunar Calendar

Almost everyone universally is confused anout when a new moon begins the lunar calendar each year.

The Jews begin each year in the fall and then they subtract 177 days to find the first day of the 1st month (days are 30, 29, 30 , 29, 30 = 177). This legacy is based upon Adam being created on the first day of the seventh month, after 6th month.

After the exodus, there was a 1st month (Ex 12:1, 18) and a 2nd month (Ex 16:1). When was the 1st month to begin? Doesn't say.

We know that 12 months equal 365 days and 12 moons equal 354 days; so the next lunar year would begin 11 days earlier than the next solar year.

In three years, the lunar year would begin 33 days before the solar year. This means the 1st moon suddenly becomes the 12th moon and the 2nd moon becomes the 1st after the spring equinox. After 19 years, the 7th moon has been the 7th, 6th, 5th, 4th, 3rd, 2nd and the 1st moon after the spring equinox. The next 19 years begins again with the 1st new moon as before.

However, after 18 cycles of 19 years, in 342 years, the Gregorian calendar lacks one day in perfectly matching the 235 moons in each 19-year period as demonstrated in TABLE 5. The calendar would lack 10 days in 3420 years (342 x 10) (1886 BC + 1534 AD = 3420 yrs). New moons in TABLE 3b are based upon data found here:
http://astropixels.com/ephemeris/phasescat/phasescat.html

Note that the calendar in TABLE 3a gains one day and can be corrected by changing **the latest date**, 4-29, in each 19-year cycle into 3-21, **the earliest date** in each 19 years every 342 years, as in TABLE 3b:

Note also that the Julian calendar gained one day every 128 years, that is, ten days between 325 and 1582 AD and 11 days between 325 and 1752 AD. The Gregorian calendar presently used subtracted 11 days between September 2nd and 14th in 1752.

--Calendar correction 10 days in 1582 or 11 days in 1752

TABLE 3b. Converting 4-20 into 3-21 after every 342 years

228 yrs	228 yrs		Delay	
3-30	**3-31**	4-01	4-01	3-21 to 3-31 = 10 days
		+19	-11	11 and 19 reversed
4-18	**4-19**	**4-20**	**3-21**	With the delay from to 4-20 to 3-21
		-11	+19	11 and 19 reversed
4-07	4-08	4-09	4-09	With or without the delay

This chart illustrates how the mismatch between the 12 x 19-yr. Gregorian calendar years and the 235 x 12 lunations in 228 years. The Gregorian has 83,275.29 days in 228 years and needs one day every 228 years to match the Metonic.

The Metonic lunar-solar calendar has 365.2467463 days per solar year. The number of days in 19 years can be compared with the days in 235 moons in 19 years. It has 83,276.256 days in 228 years (83,276 - 86,275 = 1).

Delaying the 19-year cycle (from 4-01+19=4-20 into 4-01-11=3-21) to Correct the Gregorian calendar every 342 yrs.

For more on the relationship between solar eclipses on 3-21 (on equinoxes) and the first new moons, go to TABLE 15 at:
http://code251.com/accurate-calendar.pdf

TABLE 3c. Missing Key: 19-Years & Eclipses			
19-yr Cycle	**1st New Moon (Near 3-20)**		
BC	3958		
3939	---------	yr 228 ---- 1st 19 yrs	
3711			
3483			
3255			
3027			
2799			
2571			
2343			
2115			
1887			
1659			
1431			
1203			
975			
747	---------	yr 228 x 14 Nabonasser calendar = 3192 yrs	
519			
291			
63			
AD			
71	---------	3-20 Total Solar Eclipse	
166			
494			
622		yr 228 x 20 Muhamud calendar = 4560 yrs	
		NISAN 1	
850		3-21	
1078		3-22	
1306		3-21	
1534	1540	3-25 ----	1534 = yr 228 x 24 = 5472 yrs
19	19		
1553	1559	3-19	
	19		
1572	1578	3-19	
	19		
1591	1597	3-20 ----	10 days correction of Julian calendar in 1582
	19		
1610	1616	3-19	
1629	1635	3-20	
1648	1654	3-19	
1667	1673	3-18	
1686	1692	3-18	
1705	1711	3-21	
1724	1730	3-19	
1743	1749	3-20	
1762	1768	3-19----	1762 = yr 228 x 25 11 days correction of Julian calendar in 1752 (19 x 300) = 5700 yrs
1781	1787	3-20	
1800	1806	2-20	
1819	1825	3-19	
1838	1844	3-19	
1857	1863	3-19	
1876	1882	3-19	
1895	1901	3-20	
1914	1920	3-20	
1933	1939	3-21	
1952	1958	3-20	
1971	1977	3-19	
1990	1996	3-19 ----	1990 = yr 228 x 26
2009	2015	3-20 ----	2015 Solar Eclipse
2028	2034	3-20	2034 Solar Eclipse
2047	2053	3-20	2053 Solar Eclipse
2066	2072	3-19	2072 Solar Eclipse

19 years begin on Nisan 1, on New Moons, from March 21 to April 19

TABLE 3c discloses the 19-year cycle since 3958 BC down to the Nabonasser calendar in 747 BC and the Muhamud calendar in 622 AD. The present cycle began in 1990 AD, eight years before the Hebrew 19-year cycle in 1998 (as in TABLE 5).

The Nabonasser calendar began each year when the first new moon appeared after the spring equinox (today this is after March 19, 20, 21). At this time, days and nights are equal, thus the name Equal Nights, Equi-Nox).

This explains why September, October, November and December are called the 7th, 8th, 9th, and 10th months, not the 9th, 10th, 11th, and 12th months.

When is the first new moon each year? We find a clue by consulting NASA's list of solar eclipses that are on March 19, 20 and 21 in 71 AD and in 2015, 2034, 2053 and 2072 AD. Note that these dates are 19 years apart. Therefore, it would be logical to create a calendar beginning when an eclipse is on March 21 as in TABLE 4. Our present Gregorian calendar could be used, but it differs one day every 342 years, 10 days every 3420 years as in TABLE 3a. TABLE 4 illustrates how the Gregorian calendar needs adjusted 6 times in 1368 (228 x 6) (342 x 4) years.

The 19-year Metonic calendar has   83,276.25 days in 228 years.
The 19-year Gregorian calendar has   83,275.29 days in 228 years.

The 19-year Metonic calendar has   449,657.53 days in 1368 (228 x 6).
The 19-year Gregorian calendar has 499,651.74 days in 1368 (228 x 6).

New moons and solar eclipses are when the moon is directly between the earth and the sun. Therefore, it makes logical sense that solar years begin on the first day of spring. Nevertheless, the Hebrew calendar is calculated from the first day of Adam on Tishri 1, in the fall of the seventh month, in 3761 BC.

When is the first day of the first month, Nisan 1? You merely count backwards six months, from Tishri 1 to Nisan 1, that is, 177 days (29.5 x 6 = 177).

It is rarely known that the Hebrew 19-year cycle begins in the 9th year of the Nabonesser and Muhamud 19-year cycles. This helps us understand the differences between the Lunar calendar in posession of Ptolemy in Alexandria and Herod in Jerusalem. It added an extra 13th month in the 3rd, 6th, 9th, 11th, 14th, 17th, and 19th years. The Hebrew calendar added the 13th moons eight years later, as in TABLE 5.

The Nabonesser calendar began each year in the spring. The Hebrew calendar began each year in the fall.

From 37 BC, when Herod captured Jerusalem, until 2015 AD, there are 2052 (228 x 9) years.

If a 19-year cycle begins on the equinox, on 3-21, then the cycle will begin as in TABLE 4 and as follows (Note that the first month ends on 4/19, The second year does not begin 11 days before 3/31):

19-Year Cycle:

0. 3-21 / 4/19	10. 3-30
1. 4-08	11. 3-20 / 4-18
2. 3-28 (+19= 4-16)	12. 4-06
3. 3-18 / 4-16	13. 3-27
4. 4-06	14. 3-16 / 4-15
5. 3-25	15. 4-04
6. 3-14 / 4-13	16. 3-23
7. 4-03	17. 3-13 / 4-12
8. 3-23	18. 4-01
9. 3-12 / 4-11	19. 3-21 / 4-19 **(earliest / latest dates)**

Four times in 1368 (228 x 6) (342 x 4) years choose 3-21 instead of 4-19.

TABLE 4a. 228-Year Intercalary Cycle (New Moons) from 747 BC to 622 AD, 1368 years

The 19-year cycle needs corrected one day every 228 years
(Dates based on link found HERE) (228-year cycle described HERE)
The intercalary moon is represented by +19 days (-11 + 30 = +19)
Revised 3-16-2017

228-yr cycle		747		228 519		228 291		228 63 BC		228 166 AD		228 394		228 622		
Babylon 19-yr. New Moon Sequence Spring to Spring	Hebrew 19-yr. New Moon Sequence Fall to Fall							1368 yrs								
0		3-13	4-12	3-13	4-12	3-13	4-11	3-11	4-10	3-11	4-10	3-10	4-09	3-10	4-09	
		-11	-11	-11	-11	-11	-11	-11	-11	+19	+19	+19	+19	+19	+19	
1	12	3-03	4-01	3-02	4-01	3-03	3-31	3-01	3-30	3-29	4-28	3-28	4-27	3-28	4-26	
		+19	+19	+19	+19	+19	+19	+19	+19	-11	-11	-11	-11	-11	-11	
2	13	3-22	4-20	3-21	4-19	3-21	4-19	3-20	4-18	3-19	4-17	3-18	4-16	3-17	4-16	
		-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
3	14	3-11	4-10	3-10	4-09	3-10	4-08	3-09	4-08	3-08	4-07	3-07	4-06	3-07	4-05	
		+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	3
4	15	3-29	4-28	3-28	4-26	3-27	4-26	3-27	4-26	4-08	4-25	3-25	4-24	3-24	4-23	
		-11	11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
5	16	3-19	4-17	3-18	4-16	3-17	4-15	3-16	4-15	3-27	4-26	3-15	4-13	3-14	4-12	
		-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
6	17	3-08	4-07	5-07	4-06	3-06	4-05	3-05	4-04	3-15	4-15	3-14	4-03	3-03	4-04	
		+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	6
7	18	3-27	4-25	3-26	4-25	3-25	4-24	3-24	4-23	3-24	4-22	3-24	4-22	3-23	4-21	
		-11	-11	-11	11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
8	19	3-15	4-14	3-15	4-13	3-14	4-12	3-13	4-11	3-12	4-10	3-12	4-10	3-11	4-10	
		+19	-11	-11	-11	-11	-11	-11	-11	-11	-11	+19	+19	+19	+19	8
9	1	3-04	4-03	3-04	4-02	3-03	4-0	3-02	4-01	3-01	3-31	3-30	4-29	3-30	4-28	
		-11	+19	+19	+19	+19	+19	+19	+19	+19	+19	-11	-11	-11	-11	
10	2	3-23	4-21	3-22	4-21	3-22	4-21	3-21	4-20	3-20	4-19	3-19	4-18	3-19	4-18	
		-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
11	3	3-13	4-11	3-12	4-10	3-11	4-10	3-11	4-09	3-10	4-08	3-09	4-07	3-08	4-07	
		-11	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	11
12	4	3-01	3-31	3-29	4-28	3-29	4-28	3-30	4-27	3-28	4-26	3-27	4-25	3-27	4-25	
		+19	+19	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
13	5	3-20	4-19	3-19	4-17	3-18	4-17	3-18	4-17	3-17	4-16	3-16	4-15	3-15	4-14	
		-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
14	6	3-10	4-08	3-09	4-07	3-08	4-06	3-07	4-06	3-07	4-05	3-06	4-04	3-05	4-03	
		+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	14
15	7	3-29	4-27	3-28	4-26	3-27	4-25	3-26	4-24	3-26	4-24	3-25	4-23	3-24	4-22	
		-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
16	8	3-17	4-15	3-16	4-15	3-15	4-14	3-14	4-13	3-14	4-12	3-13	4-12	3-12	4-11	
		-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
17	9	3-06	4-04	3-06	4-04	3-05	4-03	3-04	4-02	3-03	4-01	3-02	4-01	3-02	3-31	
		+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	+19	17
18	10	3-24	4-23	3-24	4-23	3-24	4-22	3-23	4-21	3-22	4-20	3-21	4-20	3-21	4-19	
		-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	-11	
19	11	3-14	4-12	3-13	4-12	3-13	4-12	3-12	4-11	3-11	4-10	3-10	4-09	3-10	4-09	
		-11	-11	-11	-11	-11	-11	-11	-11	+19	+19	+19	+19	+19	+19	19

When Does the Year Begin?

When did the original 19-year cycle begin? There are several views.

The first view says that years begin in the spring; thus we have September, October, November and December being the 7th, 8th, 9th, and 10th months. This is the solar year. The lunar year is adjusted seven times every 19 years to keep it aligned with the solar year, when did the first lunar year begin? It must have originally begun with the first new moon in the spring, on about March 21. The second month begins on about April 20 (3/21+30 =4/20).

In another view, in the second year, what was previously the first arrives 11 days earlier than March 21 on March 10th. It begins before spring, when it is still winter. Then, if we move it back another 11 days, to February 28, in the third year, there could likely be snow on the ground; therefore, an extra month (30–11=19) is added to start the fourth year on about March 30 (2/28 + 30 = 3/30) as in TABLE 4a (Dates based on a link found HERE) (228-year cycle described HERE).

TABLE 4a illustrates how April 19, 20, & 21 can become March 21 (instead of 4/20) during the next 228 years.

To find the years that began with the spring equinox, after March 21, we do not need to feel bound to the Jewish tradition. Simply refer to the NASA lunar cycles, which date the new moons and eclipses within minutes and seconds of being accurate for 5,000 years. Don't fall for the argument used by the Messianic Movement that, "If the Bible doesn't tell us exactly how to begin each year, we must return to our Jewish Roots."

TABLE 4b. 228-Year Cycle 3957 BC to 622 AD (Cycle described HERE)

	-3192		-2964	-2726	-2508	-2280	-2052	-1824	-1596	Continues below
	19 yrs		228		228	228	228	228	228	228

<--------- 1368 yrs --------->

19 yrs	3958	3958	3939	3769	3711	3483	3255	3027	2799	2571	2343	2115
0	4-11	3958	4/12	3769	4/13	4/14	4/15	4/16	4/17	4/18	4/19	3/21
1	3-31	3957	4/1	3768	4/2	4/3	4/4	4/5	4/6	4/7	4/8	4/8
2	4-19	3956	3/21	3767	3/22	3/23	3/24	3/25	3/26	3/27	3/28	3/28
3	4/8	3955	4/8	3766	4/10	4/11	4/12	4/13	4/14	4/15	4/16	4/16
4	3/28	3954	3/28	3765	3/30	3/31	4/1	4/2	4/3	4/4	4/5	4/5
5	4/16	3953	4/16	3764	4/18	4/19	3/21	3/22	3/23	3/24	3/25	3/25
6	4/5	3952	4/5	3763	4/7	4/8	4/8	4/9	4/11	4/12	4/13	4/13
7	3-25	3951	3/25	3761	3/27	3/28	3/28	3/29	3/31	4/1	4/2	4/2
8	4-12	3950	4/13	3760	4/15	4/16	4/16	4/17	4/19	3/21	3/22	3/22
9	4/1	3949	4/2	3759	4/4	4/5	4/5	4/6	4/8	4/8	4/9	4/10
10	3/22	3948	3/22	3758	3/24	3/25	3/25	3/26	3/28	3/28	3/29	3/30
11	4/10	3947	4/10	3757	4/12	4/13	4/13	4/14	4/16	4/16	4/17	4/18
12	3/30	3946	3/30	3756	4/1	4/2	4/2	4/3	4/5	4/5	4/6	4/7
13	4/18	3945	4/18	3755	3/21	3/22	3/22	3/23	3/25	3/25	3/26	3/27
14	4/7	3944	4/7	3754	4/9	4/10	4/10	4/11	4/13	4/13	4/14	4/15
15	3/26	3943	3/27	3753	3/28	3/30	3/30	3/31	4/2	4/2	4/3	4/4
16	4/14	3942	4/15	3752	4/16	4/18	4/18	4/19	3/22	3/22	3/23	3/24
17	4/3	3941	4/4	3751	4/5	4/7	4/7	4/8	4/9	4/10	4/11	4/12
18	3/23	3940	3/24	3750	3/25	3/26	3/27	3/28	3/29	3/30	3/31	4/1
19	4/11	3939	4/12	3749	4/13	4/14	4/15	4/16	4/17	4/18	4/19	3/21

TABLE 4b Continued

-1368	-1140	-912	-684	-456	-228	1	229	457	685		913	1141	1369
228	228	228	228	228	228	228	228	228	228		228	228	228

<--------- 1368 yrs ---------><--------- 1368 yrs --------->

	2115	1887	1659	1431	1203	975	747	519	291	63 BC	44 BC	166 AD	394 AD	622 AD
0	3/21	3/22	3/23	3/24	3/25	3/26	3/27	3/28	3/29	3/30	44	3/31	4/1	4/2
1	4/8	4/10	4/11	4/12	4/13	4/14	4/15	4/16	4/17	4/18	43	4/19	3/21	3/22
2	3/28	3/30	3/31	4/1	4/2	4/3	4/4	4/5	4/6	4/7	42	4/8	4/8	4/10
3	4/16	4/18	4/19	3/21	3/22	3/23	3/24	3/25	3/26	3/27	41	3/28	3/28	3/30
4	4/5	4/7	4/8	4/8	4/10	4/11	4/12	4/13	4/14	4/15	40	4/16	4/16	4/18
5	3/25	3/27	3/28	3/28	3/30	3/31	4/1	4/2	4/3	4/4	39	4/5	4/5	4/7
6	4/13	4/15	4/16	4/16	4/18	4/19	3/21	3/22	3/23	3/24	38	3/25	3/25	3/27
7	4/2	4/4	4/5	4/5	4/7	4/8	4/8	4/9	4/11	4/12	37 BC	4/13	4/13	4/15
8	3/22	3/24	3/25	3/25	3/27	3/28	3/28	3/29	3/31	4/1	36	4/2	4/2	4/4
9	4/10	4/12	4/13	4/13	4/15	4/16	4/16	4/17	4/19	3/21	35	3/22	3/22	3/24
10	3/30	4/1	4/2	4/2	4/4	4/5	4/5	4/6	4/8	4/8	34	4/9	4/10	4/12
11	4/18	3/21	3/22	3/22	3/24	3/25	3/25	3/26	3/28	3/28	33	3/29	3/30	4/1
12	4/7	4/8	4/9	4/10	4/12	4/13	4/13	4/14	4/16	4/16	32	4/17	4/18	3/21
13	3/27	3/28	3/29	3/30	4/1	4/2	4/2	4/3	4/5	4/5	31	4/6	4/7	4/8
14	4/15	4/16	4/17	4/18	3/21	3/22	3/22	3/23	3/25	3/25	30	3/26	3/27	3/28
15	4/4	4/5	4/6	4/7	4/9	4/10	4/10	4/11	4/13	4/13	29	4/14	4/15	4/16
16	3/24	3/25	3/26	3/27	3/28	3/30	3/30	3/31	4/2	4/2	28	4/3	4/4	4/5
17	4/12	4/13	4/14	4/15	4/16	4/18	4/18	4/19	3/22	3/22	27	3/23	3/24	3/25
18	4/1	4/2	4/3	4/4	4/5	4/7	4/7	4/8	4/9	4/10	26 BC to 31AD	4/11	4/12	4/13
19	3/21	3/22	3/23	3/24	3/25	3/26	3/27	3/28	3/29	3/30	25	3/31	4/1	4/2
													3/21	

Correcting the Gregorian Calendar Again

The above calendar is designed to represent how nine corrections of nine extra days are needed between 37 BC and 2016 AD if the sun and moon were perfect circles and not oblong, oval orbits. Therefore, the actual new moons, full moons and eclipses depend upon calculations of each orbit or upon an observed pattern found in the past.

The Gregorian calendar has one day less in 228 years (19 x 12 = 228 years) than the Metonic calendar (235 moons x 12 = 228 years). How can we add one day to the Gregorian calendar? We cannot change the days in solar cycles or lunar cycles; they are set and unchangeable and can only be represented by an accurate calendar, but one day can occasionally be added to the calendar.

As said, the Gregorian calendar needs one more day every 228 years to match the Metonic luni-solar calendar as seen in the following formula: $365 + .25 - 3/400 + 1/228 = 365.2468859$.

The 19-year Metonic calendar has   83,276.256 days in 228 years.
The 19-year Gregorian calendar has   83,275.29 days every 228 years and needs one more day in 228 years.

The 19-year Metonic calendar has   449,657.53 days in 1368 (228 x 6) years.
The 19-year Gregorian calendar has 499,651.74 days every 1368 (228 x 6) years and needs six days in 1368 yrs.

The solution lies in delaying the 19-year intercalation sequence one day ever 342 years, that is four times in 1368 years as in TABLE 3. For more details, see TABLE 2 at: http://code251.com/accurate-calendar.pdf illustrates how April 19, being the latest date in the 19-year cycle, can be changed into March 21, the earliest date in the 19-year cycle. See also: http://www.friesian.com/calendar.htm,

TABLE 4b Continued

	1141	1369	1595	1825	2053	2281	2509	2737		
		228	228	228	228	228	228	228	19	
AD	◄ – – – – – –			1368 yrs		– – – – – – ►				
	394	**622**	**850**	**1078**	**1306**	**1534**	**1762**	**1990**	**1990**	**2009**
0	4/1	4/2	4/3	4/4	4/5	4/6	4/7	4/8	1989	2008
1	3/21	3/22	3/23	3/24	3/25	3/26	3/27	3/28	1990	2009
2	4/8	4/10	4/11	4/12	4/13	4/14	4/15	4/16	1991	2010
3	3/28	3/30	3/31	4/1	4/2	4/3	4/4	4/5	1992	2011
4	4/16	4/18	4/19	3/21	3/22	3/23	3/24	3/25	1993	2012
5	4/5	4/7	4/8	4/8	4/10	4/11	4/12	4/13	1994	2013
6	3/25	3/27	3/28	3/28	3/30	3/31	4/1	4/2	1995	2014
7	4/13	4/15	4/16	4/16	4/18	4/19	3/21	3/22	1996	2015
8	4/2	4/4	4/5	4/5	4/7	4/8	4/8	4/9	1997	2016
9	3/22	3/24	3/25	3/25	3/27	3/28	3/28	3/29	1998	2017
10	4/10	4/12	4/13	4/13	4/15	4/16	4/16	4/17	1999	2018
11	3/30	4/1	4/2	4/2	4/4	4/5	4/5	4/7	2000	2019
12	4/18	3/21	3/22	3/22	3/24	3/25	3-25	3/26	2001	2020
13	4/7	4/8	4/9	4/10	4/12	4/13	4/13	4/14	2002	2021
14	3/27	3/28	3/29	3/30	4/1	4/2	4/2	4/3	2003	2022
15	4/15	4/16	4/17	4/18	3/21	3/22	3/22	3/23	2004	2023
16	4/4	4/5	4/6	4/7	4/9	4/10	4/10	4/11	2005	2024
17	3/24	3/25	3/26	3/27	3/28	3/30	3/30	4-1	2006	2025
18	4/12	4/13	4/14	4/15	4/16	4/18	4/18	3-21	2007	2026
19	4/1	4/2	4/3	4/4	4/5	4/7	4/7	4/8	2008	2027

Babylonian year 1 > (row 0)
Hebrew year 1 > (rows 7–8)

Adjusting the Gregorian dates one day every 228 years

Note that the years with 13 months (the blue lines in TABLE 3) begin with March 21 (the equinox and earliest date in the 19 years), and it is 19 years after April 19, the latest date allowed for the first new moon to begin a new year in every 19 years.

These dates gain one day every 228 years. 235 moons in 19 years are 1/12 of a day longer than 19 years (12 x 19 = 228). As illustrated, the 13th month is **not always inserted in years 3, 6, 8, 11, 14, 17 and 19**. http://en.wikipedia.org/wiki/Hipparchic_cycle. Nothing in the Bible explains the intercalary sequence and needed to be discovered by science.

Note that, by delaying the latest date, 4-19, once every 342 years, this produces the effect of increasing the Gregorian dates one day every 228 years. This compensates for the mismatch between the days in 235 moons every 19 years and the days in the Gregorian calendar every 19 years.

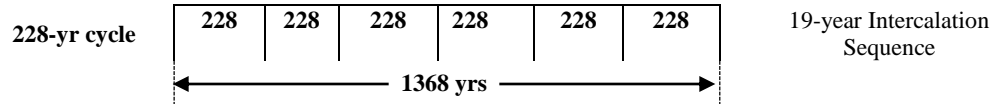After converting the 19-year cycle to Gregorian dates, it becomes obvious that the

TABLE 5. 228-Year Intercalary Cycle from 747 BC to 622 AD, 1368 years

The 19-year cycle needs corrected one day every 228 years
The intercalary moon is represented by +19 days (-11 + 30 = +19)

228-yr cycle: 228 | 228 | 228 | 228 | 228 | 228 — 1368 yrs — 19-year Intercalation Sequence

Babylon 19-yr. Sequence	Hebrew 19-yr. Sequence	747	519	291	63 BC	166 AD	394	622	747 BC V	63 BC V	166 AD V
0		3/27	3/28	3/29	3/30	3/31	4/1	4/2			
		+19	+19	+19	+19	+19	-11	-11			
1	12	4/15	4/16	4/17	4/18	4/19	3/21	3/22			
		-11	-11	-11	-11	-11	+18	+19			
2	13	4/4	4/5	4/6	4/7	4/8	4/8	4/10			
		-11	-11	-11	-11	-11	-11	-11			
3	14	3/24	3/25	3/26	3/27	3/28	3/28	3/30	3	3	3
		+19	+19	+19	+19	+19	+19	+19			
4	15	4/12	4/13	4/14	4/15	4/16	4/16	4/18			
		-11	-11	-11	-11	-11	-11	-11			
5	16	4/1	4/2	4/3	4/4	4/5	4/5	4/7			
		-11	-11	-11	-11	-11	-11	-11			
6	17	3/21	3/22	3/23	3/24	3/25	3/25	3/27	6	6	6
		+18	+18	+19	+19	+19	+19	+19			
7	18	4/8	4/9	4/11	4/12	4/13	4/13	4/15			
		-11	-11	-11	-11	-11	-11	-11			
8	19	3/28	3/29	3/31	4/1	4/2	4/2	4/4	8		
		+19	+19	+19	-11	-11	-11	-11			
9	1	4/16	4/17	4/19	3/21	3/22	3/22	3/24		9	9
		-11	-11	-11	+18	+18	+19	+19			
10	2	4/5	4/6	4/8	4/8	4/9	4/10	4/12			
		-11	-11	-11	-11	-11	-11	-11			
11	3	3/25	3/26	3/28	3/28	3/29	3/30	4/1	11	11	11
		+19	+19	+19	+19	+19	+19	-11			
12	4	4/13	4/14	4/16	4/16	4/17	4/18	3/21			
		-11	-11	-11	-11	-11	-11	+18			
13	5	4/2	4/3	4/5	4/5	4/6	4/7	4/8			
		-11	-11	-11	-11	-11	-11	-11			
14	6	3/22	3/23	3/25	3/25	3/26	3/27	3/28	14	14	14
		+19	+19	+19	+19	+19	+19	+19			
15	7	4/10	4/11	4/13	4/13	4/14	4/15	4/16			
		-11	-11	-11	-11	-11	-11	-11			
16	8	3/30	3/31	4/2	4/2	4/3	4/4	4/5	16		
		+19	+19	-11	-11	-11	-11	-11			
17	9	4/18	4/19	3/22	3/22	3/23	3/24	3/25		17	17
		-11	-11	+18	+19	+19	+19	+19			
18	10	4/7	4/8	4/9	4/10	4/11	4/12	4/13			
		-11	-11	-11	-11	-11	-11	-11			
19	11	3/27	3/28	3/29	3/30	3/31	4/1	4/2	19	19	19

<h1 style="text-align:center">Stylizing the Lunar-solar Calendar</h1>

As said, the Gregorian calendar needs one more day every 228 years to match the Metonic luni-solar calendar as seen in the following formula: 365 +.25 –3/400 +1/228 = 365.2468859.

The 19-year Metonic calendar has   83,276.256 days in 228 years.
The 19-year Gregorian calendar has   83,275.29 days every 228 years and needs one more day in 228 years.

The 19-year Metonic calendar has   449,657.53 days in 1368 (228 x 6) years.
The 19-year Gregorian calendar has 499,651.74 days every 1368 (228 x 6) years and needs six days in 1368 yrs.

The solution lies in delaying the 19-year intercalation sequence one day ever 342 years, that is four times in 1368 years as in TABLE 3 and nine times from 37 BC to 2016 AD. For more details, see TABLE 2 at: http://code251.com/accurate-calendar.pdf illustrates how April 19, being the latest date in the 19-year cycle, can be changed into March 21, the earliest date in the 19-year cycle.

TABLE 6. The 19-Year Cycle (AD 1960 to 2015)
Note: 365.24219 (12 months) - 354.367 (12 moons) = 10.8752 days
19 years actually begin with Epact (lunar-solar gaps):
3,14, 25, 6, 17, 28, 9, 20, 1, 12, 23, 4, 15, 26, 7, 18, 29, 11 & 22.

19-yr Cycle	AD	New Moons Mar 01 to 28	Extra Moons Mar 29 to April 9	Epact or Annual lunar-solar gap	Calculated lunar-solar gap represented by a calendar	Stylized lunar-solar gap represented by a calendar
				-29.44536	+29.530588 = +.08522	-11 +30= +19
1	1979	Mar 28	4-26	0.00	-10.8752 = -	-11
2	1980	Mar 16	4-15	-10.8752	-10.8752 = -21.7504	-11
3	1981	Mar 06	(1.) Apr 4	-21.7504	-10.8752 = -32.6256	-11
				-32.6256	+ 29.530588 = -3.0951	-11 +30= +19
4	1982	Mar 25	4-23	-3.0951	-10.8752 = -13.9703	-11
5	1983	Mar 14	4-13	-13.9703	-10.8752 = -24.8455	-11
6	1984	Mar 4	(2.) Apr 1	-24.8455	-10.8752 = -35.7207	-11
				-35.7207	+ 29.530588 = -6.19011	-11 +30= +19
7	1985	Mar 21	4-20	-6.190112	-10.8752 = -17.065312	-11
8	1986	Mar 11	4-09	-17.065312	-10.8752 = -27.940512	-11
9	1987	Mar 1	(3.) Mar 29	-27.940512	-10.8752 = -38.815712	-11
				-38.815712	+29.530588 = -9.28512	-11 +30= +19
10	1988	Mar 18	4-16	-9.285124	-10.8752 = -20.160324	-11
11	1989	Mar 8	(4.) Apr 8	-20.160324	-10.8752 = -31.035524	-11
				-31.035524	+29.530588 = -1.50493	-11 +30= +19
12	1990	Mar 26	4-25	-1.504936	-10.8752 = -12.380136	(228 x 6 after 622 AD)
13	1991	Mar 16	4-14	-12.380136	-10.8752 = -23.255336	-11
14	1992	Mar 5	(5.) Apr 3	-23.255336	-10.8752 = -34.130536	-11
				-34.130536	+29.530588 = -4.59994	-11 +30= +19
15	1993	Mar 24	4-21	-4.599948	-10.8752 = -15.475148	-11
16	1994	Mar 12	4-10	-15.475148	-10.8752 = -26.350348	-11
17	1995	Mar 01	(6.) Mar 31	-26.350348	-10.8752 = -37.225548	-11
				-37.225548	+29.530588 = -7.69496	-11 +30= +19
18	1096	Mar 19	4-17	-7.69496	-10.8752 = -18.57016	-11
19	1997	Mar 08	(7.) Apr 9	-18.57016	-10.8752 = -29.44536	-11
				-29.44536	+29.530588 = +.08522	-11 +29= +18

<p style="text-align:center">Note on TABLE 6: (-11 x 19= -132) and (+19 x 7 = +133)</p>

In 166 AD, the latest 19-year sequence began on 4-19, and Pentecost would be about 91 days later, on about 6-20, the last day of spring (against the Gregorian calendar). This sequence would repeat until a calendar correction on 3-21, 394 AD, which would return the sequence back to 3-21 and prevent Pentecost from ever being in the summer. This correction would be needed again every 342 years, in 737, 1078, 1420, 1762 and 2104 AD.

The latest Passover would be on about 5-03 (4-19 + 14), and earliest would be on about 4-03 (3-21 + 14).

In contrast, the Easter cycle began years as early as 15 days before the spring equinox, and Passover could be as early as one day before the equinox on 3-21 (against the Gregorian calendar).

TABLE 7. 228-Year Cycle 3957 BC to 622 AD, Continued

	1141	1369	1595	1825	2053	2281	2509	2737		
	228	228	228	228	228	228	228	19		
AD				1368 yrs						
	394	622	850	1078	1306	1534	1762	1990	1990	2009
0	4/1	4/2	4/3	4/4	4/5	4/6	4/7	4/8	1989	2008
1	3/21	3/22	3/23	3/24	3/25	3/26	3/27	3/28	1990	2009
2	4/8	4/10	4/11	4/12	4/13	4/14	4/15	4/16	1991	2010
3	3/28	3/30	3/31	4/1	4/2	4/3	4/4	4/5	1992	2011
4	4/16	4/18	4/19	3/21	3/22	3/23	3/24	3/25	1993	2012
5	4/5	4/7	4/8	4/8	4/10	4/11	4/12	4/13	1994	2013
6	3/25	3/27	3/28	3/28	3/30	3/31	4/1	4/2	1995	2014
7	4/13	4/15	4/16	4/16	4/18	4/19	3/21	3/22	1996	2015
8	4/2	4/4	4/5	4/5	4/7	4/8	4/8	4/9	1997	2016
9	3/22	3/24	3/25	3/25	3/27	3/28	3/28	3/29	1998	2017
10	4/10	4/12	4/13	4/13	4/15	4/16	4/16	4/17	1999	2018
11	3/30	4/1	4/2	4/2	4/4	4/5	4/5	4/7	2000	2019
12	4/18	3/21	3/22	3/22	3/24	3/25	3-25	3/26	2001	2020
13	4/7	4/8	4/9	4/10	4/12	4/13	4/13	4/14	2002	2021
14	3/27	3/28	3/29	3/30	4/1	4/2	4/2	4/3	2003	2022
15	4/15	4/16	4/17	4/18	3/21	3/22	3/22	3/23	2004	2023
16	4/4	4/5	4/6	4/7	4/9	4/10	4/10	4/11	2005	2024
17	3/24	3/25	3/26	3/27	3/28	3/30	3/30	4-1	2006	2025
18	4/12	4/13	4/14	4/15	4/16	4/18	4/18	3-21	2007	2026
19	4/1	4/2	4/3	4/4	4/5	4/7	4/7	4/8	2008	2027

The above TABLES 4, 5, 7 have been gleaned from http://www.friesian.com/calendar.htm, and I'm still trying to comprehend the details found on this site. It takes patience and willingness to read and reread what is made available to the public.

Problem: 235 Moons Slightly Longer than 19 Years

1.) The tropical calendar has 365 days and needs a leap year every four years to make it 365.25 days. It subtracts one day every 128 years against the spring equinox and the seasons.

It equals 365.2421988 days (365 +.25 −1/128 = 365.2421988 days per solar year)

2.) The Julius Caesar calendar had 365 days and needed a leap year every four years to make it 365.25 (365 + .25 = 365.25). It was one day too long every 128 years and needed to be corrected by the Gregorian calendar.

3.) The Gregorian calendar ignores the 128-year correction and simply deletes three leap days every 400 years: (365 +.25 -3/400 = **365.2425**), that is, (365 +.25 -.0075 = **365.2425**), that is, (365.2500 − 3/400 = **365.2425**).

(365 + .25 = 365.25). It has 83,275.29 days in 228 years and needs one day every 228 years to match the Metonic.

4.) The Metonic lunar-solar calendar has 365.2467463 days per solar year. The number of days in 19 years can be compared with the days in 235 moons in 19 years. It has 83,276.256 days in 228 years.

AD	New Moon		Full Moon		AD	Full Moon		
31	Apr 10	Tue	Apr 25	Wed	31	Apr 25	Wed	Crucifixion in 31 AD
+228					+342			
259	Apr 10	Sun	Apr 24	Sun	373	Apr 23	Tue	
+228								
487	Apr 09	Thur	Apr 23	Thur				
+228					+342			
715	Apr 08	Mon	Apr 23	Tue	715	Apr 23	Tue	
+228								
943	Apr 07	Fri	Apr 23	Sun				
+228					+342			
1171	Apr 07	Wed	Apr 21	Wed	1057			
+228					+342			
1399	Apr 06	Sun	Apr 20	Sun	1399	Apr 20	Sun	1368 yrs (228 x 6) (342 x 4)
+228								
1627	Apr 05	Thur	Apr 20	Fri				
+228					+342			
1855	Apr 04	Mon	Apr 20	Wed	1741	Apr 20	Mon	
+228					+342			
2083	Apr 17	Sat	Apr 2	Fri	2083	Apr 2	Fri	
+228								
2311	Apr 20	Sun	Apr 4	Tue				
+228					+342			
2539	Apr 20	Mon	Apr 4	Sat	2425	Apr 3	Tue	
+228					+342			
2767	Apr 20	Thur	Apr 6	Thur	2767	Apr 6	Thur	1368 yrs (228 x 6) (342 x 4)
+228								
2995	Apr 21	Tue	Apr 7	Tue				
+228					+342			
3223	Apr 20	Sat	Apr 7	Fri	3109	Apr 7	Wed	
+228					+342			
3451	Apr 24	Thur	Apr 8	Tue	3451	Apr 8	Tue	

TABLE 8. 228, 342 and 1368-year Cycles
(Based on timeanddate.com) (Israel/Show Calendar)

TABLE 9. 19-Year Cycles and Jubilees Found in History		
Years	**19-year Cycle**	**Cycles in Alleged History**
3724	196 x 19	3724 years (532 x 7) from 3761 to 37 BC, from Creation to Herod's capture of Jerusalem. Also equal to 196 19-year cycles or 4 jubilees x 19 (or 235 moons times 196 = 46,060 moons).
931	49 x 19	931 years are equal to 968 BC (the temple) to 37 BC (Herod's capture of Jerusalem). (3724 equals 532 x 7 or 931 x 4). Adam allegedly died in his 931st year, during a jubilee.
532	28 x 19	532 years are equal to 4 sabbaticals or 7 leap years times 19, the lunar cycle (28 x 19 = 532). After 532 AD, this was called the Easter Cycle. It was one day longer than the Julian calendar of 365.25 days every 128 years.
437	23 x 19	5405 moons (235 x 437) are equal to 159,610.833 days. 437 years are equal to 159,612.837 days.
323	17 x 19	
304	16 x 19	304 years equal 4 Calippic Cycles of 76 years each. Calippus added one day in the 304th years. 235 x 16 moons are 1.37 days shorter than 304 years.
228	12 x 19	228 years equal 83276.26 days. 2820 moons (235 x 12) are equal to 83275.22 days.
133	07 x 19	133 years are divisible by 7-year sabbaticals and 19-year cycles.
95	05 x 19	There are 95 years between 532 and 437 years.
76	04 x 19	Calippic Cycle by Hipparchus: Tropical year is 1/300th of a day shorter than 365.25-day years.
19	01 x 19	Nabonasser's calendar, Ptolemy's Almagest, Metonic Cycle = 19 years = 235 moons = 304 yrs = 111035 days / 3760 moons = 29.53058510638298 days 228 yrs = 83275.22 days / 2820 moons = 29.53053021985815603 days 437 yrs = 159612.833 days / 5405 moons = 29.53058889916744 days One synodic month = 29.530588853 days

TABLE 10. Converting 4-20 into 3-21 after every 342 years

228 yrs	228 yrs			
3-30	**3-31**	4-01	4-01	3-21 to 3-31 = 10 days
		+19	-11	
4-18	4-19	**4-20**	**3-21**	< With the delay: 4-20 to 3-21
		-11	+19	19 delayed or 19 and 11 reversed
4-07	4-08	4-09	4-09	< Without the delay

This chart illustrates how the mismatch between the 12 x 19-yr. Gregorian calendar years and the 235 x 12 lunations in 228 years. The Gregorian has 83,275.29 days in 228 years and needs one day every 228 years to match the Metonic.

The Metonic lunar-solar calendar has 365.2467463 days per solar year. The number of days in 19 years can be compared with the days in 235 moons in 19 years. It has 83,276.256 days in 228 years (83,276 - 86,275 = 1).

TABLE 11. Conversion from Julian Calendar to Gregorian Calendar

Julian Calendar	Revised Gregorian Calendar
1st New Moon (Nisan 1)	1st New Moon (Nisan 1)
in each 228 years (19 x 12)	in each 228 years (19 x 12)

Correction in AD 394

Era of Nabonassar	747	4-15	
	519	4-16	
	291	4-17	
	BC 63	4-18	
3-21	AD 166	4-19	Delay from 4-19 to 3-21
3-20	394	3-21	
3-19	622	3-22	1368 yrs
3-19	850	3-23	
3-18	1078	3-24	
3-17	1306	3-25	
3-16	1534	3-26	
3-16	1762	3-27	
3-15	1990	3-28	1368 yrs

13 days of correction
since 747 BC

The Julian loses one day every 128 years against the tropical solar calendar.
The Gregorian loses one day every 3300 years against the tropical solar calendar.

Full Moons on the Equinox (on 3-21)

Debates arose over when a calendar should begin a 19-year cycle. To simplify matters, we'll refer to the Gregorian equinox (3-21) instead of the Julian equinox (3-23).

1. One side preferred to align a <u>new moon</u> with the spring equinox, and the first full moon (for Passover) would be 14 days later, on April 4. The next new moon would be on April 19, and the latest full moon (for Passover) would be 14 days later, on May 3. In 166 AD, the 19-years began on the latest date, on 4-19, and this would place Pentecost on about March 20, on the last day of spring and would be on the first day of summer. Therefore, the Gregorian calendar needs correction in 394 AD by changing 4-20 into 3-21 (as in TABLE 4).

2. The other side preferred to align a <u>full moon</u> with the spring equinox (March 21) after the year had begun 14 days earlier. The earliest Passover could be on the equinox, March 21, in which case, the next full moon would be 29 days later, on April 19. All full moons would be between March 21 and April 19. This often placed the Passover very early in the grain harvest season.

If the 19-year cycle began 14 days before the full moon that aligned with the spring equinox, then this sets up a pattern for 19-year sequence for all full moons. Simply substitute the <u>same pattern used for the calendar of new years beginning on the spring equinox</u>. On the Gregorian calendar, this sequence would be on 3-21, 4-09, 3-29, 4-17, 4-05, 3-25, 4-13, 4-02, 3-22, 4-10, 3-30, 4-18, 4-07, 3-27, 4-15, 4-04, 3-24, 4-12, and 4-01.

Moreover, the earliest rabbinical calendar year likely began on Nisan 1 (on March 6) 177 days before the civil fall calendar began on Tishri 1 (August 24). This helps explain why the year one of the Hebrew calendar is year 9 of the

Babylonian calendar. One begins with the full moon on the equinox. The other begins with the new moon on the equinox. One begins in the fall. The other begins in the spring.

Eventually, the Julian calendar was found to have gained one day against the seasons (the equinox) every 128 years since the Nicean Counsel in 325 AD and was corrected by using the Gregorian calendar in the 13 colonies of America after 1752 AD, in the time of George Washington.

TABLE 12. Date 31 AD began in Spring: April 10 (Invisible New Moon in Conjunction with Earth and Sun)
Crucifixion on Wednesday, April 25, 31 AD (Eclipse of the Moon)
(NASA solar eclipses underlined in red)

	747	519	343	291	63 BC	63 BC	44 BC	25 BC	6 BC	14 AD	166 AD	394 AD	622 AD
0	3/27	3/28	3/28	3/29	3/30						3/31	4/1	4/2
1	4/15	4/16	4/16	4/17	4/18	63 4-19	44 4-18	25 4-18	06 4-18	14 4-18	4/19	3/21	3/22
2	4/04	4/05	4/05	4/06	4/07	62 4-08	43 4-08	24 4-07	05	15	4/8	4/8	4/10
3	3/24	3/25	3/25	3/26	3/27	61 3-27	42 3-28	23 3-27	04	16	3/28	3/28	3/30
4	4/12	4/13	4/13	4/14	4/15	60 3-16	41 3-16	22	03	17	4/16	4/16	4/18
5	4/1	4/2	4/2	4/3	4/4	59	40	21	02	18	4/5	4/5	4/7
6	3/21	3/22	3/22	3/23	3/24	58	39	20	01	19	3/25	3/25	3/27
7	4/8	4/9	4/10	4/11	4/12	57	38	19	AD	20	4/13	4/13	4/15
8	3/28	3/29	3/30	3/31	4/1	56	37 BC	18	01	21	4/2	4/2	4/4
9	4/16	4/17	4/18	4/19	3/21	55	36	17	03	22 4-19	3/22	3/22	3/24
10	4/5	4/6	4/7	4/8	4/8	54	35	16 4-09	04	23 4-09	4/9	4/10	4/12
11	3/25	3/26	3/27	3/28	3/28	53	34	15 3-29	05 3-28	24 3-28	3/29	3/30	4/1
12	4/13	4/14	4/15	4/16	4/16	52 4-17	33 3-17	14 3-18	06 3-18	25 3-18	4/17	4/18	3/21
13	4/2	4/3	4/4	4/5	4/5	51 3-07	32 3-07	13 3-06	07	26	4/6	4/7	4/8
14	3/22	3/23	3/24	3/25	3/25	50	31	12	08	27	3/26	3/27	3/28
15	4/10	4/11	4/12	4/13	4/13	49	30	11	09	28	4/14	4/15	4/16
16	3/30	3/31	4/1	4/2	4/2	48	29	10	10	29	4/3	4/4	4/5
17	4/18	4/19	3/21	3/22	3/22	47	28	09	11	30	3/23	3/24	3/25
18	4/7	4/8	4/8	4/9	4/10	46	27	08	12	31AD	4/11	4/12	4/13
19	3/27	3/28	3/28	3/29	3/30	45 4-29	26 4-30	07 4-29	13	32 4-28	3/31	4/1	4/2

The above TABLE 11 has been gleaned from http://www.friesian.com/calendar.htm, and I'm still trying to comprehend the details found on this site. It takes patience and willingness to read and reread what is made available to the public.

After 63 BC, the 19-year sequence remains the same until 166 AD as in TABLE 11. This means that the 18th year of the Babylonian/Nabonassar calendar began on April 10 from 63 BC to 166 AD. The NASA record shows there was a new moon on April 10, 31 AD, but it was not likely observable as a new crescent until April 12, 31 AD, and this would explain why a lunar eclipse was on April 25, 31 AD, during the full moon.

The NASA record also confirms there was a solar eclipses at the beginning of a 19-year cycle. These are underlined and in red. Note that the Hebrew 19-year cycle ends in 37 BC, whereas the Babylonian 19-year cycle lines up with the eclipse cycle.

In year one: 63 BC: 4-19; 44 BC: 4-18; 25 BC: 4-18; 6 BC: 4-18; 14 AD 4-18.
In year two: 62 BC: 4-08; 44 BC: 4-08; 25 BC: 4-07.
In year three: 61 BC: 3-27; 42 BC: 3-28; 25 BC: 3:27.
In year four: 60 BC: 3-16; 44 BC: 3-16.
In year twelve: 63 BC: 4-17; 44 BC: 3-17; 25 BC: 3-18; 6 BC: 3-18; 14 AD: 3-18.
In year thirteen: 63 BC: 3-07; 44 BC: 3-07; 25 BC: 3-06.
In year nineteen: 63 BC: 4-29; 44 BC: 4-30; 25 BC: 4-29; 14 AD: 4-28.

Moreover, NASA has a new moon in conjunction with the earth and sun on April 10, 31 AD, but the full moon lunar eclipse was on Wednesday, April 25, 31 AD, which many claim to be the date of the Passover Crucifixion. The Nabonassar cycle of 1368 years (228 x 6) (342 x 4) coincides with the Islamic 30-year cycle (after 1368 years), and these cycles repeat after 1990 AD. Year 1990 AD is year 2737 (1368 plus 1368) years after 747 BC. Year 2016 AD is 2763 years after 747 BC and 2052 years (228 x 9) after 37 BC, when Herod captured Jerusalem.

The Metonic luni-solar calendar, by adding seven moons every 19 years, has a mean value of 29.530588 days and 365.2467463 days per year. The mean tropical year has 365.24219878 days. By delaying an intercalation (delaying the 19-year cycle) one day every 342 years, the calendar would lose a month (29 days) every 6498 years, and this would reduce the Metonic year to 365.2422018 days and accurate within a day in 336,700 years. The formula is $365 + ¼ - 1/300 – 29/6498$, and it produces a year of 365.2422038 days.

Converting Julian dates to the Gregorian Calendar

Of course, Hebrew calendar is tied to the spring and fall seasons and must not, therefore, stray too far away from the spring equinox of the solar calendar. Lunar cycles are meaningless unless we adjust them to the spring and fall seasons. This is done by converting the cycles to a solar calendar, that is, the Julian or Gregorian calendars.

The rabbis of the fourth century finally attached the Hebrew calendar to the Julian calendar, which loses a day every 128 years against a true solar year. To repair the Julian calendar, the Gregorian calendar subtracted three days every 400 years instead of a day every 128 years.

The formula for the Julian calendar is: 365 +.25   = 365.25 days.

The formula for the Gregorian calendar is: 365 +.25 –3/400 = 365.2425 days. It simply ignores the Julian 128-year correction.

TABLE 3a uses the Gregorian calendar and illustrates the 49-year cycles for over 3920 years, from 3957 BC to 37 BC. It also shows the 19-year cycles from 3957 BC to 747 BC, which can be compared with NASA data for new and full moons and actual observations of the lunar months during and after the Era of Nebonassar, which began in 747 BC, 169 x 19 years after 3958 BC: http://antipas.net/heb_cal_3758.htm. The observations were also preserved in the chronology of Ptolemy, priest of Egypt and probably available to the rabbis in converting their calendar to the Julian in the fourth century AD.

The table illustrates how twelve moons are 11 days shorter than a solar year and 132 days shorter in 12 years (11 x 12 = 132). Therefore, 30 days (minus 11 = 19 days) need to be inserted (intercalated) seven times in 19 years. This makes 133 days added (19 x 7 = 133), one day too many in 19 years. Therefore, the month added in the 19th year was 29 days instead of 30 (-11 +29 = 18 days added).

Instead of attaching the lunar cycles to the rabbis date for creation (3761 BC), the Babylonians attached the cycles to March 21 (the spring equinox, when the nights and days are equal).

Note on TABLE 4, Column 394 AD

19-year cycle and Easter cycle of Dionysius began in 532 AD with the Passover full moons on 4/05, 5/25, 4/13, 4/02, 3/22, 4/10, 3/30, 4/18, 4/07, 3/27, 4/15, 4/04, 3/24, 4/12, 4/01, 3/21, 4/09, 3/29, 4/17 and 4/05. After the Passover, the Wave Sheaf Offering (Easter Sunday) was 50 days before Pentecost Sunday. The first Sunday after Passover is easily found with the following tool: http://www.timeanddate.com/ .

These Passover dates are 14 days after the new moons listed from the 5th year of the 394 AD column down to 626 AD in the 4th year of the 394 AD column. Notice also that the 532-year cycle also existed from 3761 BC (from the Jewish date of creation) down to 37 BC (when Herod captured Jerusalem (after 532 x 7 years after creation). This period is 532 times 7 or 76 jubilees.