The Calculated Hebrew Calendar Made Simple

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Introduction

We live and work in a very complex world. Among the seven billion people living on earth today, there are those who have sent machines into the universe to skirt the rings of Saturn and to rove and map the surface of Mars. Others have developed computer technology so incredibly minute as to be viewed only by a microscope. And by use of nanotechnology, man dreams of computers so small as to float about unseen amid the molecules of air.

In this busy and complex world, God has given us the Appointed Times to be days of festive worship and rejoicing. But for many, the calculated Hebrew Calendar is so complex that it has led to wrangling debates ending in frustration. Such things ought not to be. It is possible, in simple terms, to understand the workings of the calendar.

Like most of you, and like the world renowned newscaster, Bill O'Reilly, I'm a simple man among simple folks. By early childhood I came to realize that I am a being of average intelligence, unable to traverse many mountaintops in this difficult and complex world. By age ten I understood that I would never be able to

conquer the heights of the future by a direct approach, going over the top; therefore I must search for ways around, though they be many times longer, to surmount the heights that rise before me.

Seventeen years in the writing, like a trip around the rings of Saturn and back, I have circled the heights of the Hebrew Calendar, exploring its complexities. Had I not taken this journey, I would never have arrived at the doorstep of simplicity. Now, finally, I can explain in simple terms how the Hebrew Calendar works.

In essence, all the calculations of the Hebrew Calendar have been reduced to a few simple pages. All arguments and opinions heretofore are pretty much null and void. They are water under the bridge of time.

Zechariah 4:7 and
The Four Corners of Time

Every calendar in the history of man has attempted to measure time by either the solar or the lunar cycle. The Hebrew Calendar is a lunisolar calendar, meaning that it is based on the lunar cycle and aligned with the seasons of the solar cycle.

How can we know the Hebrew Calendar is accurate when there are so many variables? There are twenty-four hours in each day, but the divisions of the day are equal at only two points in the year. The months are no rock of stability as they are based on the lunar cycle, which is not a fixed period of time. The moon wobbles about, expanding and contracting its course with a variance from about 29.25 to 29.8 days, making an average of 29.53 days for a lunar cycle.

The solar year is 365 calendar days, but the solar cycle is actually 365.2425 days. The lunar year is also fractured. If it is to be aligned with the sun for maintenance of the seasons, it must be measured in rotations of 12 and 13 months, resulting in common years of 354.36 days (29.53 x 12) and leap years of 383.89 days (29.53 x 13).

In view of these astronomical facts, it may seem that there is no absolute standard by which to measure time in whole numbers. This is what some may think, but it is not the case.

The truth is that amid everything that is either variable or fractured, there is one standard that has never changed from the time of creation. That eternal standard is the weekly cycle of seven days, and by that standard all other circles of time must be measured—the cycle of the moon, the cycle of the sun, and the swirls of the galaxies.

Calculated Hebrew Calendar, O Great Mountain of complexity before us! By use of little more than the capstone of the seven-day week and its four corners, you shall become a plain of simplicity.

It is the many variables of fracture in astronomical cycles that necessitated the complex design of the calculated Hebrew Calendar. Yet despite all these, by the simple use of seven days God has provided a means of absolute stability for the determination of His Appointed Times.

How can we remove the seals from the calculations of the Hebrew Calendar so that the simplicity of the rotating cycle of the week with its seven days may appear before the eyes of all? How can we level the slopes, removing the complexities and unraveling the mysteries?

We can do this by adding line upon line, precept upon precept, here a little, there a little. Using this step-by-step approach, we will find the simplicity that is contained within the seven-day week and its four points.

God states in Psalm 104:19 that He has given the moon for the Appointed Times. Coupling the movement of the moon in its orbit with the circle of the seven-day week, we have the basic building blocks of His order and design.

Building Block #1:
The Cycle of the Moon

As the moon circles the earth in its orbit, it is exposed to the gravitational forces of other planets both great and small. Depending on the moon's position, these gravitational pulls can either slow the moon down or speed up its movement, thus the length of time it takes the moon to complete its cycle varies from 29.25 to 29.80 days.

Man long ago discovered that the *average* (nominal or mean) cycle of the moon is 29 days 12 hours and 793 parts (29.53 days rounded off to the nearest one hundredth). This is the number used to calculate the Hebrew Calendar. Since no calendar can accurately predict the exact length of every month in the passing of time, the use of the *average* number of 29.53 is, by any evaluation, both logical and necessary.

Because months cannot consist of partial days, the fractional number of the lunar cycle (approximately 29½ days) is resolved by alternate months of 29 and 30 days, which works well to keep the months aligned with the lunar cycle.

To keep the Appointed Times in their seasons, the months must also be aligned with the solar cycle. As stated previously, keeping the lunar months synchronized with the solar seasons requires both 12-month common years and 13-month leap years. Leap years are needed because a 12-month lunar year falls eleven days short of the solar year, which in three years adds up to a loss of one month. To compensate for the shortfall, a 13th month is periodically added to the year.

The Hebrew Calendar uses a fixed sequence of common years (12 months) and leap years (13 months) in each period of 19 years. This is the number of years it takes for the sun and the moon to return to their same positions in the heavens (within two hours of each other). The 19-year astronomical cycle is often referred to as the Metonic cycle.

Each Metonic cycle has 12 common years and 7 leap years. This sequence of 12-month years and 13-month years enables the calendar to keep pace with the movement of the sun and the moon during each 19-year cycle.

The actual length of lunar years will fluctuate due to variations in the moon's orbit, thus the *average* length of common years and leap years is used as a basis for calculation. A problem arises, however, because both averages contain fractions of days—354.36 days for common years and 383.89 days for leap years. Since years must be counted in whole days, how can these fractions be resolved in order to work out an accurate calendar?

To calculate the length of each year in the 19-year cycle, the fractional number of days in common years of 12 months and in leap years of 13 months must be converted to whole days. The fractions of days can then be factored in by adjusting the number of whole days in each year.

The *average* lunar cycle for common years is 354.36, but because the actual lunar cycle fluctuates, some common years will be greater and some will be less. The Hebrew Calendar accommodates these fluctuations by using three different lengths for common years: 353, 354 and 355 days. This combination of year lengths keeps the calendar aligned with 12-month lunar years.

In like manner, to adjust the *average* number of 384.89 days in leap years to the fluctuations of the lunar cycle, the calendar uses 383, 384 and 385 days. This combination of greater and lesser year lengths keeps the calendar aligned with 13-month lunar years.

It is evident that the six different year lengths of the Hebrew Calendar are mathematically based. Common years are 353 days to 355 days, and leap years are 383 to 385 days. These year lengths are absolutely necessary to keep the calendar aligned with the average 12-month lunar year and the average 13-month lunar year.

In addition, the number of days in each calendar year is limited so that the total number of days in 19 calendar years remains aligned with the end of the 19-year cycle in the heavens.

How does the calendar regulate the number of days in each common year and each leap year?

The answer lies within a line composed of seven increments (a week of seven days), which is curled and joined at a logical point of reference to form a circle.

Building Block #2:
The Circle of the Week

The Hebrew Calendar regulates the number of days in common years and leap years by limiting the declaration of Tishri 1 to specific days in the week. By this

means, the calculations that are based on the *average* length of common years and leap years can be adjusted as needed to keep the dates for the Appointed Times aligned with the actual position of the moon.

Due to the fraction in the *average* length of the lunar cycle these adjustments are a necessary part of the calendar. If the calculations that are based on the *average* lunar cycle begin to lag behind the actual cycle of the moon in a common year or leap year, the declaration of Tishri 1 will fall short of the correct time. To prevent this from happening, the calculated date is adjusted by moving the declaration of Tishri 1.

This is what is happening when the rules of the Hebrew Calendar change the day of the declaration. The rules automatically go into action whenever the date of the declaration needs to be adjusted. The need is obvious because the calculated date will fall outside the limits of the weekly circle. By adjusting the declaration of Tishri 1, the rules of the calendar ensure that all the Appointed Times in the year are accurately dated.

No one questions the day that is added to the month of February once every four years to keep the modern calendar aligned with the solar cycle. Why question the adjustments in the Hebrew Calendar that are keeping the Appointed Times aligned with the lunar cycle?

The sequence of the six different year lengths in each 19-year cycle works well to keep the calendar aligned with the *average* lunar cycle. However, the number of days in some years will need to be adjusted due to the fractional variations in the length of the lunar cycle. The weekly circle of days is the method that the calendar uses to make the necessary adjustments.

The weekly circle of days is the forward rotation of Tishri 1 from one year to the next. The six different lengths of years in the Hebrew Calendar move the declaration of Tishri 1 from 3 to 7 days forward in the order of the weekly cycle.

A forward movement of 3 days between two successive declarations of Tishri 1 occurs with a year of 353 days. This happens because the minimum year length of 353 days divided into weeks is 353/7 = 50.428 weeks. The fractional 428 hundredths of a week (a little less than half a week) adds 3 days to the weekly cycle as illustrated below:

Tishri 1, 33 AD (a 353-day year)	Monday	
	Tuesday	1
	Wednesday	2
Tishri 1, 34 AD	Thursday	3

The 3-day forward rotation in the weekly cycle is produced only by a 353-day year, which is the minimum year length in the Hebrew Calendar. This year length was not pulled from a rabbi's imagination. It is the mathematical minimum that is based on the average length of a 12-month lunar year.

Remember, 354 is the closest whole number to the *average* 354.36-day lunar year, and since we must count by whole numbers, the nearest whole day is 354. The combination of a greater number (355) and a lesser number (353) must be used to attain the whole number average of 354 days—355 days+353 days = 708 days, and 708 days/2 = 354 days.

A common year of 354 days will produce a 4-day forward rotation in the declaration of Tishri 1 (354/7 = 50.5714 days). The .5714 (a little more than one-half week) adds 4 days to the weekly cycle:

Tishri 1, 32 AD (354-day year)	Thursday	
	Friday	1
	Saturday	2
	Sunday	3
Tishri 1, 33 AD	Monday	4

A common year of 355 days will produce 5 days of forward rotation in the declaration of Tishri 1 (355/7 = 50.714 days). The .714 adds 5 days to the weekly cycle:

Tishri 1, 30 AD (a 355-day year)	Saturday	
	Sunday	1
	Monday	2
	Tuesday	3
	Wednesday	4
Tishri 1, 31 AD	Thursday	5

A leap year of 383 days will also produce 5 days of forward rotation in the declaration of Tishri 1 (383/7= 54.714 days). The .714 adds 5 days to the weekly cycle:

Tishri 1, 28 AD (a 383-day year)	Thursday	
	Friday	1
	Saturday	2
	Sunday	3
	Monday	4
Tishri 1, 29 AD (a 354-day year)	Tuesday	5

A leap year of 384 days will produce 6 days of forward rotation in the declaration of Tishri 1 (384/7 = 54.857 days). The .857 (most of a week) adds 6 days to the weekly cycle:

Tishri 1, 42 AD (a 384-day year)	Tuesday	
	Wednesday	1
	Thursday	2
	Friday	3
	Saturday	4
	Sunday	5
Tishri 1, 43 AD	Monday	6

A leap year of 385 days will produce a forward rotation of 7 days between two successive declarations of Tishri 1. If Tishri 1 falls on Thursday in one year, it will fall on Thursday in the following year also. This maximum forward rotation in the weekly cycle is illustrated below:

Tishri 1, 31 AD (a 385-day year)	Thursday	
	Friday	1
	Saturday	2
	Sunday	3
	Monday	4
	Tuesday	5
	Wednesday	6
Tishri 1, 32 AD	Thursday	7

The declaration of Tishri 1 that follows a year of 385 days will always move forward 7 days because 385/7 = 55 weeks—an exact multiple of sevens. A forward rotation of 6 or 7 days occurs only with a leap year; common years rotate forward by no more than 5 days.

No year length in the Hebrew Calendar will produce less than 3 days or more than 7 days of forward movement in the weekly cycle. Less than 3 days or more than 7 days is mathematically beyond any possibility. It is significant that Tishri 1 declarations for the years of Jesus' infancy and the final year of His physical life were framed by Tuesday (Day 3) and Saturday (Day 7)—the minimum and maximum limits set by the Hebrew Calendar.

The calendar calculations are based on the known average of the lunar cycle of 29.53 days, the nominal length of years that will produce 354 and 384 days, and the seven days of the week, the bedrock of time. All points of this construct are a necessity of mathematical design.

The Mathematical Basis of the Calendar Rules

There is no question that the rules of the Hebrew Calendar are mathematically based when we understand how the forward rotation of Tishri 1 works.

We know that the six different year lengths produce a pattern of forward rotation which limits the declaration of Tishri 1 to specific days in the week. Due to the 3 to 7-day limit, Tishri 1 will never fall on some days in the weekly cycle. This makes it important to know the correct day to begin counting the forward rotation of Tishri 1.

Where in the circle of the week does the count begin, and what are the points of the circle that will produce the precise lunar dates?

The standard for counting the forward rotation of Tishri 1 is recorded in Genesis 1. The weekly cycle begins on Day 1 (Sunday) and ends on Day 7 (Saturday), resuming the count on Day 1 (Sunday). Therefore, for the purpose of counting, Saturday has the value of zero or 7. In the minimum year of 353 days the forward rotation in the week is Day 1, Day 2, Day 3 (Tuesday).

According to the rules of the Hebrew Calendar, Tuesday is a day that is allowed for the declaration of Tishri 1. This is the minimum point of forward rotation in the weekly cycle. A Tuesday declaration of Tishri 1 occurs in only 11.5% of calendar years and falls ONLY in a 354-day or 384-day year. These two year lengths are the *average* lengths of common years and leap years.

Tuesday, the beginning point of the 7 days of forward rotation, is the first corner of the capstone of the week. The next number of days of forward rotation of Tishri 1 is 4 days and occurs at the end of a 354-day year. If a 354-day year begins with a Tuesday declaration of Tishri 1, the declaration in the following year will fall on **Saturday**, another day allowed by the calendar rules. A 355-day year that begins on a Saturday will move the declaration of Tishri 1 forward 5 days to **Thursday,** a day which also is allowed by the calendar rules.

The above declarations of Tishri 1 are all produced by common years (353, 354 and 355 days). Common years will always produce a forward rotation of 3 to 5 days. There are 12 common years in every 19-year cycle, with one or two common years between each leap year.

In leap years, the forward rotation of Tishri 1 is from 5 to 7 days. A 385-day leap year that begins on Thursday will move the declaration of Tishri 1 forward 7 days to **Thursday**. The next year in the 19-year sequence will be a common year. A 354-day common year that begins on Thursday will move the declaration of Tishri 1 forward 4 days to **Monday**.

When we understand that the number of days in each calendar year determines the day of the week on which Tishri 1 will fall, it is clear that there is a mathematical basis for the limits that the calendar rules set on the days that are allowed. Everything points to a line of seven segments (days) which produces a forward rotation of 3 to 7 days, beginning with Tuesday and ending with Monday.

The Monday-Tuesday (Day 2-Day 3) juncture brings the ends of the straight line of seven days together to form a circle. The Monday-Tuesday (2-3) juncture is the only connecting point in the forward rotation of the declaration of Tishri 1.

The sequence of common years and leap years in the Metonic cycle also uses the pattern of 2-3. The 7 leap years in each 19-year cycle are interlaced with the 12 common years in a sequence of 3-3-2-3-3-3-2 as illustrated below. ("C" represents a common year and "L" represents a leap year.)

CCL CCL CL CCL CCL CCL CL
3   3   2   3   3   3   2

10

In both common years and leap years, there are 4 points in the week—Tuesday, Thursday, Saturday and Monday—which adjust the calculation of Tishri 1 to correct the problems that are caused by the fractions in time. This sequence of 12 common years and 7 leap years is absolutely necessary to produce the dates that keep the declaration of Tishri 1 within the boundaries of the 7-day week.

The weekly cycle of seven days is the only constant in the measurement of time, and it is from mathematics based on these seven days that the calendar rules are derived—not from the debates of the rabbis of the calendar court nor from any political or theological declaration. A declaration which argues, for example, that Passover cannot legitimately fall a month after the spring equinox as it does in 2016. It must be remembered that Passover 2016 falls on April 22, a month after the spring equinox of March 20, and does so by the clear and simple logic of calendar mathematics and the 7-day week—not by the declaration of men.

Time, as we have seen, can be viewed as a straight line or rolled into a circle. Months vary from 29.25 to 29.80 days. Calendar years are fractured at 354.36 and 383.89 days. Therefore time has ragged ends that must be cleaned up, which requires that the averaging process be adjusted by the seven days of the week. The Rules of Postponement, which set limitations on the declaration of Tishri 1, are the mathematical formulas that the Hebrew Calendar uses to trim the ragged ends of time.

Postponement Rules 1 and 2

The Molad of Tishri, which is based on the average lunar cycle, sometimes falls on a day of the week that does not fit within the mathematical limits of forward rotation in the weekly cycle. Rule 1 corrects this anomaly by moving the declaration of Tishri 1 to the next allowable day. When the Molad of Tishri falls past 12 noon, the greater part of the day has passed and Rule 2 is activated, moving the declaration of Tishri 1 to the next day. Postponement Rules 1 and 2 serve to adjust the calculated dates, fine tuning the averages in calendar mathematics.

Postponement Rules 3 and 4

There are also years when the Monday-Tuesday juncture falls at a time that would push the declaration of Tishri 1 out of bounds. In such years, Postponement Rules 3 or 4 become active, adjusting the calculated date to fit within the mathematical limitations so that the declaration of Tishri 1 is correct.

All four postponement rules are adjusting the mathematical averages to fit the limitations established by the weekly circle of days, with the outcome being that Day 2 (Monday), Day 3 (Tuesday), Day 5 (Thursday) and Day 7 Saturday) may be declared as Tishri 1, while Day 1 (Sunday), Day 4 (Wednesday) and Day 6 (Friday) are voided to maintain precise accuracy in the calendar dates for Tishri 1.

This is why Sunday, Wednesday and Friday NEVER appear in the calendar dates for Tishri 1. It all has to do with the averaging process and the circle of the 7-day week, which adjusts the calculated dates to compensate for the fractured variables of the cycles of time.

The standard as set by God at the creation of the world is the seven-day week and its 4 corners (days). On the 4th day of the week the cycles of the sun and the moon were created. There are 4 winds, the 4 living creatures, the 4 Gospels and the 4 Passovers of Jesus' ministry—the last being on the 4th day of the week, Wednesday, the day of His crucifixion. The timing was set from the foundation of the world. That is when God ordained 4 days of the week to regulate the declaration of Tishri 1, ensuring accurate dates for His Appointed Times throughout the years, century after century.

The rules of the Hebrew Calendar are not senseless and meaningless inventions of men. They are the standard that God established at creation to accurately map the passing of time. These rules are an essential part of calendar calculations and are automatically triggered when needed to adjust the variables in the lunar cycle.

The FOUR Postponement Rules of the Hebrew Calendar are all based on the weekly cycle of SEVEN days. With respect to both the complexity and simplicity of the Hebrew Calendar, all may be summed up by answering the question in the book of Zechariah, Chapter FOUR and Verse SEVEN: "Who are you, O great mountain?" By the capstone of the 7-day week and its 4 corners, you have become a plain!

Now, by the grace of God, we can understand. In truth, the towering mountain of complexity has been reduced to the flat plain of simplicity.

The Pattern of Forward Rotation of Tishri 1
(The 4 Points of the Weekly Circle)

(4)Monday

(3)Saturday   (1) Tuesday

(2)Thursday
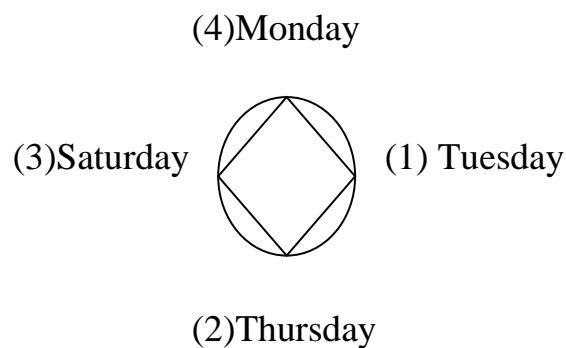
Example of 19-Year
Metonic Cycle
18 BC-1 AD

Metonic Cycle Year	Year BC/AD	Tishri 1 Declaration	Year Common/ Leap	Year Days	Letter Sequence	Numeric Sequence
1	18 BC	Saturday September 26	Common	355	C	
2	17 BC	Thursday September 15	Common	354	C	
3	16 BC	Monday September 4	Leap	383	L	3
4	15 BC	Saturday September 22	Common	355	C	
5	14 BC	Thursday September 12	Common	354	C	
6	13 BC	Monday August 31	Leap	385	L	3
7	12 BC	Monday September 20	Common	353	C	
8	11 BC	Thursday September 8	Leap	385	L	2

Example of 19-Year
Metonic Cycle
18 BC-1 AD

(continued)

Metonic Cycle Year	Year BC/AD	Tishri 1 Declaration	Year Common/ Leap	Year Days	Letter Sequence	Numeric Sequence	
9	10 BC	Thursday September 28	Common	354	C		
10	9 BC	Monday September 16	Common	355	C		
11	8 BC	Saturday September 6	Leap	383	L	3	
12	7 BC	Thursday September 24	Common	354	C		
13	6 BC	Monday September 13	Common	355	C		
14	5 BC	Saturday September 1	Leap	385	L	3	Jesus' Birth Year
15	4 BC	Saturday September 22	Common	353	C		
16	3 BC	Tuesday September 10	Common	354	C		
17	2 BC	Saturday August 30	Leap	385	L	3	
18	1 BC	Saturday September 18	Common	355	C		
19	1 AD	Thursday September 8	Leap	383	L	2	

The Rules of Postponement

Postponements are part of the process of calculating the new moon day of Tishri. After calculating the Molad, the following requirements must be met before the declaration of Tishri 1 is made.

Rule 1:   When the Molad of Tishri or advancement occurs on a Sunday, Wednesday, or Friday, the declaration of Tishri 1 is advanced one day to a Monday, Thursday or Saturday (Sabbath) respectively.

Rule 2:   When the Molad of Tishri occurs at noon (18 hours 0 parts) or later, the declaration of Tishri 1 is advanced to the next day.

Rule 3:   When the Molad of Tishri of a common year falls on a Tuesday, at or after 9 hours and 204 parts, the declaration of Tishri 1 is advanced to Wednesday. The application of Rule 1 advances the declaration one more day to Thursday.

Rule 4:   When the Molad of Tishri of a common year immediately following an intercalary year occurs on a Monday, at or after 15 hours and 589 parts, the declaration of Tishri 1 is advanced to Tuesday.

The Months of the Hebrew Calendar

Name of Month	Roman Month
Nisan	March-April
Iyar	April-May
Sivan	May-June
Tammuz	June-July
Ab	July-August
Elul	August-September
Tishri	September-October
Marcheshvan	October-November
Kislev	November-December
Tebeth	December-January
Sh'bat	January-February
Adar	February-March
V'Adar	

Glossary of Terms

Note: All astronomical definitions are taken from Norton's 2000.0 Star Atlas and Reference Handbook.

Astronomical conjunction the point in time during the dark phase of the moon, when the earth, moon and sun line up on the same axis. The astronomical conjunction is not the Molad which follows soon after this conjunction during the dark of the moon.

Astronomical new moon the moon's phase at total darkness. See also **dark of the moon**.

Autumnal equinox the point where the sun crosses the celestial equator moving southward, about September 23 each year

Common year any one of three types of years in the Hebrew Calendar; a deficient common year contains 353 days, a regular common year contains 354 days and a perfect common year contains 355 days. See also **leap year**.

Conjunction See **astronomical conjunction**.

Dark of the moon the totally dark phase of the moon. Referred to by astronomers as the "new moon."

Equinox   the time when the sun crosses the equator, making the length of day and night equal

Fall Equinox See **autumnal equinox**.

Greenwich Mean Time (GMT) the mean solar time at the longitude of Greenwich, counting from midnight. See also **Universal Time (UT)**.

Jerusalem time (JT) the mean solar time at the longitude of Jerusalem, counting from midnight. Expressed in hours and minutes; (i.e., 7:45 PM). Expressed in Hebrew Calendar time (19:35, that is, 12:00 plus 7:35 hours equals 19:35).

Julian Date (JD) a system of dates used by astronomers that counts the number of days that have elapsed since a given starting date; Julian dates are reckoned from Greenwich noon and are given in decimal form. (For example, 2000 January 1 at Greenwich noon is JD 2451545.0.) Not the same as Julian Calendar.

Intercalary year a year with a thirteenth month, specifically, years 3, 6, 8, 11, 14, 17, 19 of each 19-year cycle. See also **leap year**.

Latitude the angular distance, measured in degrees, north or south of the equator

Leap year any of three types of years in the Hebrew Calendar; a deficient leap year contains 383 days, a regular leap year contains 384 days and a perfect leap year contains 385 days. See also **common year**.

Longitude the angular distance, measured in degrees, east or west of the prime meridian of Greenwich.

Lunation the time taken by a complete cycle of phases of the moon, as in one new moon to the next. A lunation lasts 29.53 days; it is the same as a synodic month.

New moon of Scripture is the minute invisible crescent that forms at the "rebirth of Molad" of the moon at the beginning of each new lunar cycle during the dark of the moon.

Metonic cycle the period of 19 calendar years (6939.6 days) after which the moon's phases recur on the same day of the year. There are 235 lunations in a Metonic cycle.

Molad the mean or average conjunction of the earth, moon and sun; its mean or average length is 29.53059 days. The *Molad* is not the same as the astronomical conjunction but is the "rebirth" of the lunar cycle during the dark of the moon. See also **synodic month**.

Part a measurement of time in the Hebrew Calendar equating to $3^{1/3}$ seconds. There are 18 parts to a minute and 1040 parts to an hour.

Postponement a one or two day adjustment to the calculation of the Molad of Tishri. The Rules of Postponement enable the process of calculating the declaration of the new moon of Tishri 1 to achieve the greatest degree of accuracy in relationship to the lunar cycle.

Spring Equinox See **vernal equinox**.

Synodic month the interval between successive new moons. It is also known as a lunation. Its mean or average length is 29.53059 days, but the actual value can vary between 29¼ and 29¾ days.

Time Zones the 24 divisions of the earth, each 15 degrees broad, with the prime zone centered on the Greenwich meridian. Time in the zones to the east of Greenwich is ahead of GMT, while zones to the west of Greenwich are behind GMT. Jerusalem is east of Greenwich and ahead of Greenwich time by two hours.

Universal Time (UT) the name given to Greenwich Mean Time (GMT) in 1928 for scientific purposes.

Vernal equinox the point where the sun crosses the celestial equator moving northward, about March 21 each year.