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SIGNIFICANCE OF THE LUNAR WEEK

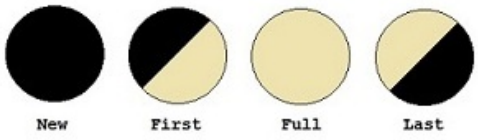
A-Quest-for-Creation Answers

Last Revision: February 19, 2015 (5)

CHAPTER 1
THE LUNAR WEEK

Lunar-quarter days are marked on many, if not most, of the calendars and almanacs that are published throughout the Western world. Even so, the turn of the lunar quarter does generally go unnoticed by most. Whether ignored or not, the Moon routinely generates four easy to identify phases throughout its monthly transit of the Earth --

1. Beginning Phase (Moon is Dark).
2. First Quarter (Half Moon).
3. Full Moon Phase (Whole Moon).
4. Last Quarter (Half Moon).



Take note here that the quarter-phase of the Moon (the cycle of the lunar week) happens to revolve in pace with a rate that is about equal to seven and one-third days. The turn over of the lunar week (the lunar quarter) is consequently a bit slower or longer than an ordinary week cycle of 7 days.

But why should anyone be concerned with the peculiar turn of the lunar week . . . or why give notice to a time unit that is inherently defined by the Moon?

One of the best of the possible answers to this kind of question is that the time span occupied by the lunar week points to a time-tracking system that is rational in its design. Essentially, the lunar-week cycle does rather clearly indicate that the Earth and Moon are spinning/orbiting objects BOTH working together for a purpose. Subsequently presented chapters then have a primary focus upon the lunar week in the context of a lunisolar system that is functional in its design. Of special significance here is that a time unit equal to the lunar week can be recognized to conjoin (exactly) with the turn of the solar day. The lunar week can likewise be recognized to cycle (eternally) in perfect interface with the annual transit of the Sun. More amazing about the Earth and Moon interface is a clear indication of '7-set' design--where 7 sets of weeks, 7 sets of months, and 7 sets of years are all inherently defined from out of the spin and orbital phenomenon.

In addition to its role in defining a lunisolar system that is functional in its design, the lunar week can be recognized to have additional significance in defining a religious itinerary that now is followed by adherents numbering millions in regions of the East. To be more specific, "the Uposatha is the Buddhist sabbath day, in existence from the

Buddha's time (500 BCE), and still being kept today in Theravada Buddhists countries" (Wikipedia). Among the precepts that define this 'day of observance' is the holding of a fast and the keeping of an all night vigil. "In general, Uposatha is observed about once a week in accordance with the four phases of the moon: the new moon, the full moon, and the two quarter moons in between. In some communities, only the new moon and full moon are observed as uposatha days." (ibid.). The cited set of evening liturgy that is practiced in parts of Asia today is strikingly similar to lunar liturgy that was subscribed to by more primal priest-kings (especially those who were resident in the Middle East). This custom of fasting and of holding a night vigil in pace with certain of the Moon's phases can be recited from numerous passages of early literature. The current presentation thus also has a focus upon the lunar week and its roll in the scheduling of religious liturgy (past and modern).

Of special significance about a schedule of weeks is that Hebrew writings produced in and prior to the first century are graphic in showing that the priesthood held knowledge of a harvest cycle straddling 7 lunar weeks. Texts that were circulated among primal Christians do likewise show that a segment of 1st-century astronomers would have understood the turn of the 7th lunar week in the context of both a sacred and a secular calendar. Among both Babylonians and Hebrews, the cited fast and vigil appears to have routinely been held for the primary purpose of renewing a post-flood covenant. Adherence to this respective ordinance (the keeping of an Asartha) can also be recognized from among the tenets that were taught by the early Christians.

What is unique about the Middle Eastern tradition of holding an Asartha (or Atsereth) is that the priests appear to have tracked or accounted for the unit of the lunar week in multiples of seven (or by sevens). Essentially, a tally, or a count of 7 lunar weeks (a pentecontad cycle) was perceived to have been succeeded by a subsequent cycle of 7 lunar weeks (the next pentecontad cycle). Subsequently presented sections will then explore in depth the lunar-week schedule by which liturgy was performed under the old Jerusalem Temple.

The topic material presented will lead the reader to ultimately conclude that the Temple priesthood did almost surely hold unusual, even advanced, knowledge of a lunisolar system. More significantly, the reader will be presented with a systems view of the spin rate of the Earth and of the two apparent orbits (Moon and Sun). A given conclusion that can be arrived at from a systems perspective of the Earth and Moon is that the spin and orbital configuration has resulted from special creation.

CHAPTER 2
SETS OF SEVENS

A rational system for tracking time can be recognized from out of the spin and orbital phenomenon. Of special significance here is that the length of the tropical year can closely be cross-referenced to a time grid comprised of lunar quarters, or lunar weeks.

What is remarkable about tracking the annual cycle in units of the lunar week is an inherent correspondence with certain number sets. In fact, both solar days and solar years can be cross-referenced to lunar-week cycles that are numbered by sevens (and by multiples of sevens).

This peculiar attribute of '7-set design' becomes easy to recognize through the count of a cycle of 49 months. Of significance here is that after a time traverse of 49 periods, the Moon (on average) does inherently renew right at the same hour and minute of the solar day. A given conclusion from the same rotational alignment of the Earth is that a span of time equal to 49 moons can exactly be divided into solar-day units (where each solar day is equal to 24 hours, or also 86400 seconds).

Please take note here that the lunar month (of 29 days 12 hours, and 44 minutes on the average) if repeated for 49 times does inherently traverse a time span that is almost perfectly equal to 1447 solar days.

THE INTERFACE OF 49 SYNODIC MONTHS *							Number of Earth's Rotations
1	2	3	4	5	6	7	206.71
8	9	10	11	12	13	14	413.43
15	16	17	18	19	20	21	620.14
22	23	24	25	26	27	28	826.86
29	30	31	32	33	34	35	1033.57
36	37	38	39	40	41	42	1240.28
43	44	45	46	47	48	49	1447.00

* - Earth's rotation aligns with 49 lunar months.

Thus, it would be a true axiom to state that 49 lunar months (on the average) are equal to a time span that can be divided into an even number of 24-hour days.

It would likewise be a true axiom to state that 1447 days is equal to a time span that can be divided into an even number of lunar months.

This conjunction cycle between the Earth and the Moon every 49 months can easily be demonstrated by almost anyone. The interface can be proven by simply dividing 1447 (days) by 49. The result of the division can then be compared with the span of time occupied by the average lunar month--which is 29.53059 days. Note that a correct answer from performing this math will not differ from 29.53059 by more than 2 seconds!!!

The cited synchronization of Earth's spin with 49 lunar periods is very close (almost exact). Of significance is that the stated interface can be recognized as fully perfect if only the lunar cycle elapsed in 29.53061 days (a tiny bit different from the modern rate of 29.53059 days). The possibility then is that the conjoining of these two cycles may either have once been fully perfect (as in medieval times when ice extended farther from the poles) or when (in the future) the spin-orbital configuration changes. (For more information about the changing spin of the Earth, refer to the subsequently presented Chapter 14).

Please take note from the previously presented paragraphs that a design characteristic of '7-sets' (or '7 times 7') is easy to interpret between the rate of the rotation of the Earth and that of the synodic period of the Moon. This same '7-set' characteristic is likewise easy to recognize from a calendar count of 49 lunar weeks (as is more fully shown in the subsequently presented chapter).

Note that 1447 days divided by the rate of the synodic-month cycle, or 29.53059 days, is equal to 49.0000 lunar months.

CHAPTER 3
A JUBILEE CALENDAR

Of yet further significance about the Earth and Moon interface (and about '7-set design') is that each year cycle can also be modeled into, or represented by, a calendar of lunar weeks. In fact, a rather amazing time interface can be recognized from modeling the annual return into 7 sets of lunar weeks.

The following diagram is consequently presented in an attempt to more clearly illustrate that a time grid of solar years (in 7 sets) can closely be correlated, or cross-referenced, to a calendar count of lunar weeks (in 7 sets).

The shown grid of lunar weeks represents a calendar that can very closely pace the annual return. This respective calendar only requires the endless addition of 1 week each 3rd year--as a perpetual rate of intercalation.

7-Year Segment	Number of Years	Number of Lunar Weeks	At Each 7th Year
1.	7	7 x 7 x 7	+ 1 week
2.	7	7 x 7 x 7	+ 1 week
3.	7	7 x 7 x 7	+ 1 week
4.	7	7 x 7 x 7	+ 1 week
5.	7	7 x 7 x 7	+ 1 week
6.	7	7 x 7 x 7	+ 1 week
7.	7	7 x 7 x 7	+ 1 week
50th yr	1	7 x 7	

For more comprehensive information about the diagrammed calendar--as well a thumbnail sketch of the historical relevance of this particular calendar--refer to Chapter 13.

Of significance about the shown time grid is that a somewhat synonymous description of a year count of '7 sets' is shown in a certain passage of the Bible. The early celebration of '7 sets of 7 years' is clearly depicted in a chapter from the book of Leviticus--as follows:

> "And the Lord said . . . When you come into the land which I will give you, let the land keep a Sabbath to the Lord. For six years put seed into your land, and for six years give care to your vines and get in the produce of them; But let the seventh year be a Sabbath of rest for the land, a Sabbath to the Lord; do not put seed into your land or have your vines cut. That which comes to growth of itself may not be cut, and the grapes of your uncared-for vines may not be taken off; let it be a year of rest for the land. And the Sabbath of the land will give food for you and your man-servant and your

> woman-servant and those working for payment, and for those of another country who are living among you; And for your cattle and the beasts on the land; all the natural increase of the land will be for food. And let seven Sabbaths of years be numbered to you, seven times seven years; even the days of seven Sabbaths of years, that is forty-nine years; Then let the loud horn be sounded far and wide . . . on the day of taking away sin let the horn be sounded through all your land. And let this fiftieth year be kept holy, and say publicly that everyone in the land is free from debt: it is the Jubilee, and every man may go back to his heritage and to his family. Let this fiftieth year be the Jubilee: no seed may be planted, and that which comes to growth of itself may not be cut, and the grapes may not be taken from the uncared-for vines. For it is the Jubilee, and it is holy to you; your food will be the natural increase of the field. In this year of Jubilee, let every man go back to his heritage." (BBE text of Chapter 25:1-12).

Remarkable here is that the Leviticus definition of a 50-year count closely parallels the calendar count shown above--where each 7-year segment of the calendar grid can be metered by a lunar-weeks count. Assigning a number to each calendar week is all that is required; and this means that EACH AND EVERY calendar year can be defined within the context of an identical count of the lunar week (a 7-times-7 count):

A JUBILEE CALENDAR OF LUNAR WEEKS

Note that a leap week each 3rd year is not shown in the following calendar chart.

```
Seven Years:   49 49 49 49 49 49 49  + 1
Seven Years:   49 49 49 49 49 49 49  + 1
Seven Years:   49 49 49 49 49 49 49  + 1
Seven Years:   49 49 49 49 49 49 49  + 1
Seven Years:   49 49 49 49 49 49 49  + 1
Seven Years:   49 49 49 49 49 49 49  + 1
Seven Years:   49 49 49 49 49 49 49  + 1
Fiftieth Year: 49
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49--Denotes a year count of 49 lunar weeks.

50-year average = 2473.66667 lunar weeks.
Length of lunar weeks = 18262.21 days.
Length of 50 years = 18262.11 days.

A given conclusion from the rates shown above in the calendar diagram then is that each passing year can very effectively be metered by simply counting out lunar weeks.

A calendar of lunar weeks is thus automatic or inherent when a lunar week is leaped each 3rd year as a perpetual rate. (Note that the shown grid of lunar weeks does almost perfectly pace the rate of the solar year through the intercalation of 0.33333 weeks per solar year--as an average rate).

A plausible model (or interpretation) of a lunisolar system is thus easy to formulate from counting out a Moon Cycle (equal to 7 lunar weeks).

CHAPTER 4
WEEKS OF HARVEST

Historical records, including biblical, tend to indicate that certain astronomers who flourished in an era well prior to the 1st century would have been familiar with the cited time track of lunar weeks. To be specific, some of the Jewish texts written in the era of the Temple do clearly mirror the Temple priesthood followed a liturgical schedule that was defined by a cycle of 7 lunar weeks.

Of significance here is that writings produced by Flavius Josephus (a Jewish historian of the 1st century) show that Temple priests of that time period did track a 7-week cycle. When describing a harvest calendar that was then followed, Josephus made mention of a 50-day count traversing 7 lunar weeks--as follows:

> " . . . when the Sun is in Aries . . . on the 16th day of the [lunar] month . . . they offer the first fruits of their barley . . . When a week of weeks has passed over after this sacrifice . . . on the 50th day, which is Pentecost . . . they bring to God [sacrifices] nor is there anyone of the [subsequent] festivals, but in it [= the 50th] they offer . . . " (Based upon Whiston's translation of 'Antiquities of the Jews', Book 3, Chapter 10, 5-7).

The Josephus record shows that the priests counted out a cycle of 7 weeks AFTER a barley offering was presented (on the 16th day of a specific lunar month). The cited 50-day count did therefore begin on a day that came after the full phase of the Moon.

One of the conclusions that can be arrived at from the detail provided by Josephus is that the end of the 50-day count would inherently have coincided with a quarter phase of the Moon. Furthermore, each of the intervening weeks of the 50-day count can be recognized to have passed in line with a lunar quarter. In essence, the priests can be recognized to have tracked a full cycle of 7 lunar weeks between the first fruits presentation and the feast of Pentecost.

Note that because each lunar week spans a unit of time that is a bit longer than an ordinary week of 7 days then a number of 50 days can ALWAYS be counted between the end of the 1st day of any given lunar week and the beginning of the 7th day of the 7th lunar week. In essence, 7 lunar weeks is inherently LONGER, or FULLER, when compared with a day count of 7 regular weeks.

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_____________________________________

      LEVITICAL HARVEST COUNT
   (from the record of Josephus)
_____________________________________

A sheaf was waved after 1st full Moon
          1st week counted
          2nd week counted
          3rd week counted
          4th week counted
          5th week counted
          6th week counted
          7th week counted
New grain celebrated at quarter Moon
_____________________________________
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The indicated priestly adherence to a harvest schedule that was defined by the lunar week can further be recited from a treatise penned by another 1st-century Jewish writer:

> "Don't the fruits of cultivated crops and trees grow and come to maturity through the orbits of the Moon . . . ?" ('The Special Laws, Part 2', Philo Judaeus, based upon Yonge's translation).

Here, the annual harvest is again shown to have been conducted in coincidence with a span of time that was uniquely tracked. This passage of early-written text does minimally indicate that the annual harvest was NOT scheduled in the context of an ordinary week cycle (of 7 running days).

Other passages from Jewish literature written in the era of the late Temple do likewise show that contemporary priests did then conduct the annual harvest around a lunar-quarter schedule. In example, a passage from 'The Special Laws, Part 1' indicates that members of the priesthood would have been familiar with a harvest itinerary that was predicated upon the phases of the Moon:

> "[The Moon] receives the perfect shapes in periods of 7 days--the half-Moon in the first 7 day period after its conjunction with the Sun, full Moon in the second; and when it makes its return again [= after the full Moon], the first is to half-Moon, then it ceases at its conjunction with the Sun . . . the finest grain flour mixed with oil . . . and wine in stipulated amounts [are periodically offered] . . . The reason is that even these are brought to maturity by the orbits of the Moon in the annual seasons, especially as the Moon helps to ripen fruits; grain and wine and oil . . . " (authored by the Jewish writer: Philo Judaeus at about the turn of the Common Era, translation based upon Yonge).

The quoted text from 'The Special Laws' reflects that the author understood the Moon to have some kind of a role in the production of grain, wine, and oil.

It here seems of related significance that quite a number of passages in the Bible do indicate that the beginning of the harvest was specially commemorated; and that the

harvest was subsequently commemorated in weekly stages.

> "[God] . . . giveth rain, both the former and the latter, in his season: he reserveth unto us the appointed weeks of the harvest". (AV text of Jeremiah Chapter 5:24).

As is further shown below, the weeks that were appointed for the harvest (or harvests) were understood to encompass not just a single cycle of 7 lunar weeks--but multiple cycles. To be more specific, the first cycle of 7 weeks was apparently reserved for the production of grain. A subsequent cycle of 7 weeks is additionally indicated from the historical record. (This respective cycle was allocated for the production of wine). Yet a third cycle of 7 weeks is manifested from the ancient texts. (This time span was reserved for the production of oil). Thus, certain of the texts that were produced (and reproduced) in the era of the Temple do show that first fruits of grain, wine, and oil were sequentially processed right in line with a time cycle of 7 weeks.

Perhaps the best example of this cyclical count of 7 weeks can be recited from a portion of 11QTemple Scroll. The following passage is very clear in showing how that the priests would have supervised the production of first fruits (grain, wine, and oil) in concert with multiple cycles of 7 weeks:

> "You must count . . . 7 COMPLETE Sabbaths from the day of presenting the sheaf . . . to the morrow of the 7th Sabbath . . . count [50] days . . . [Then] bring a new grain-offering . . . it is the feast of Weeks and the feast of Firstfruits, an everlasting memorial . . . From the day when you bring the new grain-offering . . . 7 FULL Sabbaths . . . count 50 days to the morrow of the 7th Sabbath. [Then present] new wine for a drink-offering . . . Count from that day . . . 7 FULL Sabbaths; until the morrow of the 7th Sabbath count 50 days . . . then offer new oil . . . " (my paraphrase).

The content of the 11QTemple Scroll can be stated to be rare or unique in comparison with most other Hebrew documents (even among those that have been rediscovered). Nonetheless, some rather detailed instructions are given for conducting the first fruits harvest. According to the author (or authors) of this scroll, the processing of new grain, new wine, and new oil required adherence to always a COMPLETE or a FULL count of 7 Sabbaths. For each one of the three harvests, a special day was invariably celebrated right on "the morrow of the 7th Sabbath".

SCHEDULING OF FIRST FRUITS

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1. 7 Sabbaths for New Grain
2. 7 Sabbaths for New Wine
3. 7 Sabbaths for New Oil

An offering of grain, then wine, and then oil was presented in the predawn hours on each one of the 7th Sabbaths

The cited description of a FULL Sabbath count [Hebrew: tamiym] that ended at the break of day on the 7th Sabbath is just about identical to the intervening 50-day count shown in the Bible book of Leviticus (refer to the 23rd chapter). A comparison of the sacrificial rates for the festival of weeks that is listed in Leviticus, Numbers, and in the writings of Josephus tends to confirm that the first fruits type of the feast of weeks was celebrated with an additional rate of sacrifice. Of related interest here is that the 11QTemple Scroll and also 'The Book of Jubilees' do both show that the first fruits were believed to have a dual or a double significance. Each respective festival day was understood to pertain to both the feast of weeks and the feast of the first fruits.

When the content of the 11QTemple Scroll is compared with the content of the Bible, it becomes manifest that the production of grain, wine and oil is also listed in that same order in a number of the Bible passages. The order of grain, wine, and oil can be recited from the following Bible verses: Deuteronomy 7:13; 11:14; 12:17; 14:23; 18:4; 28:51; 1 Chronicles 9:29; 2 Chronicles 2:15; 31:5; 32:28; Ezra 6:9; Nehemiah 10:37; 10:39; 13:5; 13:12; Jeremiah 31:12; Hosea 2:8; 2:22; and there are other verses.

A sequence of 3 festivals, each spaced 7 weeks apart, can also be identified from the following scrolls recovered at Qumran: 4Q325, 4Q326, 4Q327, 4Q394; where English translations can be found in: 'Dead Sea Scrolls A New Translation', by Michael Wise, Martin Abegg, Jr., and Edward Cook. Of significance here is that some of the Qumran scrolls--while they do indicate the track and celebration of 7 weeks in a three-fold sequence--do not indicate that a 50th day was separately counted out. Essentially, the 7-week cycle that was counted at Qumran was predicated upon nothing more than an ordinary week cycle of 7 running days. This then means that the harvest itinerary that was followed by contemporary Temple priests could not have quite been the same as the 7-weeks count that was followed at Qumran. In fact, liturgical interpretations held at Qumran--when compared with interpretations subscribed to by the more traditional priests--point to quite a number of differences. (Most of the indicated differences concern the Temple's adherence to a lunar calendar).

The priestly reckoning of a cycle of 7 weeks (in association with a celebrated 50th day) is shown in the Hagigah Tractate (section 17a) of the Babylonian Talmud. In a note to that section, the translator (Rabbi Abrahams) wrote that the Sadducees understood each 7th day of the Leviticus count of 50 days to be a literal Sabbath. This respective note seems significant for coming to better understand certain opinions and interpretations held by members of the primal Temple priesthood.

As is more fully shown in the subsequently presented Chapter 7, the set of 7 weeks that orthodox priests counted in association with both the Moon and the first fruits (of

grain, wine, and oil) certainly was understood in the context of time that was considered to be holy. However, those 7-week time segments that defined when first fruits of grain, wine and oil were presented were also understood to pertain to a covenant that was made with all mankind (as descended from Noah). This worldwide covenant was consequently considered among Jews of the Temple Era to pertain to time that was "less blessed and holy" than time defined by a covenant that pertained to the celebration of each 7th-day (a covenant that was given exclusively to Israel).

As far as the celebration of those 'lesser' Sabbaths--those that pertained to the harvest of first fruits--the 'weeks of harvest' were counted out by members of the priesthood (and by religious Jews), and then an Asartha (an Atsereth) was held in the nighttime hours. Again, more information about the holding of an Atsereth is shown in subsequently presented Chapter 7.

Of additional significance here is that a time cycle of 50 days appears to have likewise been tracked in regions of the ancient Middle East (and by cultures other than Israelite). To be more specific, a pentecontad unit [= the 'h.' or the 'hamushtum'] is listed on various of the recovered cuneiform tablets (some pertaining to the Old Assyrian Period).

More information about the 'hamushtum' is shown in a 20th century publication: 'Origin of the Week and the Oldest Asiatic Calendar', by H. and J. Levvy.

Of special interest here is that the 'h.' or the 'hamushtum' [= probably a period of 50 days] was sometimes used in association with the agricultural cycle--as follows:

1. A time for swinging the sickle [= 7 weeks for New Grain?
2. A period for gathering grapes [= 7 weeks for New Wine?].
3. Season for harvesting figs [= 7 weeks for New Oil?].

The 'h,' or the 'hamushtum' is also sometimes shown in combination with the time of a 'sapattum' (ibid). Please take note here that the term: 'sapattum' would probably have been understood among the ancients to be about equivalent to the English word: 'cease'. What is more certain than the meaning of this term is that the 'sapattum' would have been understood as 'a period of time between the waxing and waning phases of the Moon'.

In summary to the above, writings from the era of the Temple show that the priests would have understood the weeks of the first harvest right in concert with 7 lunar quarters. (Records show it was after a "50 count" of days in the predawn hours that sacred liturgy was enacted by the priesthood).

CALENDAR OF HARVEST OFFERINGS *

OFFERING	TIME OF OFFERING
New Grain	7 weeks after Sheaf
New Wine	7 weeks after Grain
New Oil	7 weeks after Wine

* - Offerings for grain, wine, and oil came after the wave sheaf.

Of significance about the "weeks of harvest" is that the time in-between 7 lunar weeks is inherently GREATER or FULLER than the length of 7 regular weeks.

CHAPTER 5
AN ENDLESS CYCLE

A collection of Hebrew axioms and formulas for resolving the courses of the Earth and Moon are available for modern analysis. This ancient collection is represented in passages of a rediscovered manuscript attributed to Enoch (one of the Bible patriarchs). In fact, an entire section of the Enoch literature (refer to the Laurence translation, chapter 71 to 82) has a focus upon "the revolutions of the heavenly luminaries". (The cited portion of text that attempts to mathematically quantify the spin and orbital phenomenon is known as Enoch's astronomical book).

The content of the collection attributed to Enoch is unique in that a rather comprehensive description of tracking 'time stations' is embedded in the astronomical section.

Early-held knowledge of the location of time stations for both the Sun and the Moon seems very apparent from the following selected portions of 'The Ethiopian Enoch', by Laurence:

> [Chapter 71:] "The book of the revolutions of the luminaries of heaven, according to . . . their respective periods . . . and their respective months . . . [Skipping to Chapter 73:] . . . I beheld their stations . . . according to the fixed order of the months the Sun rises and sets . . . thirty days belonging to the Sun . . . The Moon brings on all the years exactly, that their stations may come neither too forwards nor too backwards a single day; but that the years may be changed with correct precision . . . The year then becomes truly complete according to the station of the Moon . . . " .

From the Enoch literature, it is apparent that the ancients did once time track a "station" of the Sun--probably in association with a cycle of 30 days. Portions of text from the astronomical book also make it clear that a "station to the Moon" was time tracked inside of the year cycle. In essence, in addition to a station of the Sun, Enoch's astronomical book also describes an associated station of the Moon.

> "The year then becomes truly complete according to the station of the Moon, and the station of the Sun" (ibid.).

According to the astronomical book, in addition to a station of the Sun, a station of the Moon also belongs among (pertains to) the revolutions of the heavenly luminaries.

Thus, the detail given for time stations indicates that some among the ancients held knowledge of an effective method for tracking each annual return (the year cycle). Of

significance here is that Enoch's axiom for metering the year cycle was stated only in terms of the revolution of two time stations:

1. A day or station defined by the Moon.
2. A day or station defined by the Sun.

Of additional significance is that other portions of the Enoch literature indicate the cited station or day of the Moon might have been tracked in place, or in position, with a sequence of the lunar quarters. This positioning of a station or day of the Moon in correspondence with a cycle of the lunar-quarter phases is easy to interpret from the following portions of the cited astronomical book:

> "(Chapter 72: verse 3) . . . [the Moon's] light is a seventh portion from the light of the Sun . . . . (verse 6) Half of it is in extent seven portions . . . its light is by sevens . . . (verse 8-10) On that night, when it commences its period . . . it is dark in its fourteen portions . . . During the remainder of its period its light increases to fourteen portions [or the Moon's light increases to fourteen portions] . . . (Chapter 73: verse 4) In each of its two seven portions it completes all its light [or the Moon reaches the phase of full illumination in two seven portions] ." (ibid.).

A more in depth research of Enoch's astronomical book leads to the ultimate conclusion that the cited station or day of the Moon was probably tracked in association with a cycle of 7 lunar quarters or 7 lunar weeks. The clue to coming up with a more explicit definition of the station of the Moon from the astronomical book can seemingly be found in Chapter 73 in the portion of text that provides detail of the Moon and its lag of 50 days. ("To the Moon alone . . . it has fifty days . . . ").

It can thus ultimately be interpreted that primal priest-astronomers did once reckon lunar weeks and were knowledgeable of a station or day of the Moon (in addition to the cited station of the Sun). The station of the Moon appears to have been tracked in correspondence with a time-span of 7 lunar quarters or 7 lunar weeks.

The description of a station or a day of the Moon from the Enoch texts is then significant and tends to indicate the early use of the following axiom or time formula:

> The revolutions of the heavenly luminaries define a station or day that pertains to the Moon. This station or day reoccurs in a cycle of 7 lunar weeks (an endless rate).

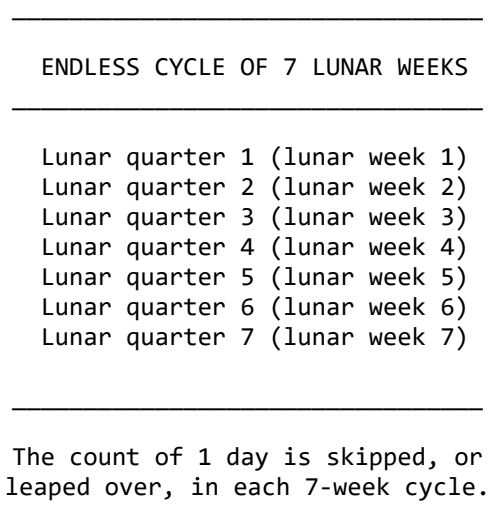
Of significance here is that each year cycle (year . . . after year . . . after year . . .) can be correlated to a day count that does never vary as long as those days that reoccur in the position of each 7th lunar week are leaped over (or are not counted).

> Note that if the count of one day in each cycle of 7 lunar weeks is eternally accounted for (as separate from the other days) then this respective count is inherently equal to 7.0676 days per year. In addition, if the count of one day in each month of 30 days is forever accounted for (as separate from other days) then this respective count is inherently equal to 12.17474 days per year (as an average rate). These two rates of set-apart days (or time stations) are then equal to an average rate of 19.24232 days

per year. Thus, if 19.24232 days per year (on the average) are tracked apart from all other days that comprise the time stream then the length of each passing solar year can effectively be measured and metered out in correspondence with a number count that is always equal to 346.000 of the other days.

It is then clear that the turn of each tropical year can exactly be defined (as an average definition) in the context of nothing more than forever tracking a station of the Sun (each 30th day) and also eternally tracking a station of the Moon (at every 7th lunar week). In essence, within the context of both monthly and weekly renewals, each passing tropical year (which is 365.24 days in length) can be understood to revolve in perfect pace with an identical count of day units (346 days). To be completely specific, an accounting of 346 days with the addition of renewal days (19.24 days) is inherently equal to the length of the annual circle or year.

Thus, certain among the axioms and time formulas written down in Enoch's astronomical book are proven as remarkably accurate. The solar circle (365.24219 days) inherently does contain a station or day of the Sun (a perpetual rate of one in a 30-day cycle) and also a station or day of the Moon (a perpetual rate of one in a cycle of 7 lunar weeks).



Especially significant about the astronomy of Enoch is the revelation of a day-count model that can exactly account for each passing tropical year. (This accounting of the year cycle only requires a separated time track of Sun and Moon stations).

CHAPTER 6
HARVEST CELEBRATION

A number of passages of ancient Hebrew literature tend to further indicate that the Levitical priesthood would have celebrated liturgy in pace with the turn of the lunar week.

Of significance here is the historical record rather clearly reflects that the priests understood the lunar week within the context of defining a series of harvest festivals--where 7 full Sabbaths were accounted for to memorialize the production of new grain, new wine, and new oil. (For pertinent information of the 7-weeks count, refer to the previous chapters).

The production of new grain, new wine, and new oil in pace with the turn of the lunar week is perhaps most graphically shown in the following passage of 'The Special Laws':

> "[The Moon] receives the perfect shapes in periods of 7 days . . . [and] helps to ripen fruits; grain and wine and oil . . . " . (This passage from Part 1 was written at about the beginning of the Common Era by Philo Judaeus, translation based upon Yonge).

As far as the scribe (or count) of 7 weeks (of harvest), or 7 Sabbaths, perhaps the best example can be recited from passages of Leviticus--where in Chapter 23 of the Hebrew version, a 7-weeks count was described to begin or to commence with 'mochorath h+shabbath' (which is presumed to mean the morrow of the Sabbath):

> "Your scribe or number ('caphar') must extend from the morrow ('mochorath') to the Sabbath (h+shabbath) . . . " (Leviticus 23:15).

From this beginning or origin, it was essential that a number count encompass a time span equal to 7 whole Sabbaths:

> " . . . 7 Sabbaths shall be whole or entire . . . ". (Note here that the Hebrew Bible includes the word 'tamiym' to designate a Sabbath that is wholly or fully counted).

A 'new' offering was ultimately presented on the next 'mochorath' after 50 numbered days. (Only after a full or a complete count had been accomplished was a special renewal day celebrated).

> Note here that the cited offering was commanded to be 'new'. The word that is translated from the original Hebrew text as 'new' comes from only 3 Hebrew consonants (pronounced something like 'ch' 'd' 'sh') in that vowels do not appear in the original Hebrew Bible. Vowels were eventually added/inserted into the original Hebrew text by Jewish scribes who flourished in the first centuries of the Common Era.

> Consequently, throughout the more modern Masoretic texts the original 3 consonents were revised to become 'chadesh' or 'chodesh'. This word is used throughout the Hebrew Bible in reference to a time cycle or the renewal of a time cycle.

As far as scribing (or numbering) a 'full' count of 7 harvest weeks, it here seems significant that early-written texts have detail of an annual count of days that included the reckoning of a station of the Moon as well as the reckoning of a station of the Sun. (For additional information about counting the annual return in the context of time stations, refer to the previously presented chapter). What is significant here is that when each day of the Sun is never counted as a regular week day then each and every revolution of 50 days can be recognized to inherently keep pace with 7 lunar quarters.

So, the ancients could have effectively metered and measured out each passing tropical year by accounting for Sun and Moon stations (as previously shown) and they could also have accurately charted the return of each quarter phase of the Moon (on average) by accounting for Sun and Moon stations.

Thus, a method of 'day counting' the tropical year and also the lunar quarter (on average) is manifested from a simple method of accounting for those days that correspond with time stations of the Sun and Moon.

Take note here that the cited station or day of the Sun (1 day every 30 days) inherently occupies 3.33333 percent of the time stream.

When the count of this day is subtracted from out of all the days that occupy the time stream then a count equal to 50 days (on average) can be recognized to exactly straddle a span of time equal to 7 lunar weeks. For more information about the overlay of 50 days with each 7th Moon phase, refer to

Moon's 50-Day Cycle

The cited day or station of the Moon can therefore quite effectively be tracked by simply scribing or numbering a cycle of 50 days (exclusive of the counts of those days that align with the station or day of the Sun).

The previously cited record of Flavius Josephus is more graphic than Leviticus in showing when the harvest count would have began:

> " . . . on the 16th day [of the 1st lunar month] . . . they offer the firstfruits of their barley . . . and after this it is that they may publicly or privately reap their harvest . . . When a week of weeks has passed over after this sacrifice, (which weeks contain forty-nine days,) on the fiftieth day, which is Pentecost, but is called by the Hebrews ASARTHA, WHICH SIGNIFIES PENTECOST, they bring to God a loaf, made of wheat flour, of two

> tenth deals, WITH LEAVEN; and for sacrifices they bring two lambs; and when they have only presented them to God, they are made ready for supper for the priests; nor is it permitted to leave anything of them till the day following. They also . . . [present] a burnt offering . . . for sins; nor is there anyone of the festivals, but in it [= 'Number 50'] they offer burnt offerings; they also allow themselves to rest [hold Sabbath] on everyone of them. Accordingly, the law prescribes in them all what kinds they are to sacrifice, and how they are to rest entirely, and must slay sacrifices, in order to feast upon them. However, out of the common charges, baked bread [was set on the table of showbread], WITHOUT LEAVEN . . . they were baked the day before the Sabbath, but were brought into the holy place on the MORNING OF THE SABBATH, and set upon the holy table, six on a heap, one loaf still standing opposite one another . . . and there they remained till another Sabbath, and then other loaves were brought in their stead, while the loaves were given to the priests for their food, and the frankincense was burnt in that sacred fire wherein all their offerings were burnt also; and so other frankincense was set upon the loaves instead of what was there before . . . " ('Antiquities of the Jews', Whiston, Book 3, Chapter 10, 5-7).

Clear from the writings of Josephus is that the harvest count would have began after a full phase of the Moon (and after the sheaf was waved).

The late 1st-century record thus points right to the day when Pentecost would have then been celebrated. (A given conclusion from the counts shown is that Pentecost would have been celebrated at the turn of a lunar quarter or lunar week).

Unlike the record of Leviticus which shows a specific count of "Sabbaths" relative to the time of observing Pentecost, the above quoted portion from the record of Josephus does not spell out that a count of 7 Sabbaths was performed by the priests. Instead, the Josephus record shows that 'count 50' was "called by the Hebrews ASARTHA, which signifies Pentecost".

This passage is significant in the regard that other portions of the Hebrew record show that the occasion of an Asartha would have been understood to correspond with the time of a quarter phase of the Moon. The historical usage of the term "asartha" (or "atsereth") thus tends to further prove that the harvest schedule of the Temple would have been predicated upon an accounting of lunar-quarter weeks (and not a count of the regular week).

To here be more specific, the observance of Asartha (or Atsereth) can be recited several times from passages of the Hebrew Bible. For example, the holding of a fasting assembly (Atsereth) is shown within a passage of the book of Joel--as follows:

> "Sanctify ye a fast, call a solemn assembly [or Atsereth] " (refer to Joel 1:14 and 2:15). [Note here that for the duration of Atsereth--an all-night vigil would have also been observed--as is shown in the subsequently presented chapter.]

Further examples of the holding of an Asartha (or Atsereth) can be recited from certain chapters of the Bible. In example, a festival that was celebrated in the middle of a

lunar month is shown to have required the holding of an Atsereth [= on the 8th day]. This holding of an Atsereth in a lunar month is shown in the following passages: Nehemiah 8:18; Leviticus 23:36; Numbers 29:35; 2nd Chronicles 7:9; John 7:37; and also Deuteronomy 16:8. It is very clear from these passages that the Atsereth was celebrated at the turn of a lunar week [= a lunar quarter].

Thus, the 7 weeks count that is shown by Josephus [= shown to have terminated right at Asartha, on day 50 called Pentecost] was surely predicated upon a count of the lunar week (and not a count of the 7-day week).

CHAPTER 7
ATSARETH ASSEMBLY

The current chapter has a focus upon the routine convening of a sacred assembly among adherents of the Temple system. Of significance here is that each of the Sabbaths that pertained to the 'count-50-cycle' appear to have been understood to stand in the rank of a minor, or a lesser, Sabbath.

The cited tradition of celebrating an Asartha Sabbath can be recited from passages of literature that were circulated in the Temple era--as follows:

> "He created the sun and the moon and the stars . . . to rule over the day and the night . . . the sun [was appointed] to be a great sign on the earth for days and for sabbaths and for months . . . the 7th day [was made] holy . . . that day is more holy and blessed than any jubilee day of the jubilees . . ." ('The Book of Jubilees', Chapter 2, translation by R.H. Charles).

It is here significant that an unmistakable reference to the celebration of 'count-50-days' or 'jubilee days' was made by the author. A given conclusion from this historic passage of text is that even though the 7th day was interpreted as "more holy . . . than any jubilee day of the jubilees", some certain significance surrounding the Atsereth appears to have well been understood.

Of related significance here is that a passage from 'The Decalogue' (by Philo Judaeus) pertains to information and knowledge of Sabbath time that was held from prior to the turn of the Common Era. A holy Sabbath; according to the respective Jewish author; appears to have been defined by the lunar week:

> "The fourth commandment [= of the Ten Commandments] has reference to the sacred 7th day, that it may be observed in a sacred and holy manner. Now some regions keep a HOLY FESTIVAL once in the month cycle [and then] count from the new Moon each SACRED DAY to God; but the region of Judea keeps every 7th day regularly, after each interval of 6 days . . . " (my paraphrase of Yonge translation).

The record of history thus tends to indicate that some among the primal Hebrews would have interpreted a resting period (or a Sabbath) right in pace with each passing lunar quarter (on the 7th day of every lunar week).

This early-held understanding about the annual harvest being conducted in line with a series of Sabbath rests is also mirrored from writings attributed to a Hebrew philosopher named Aristobulus (3rd century BCE):

> ". . . the whole world of living creatures, and of all plants that grow, revolves in sevens. And its name 'Sabbath' is interpreted as meaning 'rest'". (Quote borrowed from Gifford's

translation of 'Praeparatio Evangelica', Book 13).

Of significance here is the Hebrew record shows the celebration of an all night vigil in association with the 7th lunar Sabbath. During the vigil of this respective Sabbath, certain foods were avoided; and in particular, meat and intoxicating beverages were refrained from.

The celebration of a vigil in association with '50 count' (every 7th Sabbath) can especially be recited from passages of 'de Vita Contemplativa' or 'The Contemplative Life'. (This treatise was written by Philo Judaeus at about the beginning of the Common Era). The respective report has a large focus upon the liturgical practices of a communal group known as the Therapeutae or the Healers. This movement was described to have abandoned commercial enterprise in a fuller pursuit of religious study and prayer--as follows:

> " . . . [Therapeutae] may be met with in many places . . . [in] both Greece and the country of the barbarians . . . and there is the greatest number of such men in Egypt.
>
> And in every house there is a sacred shrine which is called the holy place, and the monastery in which they retire by themselves and perform all the mysteries of a holy life, bringing in nothing, neither meat, nor drink, nor anything else which is indispensable towards supplying the necessities of the body, but studying in that place the laws and the sacred oracles of God enunciated by the holy prophets . . .
>
> These men assemble AT THE END of 7 weeks, venerating NOT ONLY the simple week of seven days . . . it is a prelude and a kind of forefeast of the greatest feast, which is assigned to THE NUMBER 50 . . . They come together clothed in white garments . . . they sit down to meat standing in order in a row, and raising their eyes and their hands to heaven . . . they pray to God that the entertainment may be acceptable, and welcome, and pleasing; and after having offered up these prayers the elders sit down to meat, still observing the order in which they were previously arranged . . . And the women also share in this feast . . . And the order in which they sit down to meat is a divided one, the men sitting on the right hand and the women apart from them on the left . . . [They sit on] rugs of the coarsest materials, cheap mats of the most ordinary kind of the papyrus of the land . . .
>
> And in those days wine is not introduced, but only the clearest water; cold water for the generality, and hot water for those old men who are accustomed to a luxurious life.
>
> And the table, too, bears NOTHING WHICH HAS BLOOD, but there is placed upon it bread for food and salt for seasoning, to which also hyssop is sometimes added as an extra sauce for the sake of those who are delicate in their eating . . .
>
> [A sermon is delivered, and when] the president appears to have spoken at sufficient length . . . applause arises from them all as of men rejoicing together at what they have seen and heard; and then some one rising up sings a hymn . . . then they all, both men and women, join in the hymn . . .
>
> Then the young men bring in the table which was mentioned a little while ago, on which was placed that MOST HOLY food, the leavened bread, with a seasoning of salt, with which hyssop is mingled, out of reverence for the sacred table, which lies thus in the

> holy outer temple; for on this table are placed loaves and salt without seasoning, and the bread is unleavened, and the salt unmixed with anything else, for it was becoming that the simplest and purest things should be allotted to the most excellent portion of the priests, as a reward for their ministrations, and that the others should admire similar things, but should abstain from the loaves, in order that those who are the more excellent person may have the precedence.
>
> And after the feast they celebrate the SACRED FESTIVAL during the whole night; and this NOCTURNAL FESTIVAL is celebrated in the following manner: they all stand up together, and in the middle of the entertainment two choruses are formed at first, the one of men and the other of women, and for each chorus there is a leader and chief selected, who is the most honourable and most excellent of the band. Then they sing hymns which have been composed in honour of God in many metres and tunes, at one time all singing together, and at another moving their hands and dancing in corresponding harmony, and uttering in an inspired manner songs of thanksgiving, and at another time regular odes, and performing all necessary strophes and antistrophes. Then, when each chorus of the men and each chorus of the women has feasted separately by itself, like persons in the bacchanalian revels, drinking the pure wine of the love of God, they join together, and the two become one chorus, an imitation of that one which, in old time, was established by the Red Sea, on account of the wondrous works which were displayed there; for, by the commandment of God, the sea became to one party the cause of safety, and to the other that of utter destruction . . . When the Israelites saw and experienced this great miracle, which was an event beyond all description, beyond all imagination, and beyond all hope, both men and women together, under the influence of divine inspiration, becoming all one chorus, sang hymns of thanksgiving to God the Saviour, Moses the prophet leading the men, and Miriam the prophetess leading the women. Now the chorus of male and female worshippers being formed, as far as possible on this model, makes a most humorous concert, and a truly musical symphony, the shrill voices of the women mingling with the deep-toned voices of the men. The ideas were beautiful, the expressions beautiful, and the chorus-singers were beautiful . . .
>
> [Staying] till morning, when they saw the sun rising they raised their hands to heaven, imploring tranquillity and truth, and acuteness of understanding. And after their prayers they each retired to their own separate abodes . . .
>
> This then is what I have to say of those who are called Therapeutae, who have devoted themselves to the contemplation of nature, and who have lived in it and in the soul alone, being citizens of heaven and of the world, and very acceptable to the Father and Creator of the universe because of their virtue, which has procured them his love as their most appropriate reward, which far surpasses all the gifts of fortune, and conducts them to the very summit and perfection of happiness" (translation borrowed from Yonge).

Of significance about this religious movement is that adherents (who flourished at the turn of the Common Era) are shown to have assembled "in many places". At the 7th week, an all night vigil appears to have routinely been held. The bread and water that was served during the evening banquet was understood to represent "most holy food", and the bread that was eaten is shown to have been mingled with hyssop out of reverence for the sacred table in the vestibule of the Temple.

In reference to the set of religious liturgy subscribed to among the Therapeutae, the holding of a vigil in association with '50 count' can also be recited from the almost contemporary record of Acts:

> "And in the day of the Pentecost [50 count] being fulfilled, they were all with one accord at the same place . . . " (Acts, Chapter 2).

The Pentecost event recorded in the book of Acts shows that festival keepers were gathered before "the third hour"--or before 9 o'clock in the morning. The chronology that is given thus implies either a very early morning assembly, or more probably, an evening vigil. In either case, a rather large number of festival keepers are indicated to have been up and about (and they were assembled before 9 o'clock on the Sabbath morning).

Josephus likewise noted that Temple priests who were contemporary with the era of the late 2nd Temple followed a prescribed set of religious liturgy. Of significance here is that the commemoration of the 'number-50 feast' is shown to have required the enactment of predawn ceremony:

> " . . . at that feast which we call 'Pentecost' as the priests were going by night into the inner temple as their custom was, to perform their sacred ministrations . . . ". (Quote borrowed from Whiston's translation of Wars, Bk.6:5:3).

The ancient custom of routinely celebrating an all night vigil at the distance of 7 weeks--even in modern times--continues to be celebrated among priests of the Falasha or Ethiopian Jews. For additional information of this priestly vigil, refer to 'The Liturgy of the Seventh Sabbath: a Beta Israel (Falasha) text', by Monica Davis. (Note: The Beta Israel custom is celebrated in association with the traditional 7-day week--not in association with the lunar week).

The indicated assembly for the all night banquet (Asartha) appears to mirror a rather similar all night assembly that is described in the following portion of the New Testament:

> "And upon the One-to-the-Sabbaths [or Greek: Mia twn Sabbatwn], when the disciples came together to break bread, Paul preached unto them, IN EXPECTATION (observance) of the coming of morning; and continued his speech until midnight . . . When he . . . had broken bread, and eaten, and talked a long while, even till break of light had come, they brought the young man . . . " (refer to the Greek language version of Acts, Chapter 20: verses 7-12).

Note that because this assembly was held on the One-to-the-Sabbaths then it is somewhat probable that this event was celebrated in association with the renewal of lunar weeks (or the renewal of months). Of related significance is that several instances of this peculiar date 'Mia twn Sabbatwn' [= the One-to-the-Sabbaths] can be recited from New Testament accounts that have detail of the resurrection of Jesus.

This Christian celebration of a feast in line with a lunar schedule (One-to-the-Sabbaths) can additionally be recited from 'The Stromata', by Clement of Alexandria (c. 2nd century CE).

> [Peter] inferred thus: "Neither worship as in Judea . . . for in not viewing the Moon, they do not hold the Sabbath, which is called First [= 'One']; nor do they hold the New Moon, nor the Unleavened Bread, nor the Feast, nor the Great Day." (my paraphrase of the fifth chapter).

An early Christian bishop who presided at Jerusalem (Nazianzen) wrote of early Hebrews and Christians tracking and celebrating Sabbath time in the context of a 50 count--as follows:

> "The Hebdomads of days give birth to Pentecost, a Day called HOLY . . . and those of years to . . . the Jubilee . . . For seven being multiplied by seven generates fifty all but one day, which we [Christians] borrow from the world to come, at once the Eighth and the First, or rather one and indestructible. For the present sabbatism of our souls can find its cessation there, that a portion [of Sabbath time] may be given to seven and also to eight . . . " ('Oration XLI: On Pentecost', II).

The Christian celebration of an evening rest can, in fact, be recited from Christian literature written as late as the 4th century CE. As an example, Eusebius of Caesarea described how mainstream Christians of his day observed a night vigil in correspondence with a great festival--as follows:

> "[Christians observe] a mode of life which has been preserved to the present time by us alone [or by the Christians alone] . . . especially the vigils kept in connection with the Great Festival, and the exercises performed during those vigils . . . [The customs demand] no wine at all, nor any flesh, but water is their only drink, and the relish with their bread is salt and hyssop". ('Church History, Book II').

The peculiar vigil held by Christians at the occasion of a "Great Festival" was also noted by Eusebius to have been a very ancient custom--and THE SAME custom as was adhered to by the Therapeutae.

In the centuries that ensued the destruction of the Temple, the several descriptions of Christians celebrating an EVENING Sabbath (or Asartha) then surely do indicate a continuation of the traditions of former priests.

The cited custom of holding an evening banquet where "most holy food" was served is mirrored from a certain passage of the Colossian's letter--as follows:

> "Therefore do not let anyone condemn you in matters of food and drink or of observing festivals, new moons, or sabbaths" (refer to chapter 2:16).

Of significance here is that primal Christians are nowhere shown to have assembled for religious services by any schedule other than was subscribed to by priests who flourished in the era of the Temple. This then means that the cited set of liturgy that

pertained to a Sabbath night of rest (and the eating of holy food) would surely have been followed by the earliest of the Christian converts. The ancient tradition of having restricted diet during holy evenings is also rather well mirrored from 2nd-century writings attributed to Justin Martyr. Of significance here is that adherence to a Sabbath ritual with unleavened bread can be deduced from a certain passage of 'Dialogue with Trypho':

> "The new law requires you to keep perpetual Sabbath, and you, because you are idle for one day, suppose you are pious, not discerning why this has been commanded you: and if you eat unleavened bread, you say the will of God has been fulfilled."

A commandment to periodically abstain from foods of flesh (meat) is also mirrored from passages of 'The Shepherd of Hermas'. This 1st century publication is unusual in showing the enactment of liturgy in pace with a 'time station':

> "[Parable 5:] As I was fasting . . . in the early morning . . . keeping a station . . . [A shepherd told me] "You know not . . . how to fast unto the Lord . . . I will teach you what is a complete fast and acceptable to the Lord . . . If then, while you keep the commandments of God, add these services likewise . . . First of all, keep yourself from every evil word and every evil desire, and purify your heart from all the vanities of this world. If you keep these things, this fast shall be perfect for you. And thus shall you do. HAVING FULFILLED WHAT IS WRITTEN ON THAT DAY ON WHICH YOU FAST YOU SHALT TASTE NOTHING BUT BREAD AND WATER; and from your meats, which you would have eaten, you shalt reckon up the amount of that day's expenditure, which you would have incurred, and shall give it to a widow, or an orphan, or to one in want, and so shall you humble your soul, that he that has received from your humiliation may satisfy his own soul, and may pray for you to the Lord. If then you shall so accomplish this fast, as I have commanded you, your sacrifice shall be acceptable in the sight of God, and this fasting shall be recorded; and the service so performed is beautiful and joyous and acceptable to the Lord. These things you shall so observe, you and your children and your whole household; and, observing them, you shall be blessed; yes, and all those, who shall hear and observe them, shall be blessed, and whatsoever things they shall ask of the Lord, they shall receive."

It here seems pertinent to note that by the time of (or possibly some while after) the 4th century, Christian assemblies began to use the planetary week cycle. Consequently, all of the Christian holy-day festivals were eventually rescheduled to follow a hebdomad itinerary.

The primal Christian adherence to "days of Stations" can further be detected from the contents of a treatise entitled: 'On Prayer'. The authorship of this document is attributed to the 2nd century bishop: Tertullian. Of course, it is somewhat doubtful that the entirety of the text that comprises the current document could have been penned by the original author. The following notation about 'standing' before God's Altar is somewhat unusual in comparison with other Christian literature in that the author of this text explores a possible meaning for the word 'statio' [Latin]:

> "Of Stations--Similarly, too, touching the days of Stations, most think that they must not be present at the sacrificial prayers, on the ground that the Station must be dissolved by reception of the Lord's Body. Does, then, the Eucharist cancel a service devoted to God, or bind it more to God? Will not your Station be more solemn if you have withal stood at God's altar? When the Lord's Body has been received and reserved each point is secured, both the participation of the sacrifice and the discharge of duty. If the "Station" has received its name from the example of military life 'for we withal are God's military' of course no gladness or sadness chanting to the camp abolishes the "stations" of the soldiers: for gladness will carry out discipline more willingly, sadness more carefully . . . Prayer is the wall of faith: her arms and missiles against the foe who keeps watch over us on all sides. And, so never walk we unarmed. By day, be we mindful of Station; by night, of vigil. Under the arms of prayer guard we the standard of our General; await we in prayer the angel's trump . . . ".

Writings attributed to the same 2nd century bishop (Tertullian) do furthermore expound upon the Christian tradition of observing stations. The custom among primal Christians of periodically abstaining from certain foods is especially manifested from the contents of a treatise entitled: 'On Fasting--In Opposition to the Psychics':

> " . . . [On holy days, Psychics have marital sex, and they hate to fast. However, spiritual discipline requires] reins upon the appetite, through taking, sometimes no meals, or late meals, or dry meals . . . They charge us with keeping fasts of our own . . . Being, therefore, observers of "seasons" for these things, and of "days, and months, and years," we Galaticize. Plainly we do, if we are observers of Jewish ceremonies, of legal solemnities: for those the apostle unteaches, suppressing the continuance of the Old Testament which has been buried in Christ, and establishing that of the New. But if there is a new creation in Christ,' our solemnities too will be bound to be new: else, if the apostle has erased all devotion absolutely "of seasons, and days, and months, and years," why do we celebrate the passover by an annual rotation in the first month? Why in the 50 ensuing days do we spend our time in all exultation? Why do we devote to Stations . . . of the week(s), and to fasts . . . ". (my paraphrase, translation borrowed from S. Thelwall).

Again, there are indications that texts attributed to Tertullian (c. 2nd-century) have been redacted by subsequent scribes. Even so, the cited "devotion to Stations" by the Montanist assemblies seems to have been understood in the context of liturgy subscribed to in an earlier era by the Levitical priesthood.

CHAPTER 8
TRADITION OF A COVENANT

The previous chapter has cited certain historical references in substantiation of an hypothesis that Temple adherents routinely participated in a sacred vigil. The enactment of specific liturgy in pace with a lunar-week schedule raises a number of questions about the origin of the respective custom.

Clearly, the depicted period of an evening vigil was understood to represent time that was holy:

> "[Adherents meet together] . . . the young men bring in the table . . . on which was placed that MOST HOLY food, the leavened bread, with a seasoning of salt, with which hyssop is mingled, out of reverence for the sacred table, which lies thus in the holy outer temple . . . And after the feast they celebrate the SACRED FESTIVAL during the whole night . . . " ('The Contemplative Life', Philo Judaeus, translation borrowed from Yonge).

But which one of the laws that are recorded throughout the books of the Bible can even come close to defining an all night gathering? The Sabbath law that is stated to have been penned by God and given to Israel (through Moses) is rather explicit in its definition of a resting day--as follows:

> "Six days may work be done; but in the seventh is the sabbath of rest, holy to the LORD . . . the children of Israel shall keep the sabbath, to observe the sabbath throughout their generations, for a perpetual covenant . . . And he gave unto Moses, when he had made an end of communing with him upon mount Sinai, two tables of testimony, tables of stone, written with the finger of God."

Thus, there is no clear evidence that shines from out of the Mosaic law that pertains to the celebration of a Holy Evening. The commandment that is recorded did only stipulate that "in the 7th is the Sabbath".

According to a passage written within 'The Book of Jubilees', the command to work 6 days and then to keep a Sabbath on the 7th day was a tenet known only to the "Angels of the Presence" and also to the "Angels of Sanctification". Furthermore, sanctification was shown to have exclusively been granted to the nation of Israel. In essence, it was understood by the author (or authors) of 'The Book of Jubilees' (c. 150 BCE) that the Heavenly Hosts had sanctified only Israel to celebrate the 7th day:

> " . . . He gave us a great sign, the Sabbath day, that we should work six days, but keep Sabbath on the seventh day from all work. And all the Angels-of-the-Presence, and all the Angels-of-Sanctification, these two Great Classes--He hath bidden us to keep the Sabbath with Him in heaven AND ON EARTH. And He said unto us: 'Behold, I will

> separate unto Myself a people from among all the peoples, and these shall keep the Sabbath day, and I will sanctify them unto Myself as My people. . . And thus He created therein a sign in accordance with which they should keep Sabbath with us on the seventh day, TO eat and to drink, and to bless Him who has created all things as He has blessed and sanctified unto Himself a peculiar people above all peoples, and that they should keep Sabbath together with us . . . Wherefore do thou command the children of Israel to observe this day that they may keep it holy and not do thereon any work, and not to defile it, AS IT IS HOLIER than all other days . . . that day is more holy and blessed than any jubilee day of the jubilees . . . he did not sanctify ALL PEOPLES AND NATIONS to keep Sabbath thereon, but Israel alone: THEM ALONE he permitted to EAT and DRINK and to keep Sabbath thereon on the earth . . . " (Chapter 2, translated by Charles).

Passages from period literature do then stress the significance of keeping the 7th day as a holy Sabbath on the part of Israel. But, why did contemporary adherents of the Temple also interpret the celebration of a minor Sabbath that was "less holy" and "less blessed" than a more major Sabbath.

The most plausible explanation for the holding of a solemn assembly (Atsereth) is probably that this Temple-Era custom was understood to pertain to a covenant that predated the time of Moses. To be more specific, portions of the Genesis record can be recited to substantiate early-held knowledge of an antediluvian covenant--as follows:

> "[Chapter 6] . . . [A flood will] destroy all flesh, wherein is the breath of life, from under heaven; and every thing that is in the earth shall die. But with thee will I [= God] establish MY COVENANT; and thou shalt come into the ark, thou, and thy sons, and thy wife, and thy sons' wives with thee. And of every living thing of all flesh . . . shalt thou bring into the ark, to keep them alive . . . ".

This Divine covenant--given to the nations--is listed again in greater detail in the following portion of the 8th chapter:

> "Noah builded an altar unto the LORD . . . and offered burnt offerings on the altar. And the LORD smelled a sweet savour . . . and the LORD said while the earth remaineth, seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease. And God blessed Noah and his sons, and said unto them, Be fruitful, and multiply, and replenish the earth . . . Every moving thing that liveth shall be meat for you . . . But flesh with the life thereof, which is the blood thereof, shall ye not eat . . . And God spake unto Noah, and to his sons with him, saying, And I, behold, I establish my covenant with you".

The Genesis account of cataclysm on earth is quite similar to Babylonian records that describe a flood event.

> "The Babylonian account of the Deluge in many points closely resembles that of the Bible. Four cuneiform recensions of it have been discovered, of which, however, three are only short fragments. The complete story is found in the Gilgamesh epic (Tablet xi) discovered by G. Smith among the ruins of the library of Assurbanipal in 1872. Another version is given by Berosus. In the Gilgamesh poem the hero of the story is Ut-

> napishtim (or Sit-napishti, as some read it). surnamed Atra-basis "the very clever"; in two of the fragments he is simply styled Atra-basis, which name is also found in Berosus under the Greek form Xisuthros. The story in brief is as follows: A council of the gods having decreed to destroy men by a flood, the god Ea warns Ut-napishtim, and bids him build a ship in which to save himself and the seed of all kinds of life. Ut-napishtim builds the ship (of which, according to one version, Ea traces the plan on the ground), and places in it his family, his dependents, artisans, and domestic as well as wild animals, after which he shuts the door. The storm lasts six days; on the seventh the flood begins to subside. The ship steered by the helmsman Puzur-Bel lands on Mt. Nisir. After seven days Ut-napishtim sends forth a dove and a swallow, which, finding no resting-place for their feet return to the ark, and then a raven, which feeds on dead bodies and does not return. On leaving the ship, Ut-napistim offers a sacrifice to the gods, who smell the goodly odor and gather like flies over the sacrificer. He and his wife are then admitted among the gods. The story as given by Berosus comes somewhat nearer to the Biblical narrative . . . " ('The Original Catholic Encyclopedia').

In the cited cuneiform record, Ut-napishtim was warned of impending destruction by a god named Ea. (Of interest here is that the Babylonian deity titled as Ea can be recognized to have a name very similar in sound to that of the Biblical God: YHWH). Upon escaping death, Ut-napishtim [= the Chaldean Noah] is shown to have sacrificed to the gods--as follows:

> "I sent forth to the four winds,
> I poured out a libation
> I made an offering on the peak of the mountain:
> SEVEN AND SEVEN I set incense-vases there,
> Into their depths I poured cane, cedar, scented wood.
> The gods smelled a savour,
> The gods smelled a sweet savour,
> The gods gathered like flies over the sacrificer."
> ('The Religion of Babylonia and Assyria', Pinches)

Thus, one of the oldest of all religious ceremonies in recorded history is attributed to the Bible patriarch Noah--whose name means rest. In the Babylonian record the sacrificial ceremony was carried out by Ut-napishtim--whose name means life.

Additional perspective concerning God's covenant with Noah can be gained from 'The Book of Jubilees'--the previously cited Jewish document that was in circulation from prior to the Common Era:

> "[Chapter 6] And on the new moon of the 3rd month he went forth from the ark, and built an altar on that mountain. And he made atonement for the earth . . . for everything that had been on it had been destroyed, save those that were in the ark with Noah. And he . . . placed a burnt sacrifice on the altar, and poured thereon an offering mingled with oil, and sprinkled wine and strewed frankincense over everything, and caused a goodly savour to arise, acceptable before the Lord. And the Lord smelt the goodly savour, and He made a covenant with him that there should not be any more a flood to destroy the earth; that all the days of the earth seed-time and harvest should never cease; cold and heat, and summer and winter, and day and night should not change their order, nor cease for ever. 'And you, increase ye and multiply upon the earth, and become many upon it, and be a blessing upon it. The fear of you and the dread of you I will inspire in

> everything that is on earth and in the sea. And behold I have given unto you all beasts, and all winged things, and everything that moves on the earth, and the fish in the waters, and all things for food; as the green herbs, I have given you all things to eat. But flesh, with the life thereof, with the blood, ye shall not eat; for the life of all flesh is in the blood, lest your blood of your lives be required. At the hand of every man, at the hand of every (beast) will I require the blood of man. Whoso sheddeth man's blood by man shall his blood be shed, for in the image of God made He man. And you, increase ye, and multiply on the earth.' And Noah and his sons swore that they would not eat any blood that was in any flesh, and he made a covenant before the Lord God for ever throughout all the generations of the earth in this month. On this account He spake to thee that thou shouldst make a covenant with the children of Israel in this month upon the mountain with an oath, and that thou shouldst sprinkle blood upon them because of all the words of the covenant, which the Lord made with them for ever. And this testimony is written concerning you that you should observe it continually, so that you should not eat on any day any blood of beasts or birds or cattle during all the days of the earth, and the man who eats the blood of beast or of cattle or of birds during all the days of the earth, he and his seed shall be rooted out of the land. And do thou command the children of Israel to eat no blood, so that their names and their seed may be before the Lord our God continually. And for this law there is no limit of days, for it is for ever. They shall observe it throughout their generations . . . For this reason it is ordained and written on the heavenly tablets, that they should celebrate the feast of weeks . . . to renew the covenant . . . And do thou command the children of Israel to observe this festival in all their generations for a commandment unto them . . . they shall celebrate the festival. FOR IT IS THE FEAST OF WEEKS and the feast of first fruits: this feast is twofold and of a double nature: according to what is written and engraven concerning it, celebrate it. For I have written in the book of the first law, in that which I have written for thee, that thou shouldst celebrate it . . . and I explained to thee its sacrifices that the children of Israel should remember and should celebrate it throughout their generations . . . And all the children of Israel will forget and will not find the path of the years, and will forget the new moons, and seasons, and sabbaths and they will go wrong as to all the order of the years. For I know and from henceforth will I declare it unto thee, and it is not of my own devising; for the book (lies) written before me, and on the heavenly tablets the division of days is ordained, lest they forget the feasts of the covenant . . . they will disturb (the order), and make an abominable (day) the day of testimony, and an unclean day a feast day, and they will confound all the days, the holy with the unclean, and the unclean day with the holy; for they will go wrong as to the months and sabbaths and feasts and jubilees. For this reason I command and testify to thee that thou mayst testify to them; for after thy death thy children will disturb (them) . . . and for this reason they will go wrong as to the new moons and seasons and sabbaths and festivals, and they will eat all kinds of blood with all kinds of flesh." (translation borrowed from Charles, my paraphrase).

The text quoted from 'The Book of Jubilees' has been passed down from a time that reaches far back in recorded history. The topic material covered in this manuscript is significant in that a large focus upon the scheduling of festivals is maintained. It is obvious that the opinion of more than a single author is reflected from the various passages that are disparate. One presented view appears to be upon a calendar of lunar months, another of solar months, and yet another of weeks. Of additional significance about the content of this publication is that the original author of this manuscript was very much concerned that the eternal covenant made with the survivors of the flood (the feast of weeks) would be forgotten in Israel.

This everlasting covenant between God and the nations (or Gentiles) is also mentioned in a prophecy recorded in the book of Isaiah--c. 750 BCE--as follows:

> "The earth also is defiled under the inhabitants thereof; because they have transgressed the laws, changed the ordinance, broken the everlasting covenant [Hebrew: olam bereeth]." (AV text of Isaiah 24:5).

More about the significance of this "eternal covenant" with the nations can be understood from passages written in the Talmud. (The Talmud defines modern Judaism, and even though it was written down centuries into the Common Era, the writings are largely based upon what was taught by more primal rabbis).

> "According to Judaism, as expressed in the Talmud, the Noahide Laws apply to all humanity through mankind's descent from one paternal ancestor who in Hebrew tradition is called Noah (the head of the only family to survive during The Flood). In Judaism . . . the "Descendants of Noah" . . . refers to all of mankind. The Talmud also states: "Righteous people of all nations have a share in the world to come" (Sanhedrin 105a). Any non-Jew who lives according to these laws is regarded as one of "the righteous among the Gentiles" . . . According to the Biblical narrative, the Deluge covered the whole world killing every surface-dwelling creature except Noah, his wife, his sons and their wives, sea creatures, and the animals taken by Noah on Noah's Ark. After the flood, God sealed a covenant with Noah . . . The Talmud states that the instruction to not eat "flesh with the life" was given to Noah, and that Adam and Eve had already received six other commandments . . . One rabbinic opinion holds that not only are non-Jews NOT OBLIGATED to adhere to all the laws of the Torah, but they are actually FORBIDDEN to observe them. Rabbinic Judaism and its modern-day descendants discourage proselytization. The Noahide Laws are regarded as the way through which non-Jews can have a direct and meaningful relationship with God or at least comply with the minimal requisites of civilization and of divine law. A non-Jew who keeps the Noahide Laws in all their details is said to attain the same spiritual and moral level as Israel's own Kohen Gadol (high priest) . . . The 18th century rabbi, Jacob Emden proposed that Jesus, and Paul after him, intended to convert the Gentiles to the Noahide laws while allowing the Jews to follow full Mosaic Law . . . " (Seven Laws of Noah, Wikipedia).

To be a bit more specific about the Hebrew record of God's plan for the Gentiles, a number of anciently delivered messianic prophecies do clearly pertain to the salvation of Israel and also of all the nations. In example, the following passage from the book of Isaiah predicts the reign of the Messiah--as follows:

> "Thus saith God the LORD, he that created the heavens, and stretched them out; he that spread forth the earth, and that which cometh out of it; he that giveth breath unto the people upon it, and spirit to them that walk therein: I the LORD have called thee [= the Messiah] in righteousness, and will hold thine hand, and will keep thee, and give thee FOR A COVENANT OF THE PEOPLE, for a light of the Gentiles . . . " (Chapter 42).

This question about the salvation of the Gentiles was addressed by a 1st-century meeting of the Apostles. The minutes of this meeting can be read from a portion of text compiled into the book of Acts:

[Chapter 15] But certain persons who had come down from Judaea tried to convince the brethren, saying, "Unless you are circumcised in accordance with the Mosaic custom, you cannot be saved." Between these new comers and Paul and Barnabas there was no little disagreement and controversy, until at last it was decided that Paul and Barnabas and some other brethren should go up to consult the Apostles and Elders in Jerusalem on this matter. So they set out, being accompanied for a short distance by some other members of the Church; and as they passed through Phoenicia and Samaria, they told the whole story of the conversion of the Gentiles and inspired all the brethren with great joy. Upon their arrival in Jerusalem they were cordially received by the Church, the Apostles, and the Elders; and they reported in detail all that God, working with them, had done. But certain men who had belonged to the sect of the Pharisees but were now believers, stood up in the assembly, and said, "Yes, Gentile believers ought to be circumcised and be ordered to keep the Law of Moses."

Then the Apostles and Elders met to consider the matter; and after there had been a long discussion Peter rose to his feet. "It is within your own knowledge," he said, "that God originally made choice among you that from my lips the Gentiles were to hear the Message of the Good News, and believe. And God, who knows all hearts, gave His testimony in their favour by bestowing the Holy Spirit on them just as He did on us; and He made no difference between us and them, in that He cleansed their hearts by their faith. Now, therefore, why try an experiment upon God, by laying on the necks of these disciples a yoke which neither our forefathers nor we have been able to bear? On the contrary, we believe that it is by the grace of the Lord Jesus that we, as well as they, shall be saved."

Then the whole assembly remained silent while they listened to the statement made by Paul and Barnabas as to all the signs and marvels that God had done among the Gentiles through their instrumentality. When they had finished speaking, James said, "Brethren, listen to me. Symeon has related how God first looked graciously on the Gentiles to take from among them a People to be called by His name. And this is in harmony with the language of the Prophets, which says: "Afterwards I will return, and will rebuild David's fallen tent. Its ruins I will rebuild, and I will set it up again; In order that the rest of mankind may earnestly seek the Lord--even all the nations which are called by My name," Says the Lord, who has been making these things known from ages long past.' "My judgement, therefore, is against inflicting unexpected annoyance on those of the Gentiles who are turning to God. Yet let us send them written instructions to abstain from things polluted by connexion with idolatry, from fornication, from meat killed by strangling, and from blood. For Moses from the earliest times has had his preachers in every town, being read, as he is, Sabbath after Sabbath, in the various synagogues." Thereupon it was decided by the Apostles and Elders, with the approval of the whole Church, to choose suitable persons from among themselves and send them to Antioch, with Paul and Barnabas. Judas, called Bar-sabbas, and Silas, leading men among the brethren, were selected, and they took with them the following letter:

"The Apostles and the elder brethren send greeting to the Gentile brethren throughout Antioch, Syria and Cilicia. As we have been informed that certain persons who have gone out from among us have disturbed you by their teaching and have unsettled your minds, without having received any such instructions from us; we have unanimously decided to select certain men and send them to you in company with our dear friends Barnabas and Paul, who have endangered their very lives for the sake of our Lord Jesus Christ. We have therefore sent Judas and Silas, who are themselves bringing you the same message by word of mouth. For it has seemed good to the Holy Spirit and to us to lay upon you no burden heavier than these necessary requirements--You

> must abstain from things sacrificed to idols, from blood, [from things strangled], and from fornication. Keep yourselves clear of these things, and it will be well with you. Farewell" (Weymouth translation).
>
> [Please take note here that the earliest versions of the Acts of the Apostles contain no mention of "things drowned or strangled"].

This record about Divine salvation being offered to those righteous among the nations clearly reveals that the instructions then delivered were not connected with the Mosaic covenant. (Instead, the guides that were delivered to the Gentile converts were obviously nothing more than a rehearsal of Noah's eternal covenant).

This apparent differentiation between two Divine covenants (of Noah, and of Moses) then almost has to mean that the cited week-of-weeks assembly (and the associated eating of a Holy Meal) would have been taught to the Gentile converts as a tenet of Noah's covenant. In essence, the indicated keeping of an evening rest (a Sabbath) would have been understood and taught as a memorial of the salvation that was Divinely revealed in the antediluvian era.

Gentiles who flourished early in the First Century CE are shown in the book of Acts to have assembled for a 'count 50' event--as follows:

> "And when the day of Pentecost was fully come, they were all with one accord in one place. And suddenly there came a sound from heaven as of a rushing mighty wind, and it filled all the house where they were sitting. And there appeared unto them cloven tongues like as of fire, and it sat upon each of them. And they were all filled with the Holy Ghost, and began to speak with other tongues, as the Spirit gave them utterance. And there were dwelling at Jerusalem Jews, devout men, out of every nation under heaven. Now when this was noised abroad, the multitude came together, and were confounded, because that every man heard them speak in his own language. And they were all amazed and marvelled, saying one to another, Behold, are not all these which speak Galilaeans? And how hear we every man in our own tongue, wherein we were born? Parthians, and Medes, and Elamites, and the dwellers in Mesopotamia, and in Judaea, and Cappadocia, in Pontus, and Asia, Phrygia, and Pamphylia, in Egypt, and in the parts of Libya about Cyrene, and strangers of Rome, Jews and proselytes, Cretes and Arabians, we do hear them speak in our tongues the wonderful works of God" (KJV text of Chapter 2: 1-11).

Of significance here is that some passages of the Bible are graphic in outlining a Sabbath of rest that is expected of converts from the nations:

> "Thus saith the LORD . . . my salvation is near to come, and my righteousness to be revealed. Blessed is the man that doeth this, and the son of man that layeth hold on it; that keepeth the sabbath from polluting it, and keepeth his hand from doing any evil. Neither let the son of the stranger, that hath joined himself to the LORD, speak, saying, The LORD hath utterly separated me from his people . . . the sons of the stranger, that join themselves to the LORD, to serve him, and to love the name of the LORD, to be his servants, every one that keepeth the Sabbath from polluting it, and taketh hold of my covenant; Even them will I bring to my holy mountain, and make them joyful in my

> house of prayer . . . for mine house shall be called an house of prayer for all people" (Isaiah 56).

Passages from 'The Book of Jubilees' are likewise graphic in showing that a set of Sabbaths was adhered to by the father of the nations--or Noah (as previously quoted). Of significance here is that a set of 7 Sabbaths (the feast of weeks) can be recognized to have constituted a portion of Noah's perpetual covenant--as follows:

> "And Noah and his sons swore that they would not eat any blood that was in any flesh, and he made a covenant before the Lord God for ever throughout all the generations of the earth in this month [= renewal]. On this account He spake to thee that thou shouldst make a covenant with the children of Israel in this month [= renewal] upon the mountain with an oath, and that thou shouldst sprinkle blood upon them because of all the words of the covenant, which the Lord made with them for ever. And this testimony is written concerning you that you should observe it continually, so that you should not eat on any day any blood of beasts or birds or cattle during all the days of the earth . . . And for this law there is no limit of days, for it is for ever. They shall observe it throughout their generations . . . FOR THIS REASON IT IS ORDAINED AND WRITTEN ON THE HEAVENLY TABLETS, THAT THEY SHOULD CELEBRATE THE FEAST OF WEEKS . . . TO RENEW THE COVENANT . . . For it is the feast of weeks and the feast of first fruits: this feast is twofold and of a double nature: according to what is written and engraven concerning it, celebrate it. For I have written in the book of the first law, in that which I have written for thee, that thou shouldst celebrate it . . . and I explained to thee its sacrifices that the children of Israel should remember and should celebrate it throughout their generations . . . And all the children of Israel will forget and will not find the path of the years, and will forget the new moons, and seasons, and sabbaths and they will go wrong as to all the order of the years . . . they will go wrong as to the new moons and seasons and sabbaths and festivals, and they will eat all kinds of blood with all kinds of flesh" (Charles version, my paraphrase).

The everlasting covenant [Hebrew: olam bereeth] that is shown to have been made with the descendants of Noah (the nations) then tends to explain why primal Christians would have tracked and celebrated the renewal of 7 lunar Sabbaths.

CHAPTER 9
BEFORE MOSES

Mesopotamian cuneiforms that date from before the turn of the 4th century BCE tend to further indicate that astronomer-priests who flourished in the ancient Middle East would have subscribed to the celebration of a religious schedule that was predicated upon the quarter phases of the Moon.

An example of the early time track (and Sabbath celebration) of the lunar quarter (or the lunar week) can be recited from the Fifth Tablet of Semitic Story of Creation--as follows:

> "Nannaru (the moon)
> He caused to shine, ruling the night:
> He set him then as a creature of the night,
> to make known the days (i.e. the festivals).
> Monthly, unfailing, he provided him with a tiara.
> At the beginning of the month appearing in the land,
> The horns shine forth to make known the seasons.
> On the 7th day the tiara perfecting,
> A sabbath shalt thou then encounter, mid-[month?]ly."

For more information about the shown translation, refer to 'The Encyclopedia of Religion and Ethics, Part 20', Hastings, Page 890. The Babylonian account of the creation of the Moon and stars (shown on the Fifth Tablet) was further described by the 20th century scholar: T.G. Pinches--as follows:

> "[Marduk, who was the chief god, created] stations for the great gods in the likeness of constellations, together with what is regarded as the Zodiac, were his next work. He then designated the year, setting three constellations for each month, and made a station for Nibiru--Merodach's own star--as the overseer of all the lights in the firmament. He then caused the new moon, Nannaru, to shine, and made him the ruler of the night, indicating his phases, one of which was on the seventh day, and the other, a /sabattu/, or day of rest, in the middle of the month. Directions with regard to the moon's movements seem to follow, but the record is mutilated, and their real nature consequently doubtful. With regard to other works which were performed we have no information, as a gap prevents their being ascertained. Something, however, seems to have been done with Merodach's net--probably it was placed in the heavens as a constellation, as was his bow, to which several names were given. Later on, the winds were bound and assigned to their places, but the account of the arrangement of other things is mutilated and obscure, though it can be recognised that the details in this place were of considerable interest." ('The Religion of Babylon and Assyria')

A given conclusion from the Babylonian record then is that priest-kings who flourished in the ancient Middle East--including Israelite--would likewise have participated in a set of liturgy paced by the Moon.

A better example of the Babylonian time track and celebration of the lunar quarter can perhaps be recited from a religious calendar in which the intercalary months Elul and Marchesvan are shown. During certain evenings--those listed in correspondence with the 7th, 14th, 21st, and 28th days of the month--the Shepherd of the great people is shown to have offered special sacrifices (George A. Barton, A&B). During the cited evening ceremony, a libation offering was poured out, and the hands of the king-priest were lifted up (waved?) to please the gods. Of significance here is that in regions of Mesopotamia, this and/or additional ceremony may have been limited to certain evenings of certain months of the year . . . and only members of the Mesopotamian ruling class are indicated to have participated in the evening ceremony.

Though much of the detail of the evening liturgy that was once performed by the aristocracy of Babylon isn't shown on the recovered cuneiforms, an early-held religious regard for some kind of lunar-quarter schedule is minimally indicated.

Of related interest is that some scholars have explored the possibility that a harvest calendar (comprised of week-of-weeks segments) was widely celebrated throughout the early Middle East (Levvy, 'Origin', pp 1-152). In a historical research of the harvest cycle, some scholars (such as Morgenstern) have concluded that a track of 7 weeks ('hamushtum') was integral in the definition of a formal calendar (a pentecontad calendar):

> Based upon early-written references to a cycle of 7 weeks, Levvy and Morgenstern have hypothesized that a pentecontad calendar was once popular in the ancient Middle East. (For more information, refer the research article on the 'Sabbath' appearing in the 'The Interpreter's Dictionary of the Bible', ed. George A Buttrick, New York: Abingdon Press, 1962, 4: 135-136). According to this publication, each year of the pentecontad calendar contained 7 pentecontads, while each 50th day throughout the year cycle was celebrated as 'atsrah'.

Of related interest here is that Hebrew texts of the 1st century do clearly reflect a much earlier tradition of conducting the annual harvest in 7-week sequences. In example, according to 'The Book of Jubilees', the patriarchs: Noah, Abram, Isaac, and Jacob all observed the feast of weeks. This book does further state that Enoch was the first among all of mankind to have "recounted the weeks of the jubilees . . . and set in order the months . . . ".

One of the more interesting passages from Jubilees relates that the feast of weeks was celebrated in heaven from the day of creation:

> " . . . it is ordained and written on the heavenly tablets, that they should celebrate the feast of weeks . . . to renew the covenant every year. And THIS WHOLE FESTIVAL was celebrated in heaven from the day of creation till the days of Noah . . . ('Chapter 6: 18, by Charles)"

The above referral to "this whole festival" was probably made by the author to differentiate a set of liturgy that was followed in the era of Noah as apart from liturgy that was required of Israel under the Torah.

Of significance here is that righteous Jews, even those who flourished in the era of the late Second Temple, can be recited to have been mindful of Noah's age-lasting covenant. In example, the presentation of tithes and harvest offerings in pace with jubilee days or 50th days can be recited from the writings of Epiphanius of Salamis--as follows:

> [The Pharisees] "paid tithes, gave the firstfruits--those of the 30th and those of the 50th days--and rendered the sacrifices and prayers without fail." (Panarion, Against Pharisees, refer to Volume 1, 1:16 by Williams).

In another written passage, Epiphanius left further description of harvest offerings that likewise were presented in pace with a cycle of 50 days:

> "The children of Israel . . . on their departure from Egypt were given God's Law at the hands of Moses himself. The Law God gave them . . . Its teachings were: circumcision; Sabbath observance; tithing . . . ; the presentation of firstfruits both on the 50th and on the 30th days; and to know God alone and serve him." (The Panarion of Epiphanius of Salamis, Judiasm, refer to Williams).

A better perspective of the presentation of tithes and offerings (presented in pace with the weeks of harvest) can perhaps more quickly be gained by bringing what has already been presented within the lens of the current focus.

As was shown in Chapter 3 (from above) it was in the spring season of the year a sheaf of barley was waved by the Temple priests (on the 16th day of the first lunar month). After a time duration of 7 lunar quarters had elapsed, a 'count 50' ceremony (an Asartha) marked the beginning of the wheat harvest. Grain was thereafter allowed to be processed (throughout a duration that lasted for 7 lunar quarters). An Asartha was held again (right at the turn of the 7th lunar quarter) and ceremony was performed to mark the beginning of the grape harvest. Wine was thereafter allowed to be processed (throughout a duration in time that spanned 7 more weeks. An Asartha was again held and ceremony was again performed on the morning of the 7th Sabbath. The harvest of olives was then allowed, and the processing of oil continued for yet 7 more weeks.

This processing of grain, wine, and oil by time segments that straddled 7 full Sabbaths is perhaps most graphically shown on the 11QTemple Scroll. This respective scroll is especially significant in showing that TITHE was SET ASIDE and was kept in store (from the harvest each year). This tithe from a previous year was not allowed to be consumed (once a current year's harvest season had begun).

> "On the day of the firstfruits (of grain, and of wine, and of oil) . . . the tithe may be eaten. However, it is forbidden to save any of it over to the next year . . . 1. Grain may be eaten from the day of the firstfruits until the next year (on the day of the firstfruits of grain); 2. Wine may be consumed from the day of the festival (of wine) until the next year (on the day of the festival of the wine); and 3. Oil may be used from its festival, until the next year (on the day of the new offering of oil on the Altar). Any that is left after a respective festival shall then be made holy with fire. After this, it must not be eaten for it is holy" (my paraphrase).

Of significance here is that 3 tithes of the first fruits were set aside: one tithe was set aside for New Grain, one tithe was set aside for New Wine, and one tithe was set aside for New Oil.

This definition of 3 separate tithes does not mean that an amount totaling 30 percent was set aside each year but rather that 10 percent of only the first fruits was vowed to be holy.

Because the first fruits were defined/delimited across rather small time segments (of 7 weeks each) then the first fruits tithe would have totaled only a little over 4 percent of a farmers' annual income.

The cited tithe that was reserved from the first fruits of grain, wine, and oil was set aside to cover the costs of attending annual festivals. The remainder of the annual tithe (other than the first fruits) was set aside for the poor.

A good example of the setting aside of the first fruits tithes (or 3 separate tithes) is mirrored in a passage from 'The Book of Jubilees'--as follows:

> "[The patriarch] Levi dreamed that they had ordained and made him the priest of the Most High God . . . And Jacob rose EARLY in the morning, on the 14th of this month, and he gave a tithe of all . . . and his father clothed him in the garments of the priesthood and filled his hands. And on the 15th of this month, he brought to the altar . . . his offering, in consequence of the vow which he had vowed that he would give a tenth, with their fruit-offerings and their drink-offerings . . . And Levi discharged the priestly office at Bethel before Jacob his father . . . and he was a priest there . . . [Jacob] tithed again the [second] tithe to the Lord and SANCTIFIED it, and it became holy unto Him. And for this reason it is ordained on the heavenly tablets as a law for the TITHING AGAIN . . . and to this law there is no limit of days for ever. This ordinance is written that it may be fulfilled FROM YEAR TO YEAR . . . and nothing shall remain over from it from this year to the year following. For in its year shall the [wheat] seed be eaten UNTIL THE DAYS OF THE HARVEST OF THE SEED OF THE YEAR, and the wine UNTIL THE DAYS OF THE WINE, and the oil UNTIL THE DAYS OF ITS SEASON. And all that is left thereof and becomes old, let it be regarded as polluted . . . And thus . . . let them not suffer it to become old . . . " (refer to Chapter 7, by Charles).

In a passage of text from 'Questions and Answers on Genesis, Part 3', Philo Judaeus (a writer who flourished at the turn of the Common Era) described the first fruit tithes on New Grain, New Wine, and New Oil--as follows:

> ". . . after a tenth of the [first] fruits of the earth, of grain, or wine, or oil, has been taken then another tenth is also taken from the remainder . . . "

This passage is significant in that the total annual tithe is shown in two separate portions: 1. A first fruits portion; and 2. A remaining portion.

So, the first portion of the yearly tithe is shown to have been paid in association with the time of growing first fruits (of grain, and wine, and oil). After the first fruits, a second portion of the annual tithe is shown to have been paid.

Of significance about the annual tithe then is that the LATTER PORTION of the annual tithe would have been paid only AFTER the first 3 tithes of the year had been set aside.

The remainder of the yearly tithe was given to the poor. However, unlike the second portion of the tithe, or the portion that was given to the local poor, the first tithe was saved to cover the costs associated with attending festivals:

> [First Portion:] "Thou shalt truly tithe all the increase of thy seed, that the field bringeth forth year by year. And thou shalt eat before the LORD thy God, in the place which he shall choose to place his name there, the tithe of thy corn, of thy wine, and of thine oil, and the firstlings of thy herds and of thy flocks; that thou mayest learn to fear the LORD thy God always (KJV text of Deuteronomy 14:22-23).
>
> [Second Portion:] "When thou hast made an end of tithing all the tithes of thine increase [after] the third [in the] year . . . [give the remainder of the tithe] unto the Levite, the stranger, the fatherless, and the widow, that they may eat within thy gates, and be filled" (my paraphrase of Deuteronomy 26:12)."

Early-written literature additionally indicates that the track of a 'count 50' cycle (and a law of tithing) was at first taught by the antediluvian patriarch Enoch. More about the major accomplishments of the cited astronomer (Enoch) can be understood from a historical sketch presented by Bar-Hebraeus. This medieval author's writings about the life and times of Enoch appear to represent a compendium that was drawn from a number of more ancient sources. According to this respective author, Enoch was also the first to have "discovered the knowledge of the Zodiac, and the course of the Planets".

The occupation of Enoch as a priest is only hinted at from amid the various texts attributed to Enoch's own authorship. However, some considerable degree as to the scope and effectiveness of his service in a priesthood office seems to be mirrored from certain passages of early-written literature. In example, Enoch is shown to have " . . . appointed festivals for sacrifices to the Sun, at each of the Zodiacal Signs". Enoch is further shown to have taught men "how to worship God . . . how/when to fast . . . to pray . . . give alms, votive offerings, and tenths". Enoch "reprobated inappropriate foods and drunkenness [= on holy days]" (Bar-Hebraeus). The set of religious liturgy

attributed to Enoch is thus rather similar to liturgy followed by Temple adherents when an Atsereth was held. In fact, several verses in the Hebrew Bible are explicit in showing that an atonement ceremony was performed by the highest priest . . . and right at the time when the tithe was presented on the 7th renewal (Hebrew: chodesh).

> Note that in reference to Hebrew texts contained in Chapters 16, 23, and 25 of Leviticus, a fast was demanded of the native Israelites (and also the foreigners). This respective fast was to be observed on a specific day . . and throughout the evening hours. (This fast was probably mandated to begin around 3 PM, or at the 9th hour after sunrise). Furthermore, a set of Sabbath-of-Sabbaths liturgy was performed on this day . . . and the attendant atonement ceremony appears to have been at or around the time of Jubilee tithing. (Of significance here is that the translators have added the word 'day' in all instances. Consequently the fast is shown to have been held on the 'tenth day of the 7th month' rather than 'the tithe of the 7th renewal').

Enoch; as an astronomer of note, and as a significant religious leader; seems to also be mirrored in certain Sumerian chronicles--where in "critical scholarship, Enoch is regarded as being a character based on the . . . myth of Enmeduranki" (Wikipedia). This title or name appears in the Sumerian king list. "[Surviving] records pre-date the authorship of the torah by some 1000 years, [and tell] . . . of a great priest . . . of the sun-god Utu. He, in the myth, was subsequently taken by the gods Shamash and Adad, to heaven, and taught the secrets of heaven and of earth. Enmeduranki was extremely significant to the Sumerians, as he was the ancestor from whom all priests had to be able to trace descent, in much the same way as Aaron was to the Aaronid priesthood of ancient Judaism . . . " (ibid.).

Pages of history thus portray Enoch to have been both an accomplished astronomer, as well as a ranking cleric. It here seems of some certain significance that this respective priest-astronomer is unilaterally shown to have been the very first to interpret a lunisolar system on the basis of a set of laws pertaining to the spin and orbital rates.

Writings attributed to Enoch no longer remained in mainstream circulation by the time of the European Renaissance. However, it is fortunate that an Ethiopian version of Enoch was rather recently discovered to still be in circulation.

The recovered writings do, in fact, contain a number of axioms and formulas that pertain to resolving the courses of the Earth and Moon (as previously has been shown). Of significance here is certain among the definitions and laws recorded in the astronomical book actually are correct in depicting that rates of solar days, synodic months, and tropical years can all be identified together in the context of a rational model (an intelligent lunisolar system). What is especially remarkable about a lunisolar system predicated upon an accounting of Sun and Moon stations is that a formal count

of solar days can be used to so exactly define and delimit each solar year into equal divisions.

> "Blessed are . . . all those who walk in the way of righteousness . . . in the reckoning of all their days in which the Sun traverses the heaven, entering into and departing from the portals for 30 days with the heads of thousands of the order of the stars, together with the 4 which are intercalated which divide the 4 portions of the year, which lead them and enter with them 4 days. Owing to them men shall be at fault and not reckon them in the whole reckoning of the year: yea, men shall be at fault, and not recognize them accurately . . . And the account thereof is accurate and the recorded reckoning thereof exact; for the luminaries, and months and festivals, and years and days, has [the Angel] Uriel shown and revealed to me, to whom the Lord of the whole creation of the world hath subjected the host of heaven. And he has power over night and day in the heaven to cause the light to give light to men Sun, Moon, and stars, and all the powers of the heaven which revolve in their circular chariots. And these are the orders of the stars, which set in their places, and in their seasons and festivals and months . . . " ('The Ethiopian Book of Enoch', Chapter 82, by Charles).

The collection of texts attributed to Enoch comprise a fascinating book in that the author tells of past history, he warns about Angelic judgment, and the writer forecasts the coming of a new age. A most mind riveting facet from the writings of Enoch is contained in those passages that detail his amazing encounter(s) with an Angel (or Angels). In fact, the book of Enoch is largely an account of visions the author received . . . as well as a record of the words that were spoken to him by a Divine Messenger. In vision, Enoch saw myriads of Angels serving in their courses, and through his communication with Divine Agents, the author of Enoch came to ultimately understand "the secrets of Heaven and Earth". Accordingly, he wrote down a set of definitions pertaining to the revolutions of the heavenly luminaries.

To more clearly illustrate the kind of lunisolar system that was understood by Enoch, a number of its features are recorded in the introductory section of the astronomical book--as follows:

> "[Chapter 72] The book of the courses of the luminaries of the heaven, the relations of each, according to their classes, their dominion and their seasons. . . according to their months. . . and how it is with regard to all the years of the world and unto eternity".

Thus, Enoch is shown to have come to recognize a lunisolar system in which the courses of the luminaries (the Sun, Moon, and stars) were defined within the context of counting cycles of days. Of significance here is that Enoch appears to have learned to type, or class, the days, and to assign them to a specific domain (stations, months, seasons, and years).

It also seems clear that Enoch recognized the existence of certain relationships between the heavenly luminaries, and he was able to define them within the context of certain laws or specific axioms.

The cosmological interpretations set forth in the astronomical section would at a glance appear to represent the work of one who was largely uninformed of the spin and orbital phenomenon. However, a longer look at the several definitions and attendant laws attributed to Enoch reveals that an elaborate lunisolar system must have been understood among those astronomer-priests who first discovered the divisions of the zodiac.

Early-held knowledge of the seasons and the tropical zodiac can also be recited from certain other manuscripts that were penned by ancient astronomers and priests. In example, among the most well known of the works by Jewish writers who flourished under the late 2nd Temple were--of course--produced by Philo Judaeus. Some of his many philosophical treatises are explicit in showing that the courses of the heavenly luminaries were then understood/interpreted as being representative of special time design:

> XVI. "[On the high priest's] chest there are twelve precious stones of different colours, arranged in four rows of three stones in each row, being fashioned so as an emblem of the zodiac. For the zodiac also consists of twelve animals, and so divides the four seasons of the year, allotting three animals to each season. And the whole place is very correctly called the logeum (logeion), since every thing in heaven has been created and arranged in accordance with right reason (logois) and proportion; for there is absolutely nothing there which is devoid of reason . . . And what else could exhibit to us the days and the nights, and the months and the years, and in short the divisions of time, but the harmonious and inconceivable revolutions of the Sun, and Moon, and other stars? And what could exhibit the true nature of number, except those same bodies just mentioned in accordance with the observation of the combination of the parts of time?" (Philo Judaeus, 'The Special Laws, Part I', Yonge translation).

For additional information confirming that a portion of the sacrificial itinerary adhered to by the Temple priesthood would have been paced by time stations of the Sun and Moon, refer to Chapter 12 of the current publication.

> "He who sees the Sun at its turning point, the Moon in its power, the planets in their orbits, and the signs of the zodiac in their orderly progress, should say: Blessed be He who has wrought the work of creation" (Talmud, Berachoth 59B).

In early centuries of the Common Era, a tradition of tracking and celebrating the revolution of the lunar week appears to have also been followed among the Celtic tribes (and others). While this custom is no longer widely observed in the West, the keeping of an evening Sabbath (with a fasting vigil) continues as a tradition that is practiced in Eastern countries.

Of significance here is that an early-held regard for the turn of the lunar-week; as well as a regard for the 12 divisions of the zodiac; can be recognized from both modern and ancient Eastern manuscripts. In fact, the modern tradition of celebrating a Sabbath (or Uposatha) at the turn of the lunar quarter is very clearly mirrored from

texts that herald from before the beginning of the Common Era. To be specific, those Vedic Sanskrit writings that describe the celebration of a lunar Sabbath (or Uposatha) point to an historical era that predates even the time of Shakyamuni [= a Buddha who lived in the 6th century BCE]:

> "The term uposatha comes from the Vedic Sanskrit upavasatha, a day of preparation, usually involving special observances . . . These preparation days were held on the days of the half-moon, full moon, and new moon--the eighth and (depending on the precise timing of the new and full moons) fourteenth or fifteenth days of the lunar fortnight . . . [Prior to the time of Shakyamuni, sects] used these days for observances . . . The Buddha [= Shakyamuni] adopted this practice, setting these days aside . . . to meet and teach . . . He also established a purely monastic uposatha observance, which he limited to the final day of the lunar fortnight . . . to determine the date of this observance, he relaxed the rule against their studying astrology . . . which in those days had not yet separated from astronomy, allowing them to learn as much astronomy as needed to calculate whether the full and new moons fell on the fourteenth or fifteenth of a particular fortnight." ('Buddhist Monastic Code II', Chapter 15, Uposatha, Thanissaro Bhikkhu).

It is obvious that the Eastern custom of celebrating liturgy in pace with the turn of the lunar quarters stemmed from out of the ancient Hindu culture. This tradition, in turn, appears to have been popular throughout the East from a time that reaches into the era of the prehistoric.

Quite a number of similarities can be recognized between the Uposatha that is observed in the East and a more primally observed fasting vigil subscribed to by primal Hebrews. (For additional information of the modern tradition, refer to Chapter 10). Based upon the rather ample Hebrew record, as cited throughout previous chapters, the Temple priests can be recognized to have tracked and celebrated the revolution of the lunar week in 7 sets--as follows:

1. A unique day or time station at the distance of each 7th lunar quarter was routinely accounted for the purpose of determining the limits of months, seasons, and of years (in 7 sets).
2. An Atsereth was memorialized among the priests (probably inline with the lunar quarter).
3. The celebration of a Sabbath at the turn of the 7th lunar quarter was considered among Jews to represent Sabbath time that was less "holy and blessed" than that of the 7th day. However, Christians, appears to have attributed more significance to this respective Sabbath. Among Christians, the "Great Day" was interpreted to represent a period of time that was "borrowed from the world to come".
4. The celebration of the cited lunar Sabbath was understood to represent a tenet of a Divine covenant that was made with the sons of Noah (or with the Gentile nations).

The tradition of holding a Sabbath vigil (Atsereth) at the revolution of the lunar week is shown to have been voluntary on the part of an adherent. However, the Hebrew record does encourage participation. A foreign practitioner of the cited Sabbath covenant is stated to be worthy of receiving Divine blessing--as follows:

> "[Blessed is] the foreigner . . . EVERY ONE that keepeth the Sabbath . . . and taketh hold of my covenant; Even them will I bring to my holy mountain, and make them joyful in my house of prayer. . . for mine house shall be called an house of prayer for all people" (Isaiah 56).

This expectation of receiving Supreme merit is likewise reflected from texts penned by the earliest among the Christians:

> "HAVING FULFILLED WHAT IS WRITTEN on that day on which you fast . . . your sacrifice shall be acceptable in the sight of God, and this fasting SHALL BE RECORDED; and the service so performed is beautiful and joyous and acceptable to the Lord. These things you shall so observe, you and your children and your whole household; and, observing them, you shall be blessed; yes, and all those, who shall hear and observe them, shall be blessed, and whatsoever things they shall ask of the Lord, they shall receive." ('The Shepherd of Hermas').

It is thus clearly manifested from the Mid-Eastern record that an age-lasting covenant was believed to have been Divinely granted to the progeny of Noah. A most major tenet of the perpetual ordinance concerned the non-eating of flesh (with blood)--as well as the associated holding of an Atsereth. The respective covenant that was given to the nations is summarily stated in 'The Book of Jubilees'--as follows:

> "For . . . it is ordained and written on the Heavenly Tablets, that they should celebrate the Feast of Weeks [= an age-lasting ordinance]".

CHAPTER 10
THE EASTERN SABBATH

The celebration of a Sabbath in pace with each passing lunar quarter (Uposatha) can additionally be recited from numerous passages of Oriental literature. Of significance here is a link that can be established between an ancient religion (or religions) that stemmed from prehistoric times into both the East and Middle East. To better illustrate this connection, "Both Vedic Mitra and Avestan Mithra derive from an Indo-Iranian common noun mitra, generally reconstructed to have meant "covenant, treaty, agreement, promise." This meaning is preserved in Avestan mithra "covenant." In Sanskrit and modern Indo-Aryan languages, mitra means "friend," one of the aspects of binding and alliance" (Wikipedia, Mitra).

> "The first extant record of Indo-Aryan Mitra, in the form mi-it-ra-, is in the inscribed peace treaty of c. 1400 BC between Hittites and the Hurrian kingdom of the Mitanni in the area southeast of Lake Van in Asia Minor. There Mitra appears together with four other Indo-Aryan divinities as witnesses and keepers of the pact" (ibid.).

Thus, the indicated antiquity of a primal religious blanket that was once spread across the Indo-Iranian region points to the possibility that the modern custom of celebrating Uposatha (or Upavasatha) was a tenet of a religion much older than Buddhism. The 'Eight Precepts' that define the modern observance of Uposatha are described in some detail in a document on lay Buddhist practice--as follows:

> The word [Uposatha] means "entering to stay," in the Buddhist sense, in a vihara or monastery. But it has a long history before Buddhist times as it was the custom of the brahmans who performed the Vedic rites and sacrifices to go to the sacred place away from their homes and families and purify themselves by leading a secluded life for a day and night, returning after the rites were finished. The days when they kept this seclusion were determined by the phases of the moon, the most important being the Full Moon and the New Moon days. Two other days, the quarter-moon days, were also observed.
>
> Here it may be helpful to say something about the lunar month. This is a month (originally this word is cognate with "moon") of 29 1/2 days. Two months have 59 days, that is, one of thirty and one of twenty-nine. Each month is divided into fortnights: of the waxing moon and of the waning moon. Each half is therefore of 14 or 15 days and in each half the days are numbered from the first of the waxing moon (the day after new moon day) to

the fourteenth (or fifteenth) of the waxing moon, and then from the first of the waning moon to the fourteenth of the waning moon. A new lunar month always begins (in Buddhist reckoning) with the waxing half-month. The eighth day (usually) of both bright and dark halves is the quartermoon day.

In the Buddha-time, various groups of ascetics and wanderers used the traditional Full and New moon days for expounding their theories and practices, while the Buddha allowed bhikkhus to assemble on these days to listen to the recitation of the Patimokkha (the fundamental rules of a bhikkhu) and to teach Dhamma to the lay people who came to their monastery. From that time down to the present, the Uposatha days have been observed by Buddhists, both ordained and laity, in all Buddhist countries. The practice of Buddhists, as known to the writer from Siam--and there are many local variations--is along these lines: Early in the morning lay people give almsfood to the bhikkhus who may be walking on almsround, invited to a layman's house, or the lay people may take the food to the monastery. Usually lay people do not eat before serving their food to the bhikkhus and they may eat only once that day, specially where the bhikkhus practice eating a single meal. In any case, their food is finished before noon. Before the meal the laity request the Eight Precepts (see below), which they promise to undertake for a day and night. It is usual for lay people to go to the local monastery and to spend all day and night there. In different monasteries, of course, the way they spend their time will not be the same and much depends on which aspect of the Dhamma is stressed there: study or practice. Where there is more study, they will hear as many as three or four discourses on Dhamma delivered by senior bhikkhus and they will have books to read and perhaps classes on Abhidhamma to attend. But they are quite free to plan their own time with meditation, discussion of Dhamma with the bhikkhus and so on. In a meditation monastery lay people will get less instruction and that will be about the Practice of Dhamma, while most of their time will be spent mindfully employed--walking and seated meditation with some time given to helping the bhikkhus with their daily duties. So the whole of this day and night (and enthusiastic lay people restrict their sleep) is given over to Dhamma. The Bhikkhus on these days have to meet (if they are four or more in number) and listen to one bhikkhu recite by heart the 227 rules of training contained in the Patimokkha. This meeting may take an hour or more and lay people may, or may not, attend, according to the tradition of that monastery. Apart from this regular observance, some bhikkhus may undertake an extra austere practice, such as not lying down on the Uposatha night, which means the effort to try and meditate in the three postures of walking, standing, and sitting all night.

This is the practice in brief, of "entering to stay at" (uposatha) a monastery in Asia. Obviously a Buddhist who has no facilities like these in a non-buddhist country must spend his Uposatha differently. Perhaps the first thing to consider is whether it is worth trying to keep the Uposatha days . . . .

[If the timing] of the Uposatha days in Buddhist tradition was fixed merely to coincide with the existing lunar calendar and the traditional observances connected with it, then today when most people work in countries which do not follow a lunar calendar it would seem sensible to have days for special Buddhist observance during the weekends . . . [However,] defilements and passions can best be controlled when they can be seen--when they are strongest. It is impossible to restrain defilements in oneself when they are not apparent, though they may operate underground. For instance, the person who is well-provided with wealth and comforts may not be able to see greed or aversion at work in himself; these defilements have not surfaced since the sea of satisfied desires, in which they swim, is deep enough. But place this person in a bare little hut with poor food only once a day and a strict discipline to control his actions and then see what happens! The monsters of the deep all rise to the surface and clamor for more extensive waters in which to sport. On the other hand, the attitude of good bhikkhus shows the right way to deal with defilements. Some of the strongest--sensuality and sloth--manifest themselves at night . . . An enemy that one has not seen and known cannot be defeated, but an enemy well known and attacked with the weapons of Right Effort, Right Mindfulness and Right Collectedness, has no hope to win. It is the same on Uposatha days. The defilements that show themselves then can be restrained and limited with the aid of the Uposatha discipline, which includes the Eight Precepts.

Let us consider it from another point of view. Renunciation is a thread which runs through all Buddhist practice. If one practices Giving then one renounces the pleasures that could be bought with that wealth. When the Five Precepts are practiced then one renounces the actions covered by them which may be pleasurable or thrilling to some and are, in any case, unwholesome. And when effort is made to meditate, the earnest practicer will soon find that certain pleasures and distractions offered by this world just do not go with a calm and mindful mind, so he renounces them.

The Eight Precepts to be discussed below are part of the same way of practice, a discipline for a lay person's temporary renunciation. In the Sutta mentioned above the Buddha speaks of a noble disciple reflecting: By undertaking the Uposatha with its eight precepts for a day and a night I

renounce the way of common men and live as the arahants do for all their lives, compassionate, pure and wise. So the Right Precepts are really a test of how far one can discipline oneself. That means really, to what extent do wholesome states of mind consonant with Dhamma-practice predominate in one's character over unwholesome desires built on greed, aversion and delusion? The practice of the Eight Precepts gives one a chance to find out about this. And this is an investigation which one can make four times a month if one wishes.

We have seen how lay people in Buddhist countries periodically withdraw for twenty-four hours to a monastery for the practice for some special Dhamma. But what is to be done where there is no monastery, no bhikkhus, and no possibility of taking time off from work? First, on these days, or on some of them, one could . . . include reciting the Eight Precepts . . . Apart from precepts and discourses, more time should be given to meditation . . . When the Eight Precepts are backed up by the calm strong mind produced in meditation then they become easy to keep.

The Dhamma that one can practice during the day at work must be decided by each person, taking account of his own personality and of the circumstances surrounding him. Of course, one tries to keep one's conduct within the bounds of the Eight Precepts and do only those things which are consonant with the spirit of the precepts. One may find it possible to practice Giving (dana) in some way on these days and some short periods devoted to some of the recollections might be possible--it depends on each person to find his own ways and means. This brings us to the Eight Precepts and some remarks upon them. The precepts are as follows:

1. I undertake the rule of training to refrain from killing living creatures.
2. I undertake the rule of training to refrain from taking what is not given.
3. I undertake the rule of training to refrain from unchaste conduct.
4. I undertake the rule of training to refrain from false speech.
5. I undertake the rule of training to refrain from distilled and fermented intoxicants which are the occasion for carelessness.
6. I undertake the rule of training to refrain from eating outside the time.
7. I undertake the rule of training to refrain from dancing, singing, music, going to see entertainments, wearing garlands, smartening with perfumes and beautifying with cosmetics.
8. I undertake the rule of training to refrain from a high or large sleeping-place.

It has always been understood by Buddhist lay people that if one undertakes these Eight Precepts then great efforts should be made not to break any of them. The Five Precepts represent a general measure for ordinary life and in practice people have a flexible attitude towards minor infringements of some

of them. But the Eight Precepts are a more serious commitment and should not be undertaken lightly. If one does take them on, then one should feel reasonably certain, whatever one's interior and exterior circumstances, that none of the precepts will be broken.

In the case of the first one, not only should one not kill any living being but also one should not do the sort of work which might involve one in killing unintentionally, where one has no choice in the matter (work such as digging and cultivating). Even acts which are harmful in any way to others should be avoided on an Uposatha day. Few people have work which involves killing and fewer still of these people will be Buddhists, as such work must be repugnant to sincere Dhamma-practicers.

The second precept will need attention in such things as using for one's own purposes materials belonging to the firm (government, etc.) that one works for, or taking extra or surplus materials for oneself or others without permission to do so. Taking what is not given would also include such practices as adulteration of materials for sale and making others work without adequate remuneration. The third precept is changed from the set of five. There "wrong conduct" means all kinds of sex which results in harm to others--breaking up for others' marriages, rape and the seduction of minors, for instance. But under this precept "unchaste conduct" means that all kinds of sexual behavior are to be avoided whether they are wrong conduct or are allowable in normal lay life, whether with others or by self-stimulation . . . And when this abstinence is to be practiced only for one, two or four days a month there should be no great difficulty.

The fourth precept requires a special watch on the runaway tongue. This means the effort to practice Right Speech that is, speech which is true, brings harmony between people, is gentle and has meaning. Dhamma has all these qualities and one's speech should be in accordance with it. One who has taken the Uposatha precepts should try not to become involved in worldly chatter or arguments. And similarly with words on paper: news-papers and magazines which just distract the mind should be avoided for this day. If one wants to read then it should be a book on Dhamma.

It should not be too hard to keep the fifth precept strictly on these days. Under this precept one must include any kind of intoxicant taken for pleasure and escape, so drugs soft and hard find a place here as well as alcohol. At all times a Buddhist is trying to increase in the quality of heedfulness . . . But intoxicants only increase unwholesome states of mind so that a person becomes more heedless (or careless . . .).

The sixth precept . . . aims at cutting down the sloth which is experienced after a day's work and a substantial evening meal, while it ensures that the body is light and fit for meditative practice. In the precept, the words "outside the time" mean after twelve noon until dawn the following day. During this time no food is eaten. However, some flexibility will be needed here with people going out to work. For them it would mean no food after their midday lunch until breakfast the next day. If one is troubled by tiredness after work on a day when these precepts are undertaken then tea or coffee are allowable as refreshing drinks. If hunger is the trouble then cocoa (or even plain chocolate) should cure it. None of these refreshments should contain milk, which is considered a food, though sugar, honey and butter are allowed (to bhikkhus, and therefore to lay people keeping the Eight Precepts), presumably because one can take only a little of these things. Fruit juices which have been strained (without fruit pulp) are other possible drinks.

The seventh precept is really a compound of two in the Ten Precepts of a novice and therefore falls into two parts: the first on "dancing . . . entertainments," and the second concerned with "wearing garlands . . . cosmetics." The first half is aimed at keeping mind, speech and body away from all kinds of amusements. Not of course that they are "sinful," but that they turn the mind out through the senses, arouse defilements and cause conflicts where there might be peace. So these days, under this precept must be put radio, television, theater, cinema and sporting events. These are all ways of escape from being quiet. The second half of the precept is directed against vanity and conceit arising by way of the body. The tradition in the East is for Buddhists who undertake these precepts to clothe themselves simply in white cloth with no adornments. This will not be possible for the lay Buddhist who goes out to work, but on such days jewelry could be left at home, scents and lotions not used on the body, nor cosmetics on the face.

The last precept concerns sleep. Just as all the other luxuries have been cut out, so the luxury of a large, soft bed should be dispensed with for this night. In warm Buddhist countries a mat on the floor is enough, but where the weather is colder a hard mattress or folded blankets on the floor could be used. On a hard surface the body actually relaxes more than on a soft one, also there is less desire to sleep long. On these nights an effort should be made to restrict sleep to the minimum. A "large bed" means one in which two people sleep. The Buddhist who practices these precepts for a day and a night always sleeps by himself.

This summarizes the practice of the Uposatha day. Some people may think these precepts too difficult to carry out in the midst of an alien society. Others may think them too easy to bother about. But before any judgment is passed on them try practicing them for a few Uposathas and then see what is the result. Effort made to practice Dhamma can never bear bad fruits.

According to tradition, one may practice the Eight Precepts on the Full Moon, New Moon and two Quarter-moon days. This is for someone who is really making an effort and whose circumstances allow him to do so. Others might undertake them on the two Uposatha days--the Full and New Moon days. Or if they are to be undertaken one day a month this will usually be on the Full Moon. Where this had been found by experience to be quite impossible, then the Uposatha could be kept on weekends. Better this than nothing at all! But then married lay people may find that this will conflict with their family responsibilities--perhaps to others in the family who are not Buddhist. This is something for individual Buddhists to decide for themselves. ('Lay Buddhist Practice', by Bhikkhu Khantipalo).

CHAPTER 11
CLASSIFICATION OF DAYS

To expand upon the definition of time stations that has previously been presented, a description of their track can be recited from portions of Enoch's astronomical book (and in particular, those passages of text which focus upon an accounting of 'every year of the world forever').

To be more specific, the Laurence translation of the Ethiopian Enoch outlines a day-count method for computing the length of the tropical year--as follows:

> [Chapter 71:] "The book of the revolutions of the luminaries of heaven, according to . . . their respective periods . . . and their respective months . . . according to every year of the world for ever . . . ." [Skipping to Chapter 73:] " . . . I beheld their stations . . . according to the fixed order of the months the Sun rises and sets . . . thirty days belonging to the Sun . . . [All the days belonging to each year can be correlated to a fixed number of days]. . . to the Sun and stars . . . thirty days belonging to them . . . The Moon brings on all the years exactly, that their stations may come neither too forwards nor too backwards a single day; but that the years may be changed with correct precision in [a fixed number of] days . . . The year then becomes truly complete according to the station of the Moon, and the station of the Sun . . . which rise and set in them for thirty days".

The Enoch text (as quoted) is verifiably significant in the regard that each passing solar year can perfectly be measured and metered out by time tracking a station or a day of the Sun (= every 30 days) and by time tracking a station or a day of the Moon (= every 7 quarters).

Please take note here that if the count of one day in each cycle of 7 lunar weeks is eternally leaped (or skipped over) and if the count of one day every 30 days is forever leaped (or skipped over) then these two rates of set-apart days (or time stations) are inherently equal to an average rate of 19.24232 days per year.

A given conclusion from the skip rates then is that if 19.24232 days per year (on average) are tracked as separate from the other days then the length of each passing solar year can be correlated to a whole number count of days (= always a number count of 346.000 per year).

To be completely specific about counting days, a separated track of the time stations plus 346 of the other days is inherently equal to the length of the annual circle or year (365.24 days).

The outlined detail is thus sufficient to prove that each tropical year can perfectly be defined (as an average definition) . . . and in the context of nothing more than forever tracking a station of the Sun (each 30th day) . . . and also in the context of eternally tracking a station of the Moon (at every 7th lunar quarter).

> In this modern era, a simple accounting of 'time stations' can be used to define the limits of the solar year to within a difference of only 11 seconds too slow; however, due to the slowing spin of the Earth, astronomers who were alive at about 3000 years ago should have been able to define the solar year to within the limits of perfect accuracy!!!

The accuracy inherent in tracking a station of the Sun and a station of the Moon is remarkable in that each tropical year can exactly be measured in the context of nothing more than counting days.

Texts attributed to Enoch thus point to a possibility that the ancients held knowledge of a day-count system (as shown). Of additional significance about an indicated day-count system is that early astronomers appear to have understood a system of typing, or classing, certain among the days.

To be more specific about classifying days, the Enoch writings show that some of the days were assigned to represent a station of either the Sun or the Moon, and the writings further show that some of the days were assigned to represent stations of the world. This typing of certain days as 'world stations' is manifested in portions of Chapter 75--as follows:

> "These luminaries [the Sun and Moon] truly render service on the world-stations . . . and the exactness of the tropical year is accomplished through its separate [fixed count of] world stations. . ." (my paraphrase of Chapter 75).

What then were 'world stations', and how does a count of 'world stations' relate to "the exactness of the year"?

Simple math operations can prove that the ancients could have counted 173 world stations to perfectly measure and meter every half year cycle, and they could have counted 346 world stations to exactly determine the completion of every full year cycle. Note here that days counted in association with the revolution of a station of the Sun (1 every 30 days) can be recognized to inherently occupy 3.33333 percent of time, and days counted in association with the revolution of a station of the Moon (1 day every 7 lunar quarters) can be recognized to occupy 1.93504 percent of time. So, if days corresponding to stations of the Sun and Moon are forever tracked then 5.26837 percent of time is inherently accounted for. It then follows that if 'world stations' are assigned to represent a type, or class, of days (other than belonging within the domain of stations of the Sun and Moon) then this class of days can be

recognized to inherently occupy 94.73163 percent of time [where this is the percent of time left over after 5.2684 percent of days are separated].

The genius behind separating a domain of days to occupy exactly 94.73163 percent of time can then be recognized from out of an accounting of 346 of those days.

> The tropical year inherently occupies a time span equal to 365.24219 days. So, just how much of this time span is within the domain of 'world stations'? The answer, of course, is 94.73163 percent of the tropical year (which happens to be 345.99988 days).

An accounting of 346 'world stations' (with the addition of stations of the Sun and Moon) thus can be used as an effective 'day-count' method for measuring and metering each tropical year. As shown above, the modern count of 346 world stations comes to within only 11 seconds per year (on the average). Remarkable here is that, due to the slowing spin of the Earth, astronomers who were living in the past would have been able count out the year cycle to within the limits of perfect precision (at 3 millennia ago).

It here seems pertinent to note that the version of the Enoch writings that we now read shows a number of 364 world stations (rather than a correct number of 346 world stations). The version we now read thus has '3' in the correct hundreds position. However, the '4' and the '6' are in reversed positions (or are incorrectly reversed in the tens and digits positions).

A most major reason for the incorrectly shown number of world stations is probably that a calendar count of 364 days became popular among various Jewish sects who flourished in the era of the Second-Temple.

The incorrect number of world stations that is shown in the Enoch texts we now read thus points to a primal version of the astronomical book in which 346 stations were shown. The original version was then probably modified--or possibly recompiled with other information--by intervening scribes.

Based upon a proven axiom; that the rate of the solar year of 365.24 days can perfectly be measured and metered out through a combined time track of a station or day of the Sun and a station or day of the Moon; current copies of Enoch's astronomical book seem to warrant substituting the originally written number of world stations (346) for the wrongly copied number of days (364). Consequently, a closer representation (in outline) of the original Enoch is probably reflected in the following reconstructed paragraph:

> [Chapter 71:] "The book of the revolutions of the luminaries of heaven, according to. . . their respective periods. . . and their respective months. . . according to every year of the world for ever. . . ." [Skipping to Chapter 73:] ". . . I beheld their stations. . . According to the fixed order of the months the Sun rises and sets. . . one station or day

> in 30 days belongs to the Sun. . . All the remaining days belong to the year. . . It is the station (or day) of the Moon that brings on all the years exactly so that an annual count of 346 days can be assigned. This count does come neither too forwards nor too backwards by a single day. Through the intercalation of Sun and Moon stations, the years are changed with correct precision. [Chapter 75] . . . These luminaries [the Sun and Moon] truly render service on the world stations . . . and the exactness of the year is accomplished through its separate 346 world stations . . . ".

Regardless of which recreation is believed to more closely reflect the more original version of Enoch, there is hardly any doubt but that primal priest-astronomers were knowledgeable of a station (or day) of the Sun and a station (or day) of the Moon. It seems remarkable that the Sun and Moon stations shown in early-written Enoch texts can be used to effectively (perfectly) measure and meter out the solar circuit.

This all means that certain of the axioms and formulas contained in portions of Enoch's astronomical book (the presumed more original version) appear to be remarkably valid. It is very clear that a nearly perfect definition of the solar year--or 365.24232 days in average time--can be achieved by accounting for the cited lunar and solar stations. Enoch wrote:

> " . . . the Sun traverses the heaven, entering into and departing from the portals for thirty days . . . And these are the orders of the stars, which set in their places, and in their seasons and festivals and months . . . each behind a station . . . " ('The Book of Enoch', Chapter 82, by Charles).

Portions of the Enoch writings have additional detail of the intercalation of 4 days that "belong to the reckoning of the year". The days that were intercalated were described by the author(s) of Enoch in ascending order (or in chronological sequence as follows:

> " . . . 4 intercalary days . . . belong to the reckoning of the year . . . owing to them men go wrong therein, for those luminaries truly render service on the WORLD-STATIONS, the 1st day in the 1st portal . . . the 2nd day in the 3rd portal . . . the 3rd day in the 4th portal . . . and the 4th day in the 6th portal, and the exactness of the year is accomplished through its separate 364 stations . . . " (Chapter 75, by Charles).

As in other passages of Enoch, this quoted portion of text continues to indicate that primal astronomers did track each passing solar year in pace with a fixed number of world stations. [Note here that the original publication of Enoch did probably show 346 world stations instead of 364 world stations.]

The above quote additionally shows 6 portal stations and 4 seasonal stations, and they are shown as uniformly distributed along/among/amid the world stations.

The cited 4 days that were intercalated are shown to have pertained to the "exactness of the year". The first of these 4 days is shown as being positioned in the first portal, the second of the quarter days is shown at the position of the third portal, the third

quarter day is shown in position in the fourth portal, and the last of the days (the 4th day) is shown in the sixth portal (as cited).

The following diagram is predicated upon the location of 4 quarter days each year, and it attempts to illustrate the feasibility of tracking stations to define a zodiac calendar. (Take note that a day-count method is here used to effectively define/delimit 12 specific divisions throughout the tropical zodiac).

A DAY-COUNT METHOD FOR TRACKING THE ZODIAC *

Season Number	Quarter Day	Zodiac Month	Month Days	Portal Day
1	1	1	28	+ 1
		2	28	
		3	28	+ 1
2	1	4	28	
		5	28	+ 1
		6	28	
3	1	7	28	+ 1
		8	28	
		9	28	+ 1
4	1	10	28	
		11	28	+ 1
		12	28	
	4		336	+ 6

Year Total = 346 World Stations

* -- This count equals 365.2423 days per year when paced by the addition of Sun and Moon stations.

If a quarter division of the year was positioned within the 1st, 3rd, 4th, and 6th of the cited gates or portals then a given conclusion is that one of the quarter divisions would have been reckoned from about the middle of the 1st portal. Subsequent quarter divisions would then inherently have commenced in correspondence with the beginning of the 3rd portal. . . and again the middle of the 4th portal. . . and yet again at the beginning of the 6th portal.

From the given positioning of the 6 portals relative to the 4 quarters it can be recognized that each of the portals may have been accounted for at the turn of every alternate month.

Additionally evident from the collection of writings attributed to Enoch (and from some other portions of Temple-Era literature) is that certain Middle-Eastern astronomers

appear to have tracked or scribed the waxing and waning stages of each lunar month. The accounting that is given for the half turn of the lunar month (between waxing and waning cycles of the Moon) is shown (in passages of early-written text) in correspondence with the day cycle. In essence, each half cycle of the Moon is sometimes shown to have been time tracked in correspondence with an identical template or pattern based upon specific day stages of daylight or of darkness.

To be more specific about half-Moon accounting, a day count between waxing and waning stages can especially be recognized from certain of the sea scrolls that were recovered at Qumran. These several snippets of early-written text surprisingly indicate the ancients would have tracked each half of the lunar month in cross-reference with parts or stages of light or darkness. In example, portions from the Hymn Scroll reflect that some among the period astronomers did account for time in distinct periods (or patterns) of either daytime or nighttime:

> "The times for worship . . . from cycle to cycle . . . at the return of day, according to the ordinance . . . at the appointed return of night, in their station . . . in the fixed position of stations according to the law of their markers . . . " (my paraphrase).

It can be interpreted from others of the sea scrolls that the lunar month would sometimes have been tracked (or mapped) in specific half cycles (from either the limits of the full-phase or from boundary of the new-phase).

Scroll 4Q317, in particular, shows the half Moon to have been uniquely tracked in corresponding parts or stages of light and darkness. The following paragraph represents a reconstruction of the scroll (based upon the currently available English translations):

```
 4th of month, 11 parts obscured, Moon enters Day
 5th of month, 12 parts obscured, Moon enters Day
 6th of month, 13 parts obscured, Moon enters Day
 7th of month, 14 parts obscured, Moon enters Day
 8th of month, 14 and a half obscured and Moon...
                      ... rules all Day

   When  the Sun sets, the light of the Moon is no
   longer  obscured. Thus, the  Moon begins to  be
   revealed again on  One-to-Sabbath [Echd BShbt],
               the 8th of the month).

 9th of month,  1 parts revealed, Moon enters Night
10th of month,  2 parts revealed, Moon enters Night
11th of month,  3 parts revealed, Moon enters Night
12th of month,  4 parts revealed, Moon enters Night
13th of month,  5 parts revealed, Moon enters Night
14th of month,  6 parts revealed, Moon enters Night
15th of month,  7 parts revealed, Moon enters Night
16th of month,  8 parts revealed, Moon enters Night
17th of month,  9 parts revealed, Moon enters Night
18th of month, 10 parts revealed, Moon enters Night
19th of month, 11 parts revealed, Moon enters Night
20th of month, 12 parts revealed, Moon enters Night
21st of month, 13 parts revealed, Moon enters Night
22nd of month, 14 parts revealed, Moon enters Night
22nd of month, 14 and a half revealed and Moon...
                   ... rules all Night

  When the Sun  sets,  the light of the Moon is no
  longer revealed.  Thus,  the  Moon begins to  be
  obscured  again  on One-to-Sabbath [Echd BShbt],
  the 22nd of the month).
```

For more information about Scroll 4Q317, refer to The Dead Sea Scrolls, A New Translation by Wise, Abegg, and Cook, 1996, Section 57. Refer also to The Complete Dead Sea Scrolls in English, by Geza Vermes.

Of significance concerning the above scroll is that the currently shown restoration has been constructed from out of various scroll fragments (containing partial pieces of text). Because of this, both of the references to Echad Shabet (as are shown above) are in question.

The theme of Scroll 4Q317 is significant in mirroring that a segment of period astronomers would have formally charted the half-Moon cycle. On this respective scroll, the phases of the Moon (waxing and waning) are clearly mapped throughout 14 parts or stages of light and 14 parts or stages of dark.

A unique half-month accounting for the revolution of the lunar month was recognized several years ago by those researchers who first worked on recovering the scrolls. A lead translator then noted that some among the ancients appear to have tracked the month cycle from the full phase of the Moon (J. T. Milik, 1959). A modern equivalence

is perhaps easier to make through an analysis of the early used Roman Calendar. This calendar was originally lunar based (with the full-phase of the Moon appearing at mid-month). In this lunar calendar, the last days of the Moon (in the waning phases) were counted backward to the beginning of the next month. Thus, the middle of the month (or the point of the full-phase of the Moon) was specially reckoned and this epoch seems to have had a certain special significance throughout the ancient world.

When describing the revolutions of the heavenly luminaries, the author (or authors) of the Enoch literature likewise noted that the location of a half part (or division) between light or darkness. The position of the cited half was described at the middle of the lunar month--as follows:

> "[Light is given to the Moon] in (definite) measure. . . when her light is uniform it amounts to the 7th part. . . in the beginning. . . the Moon sets with the Sun, and is invisible that night with the 14 parts and the half of one of them. . . In single 7th parts she accomplishes all her light in the east, and in single 7th parts accomplishes all her darkness in the west . . . ".

Texts produced and reproduced in the era of the Temple thus mirror that some among the ancients did uniquely account for each half-Moon cycle--where each half month was resolved in the context of a fixed time grid or pattern (of light or darkness).

It is here significant that 14 waxing days and 14 waning days inherently equal a total time span of 28 solar days. A formal count of the month by lunar-stages is further evident from some of the scrolls (which are conspicuous in the usage of no more than a fixed count of 28 days in each lunar cycle):

> Note that not one fragment recovered from Qumran Cave 4 has a description of a lunar month that contained more than 28 days (refer to the 'Astronomical Books Of Enoch', by Milik. Pages 283-284).

Clement of Alexandria (2nd century) furthermore described the lunar month in 4 weekly periods of 7 days--as follows:

> "And in periods of 7 days the moon undergoes its changes. In the first week she be comes half moon; in the second, full moon; and in the third, in her wane, again half moon; and in the fourth she disappears." ('The Stromata', Chapter 16).

This indicated accounting of the Moon in units of the week is additionally significant in regard that Echad B+Shabat [= One-to-Sabbath] appears to have additionally been accounted for [= within the context of the lunar-month cycle].

The above cited celebration (called the 'one' or the 'first') is of special interest because in seven verses throughout the New Testament a seemingly similar Sabbath date can be cited. In example, the previously quoted verse from the book of Acts mirrors a nighttime assembly among Christians on this date--as follows:

> "And upon the One-to-the-Sabbaths [or Greek: Mia twn Sabbatwn], when the disciples came together to break bread, Paul preached unto them, in expectation (or observance) of the coming of morning; and continued his speech until midnight . . . When he . . . had broken bread, and eaten, and talked a long while, even till break of light had come, they brought the young man . . . " (refer to the Greek version, Chapter 20: verses 7-12).

In the Acts account as quoted above, the disciples are shown assembled upon 'Mia twn Sabbatwn'. (Note that "One-to-the-Sabbaths" would represent a literal translation of the cited calendar term). Because of the description of an assembly throughout the night hours upon the One-to-the-Sabbaths, it seems plausible to interpret this respective occasion in the context of Enoch's guides.

CHAPTER 12
THE DAY OF THE SUN

As is shown in the previous chapter, portions of text embedded in writtings attributed to Enoch mirror a possibility that priest-astronomers were keen to track the annual return by simply counting days.

> Note that a perfect measure of the solar year can be achieved by eternally keeping track of a separate, singular day every 7 lunar weeks [as a day or station determined by the Moon] and by eternally keeping track of a separate, singular day every 30 days [as a day or station determined by the Sun].

Other writings published in centuries close to the turn of the Common Era tend to also mirror that period Jews and Christians did continue to track and celebrate time stations.

For more complete information about the recognition and celebration of time stations, please refer to the following online publications:

The Day-of-the-Sun | **Historical Feast-of-Weeks**

> The late-Temple time frame when many of these texts were written tends to indicate that time stations were tracked and recorded among families that comprised the priesthood--and among adherents of the Temple system--for as long as the 2nd Temple stood.

CHAPTER 13
SCROLL 4QOTOT

In early Israel, a span of 7 years was used to compute various long time cycles. One of these long time cycles was a span of 7 sets of 7 years (or 49 years). After 49 years were counted-out, a special jubilee celebration was held to announce the commencement of the jubilee year (or the 50th year).

The content of certain early-written manuscripts reveals that the jubilee year may have been celebrated in association with a system of lunar reckoning. As an example, Scroll 4QOtot is explicit in showing the routine occurrence of a lunar-cycle 'sign' in association with a count of the jubilee cycle.

Of interest about the cited scroll is that 24 courses of Temple priests are shown to have revolved or rotated their respective courses throughout a jubilee cycle (of 49 years).

Each course that is listed is by name the same as is listed in those Bible records that pertain to the First-Temple (under King Solomon). Josephus, who flourished late in the era of the Second-Temple, also mentioned that 24 courses of priests were rotated, and that each priestly course served the Temple for a term that lasted for only one week.

What is unique about the priests that are listed on Scroll 4QOtot is that they are shown to have been on duty at, or even prior, to the epoch of creation. The rotation of the Temple priests (24 courses) is thus shown to have been timeless (or endless) in that they are shown to have been on duty and serving in Heaven (well prior to the time Temple services were instituted by King Solomon).

Even more unique about the 'heavenly' priests that are listed on Scroll 4QOtot is that (throughout the rotation of their 24 courses) a lunar-cycle 'sign' appears to have been reckoned (at a continuous frequency of each 3 years). Also unique is that each cycle of 7 years and each jubilee cycle of 49 years appears to have been endlessly accounted for.

This mystic depiction of 24 courses of priests performing unending services in pace with a 7-day cycle, a 3-year cycle, a 7-year cycle, and a 49-year cycle is puzzling in that 4 diverse time units are referenced.

Remarkable here is that the various cycles that are listed (on Scroll 4Qotot) can all be recognized to be elements of an effective time-tracking system (when all are brought

under the lens of astronomy).

As is shown in the subsequent diagram, a jubilee calendar becomes the inherent, or the automatic, result of simply skipping the count of a lunar week each and every 3rd year:

```
-------------------------------------------------

        A JUBILEE CALENDAR OF LUNAR WEEKS

-----------------------   -----------------------
Year  1 = 49 lunar weeks   Year  8 = 49 lunar weeks
Year  2 = 49 lunar weeks   Year  9 = 49 lunar weeks
Year  3 = 49 lunar weeks   Year 10 = 49 lunar weeks
Year  4 = 49 lunar weeks   Year 11 = 49 lunar weeks
Year  5 = 49 lunar weeks   Year 12 = 49 lunar weeks
Year  6 = 49 lunar weeks   Year 13 = 49 lunar weeks
Year  7 = 49 lunar weeks   Year 14 = 49 lunar weeks
  At 7th Year: + 1 week      At 7th Year: + 1 week
-----------------------   -----------------------
Year 15 = 49 lunar weeks   Year 22 = 49 lunar weeks
Year 16 = 49 lunar weeks   Year 23 = 49 lunar weeks
Year 17 = 49 lunar weeks   Year 24 = 49 lunar weeks
Year 18 = 49 lunar weeks   Year 25 = 49 lunar weeks
Year 19 = 49 lunar weeks   Year 26 = 49 lunar weeks
Year 20 = 49 lunar weeks   Year 27 = 49 lunar weeks
Year 21 = 49 lunar weeks   Year 28 = 49 lunar weeks
  At 7th Year: + 1 week      At 7th Year: + 1 week
-----------------------   -----------------------
Year 29 = 49 lunar weeks   Year 36 = 49 lunar weeks
Year 30 = 49 lunar weeks   Year 37 = 49 lunar weeks
Year 31 = 49 lunar weeks   Year 38 = 49 lunar weeks
Year 32 = 49 lunar weeks   Year 39 = 49 lunar weeks
Year 33 = 49 lunar weeks   Year 40 = 49 lunar weeks
Year 34 = 49 lunar weeks   Year 41 = 49 lunar weeks
Year 35 = 49 lunar weeks   Year 42 = 49 lunar weeks
  At 7th Year: + 1 week      At 7th Year: + 1 week
-----------------------   -----------------------
             Year 43 = 49 lunar weeks
             Year 44 = 49 lunar weeks
             Year 45 = 49 lunar weeks
             Year 46 = 49 lunar weeks
             Year 47 = 49 lunar weeks
             Year 48 = 49 lunar weeks
             Year 49 = 49 lunar weeks
               At 7th Year: + 1 week
           --------------------------

             Year 50 = 49 lunar weeks
```

Take note that in order to keep pace with the turn of each tropical year, the diagrammed calendar requires the addition of a lunar week each 3rd year (a perpetual rate).

Of significance about the shown jubilee calendar is that with the stated rate of required intercalation applied, each calendar year--on the average--becomes equal to

365.2442 days. Each year of the cited jubilee calendar then compares very closely with the revolution of the tropical year--which rolls over in 365.2422 days.

The jubilee calendar (as diagrammed) thus depicts a time cycle (in years) that can effectively be measured and metered out in association with a number of lunar weeks (or lunar quarters).

It should be clear from the week counts shown in the diagram that--when the rate of one lunar week every 3rd year is counted apart (or leaped) from out of the time stream--a grid of lunar weeks (2457 weeks) can be counted (repeated) in correspondence with a cycle of 50 years. Essentially, an effective calendar of lunar weeks is the inherent or automatic result of leaping one week each 3rd year from out of the time stream. (This respective rate of calendar intercalation is equivalent to 0.33333 weeks per solar year on the average). Thus, it becomes of considerable significance to a study of interrelated time design that an effective annual calendar is the inherent result of counting lunar weeks.

The above shown calendar of lunar weeks would inherently remain accurate relative to the pace of the tropical year over many centuries of time. The time difference between the respective 49-week calendar and the length of the solar year (which turns every 365.2422 days) would eventually become a factor if enough time were to pass by. To be specific, assume that a new phase of the Moon was observed (as the first day of the calendar) at say 7 days prior to the day of the vernal equinox. From this origin and alignment, the first day of the calendar would inherently shift (on average) from year to year so that after 3600 years the first calendar day would arrive in alignment with the equinox, and after 7200 years the first calendar day would come 7 days after the equinox. Somewhat remarkable here is that the Bible (and associated records) DO point to a literal epoch day for the creation [= right at 7 days prior to the day of the vernal equinox]. For more information about Creation's epoch day, refer to the following online publication:

The Genesis Record

While Scroll 4QOtot doesn't explicitly show that a lunar week was specially accounted for at the distance of each 3rd year, it seems very clear that the Heavenly Priests were believed to have perpetually reckoned a lunar-cycle 'sign' at this respective distance (each and every 3 years). This leaves some latitude in interpreting how the lunar cycle was once reckoned. For example, in reckoning the 'sign', the priests may have reckoned the lunar cycle at the resolution of the half or the whole of the lunar cycle.

The main reason for believing that the lunar cycle was once reckoned at the resolution of the quarter phase is that ancient literature is explicit in describing the priestly courses as being rotated once each week. The routinely appearing 'sign' was then accounted for right when one priestly course ended (refer to Scroll 4QOtot). The combination of this rotating schedule and the time when the 'sign' was routinely observed does not seem to allow for an alternate interpretation. Essentially, if the 'sign' was observed at the end of a 'week' cycle every 3rd year then it is obvious that the priests were reckoning lunar weeks.

The indicated track of a lunar 'sign' points to the possibility that the priests recognized certain among the lunar weeks to be very special. The respective week which corresponded to the lunar 'sign' was apparently not counted the same as were other calendar weeks.

7 sets of 7 years can be
defined by counting
7 sets of 7 lunar weeks

7-Yr Seg	No. Yrs	Number of Lunar Weeks	At Each 7th Year
1.	7	7 times 7 times 7	+ 1 week
2.	7	7 times 7 times 7	+ 1 week
3.	7	7 times 7 times 7	+ 1 week
4.	7	7 times 7 times 7	+ 1 week
5.	7	7 times 7 times 7	+ 1 week
6.	7	7 times 7 times 7	+ 1 week
7.	7	7 times 7 times 7	+ 1 week
50th	= 1 yr	7 times 7	

Note that a leap week (a 3-year rate)
is required to keep the depicted 7 sets
into alighment with 7 sets of years.

The diagram shown above is synonymous to the previous diagram in showing that primal priests may have tracked lunar phases to effectively track the limits of a 50-year cycle.

Somewhat puzzling about the jubilee cycle shown on Scroll 4QOtot is that a jubilee cycle of 49 years is listed while Leviticus (Chapter 25) shows the addition of a 50th year (throughout which the jubilee year was celebrated).

In terms of astronomy and of accuracy, a calendar of lunar weeks (a 50-year calendar) is automatic or inherent when a lunar week is leaped each 3rd year as a perpetual

rate. (The cited grid of lunar weeks very, very closely paces the rate of the solar year through the intercalation of 0.33333 weeks per solar year--as an average rate).

Thus, a given conclusion from the pace of a 'lunar sign' is that the biblical jubilee cycle (of 50 years) can be cross-referenced to a calendar of lunar weeks.

CHAPTER 14
EARTH'S SLOWING SPIN

From the essential perspective that the Earth-Moon could represent an interrelated system, the respective spin-orbital movements should be evaluated to predict the effect of any changes that might result with the passage of time. The spin-orbital rates can be predicted to ultimately change with time due to the spin rate of the Earth. Modern research shows that the spin of the Earth has slowed by a fractional amount throughout the prior 4,000 years. In association with the slowing rotation of the Earth is the slowing period of the Moon. It appears that the lunar orbit is ever growing wider--and thus the period of the Moon is also growing longer. Subsequent paragraphs will then attempt to make it clear that even though small spin-orbital variations do occur, the Earth-Moon appears to generate time cycles that have very long-term average definitions.

But, by what magnitude does the spin of the Earth vary in terms days, years, and centuries of time?

A very good answer to this kind of question can be recognized from records of Earth's spin--continually collected by the IERS. (Note that the service of monitoring the rotation of the Earth is performed by the International Earth Rotation Service, or IERS). A small amount of variation in Earth's rotation appears to be the norm based upon modern measurements. The following quote--borrowed from IERS--manifests a tiny amount of variation in Earth's rotation:

> "Universal time and length of day [LOD] are subject to variations due to the zonal tides (smaller than 2.5 ms in absolute value), to oceanic tides (smaller than 0.03 ms in absolute value), to atmospheric circulation, to internal effects and to transfer of angular momentum to the Moon orbital motion."

Modern monitoring then indicates that Earth's rotational rate frequently varies in magnitude by a few milliseconds. Even though the magnitude of the variation appears to be extremely small, it is nevertheless manifest that Earth's rotational rate does vary by a tiny amount from season-to-season and from year-to-year.

A catalog of the duration of previous days published by the IERS more specifically shows that the rate of Earth's rotation both increases and decreased--even across centuries of time.

Note that a large portion of the cited catalog represents a compilation of annual data provided by L.V. Morrison, Royal Greenwich Observatory.

Of significance about observations made at Greenwich beginning with the year 1623 is that year-by-year the sightings indicate the length of the solar-day was a fraction of a second faster than 86,400 seconds about 41 percent of the time. It is equally apparent that the length of the solar-day was computed to be a fraction of a second slower than 86,400 seconds about 59 percent of the time. This means that due to the magnitude and frequency of the cited variations in Earth's rotation, it would not be possible to conclude that Earth's rotation is slowing down (at least not in accord with a trend).

In order to identify a faster or slower trend in the rotation of the Earth, it is necessary to try and look further into the past (or across a time-span longer than but a few centuries). From recorded eclipses modern researchers have been able to additionally determine that the length of the day in ancient times was a bit shorter than the length of the modern day (86,400 seconds). To illustrate more of how this conclusion is arrived at, suppose by way of an hypothetical example that a solar eclipse was recorded at Babylon 812,345 days ago. The recorded eclipse on that day is significant because of the passing of the Moon's shadow over that location (Babylonian). If each and every day from then to now traversed no more or less than 86,400 seconds then the shadow of the hypothetical eclipse should have passed at a location 64 degrees in longitude further away from Babylon. Because the shadow instead was observed to pass over Babylon, it can be concluded that the length of the previous day was a bit faster. In essence, a longitudinal shift of 64 degrees in 812,345 rotations is inherently equal to an average increase in the length of the day equivalent to 1.7 milliseconds per century.

Note from the hypothetical example of an ancient eclipse at Babylon that 36524 solar days occur in each passing century. It then follows that an increase in the length of the day equivalent to 1.7 milliseconds per century would result in a time shift of 62.09 seconds for the century (where 0.0017 spin seconds per century times 36524 solar days is equal to about 62.09 spin seconds of time change for the century). Because a time increase of 62.09 spin seconds (or 931.35 arcseconds of longitude) is predicted on a per century basis then a total time shift of 15,356 spin seconds (or a longitudinal shift of 230,340 arcseconds, or 64 degrees) would accrue in 812,345 solar days or in 22.24 centuries (where 62.09 seconds of change per century times the square of 22.24 centuries when divided by 2 is equal to about 15,356 spin seconds).

Because a number of ancient eclipses are on record, then changes in the rate of Earth's rotation can be predicted throughout a number of centuries of years into the past. On the basis of these records, modern physicists and astronomers have identified a trend toward slowing in the rotation of the Earth.

The following information from NASA's Eclipse Site manifests a slowing trend in Earth's rotation. This trend appears to have been variable--yet ongoing--over the past

several millennia:

As Earth rotates on its axis, tidal friction is imposed on it through the gravitational attraction with the Moon and, to a lesser extent, the Sun. This secular acceleration gradually transfers angular momentum from Earth to the Moon. As Earth loses energy and slows down, the Moon gains this energy and its orbital period and distance from Earth increase.

R. F. Stephenson and collaborators have produced a number of seminal works in the field of Earth's rotation over the past several millennia. In particular, they have identified hundreds of eclipse and occultation observations in early European, Middle Eastern and Chinese annals, manuscripts, canons and records. In spite of their relatively low precision, these data represent our only record to the value of delta-T during the past several millennia.

In Atlas of Historical Eclipse Maps East Asia 1500 BC - AD 1900, Stephenson and Houlden (1986) present two empirically derived expressions to describe the behavior of delta-T prior to telescopic records (pre-1600):

(1) prior to 948 AD
delta-T (seconds) = 1830 - 405*t + 46.5*t^2
(t = centuries since 948 AD)

(2) 948 AD to 1600 AD
delta-T (seconds) = 22.5*t^2
(t = centuries since 1850 AD)

More recently, Stephenson presents a new analysis of most if not all known solar and lunar eclipses that occurred during the period -700 to +1600 (Historical Eclipses and Earth's Rotation, 1997). The new analysis uses a spline to fit the observations.

The following table lists values of delta-T (seconds) derived from Stephenson and Houlden (1986), along with Stephenson (1997) for comparison.

Year	delta-T (1986)	delta-T (1997)
-2000	54181	-
-1900	51081	-
-1800	48073	-
-1700	45159	-
-1600	42338	-
-1500	39610	-
-1400	36975	-
-1300	34433	-
-1200	31984	-
-1100	29627	-
-1000	27364	-
-900	25194	-
-800	23117	-
-700	21133	-
-600	19242	-
-500	17444	16800
-400	15738	15300
-300	14126	14000
-200	12607	12800
-100	11181	11600
0	9848	10600
100	8608	9600
200	7461	8600
300	6406	7700
400	5445	6700
500	4577	5700
600	3802	4700
700	3120	3800
800	2531	3000
900	2035	2200
1000	1625	1600
1100	1265	1100
1200	950	750
1300	680	470
1400	455	300
1500	275	180
1600	140	110

(all values in seconds)

References for Delta-T

- Morrison, L.V. and Ward, C. G., "An analysis of the transits of Mercury: 1677-1973", Mon. Not. Roy. Astron. Soc., 173, 183-206, 1975.
- Stephenson F.R and Houlden M.A., Atlas of Historical Eclipse Maps: East Asia 1500 BC - AD 1900, Cambridge Univ.Press., 1986.
- Stephenson F.R., Historical Eclipses and Earth's Rotation , Cambridge Univ.Press, 1997.

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The following table is based upon interpretations espoused by Stephenson from above and represents an estimate of the cumulative change indicated in the rate of Earth's rotation over the previous four-thousand years:

INDICATED INCREASE IN THE LENGTH OF THE DAY
(As Estimated from Ancient Eclipses)

Time Range	Spin Rate Shift	Increase in Day
4000 years	- .0018 sec/cen.	+.07 seconds

Of significance here is that throughout the previous 4,000 years the length of the day is interpreted to have grown longer (as a result of the slowing rotation of the Earth). The indicated increase in the length of the day (a spin rate change of - 0.0018 seconds/century) points to a total increase of + 0.07 seconds from about 4,000 years ago.

Ancient eclipse records then ultimately indicate that the rate of Earth's rotation has trended toward slowing down. A trend is indicated in that--across three or four millennium of time--the length of the modern day appears to have increased by a surplus of + 0.07 seconds from the length of the ancient day.

The cited increase of + 0.07 seconds from the length of the ancient day at 4,000 years ago then means that the spin rate of the Earth has slowed at a rate of 0.0018 seconds per century--as diagrammed).

The indication that the length of the day has increased by a total amount of only .07 seconds throughout the prior 4,000 years seems tiny or insignificant. This time-span represents only a fraction of one second (a time-stretch that is less than the length of a heartbeat . . . or shorter than a hand clap). The difference of .07 seconds does--however--have significance in that the effects of a slowing rotation are cumulative and the resulting longitudinal change becomes large across thousands of years of time.

Another perspective that can be focused from the cited slowing trend is that--even though Earth's rotation is experiencing a slowing trend--the magnitude of the change is very small. It seems that modern measurements and ancient eclipse records alike indicate that the length of the day in the past, as well as the length of the day in the modern era, completes in about the same relative amount of time (86,400 seconds). The indicated increase (a total of .07 seconds in 4,000 years) then tends to reflect a rotating Earth that is remarkably stable. On a scale of the prior 4,000 years, the tiny magnitude of Earth's rotational slow-down tends to prove that the Earth has continued to spin at a functional rate. Essentially, the length of the day is proven to remain adequately uniform--even across thousands of years.

Yet another indication that as a trend the rotation of the Earth is slowing comes from coral fossil records. Because living coral records growth markers like tree rings then the record of the growth rings can ultimately be correlated to the seasonal progression. Based upon interpretations espoused by leading researchers in this field, it is widely believed that the annual cycle of the ancient past contained more days than the current annual cycle (which is 365.24). The indication that the ancient year contained more days is interpreted to mean that the spin of the Earth has gradually slowed across millions of years. Based upon estimations concerning the number of millions of years in the past when certain fossil specimens once lived, it is believed that the rotation of the Earth has slowed by an average amount of 0.001 to 0.002 seconds per century.

CHANGE IN THE LENGTH OF THE DAY
(from 24 Million Years)

Time Range	Spin Rate Shift	Day Increase
24 Mil. y	-.0015 secs/cent	+6.0 minutes

Part of the problem in correlating coral fossils to the rate of the presumed slowing of the Earth is that the rotation rate appears to change very slowly. Because an average increase in the length of the day is interpreted to be about 0.01 to 0.02 seconds per millennium, it isn't possible to specifically correlate the seasonal passage to such a tiny amount of rotational change (only 1 or 2 milliseconds per century).

For example, at the tiny change of 0.01 to 0.02 seconds per millennium, it would require the passage of from 12 to 24 million years before even a single extra day per year would show up in the cited coral records.

This means that a great amount of time (many millions of years) would ultimately be required before a change of only a single day of difference could be counted (or ultimately even be noticed) amid the seasonal growth rings.

It is then the passage of so great an amount of time required to detect any change in the seasonal progression that thwarts the interpretation of coral fossils. The choice of using coral fossils to detect a change in the number of days across the seasons inherently requires the passage of upwards of a hundred million years to begin to notice a one or two percent change in the day count of the ancient annual cycle.

The fossil record then cannot detect whether the definition of the solar year has changed at all in the past 50-million years. The rotation of the Earth may have slowed a bit throughout this time. Conversely, the rotation of the Earth may have increased a bit. Yet conversely, the rotation of the Earth may not at all have changed (even across many millions of years).

Throughout a time-stretch of some 50-million years, the definition for the solar year may have remained at about 365.24 days. No satisfactory conclusion can here be arrived at due to inaccuracy inherent in the process of matching-up coral growth rings to the seasonal progression versus the tiny amount by which Earth's rotation is presumed to be slowing down (only 0.001 to 0.002 seconds per century).

The problem then is that counting coral fossils can't define changes in Earth's rotation in a time-range anywhere close to the modern era. Only on a time-scale of about 50 or 60 million years does the record of ancient coral fossils even begin to indicate that the definition of the ancient solar year might have been a bit different from 365 or 366 days. The definition of a definitive change in the day count of the ancient solar year thus requires the detection of coral fossils containing appreciably more growth rings from hundreds of millions of years into the past. On this basis, it is ultimately assumed that Earth's rotational rate was once faster and it is further assumed that the rotational rate has gradually slowed-down throughout the intervening hundreds of millions of years. The interpretation of a gradual slow-down is however only an assumption. (What if indicated change prior to 50 or 60 million years ago came on suddenly, and what if Earth's rotational rate has remained uniform for many millions of years?)

As is further explained in subsequent paragraphs, the lunar-month cycle (or the synodic month) does happen to complete at a much faster rate than the solar year (over 12 times as fast). This then means that the fossil record relative to the Moon can more effectively be used to identify prior changes in the configuration of the Earth-Moon. Essentially, it is considerably more straightforward to interpret 29 or 30 growth markers in correspondence with the passage of the lunar month than to try and interpret 365 or more growth markers in correspondence with the passage of the solar year. Furthermore it is easier to detect changes in the prior lunar-month cycle from bivalve mollusk fossils that may have lived only 5 or 10 million years ago than it is to detect changes in the prior solar year from coral fossils that may have lived over 100 million years ago.

It here seems pertinent to note that the above cited interpretation that Earth's rotation is slowing down appears to be good for explaining the phenomenon of a longitudinal shift at the time of ancient eclipses (as previously explained). The interpretation of a slowing rotation of the Earth can however be faulted in the regard that--while during an

eclipse a longitudinal position can roughly be determined--any associated orbital variation of the Moon has to ultimately be estimated.

The length of the ancient lunar month is then difficult to determine as it is assumed that the Moon in it's orbit experiences an acceleration effect due to Earth's spin.

Like a ball attached to an ever lengthening string, the Moon--which travels at a much slower rate than the rotating Earth--is interpreted to experience a commensurate acceleration effect due to Earth tides. As a consequence of the more rapidly spinning Earth and the action of gravity, the spinning Earth is then slowed down and simultaneously the Moon is accelerated. Because the Moon is being accelerated in it's orbit, it's distance from the Earth is indicated to increase. Then, as the Moon moves farther from the Earth, more time is ultimately required for the Moon to complete an orbit.

Measurements made over the prior 30 years indicate the Moon's orbit is moving away from the Earth at the rate of 4 centimeters or 1.5 inches per year. (Note here that an increase of 1.5 inches per year--if constant throughout time--would accrue to 500 feet in a time-span of four-thousand years).

The rotation of the Earth is then believed to slow down, and the Moon which travels in the same eastward direction as Earth's rotation is believed to simultaneously move away into a wider orbit.

Ancient eclipse data indicates that throughout the prior 4,000 years the lunar-month cycle has remained relatively unchanged. Essentially, cataloged records of the phases of the Moon throughout the previous 4,000 years indicate an average synodic month of about 29.5306 days.

For additional information about time cycles recorded in passages of Temple-Era literature, refer to the following online publications:

The Genesis Eclipse/a>	The Jubilee Time Cycle
Chronology of Jubilees	The Moon's 50-Day Cycle
Significance of 70 Years?	The Day-of-the-Sun
Ancient Astronomy	Circle of Sevens
Portals or Annual Gates	Significance of 40 Days

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