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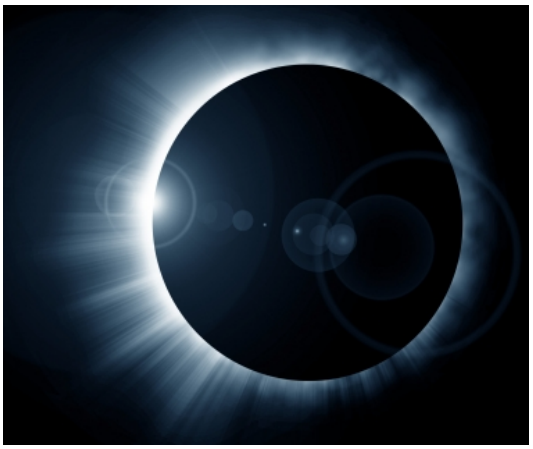
Significance of the Jubilee Cycle



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- Introduction -

In the Temple Era of ancient Israel, a time span of 7 years was used to compute various long time cycles. One of the most fascinating of the early-reckoned 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.

The current study focuses in upon this peculiar time cycle, and it explores some of the possible methods by which the priests could have counted '7 sets'. As is shown throughout subsequently presented chapters, an almost given conclusion from historical texts is that Sabbatical years (or 7th years) were computed on the basis of astronomy. One method of determining the occurrence of the 7th year could have been lunar based. A second method of determining the occurrence of the 7th year could have been solar based. It is here significant that the cited lunar-based method inherently requires the count of a 50th year (a jubilee year). The cited solar-based method inherently requires the count of a shorter cycle of only 49 years. Essentially, the inclusion of a 50th year is not required in a solar-based method of reckoning a 49-year jubilee cycle.

A research of the priestly celebration of the 7th year points to the ultimate possibility that a segment of early astronomers were advanced in their knowledge of a lunisolar system.

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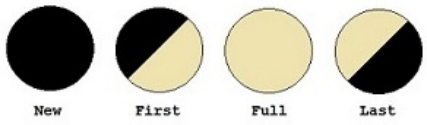
- CHAPTER ONE -
A Lunisolar Interface

Certain early-written manuscripts reflect that the jubilee year might have been celebrated in line with a system of lunar reckoning. As an example, Scroll 4QOtot describes a lunar-cycle 'sign' in association with a count of the jubilee cycle. (The priests when revolving their courses throughout the jubilee time cycle appear to have reckoned a lunar-cycle 'sign' at a continuous frequency of each 3 years).

As is shown below, astronomy makes it more certain that if the priests had observed a lunar-cycle 'sign' (at the frequency, or rate, of each and every 3rd year) then the priests might have been observing one of the quarter phases of the Moon. It seems that the boundary of a quarter phase of the Moon does literally revolve into almost perfect alignment with the boundary of each 3rd year.

> Note: There are 4 distinct quarter phases of the Moon: 1.New phase; 2. First-quarter phase; 3. Full phase; and 4. Third-quarter phase. The quarter phases are easy to recognize on the basis of observation. At the new phase the Moon is dark and appears to be completely invisible; at full phase, the Moon is fully-illuminated and is round-shaped; and at the first quarter and at the third quarter, the Moon is half illuminated and is distinctly divided into half-parts (half-light and half-dark, or the reverse).

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



For the purposes of presenting a clear analysis, the lunar quarter (which completes in 7.38 days) will hereafter be referred to as a 'lunar week'.

Of interest about the content of Scroll 4QOtot 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:

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    A JUBILEE CALENDAR OF LUNAR WEEKS

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Year  1:  49 weeks    Year  8:  49 weeks
Year  2:  49 weeks    Year  9:  49 weeks
Year  3:  49 weeks    Year 10:  49 weeks
Year  4:  49 weeks    Year 11:  49 weeks
Year  5:  49 weeks    Year 12:  49 weeks
Year  6:  49 weeks    Year 13:  49 weeks
Year  7:  49 weeks    Year 14:  49 weeks
At 7th Year: 1 week  At 7th Year: 1 week
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Year 15:  49 weeks    Year 22:  49 weeks
Year 16:  49 weeks    Year 23:  49 weeks
Year 17:  49 weeks    Year 24:  49 weeks
Year 18:  49 weeks    Year 25:  49 weeks
Year 19:  49 weeks    Year 26:  49 weeks
Year 20:  49 weeks    Year 27:  49 weeks
Year 21:  49 weeks    Year 28:  49 weeks
At 7th Year: 1 week  At 7th Year: 1 week
------------------   -----------------
Year 29:  49 weeks    Year 36:  49 weeks
Year 30:  49 weeks    Year 37:  49 weeks
Year 31:  49 weeks    Year 38:  49 weeks
Year 32:  49 weeks    Year 39:  49 weeks
Year 33:  49 weeks    Year 40:  49 weeks
Year 34:  49 weeks    Year 41:  49 weeks
Year 35:  49 weeks    Year 42:  49 weeks
At 7th Year: 1 week  At 7th Year: 1 week
------------------   -----------------
            Year 43:  49 weeks
            Year 44:  49 weeks
            Year 45:  49 weeks
            Year 46:  49 weeks
            Year 47:  49 weeks
            Year 48:  49 weeks
            Year 49:  49 weeks
            At 7th Year: 1 week
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             Year 50:  49 weeks
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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:

Genesis Flood 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 then it is obvious that the priests were reckoning lunar weeks.

For pertinent information confirming that Temple priests did once track lunar-quarters or lunar weeks, refer to the following online publication:

Significant Lunar Week

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.

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 'lunar sign' is that the biblical jubilee cycle (of 50 years) can be cross-referenced to a calendar of lunar weeks. This remarkable lunisolar cross-reference is easy to recognize when a lunar week is perpetually intercalated each 3rd year.

It is possible that the indicated 'sign' does in someway relate to an early used tithing cycle. However, a more easy to recognize reason is that the 'sign' was tracked across 3 years in tandem with the renewal of 30 days.

For pertinent information about the interpretation of a tithe in the 3rd year, refer to the following publications:

Tithe of the Third Year ***The Day-of-the-Sun***

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- CHAPTER TWO -
Celebration of 50 years

As shown in the previous chapter, it is clear (on the basis of astronomy) that the 7th year, or the Sabbatical year, could have been predicated upon a count of 50 years.

The current chapter will table historical texts that add more weight to an hypothesis that a cycle of 50 years would have been tracked and celebrated in ancient Israel.

> *Primal priest-astronomers are indicated to have celebrated the jubilee year, or the 50th year, in pace with the revolution of a time cycle equal to 50 years. However, in the era of the late Second-Temple, it seems more certain that the jubilee year (or the 50th year) was not officially celebrated.*

A 50-year calendar

In substantiation that the earliest method of reckoning the jubilee cycle might have been that of a schedule in pace with 50 years, the previous chapter has shown the feasibility of reckoning this cycle in the context of numbering lunar weeks. (Please take note here that the cited method of reckoning a lunar sign requires that a full 50-year cycle be reckoned).

The possible count of the lunar week in defining jubilees is also alluded to in other literature that heralds from the ancient Middle East. In example, a Ugaritic inscription mirrors early-held knowledge of a sabbatical cycle (7 years). This respective record has a focus upon the end of a cycle of privation and the beginning of one of abundance . . . and this by the entrance of... Shahar [Dawn] and Shalim [Dusk] together bringing food and wine.

The use of a calendar of lunar weeks (to define a full jubilee cycle of 50 years) can possibly be detected from literature that describes the track of a great cycle of 600 years. In particular, Flavius Josephus (c. 1st century) noted that the "great year" is completed in an interval of 600 years (refer to 'Antiquities of the Jews', Book 1, Chapter 3). It is here significant that 12 jubilee cycles of 50 years in each cycle is equal to a total time run of 600 years. It is also significant that a calendar of lunar weeks--as previously detailed--inherently requires 12 jubilee cycles (or 600 years) to complete all possible combinations of quarter phases and to return (the same Moon phase) in conjunction with the annual circle.

The Josephus reference to a great year of 600 years may have -- in part -- been predicated upon the Sumerian king list. According to this list of antediluvian kings, the reign of the first king at Eridu was equal to 28800 years. (Note that 28800 years is inherently equal to 48 cycles of 600 years).

> *"After the kingship descended from heaven, the kingship was in Eridug. In Eridug, Alulim became king; he ruled for 28800 years." (English translation based upon Wikipedia Encyclopedia, Eridu)*

Two other kings in the Sumarian kings list who reigned prior to the deluge can be recited to have reigned across a time span of 28800 years.

The cited time span of 28800 years--when divided by 50 years--is recognizably equal to 576 jubilee cycles. The resulting span of jubilee cycles is very unusual in the regard that the number 576 happens to have a square root of 24. This equivalency thus points to the possibility that knowledge of a '50 cycle' was held by the ancient astronomer-priest who compiled the king list.

The next in the line of the Sumerian kings is also shown to have reigned across a time span that is uniquely divisible by 50 years--as follows.

> *"Alaljar [= the next king] ruled for 36000 years... [the 1st and 2nd kings thus] ruled for [a total of] 64800 years. Then Eridug fell and the kingship was taken to Bad-tibira." (ibid.)*

The cited time span of 64800 years is likewise noteworthy in the regard that--when divided by 50 years--the span is inherently equal to 1296 jubilee cycles. The composite span of jubilee cycles is also very unusual in the regard that the number 1296 happens to have a square root of 36. This equivalency then comprises further evidence that early priests must have held knowledgeable of a 50-year cycle.

> *For further information of the Sumerian king list, refer to 'The Electronic Text Corpus of Sumerian Literature' (ETCSL), University of Oxford. (http://etcsl.orinst.ox.ac.uk/index.html).*

Other evidence that the Moon might have been reckoned by ancient priests in association with a 50-year cycle can be recited from certain among the Dead Sea Scrolls. For example, Scroll 4QOtot indicates the reckoning of a lunar-cycle sign in association with a time cycle of jubilee years--as was shown in the previous chapter. In addition, the War Scroll mirrors the possibility that the lunar cycle was once reckoned in association with a cycle of 50 years--as follows::

> *"...their new Moons and their Sabbaths and all the days of the year those of fifty years ... ." (refer to 2:1-6).*

The exact interpretation of this passage from the War Scroll is in doubt. It does seem unusual that noted divisions of the 'new Moons' and divisions of the 'Sabbaths' (which

may actually refer to lunar Sabbaths) are listed in correspondence with 50 years.

Biblical sources

A constitutional requirement to release debtors each 50th year in a 50-year cycle is detailed in the book of Leviticus (one of the canonized books of the Bible). The description of a fully counted cycle of 50 years is shown in the book of Leviticus--as follows:

> *"And the Lord said to Moses on Mount Sinai, Say to the children of Israel, 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 tenth day of the seventh month; 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).*

Remarkably, the Leviticus definition of a ***50-year jubilee cycle*** closely parallels the jubilee calendar (as is documented in the previous chapter). It is evident from the cited rate of lunar weeks that a time track of 7 sets of 7 years is quite literally defined... as is also an additionally counted jubilee year defined (or a 50th year).

> *[Here, it is a bit puzzling that Scroll 4QOtot (as previously mentioned) seems to contain a slightly defective description of the jubilee cycle (in that the respective scroll refers to a 49-year jubilee cycle instead of a fully counted 50-year jubilee cycle). The reason why a jubilee cycle of only 49 years came to be counted is more thoroughly explained in subsequent sections.]*

A cycle of 50 years

In consideration that the full count of 50 years is detailed in certain ancient literature--as cited--it seems to be significant that a grid of lunar weeks can be used to define no

less than a full cycle of 50 years. Essentially, a count of lunar quarters cannot effectively be used to define a shorter cycle of only 49 years.

> *Throughout a jubilee cycle of 50 years, the boundary of the lunar quarter (or lunar week) can be recognized to reoccur in interface with the boundary of each solar year (on the average).*

The following calendar chart is equivalent to the previous diagram in showing that a cycle of 50 years can be cross-referenced to a grid of lunar weeks:

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_____________________________________________

    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
_____________________________________________

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.
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It should be clear from the presented diagram that a grid of lunar weeks rather perfectly overlays a solar-based time grid of 50 years. Thus, the 50-year cycle--and associated lunar sign--described in anciently written literature points to the possibility that primal priests did once reckon the unit of the lunar week.

> *For additional information about the historic track of a cycle of 50 years, refer to the following two online publications:*

Chronology of Jubilees ***Significant Lunar Week***

Temple reformation

The jubilee year, or the 50th year, appears to have no longer been officially celebrated among Judeans by the time of the 1st century. If, and when, and the reason for why the 50th year came to no longer be celebrated is somewhat uncertain.

From the historical accounts of the kings of Judah--as is recorded in the books of the Kings and Chronicles--it would appear that many of the Judean monarchs entirely neglected the Temple system. It further seems that certain of the Jewish kings may have politically opposed the priesthood.

For a brief period, King Hezekiah (one of the kings in a long line of the Judean monarchs) restored the Temple system. Evidently, a number of kings who preceded King Hezekiah had all but suspended Temple services. By the time of King Hezekiah's reign, the doors to the Temple were closed... the lamps were out... and the presentation of burned offerings had ceased (refer to 2 Chronicles 29:3-7).

The successor to King Hezekiah was King Manasseh, and after him King Amon. Both of these kings--according to the biblical accounts--opposed the Temple system.

Thus, not only was the Temple system neglected under the Judean monarchs but it seems that a degree of effort was expended to lessen the political influence of the priest class.

It is significant that the rule of the Neo-Babylonians eventually came over Judea. The Babylonian rule (which lasted for 70 years) is indicated to have ended the reign of Jewish monarchs in Judea (which was the dynasty of David-Solomon).

In an ironic sense--perhaps for the very first time--Sabbatical years were at last observed throughout Judea. It seems that during the time of the Neo-Babylonians (or for the duration of 70 years) the land of Judea remained uncultivated. The biblical account wryly states that for the duration of 70 years the land *"enjoyed her Sabbaths: for as long as she [= the land] lay desolate she [= the land] kept sabbath". (Refer to 2 Chronicles 36:14-21).*

Eventually, several thousands of Jews are indicated to have returned to Judea (after about 70 years of Babylonian rule).

The new government that rose-up in Judea was more democratic in that it did not operate under the auspices of only a family of monarchs. Essentially, the former kings (or descendants of Judah) were no longer inaugurated to rule over civil affairs (as they were in the previous government).

The new government was--in general--administered by the priest-class. The heritage of the Levite priest-class--which extended back to the time of Moses--gave them preeminence in the new government. The descendants of Zadok continued to ascend to the office of the high priest (just as they had throughout the First-Temple Era).

Under the leadership of the priesthood, the law books attributed to Moses (or Torah) became constitutional. These books became the very basis of the court system under the Second Temple. The Jewish historian, Josephus, noted that the national court (the Sanhedrin) and even the village courts were all required to include a specified number of Levites (as jury members). Throughout the Second-Temple Era, the Torah was studied... interpreted... and was cautiously applied in just about every judicial decision made. (The enormous significance of the Torah is rather well mirrored in the writings of the New Testament).

It is thus clear that the Judean nation--which rose up following the Babylonian conquest--held a much greater regard for the instructions contained in the Torah than did the former nation (or the Jewish kingdom headed-up by the monarchs).

The respective Sabbatical law for the land (which was neglected by the kings of the Jews) would have therefore assumed a meaning that was fully electric to those who endured the Babylonian captivity. This respective law was very literally a part of the constitution of the new government--or the government that ultimately came under control of the Levite priests.

Of significance is that--throughout more than half of the Second-Temple Era--the jubilee cycle was probably celebrated as a cycle of 7 sets of 7 years. This celebrated set of 49 years may have included the additional celebration of a jubilee year--or a 50th year. (Note that the celebration of a 50-year jubilee cycle is rather clearly reflected in the Hebrew Torah--refer to Leviticus 25. The requirement to celebrate a jubilee cycle of 50 years is also explicitely described in the Septuagint version). Because the Torah (as we now read it) was once the national law (under the priestly government) it is evident that a jubilee year (a 50th year) would probably have been celebrated in the timeframe when it was written.

Therefore, a jubilee cycle of 50 full years may have been celebrated at the beginning of the Second-Temple Era. The celebration of a long cycle of 50 years would have been sanctioned under the Temple system for a time-span of about 350 years--or for as long as the Zadoks retained control of the government.

Late in the Second-Temple Era, it appears that a shorter jubilee cycle (of only 49 years) was ultimately adopted. This change in celebrating the jubilee cycle ensued a time when reform minded priests assumed control of the Temple system. A reformation

of the Temple system occurred abruptly in about 167 BCE when control of the Judean capital at Jerusalem was given up to Grecian rule.

In this respective year (about 167 BCE), Antiochus IV deposed the priestly dynasty of Zadok. Thus, the reigning dynasty of priest-kings (the descendants of Zadok) abruptly was ended when foreign-rule assumed control of the Temple.

A Jewish revolt subsequently occurred in opposition to the Greek control of the Temple. The Israelites are indicated to have eventually assumed control of the Temple again. It is significant that a change in the priestly government occurred at this time. The Zadoks were not returned to office; and--instead--a new dynasty of priest-kings (the Maccabees) was inaugurated.

Strife continued to exist between the Jews and the Greeks--but eventually a truce or an agreement seems to have been worked out. The Judeans appear to have been granted religious freedom... and control of the Temple system.

Subsequent priest-kings (who administered the religious government after the Zadoks) appear to have continued to adhere to the jubilee celebration of 7 sets of 7 years. It is however significant that the celebrated set of 49 years almost surely did not include the additional celebration of a jubilee year.

The possibility that under the late Second Temple the interpretation of a jubilee cycle had become that of only 7 sets of 7 years is almost certain (based on literature written after the time of Antiochus).

The definition of a jubilee cycle of only 49 years is implicitly clear from the Josephus record of the occurrences of Sabbatical years... and specifically in those years following the time of Antiochus. (It is here significant to note that the priest-historian, Josephus, was himself a descendant of the family of Asamoneus).

The use of a jubilee cycle of only 49 years can also be recognized from the chronology recorded in the anciently written '***Book of Jubilees***'. (The count of a jubilee cycle of only 49 years can likewise be interpreted from certain of the sea scrolls--such as Scroll 4QOtot).

The respective '***Book of Jubilees***' (probably produced under the late Second Temple) actually seems to symbolically refer to the yet futuristic celebration of a jubilee year. At the same time, the document seems to differentiate between the then practice of counting out only 49 years. The futuristic time (in which the celebration of a 'jubilee year' will at last be observed) is after a time when 'Israel is eventually cleansed':

> *"... I told thee of the Sabbaths of the land [= 7th years] on Mount Sinai, and I told thee of the jubilee years in the sabbaths of years but the year thereof have I not told thee till*

> *ye enter the land which ye are to possess. And the land also shall keep its sabbaths [= 7th years] while they dwell upon it, and they shall [= eventually] know the jubilee year. Wherefore I have ordained for thee the year-weeks and the years and the jubilees... And the jubilees shall pass by, until Israel is cleansed from all guilt of fornication, and uncleanness, and pollution, and sin, and error, and dwells with confidence in all the land... " (Jubilees, Chapter 50: 1-5, translation by R.H. Charles).*

According to the Jewish Encyclopedia: "The majority of rabbis hold that the jubilee year was an intercalation, and followed the seventh Sabbatical year, making two fallow years in succession. After both had passed, the next cycle began. They adduce this theory from the plain words of the Law to hallow the fiftieth year . . ."

However, some of the early rabbis (e.g. Rabbi Judah) appear to have concluded that the jubilee cycle was only 49 years in length. Thus, writings in the early post-Halakoth period (c. 200 CE) show that the length of the jubilee cycle was still in debate.

The adherence to a jubilee cycle of 49 years (as was taught among a segment of the rabbis) tends to further indicate that a 50th year was not officially approved under the late Second Temple.

From the composite period literature, there is hardly any doubt but that--in the late Second-Temple Era--the highest Jewish tribunal (the Sanhedrin) sanctioned or approved a jubilee cycle of only 7 sets of 7 years (or 49 years).

> *It is here of significance that writings of Josephus and miscellaneous sources (including legal contracts recovered at Wadi Murabba) all agree in indicating the use of a 7-year cycle under the late Second Temple. An analysis of the year dates when this 7-year cycle was once observed tends to prove that in the late Second-Temple Era the year-of-release (or the 7th year) was celebrated in an unbroken cycle. Essentially, a 50th year was not counted and observed under the late Second Temple. For more comprehensive information concerning how and when Sabbatical years were once observed, refer to:*

Seventy Significant Years .

Based upon the cited time when the Temple was handed from Greek control, it is logical to believe that change in celebrating a 50th year could have occurred at about this time... the time when a new lineage of priests (the Maccabees) ascended to the office of the high priest.

> *Note that the Sanhedrin (or the supreme council of the Jews during postexilic times) was headed up by the high priest. It is significant that during the postexilic era, this respective tribunal (the Sanhedrin) held both religious and civil jurisdiction.*

The source information isn't--however--sufficient enough so as to be able to conclude that a change in celebrating jubilees did occur at this time. Nevertheless, it isn't

unreasonable to at least suspect that a modification in the method of celebrating a 50th year might have occurred under a revised priestly government (perhaps the new government headed up by the Maccabees).

Subsequent priest-kings (those who ascended after the Zadoks) are indicated to have continued to celebrate Sabbatical years. The celebration of a Sabbatical year (each 7th year) is indicated to have remained an important tenet of religious law (perhaps throughout the remainder of the Second-Temple Era--which lasted until 70 CE).

Based upon the indication that 7th years (or Sabbatical years) continued to be observed, and based upon the indication that a 50th year was no longer specially celebrated, it can be concluded with specificity that the celebration of a specific jubilee year was omitted at some time point along the timeline (perhaps during the Second-Temple Era, and perhaps about the time when Judea fell under Greek-Roman occupation). For additional information, refer to the following online publication:

Chronology of Jubilees

Josephus noted that Judeans had to bargain hard under some of the Greek rulers--and this in order to ultimately be granted permission to continue to observe a Sabbatical year (or a year of land-rest in each 7-year cycle). Because permission to celebrate a Sabbatical year was scarcely granted, it is doubtful that an additional jubilee year was celebrated in the late Second-Temple Era. The specific reason for the count of only 7 sets of 7 years (by the time of the late Second Temple) may ultimately herald back to the times of the previously reigning Jewish Monarchs (as is further explained below).

According to more modern rabbis, it wouldn't be proper to now celebrate the jubilee year because ten of the tribes of Israel remain in a dispersed condition.

- CHAPTER THREE -
The Jubilee in the Late Second Temple

In exposing the ultimate adoption of a count of only 49 years (for the jubilee cycle), it would appear that certain priest-astronomers of the late Second Temple had arrived at a most remarkable interpretation of a chain of 7 years. This respective interpretation appears to have been based upon a count of the 7-year cycle in specific sets or numbered sets of 7 years.

The interpretation of 7 years in sets of 7 years is so very simple as to perhaps be overlooked or unnoticed in the regard of being relative to astronomy. The cited interpretation of sets of 7 years appears to have been built around the use of a repeating common time unit: which is 7 rotations of the Earth, or 7 days. Through the continuous (cyclical) count of 7 days, it is rather clear that an extremely accurate time track of specific 7-year segments could have been achieved.

This respective hypothesis--that a cyclical count of 7 days was once used to track the reoccurrence of 7 years--can be substantiated from certain Jewish sources (2nd-Temple Era). Of particular significance are those passages from the sea scrolls that show the calendar year was defined by a number of days divisible by seven.

As is further shown below, a fixed number of calendar days in each annual cycle (or 364 days) appears to have always been assigned. (Note that this respective number of calendar days is exactly divisible by 7 days).

In some early literature the annual circle, or the year, was calculated through a reckoning of 364 stations:

> *"... the exactness of the year is accomplished through its separate three hundred and sixty-four stations." ('Enoch', Chapter 75: 2-3, translated by R.H. Charles).*

Most of the early sources show the length of the year to be equal to a fixed count of 364 days:

- *"And the year is complete - three hundred and si[xty-four] days" (refer to Scroll 4QMMT, lines 20-21)*
- *"On that very day, Noah went from the ark at the end of a complete year of three hundred and sixty four days, on the first (day) of the week... " (refer to Scroll 4Q252 2:2-3).*
- *"... Four [seasons]... divide the four portions of the year... they belong to the reckoning of the year... one [seasonal division] in the first portal and one in the third, and one in the fourth and one in the sixth, and the year is completed in three hundred and sixty-four days." ('Enoch', Chapter 82:4-6, translated by R.H. Charles).*

It is of interest from the cited book of Enoch (Chapter 82) that the year was completed in a count of 364 days and also there were 4 seasonal divisions to this count. This means that each seasonal division would have been equal to a fixed count of 91 days. The count of the year into 4 seasonal subdivisions (or 91 days per season) can also be recited from '***The Book of Jubilees***'.

Of associated interest is that the annual count of '364 days' was sometimes represented as 52 'weeks of days':

> *"And all the days of the commandment will be two and fifty weeks of days, and (these will make) the entire year complete... observe the years according to this reckoning - three hundred and sixty-four days... [You must] make the year three hundred and sixty-four days only... " Jubilees 6:30-38; translated by R.H. Charles).*

Because a count of 364 whole days is equal to 52 'weeks of days' then it is obvious that the Second-Temple term: 'weeks-of-days' must have referred to a time cycle of 7 whole days (in that 52 'weeks' is equal to 364 days).

Thus, some of the early literature is very clear in indicating that the annual cycle was once counted in 'weeks-of-days'. There is no doubt but that the annual cycle--at least according to one of the time-tracking systems in use--was reckoned to be 52 'weeks of days', or 364 days (or 364 stations).

Some portions of '***The Book of Jubilees***' (not a canonized book in the Bible) seem to show that the 'new Moons', 'seasons', 'months', 'sabbaths', 'feasts', and even 'jubilees' were all part of the same calendar system.

> *"... it is engraven and ordained on the heavenly tablets. And there is no neglecting (this commandment) for a single year or from year to year. And command thou the children of Israel that they observe the years according to this reckoning - three hundred and sixty-four days, and (these) will constitute a complete year...if they do neglect and do not observe them according to His commandment, then they will disturb all their seasons and the years will be dislodged from this (order), [and they will disturb the seasons and the years will be dislodged] and they will neglect their ordinances. 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 months and sabbaths and feasts and jubilees..." (Jubilees, Chapter 6, Translated by R.H. Charles).*

Thus, from literature produced under the late Second Temple, it appears that a method of reckoning the annual circle was popular. It is of significance that this respective method was predicated on a numbering system--where seasons and years were always represented by fixed counts. These fixed counts were used to define seasons and years--where all the counts were divisible by the unit of 7 days. Each season was reckoned to be equal to the length of 91 days (which is 13 weeks). Each annual circle

was reckoned to be equal to the length of 364 days (sometimes represented as '52 weeks-of-days').

Obviously, an annual calendar of 364-day units would have required the additional intercalation of a periodically inserted leap day, or inserted leap days (so as to ultimately keep pace with the rate of the annual circle--which is 365.24 days). If 'weeks' were being counted then an annual calendar of '52 weeks' would have required the additional intercalation of a periodically inserted leap week (in order to keep a fixed count of '52 weeks' into alignment with the bounds of the annual circle).

Diagrammed below is a plausible interpretation of the number of leap days (actually leap weeks) required to satisfactorily interface the fixed rate of '52-week units' (or the rate of '364-day units') with the rate of the annual circle. The respective diagram also attempts to make it clear that a perpetual interface exists between the rate of '7 days' and the rate of '7 years'. This interface (7 days into 7 years) is very easy to understand when a continuous progression of weeks is divided into a numbered sequence (or sequences). By simply numbering 'week units' into specific sets of weeks, the interface between a grid of '7 days' and a grid of '7-year cycles' seems to be easier to recognize.

Whether evaluated in specific sets, or evaluated as a continuous count, the unit of the 'week' can be interpreted to form an almost perfect interface with a set of 7-year cycles. (Note that if the time stream is divided into continuous units of '7 days', or as an endless chain of 'weeks', then--by default--a functional arrangement of '7-year units' is also defined).

The following diagram then attempts to illustrate that a fixed count of '7 days' (or 'weeks') uniquely and perfectly defines a repeating set of '7-year units':

```
_____________________________________________

          A Perpetual Interface *
            (52 Weeks Per Year)
_____________________________________________

7 years (1) = 52 52 52 52 52 52 52 + 1 Week
7 years (2) = 52 52 52 52 52 52 52 + 1 Week
7 years (3) = 52 52 52 52 52 52 52 + 1 Week
7 years (4) = 52 52 52 52 52 52 52 + 1 Week
7 years (5) = 52 52 52 52 52 52 52 + 1 Week
7 years (6) = 52 52 52 52 52 52 52 + 1 Week
7 years (7) = 52 52 52 52 52 52 52 + 1 Week
7 years (8) = 52 52 52 52 52 52 52 + 1 Week
7 years (9) = 52 52 52 52 52 52 52 + 1 Week
7 years (10)= 52 52 52 52 52 52 52 + 1 Week
       At Each 70 Years... + 1 Week
_____________________________________________


* - Requires intercalation of an additional
     week in a loop at 7 sets of 7 years.
```

The cited diagram attempts to show that an annual count of 'weeks-of-days' can be used to interpret/define a sequence of 'weeks-of-years' (as a default definition).

Two related time cycles comprised of 'weeks-of-years' are ultimately produced from out of a continuous count of 'weeks-of-days'--as follows:

1. 7 sets of 7 years (which contains the extraneous count of a 'leap-over week').
2. 10-sets of 7-years (which contains the extraneous count of a 'leap-over week').

The perpetual count of 'weeks' (as diagramed) represents an extremely effective method of determining the length of the annual circle. By simply counting weeks (as cited) an average calendar year of 365.2429 days can be achieved. The length of the year (as can be achieved by counting a fixed grid of weeks) is therefore very precise in comparison with the true length of the annual circle (which is 365.2422 days).

> *Note that 52 weeks per year times 7 days per week is equal to 364 days in each annual cycle, 1 leap week in 7 years is equal to 1.00 day per annual cycle, 1 leap week in 49 years equals 0.14286 day annually, and 1 leap week in 70 years is 0.10 day annually. Thus, the average annual circle rate of the cited cycle of 'weeks' is 364 days plus 1.00 plus 0.1429 plus 0.10 days--or 365.2429 days. This annual rate compares very closely with the actual annual cycle of 365.2422 days (by less than 1 minute per year).*

The respective interpretation of the annual circle reoccurring in interface with the length of '52 weeks'--as cited--seems to reinforce the possibility that certain early astronomers were using cosmological interpretations that were correct to the very nth degree.

The respective 7 day into 7 year interface is seemingly significant in that the reoccurring rate of the annual circle (over average time) can satisfactorily be

expressed in units of rotations of the Earth (or days).

> *Through the interpretation of '7 counts'--as presented--the spin-circle rates of the Earth-Sun seem to exhibit a characteristic of functional design. The almost perfect 7-year interface is seen to reoccur through an interpretation based upon nothing more than the reoccurrence of sets of 7 days--as documented.*

- CHAPTER FOUR -
Weeks-of-Years

Certain texts written in the Second-Temple Era indicate the count of a long cycle of 70 years--or 10 '*weeks-of-years*'. (One version of the respective count of 70 years was almost surely based upon the use of a fixed count of '*7 days*'--as documented in the previous chapter).

The early usage of a respective 70-year cycle can seemingly be recited from a number of early sources (including biblical).

The reckoning of a cycle of 70 years (in sets of 'sevens') is stated in the book of Daniel--as follows:

> *"...the desolation of Jerusalem would last seventy years. ...Seventy `sevens' are decreed... " (NIV text of Daniel Chapter 9).*

The Daniel text (as quoted) reflects that--for the duration of 70 years--the capital city at Jerusalem was to remain in a state of desolation. This respective period of time (70 years) is indicated to have began about the time the then Jewish king was taken into captivity by the Babylonians.

> *For additional information concerning the indicated chronology of the cited cycle of 70 years, refer to our online document entitled:*

Significance of 70 years

It is significant from the cited Daniel passage that astronomers at Jerusalem are indicated to have interpreted the length of a 70-year cycle to be related to the length of '70 sevens' (as if perhaps 7 sets were understood to interface with longer time spans).

Some Bible translations show the previously quoted Daniel passage as follows:

> *"... Jerusalem must lie desolate for seventy years... A period of seventy sets of seven has been decreed... " (NLT text of Daniel, Chapter 9).*

Again, knowledge of a long time cycle comprised of 7 sets is indicated from this passage. The terminology of 70 years extending into 'sets of seven', or as 'sevens', seems to indicate that this cycle was counted in '*weeks-of-years*'.

Other literature written in the Second-Temple Era indicates that time was tracked in 7 sets. The following verses are representative of this possibility--that time was tracked in segmented counts of 7 years:

- *"... concerning the ages made by God, all the ages for the accomplishment of all the events, past and future. Before ever He created them, He determined the works of... age by age. And it was the order of the creation of man from Noah to Abraham, until he begot Isaac; ten weeks of years" (4Q180, translation borrowed from **'The Complete Dead Sea Scrolls In English'**, Vermes, p. 520)."*
- *"... in their revelations and holy weeks in their appointed time and squads of months... of years in their circuits and glorious festive seasons in their .... fixed moments.... and the sabbatical years of the land in their divisions, appointed times for liberty... eternity... light and darkness... (4Q286, translation borrowed from ibid, p. 379)."*
- *Scroll 4Q385 has a reference to "70 [year]s".*
- *Scroll 4Q390 perhaps refers to either a span of 7 times 7 years (in Hebrew), or to 2 units of 7 years, or possibly to a span of 70 years (as most translations show). This scroll also refers to the 7th jubilee.*
- *"... the seasons of years to their weeks (of years) - at the beginning of their weeks for the season of Jubilee. (The Community Rule, translation borrowed from **'The Complete Dead Sea Scrolls In English'**, Vermes, p. 112)."*
- *"... the land kept the Sabbath, till seventy years were complete." (BBE text of 2Chronicles 36:19-21).*
- *"... nations shall serve the king of Babylon seventy years. And it shall come to pass, when seventy years are accomplished, that I will punish the king of Babylon... " (Jeremiah 25:11-12).*
- *"For thus saith the LORD, That after seventy years be accomplished at Babylon I will visit you... " (Jeremiah 29:10).*

Of significance here is that is that certain sources from the ancient Middle East imply that a calendar of 70 years would probably have been implemented at an official level. In example, the use of a civil schedule is seemingly mirrored in the book of Isaiah--as follows:

> *"... Tyre will go out of mind for seventy years, that is, the days of one king... And it will be after the end of seventy years, that the Lord will have mercy on Tyre... " (BBE text of Isaiah 23:15,17).*

The use of a solar-based schedule (region of Israel) can perhaps be recognized from the accounts of Kings and Chronicles. A composite of these records seems to show that the officers of the primal Jewish kings could have been rotated annually. The implementation of solar calendar (perhaps predicated upon the reckoning of 70 years) can be detected in a passage from the Psalms Scroll--as follows:

> *"And David son of Jesse... to him YHWH gave a wise and enlightened spirit. And he wrote psalms... for all the days of the year: three hundred and sixty four; and for the Sabbath offerings: fifty two songs... " (refer to the Psalms Scroll recovered at Q2).*
>
> *Note the cited passage from the Psalms scroll points to the use of an annual schedule under the rule of King David. The indicated calendar count (of 364 days) would obviously have required periodic intercalation (and perhaps in the context of a long time cycle of 70 years).*

It is here significant that the indicated king's calendar (a solar-based schedule) was probably distinct from the schedule used by the priests. (Note that the priestly courses appear to have been rotated for 24 times on a Sabbath-by-Sabbath basis). In fact, both of these roosters (or close versions of them) may well be reflected in scroll literature written in the late Second-Temple Era.

> *A lunar-based cycle of 50 years (a priestly cycle) could have been tracked alongside of a solar cycle of 70 years (a kingly cycle). A duel adherence--both to a lunar cycle of 50 years and also to a solar cycle of 70 years--can possibly be detected from the annals of near neighbors to ancient Israel. In example, "The Assyrian sources include vestiges of a time unit larger than the year. Especially in records dealing with the reconstruction of sacred buildings, mention is made of a unit of 350 years, the rule being to postpone such restorations until 350, 700, or 1050 years had elapsed since the previous reconstruction of the original erection of a temple." (Britannica, 1972, Calendar, Babylonian and Assyrian Calendars).*

Reformation of the priesthood

The Zadok Dynasty is indicated to have ruled the Second Temple for the duration of about 350 years--or from the time of the dedication of the Second Temple down to the time that Antiochus IV deposed the dynasty (as previously explained).

What is here unusual is that the Zadoks (who also served for centuries under the First Temple) appear to have not been restored to the office of the high priesthood (even after Jews regained control of the Temple).

> *Had the Zadoks become so closely aligned with Greek philosophy that they lost the support of the religious segment of the Jewish populous?*

Whatever the case, period literature makes it clear that the Zadoks were not returned to serve in a priestly office. Instead, it was soon after religious zealots wrested control of the Temple from the Greeks that a new dynasty of priest-kings was enrolled to control the Temple.

Some of the sea-scroll literature seems to reflect an awareness that adherences subscribed to by the priesthood had gotten off base:

> *"... I have learned from the book of Enoch that for seventy weeks you [= priests] will go astray and profane the priesthood... and because you have heard concerning the seventy weeks, hear also of the priesthood; for in each jubilee [of 7 jubilees] there will be a priesthood... in the seventh [jubilee] there will be pollution, about which I cannot mention..." (refer to the Aramaic Levi).*
>
> *[An alternate interpretation of this passage could read: "in regard of seventy weeks you priests will go astray and profane the priesthood".]*

The religious zealots who ultimately assumed control of Jerusalem would logically have implemented a number of reforms (so as to correct the deficiencies of the former slackers). The former citizens of the capital--as friends of the Greeks--were probably considered to be unrighteous. The reforms ultimately brought upon Jerusalem by the priest-zealots could have included the implementation of a previously used solar-based schedule (a king's calendar). Qumran literature, in particular, raises question as to whether this, or any other, reforms might have been implemented. The Temple scroll, for example, shows traces of a 7-week cycle counted in connection with the harvest of grain, wine, and oil. At Qumran, the cited cycle of harvest weeks was interpreted within the context of a solar week of 7 days. However, at Jerusalem, contemporary priests celebrated the harvest in pace with a cycle of 7 lunar weeks (7 lunar quarters). For in depth information about a lunar-week celebration at Jerusalem, refer to the following online publication:

Significant Lunar Week

The count of a 50th year can perhaps sparsely be found in Qumran literature (even though a count based upon '7 sets' is more prevalent). One example of a reference to a cycle of 50 years can possibly be recited from the War Scroll--as follows:

> *"...And the officers who head the divisions with their enlisted shall have charge of their feasts, their new Moons and their Sabbaths and all the days of the year - those of fifty years ... ." (refer to 2:1-6).*
>
> *[The cited notation of 50 years can perhaps be interpreted to apply to the jubilee cycle. The next verses do explicitly refer to a year of release (or a 7th year), and it is apparent that 7 sets of 7 years were once counted in association with a 50-year cycle. The reference to 50 years seems to also be made in association with a reference to 'new Moons and their Sabbaths' (as quoted). (Most translators show the respective verses from the War Scroll rather differently in that the noted 'chiefs with their enlisted' are interpreted to be '50-years old'.]*

Another example of a late Second-Temple reference to a *'jubilee year'* can be found in '***The Book of Jubilees***'--as previously was cited:

> *"... I told thee of the Sabbaths of the land on Mount Sinai, and I told thee of the jubilee years in the sabbaths of years: but the year thereof have I not told thee till ye enter the land which ye are to possess. And the land also shall keep its sabbaths while they dwell upon it, and they shall know the jubilee year. Wherefore I have ordained for thee the year-weeks and the years and the jubilees... And the jubilees shall pass by, until Israel is cleansed from all guilt of fornication, and uncleanness, and pollution, and sin, and error, and dwells with confidence in all the land... " (Jubilees, Chapter 50: 1-5, translation by R.H. Charles).*

In the main, it would appear that a system of counting '7 sets' was more popular in the era of the late Second-Temple. Furthermore, it seems certain that the 50th year, or the jubilee year, was not officially celebrated by the time of the 1st century in Judea. For more comprehensive information about sabbatical years, refer to the following online publications:

Significance of 70 Years | Chronology of Jubilees

An abundance of sea-scroll literature (written in the late Second-Temple Era) seems to show that a count of '7 sets' was integral for tracking time. The calendar system--as it is depicted in sea-scroll literature--was largely solar based. Essentially, days were counted into months (which were not lunar-based months), and days and months were counted into years. The year was counted using a month sequence of 30 days. However, throughout this sequence the count of every third month was always a count of 31 days. The respective solar calendar (as it is revealed in scroll literature) followed a fixed pattern of 52 weeks; however the 52-week units were not counted in the same sequence, as were the 364 days of the calendar year. Each calendar year always began in coincidence with the fourth day of the week. The respective annual count of 364 days may have begun in alignment with the vernal equinox (as per the books of Enoch). Thus, an ongoing count of no more and no less than 364-day units (which is the length of '52 weeks-of-days') was seemingly used to very effectively reckon the length of the annual circle. The achievement of an accurate solar calendar, assumes the addition of a 7-year count (with the application of a necessary rate of intercalation--as cited). The calendar count (always 364 days) was minimally used late in Second-Temple Era (at Qumran), but it is most probable that the outline of this respective solar calendar was also in use at a much earlier time (as previously cited).

The slowing spin of the Earth

It may be of significance that the rate of the spin of the Earth appears to be slowing down by a minute amount with each passing century.

Recent measurements show that the Earth's spin-rate has slowed down throughout the last half of the twentieth century. In these decades, the Earth's spin rate was observed to slow down by a minute amount (of about 0.002 seconds--on a per century basis). Specifically, recent modern measurements indicate a slowing spin-rate, which varies between 0.001 and 0.003 seconds per century.

The spin of the Earth appears to have even slowed down (at a variable rate) throughout a wide range of prior centuries. The indication that the Earth has slowed

throughout centuries prior to the modern era comes through an analysis of records of ancient lunar and solar eclipses.

A slowing spin of the Earth ultimately has to mean that--while there is a small difference between the length of 7 solar years (or 2556.6954 days) and the length of the cited weekly grid across 7 years (or 2556.7000 days), the average length of the cited weekly grid was at one time perfectly equal to the length of 7 annual circles. For more information about the slowing spin of the Earth, refer to the following online document:

Case for Created Time?

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