

Concise Biblical Calendar (abbreviation: CBC1) by Herb Solinsky. 1/9/2022

- [1] Preface
- [2] Appointed-times and Years are known from Lights in the Sky, Gen 1:14-15
- [3] A Month is a Cycle of the Moon
- [4] The Aaronic Priesthood, the Calendar, and Num 10:10 to begin each Month
- [5] Hebrew *chodesh* refers to the Day that Begins each Month
- [6] Full Moon occurs about the 15th Day of the Biblical Month; Psalm 81:3
- [7] A Biblical Month is a Whole Number of Days with a maximum of 30 Days
- [8] The Start of the Biblical Month relates to the Sighting of the New Crescent
- [9] From Where should the New Crescent be Sighted to begin a Month?
- [10] Introduction to the Determination of the First Month
- [11] Light Triggers and the First Month of the Year
- [12] What is the Biblical Vernal Equinox?
- [13] Adoption of the Babylonian Month Names
- [14] Barley does not Determine the First Month in the Biblical Calendar
- [15] Summary

[1] Preface

The word “Tanak” (the Hebrew Bible, with parts of Ezra and Daniel in Aramaic) will sometimes be used instead of the word “Scripture” or “Bible”. For some significant Hebrew words, the Strong's number and a transliteration of its standard form will be given in square brackets immediately after the English word.

[2] Appointed-times and Years are known from Lights in the Sky, Gen 1:14-15

Gen 1:14, “And the Almighty said: Let there be lights in the expanse of the heavens to separate between the daytime and the night, and let them be for signs, and for appointed-times [4150 *moed*], and for days and years.”

Gen 1:15, “And let them be for lights in the expanse of the heavens to give light on the earth, and it was so.”

In verse 14 the word *moed* appears. This word falls into nine categories of usage with 222 occurrences: tent of meeting (146 occurrences); annual dated festival(s), Day of Atonement, and weekly Sabbath (40 occurrences); miscellaneous unique appointed time (22 occurrences); appointed place (7 occurrences); appointed people (2 occurrences); appointed prophetic time interval (2 occurrences); appointed sign (1 occurrence); bird migration (1 occurrence); and general season (1 occurrence, Hos 2:9).

The festivals, Day of Atonement, and weekly Sabbath occur in contexts with this word *moed*, whose basic meaning is “appointed time”, and Gen 1:14 contains this word. Leviticus 23, the chapter of the Tanak with specific mention of all the festivals, the weekly Sabbath, and the Day of Atonement has this word six times: verses 2, 2, 4, 37, 37, 44.

In Gen 1:14, the only categories of meaning for *moed* that makes sense in the context of periodically occurring events based on the heavenly lights are the annual festivals, the Day of Atonement, the weekly Sabbath, and bird migrations. Since the latter only occurs once and the former words occur 40 times, it is only sensible to understand the appointed-times in Gen 1:14 to refer to the annual festivals, the Day of Atonement, and the weekly sabbath. These are embedded in the calendar, except that the weekly sabbath does not require the use of months. Hence this verse makes the calendar dependent upon or determined by the lights in the heavens.

In verse 15 the word “them” refers back to the subject in verse 14, namely the lights. Thus verse 15 is saying in essence, “let the lights be for lights ... **to give light** on the earth”. Even the names of the heavenly bodies are absent to put emphasis on the “light bringing” purpose and mission of these heavenly light bodies to fulfill the need to determine “signs, appointed-times, days, and years”. The triply emphasized mission of light from the heavenly bodies **to give light** to determine appointed-times and years must be given its appropriate place in thought and use. **Specifically verse 15 states “to give light”, and thus it is the giving of light by the heavenly bodies of light that is the key principle for the elements of the calendar.**

[3] A Month is a Cycle of the Moon

Ps 104:19, "He made the moon [3394 *yahrayach*] for appointed-times [4150 *moed*], the sun knows its going-away."

This use of appointed-times establishes that the moon is one of the heavenly bodies specifically indicated in Gen 1:14. Other Scriptures below get more specific.

I Ki 6:38, "And in the eleventh year in the month [3391 *yerach*] Bul, it [is] the eighth month [2320 *chodesh*], the house was finished for all its parts and for all its plans, thus he built it seven years."

I Ki 8:2, "And all the men of Israel were assembled toward King Solomon at the feast in the month [3391 *yerach*] Ethanim, which [is] the seventh month [2320 *chodesh*]."

Strong's number 3394 for moon (*yahrayach*) and Strong's number 3391 for month (*yerach*) have the same three Hebrew consonants and look the same when the vowels points are removed. Originally the Hebrew text had no vowel points. This identical original appearance in the Hebrew word for moon (3394) and this Hebrew word for month (3391) shows that a biblical month is a cycle of the moon. These two verses also have another word for month [2320 *chodesh*], and it shows that the two different words, *yerach* and *chodesh*, indicate the same thing, a month.

[4] The Aaronic Priesthood, the Calendar, and Num 10:10 to begin each Month

At the beginning of each month, in the context of Num 10:1-10, notice the following activity of the priesthood.

Num 10:8, “And Aaron's sons, the priests, shall blow with [the two silver] trumpets.”

Num 10:10, “And on [the] day of your gladness, and on your appointed-times [4150 *moed*], and on the beginnings of your months [2320 *chodesh*], you shall blow with [the two silver] trumpets over your burnt offerings and over [the] sacrifices of your peace offerings, and they shall be to you for a memorial before your Almighty; I am YHWH your Almighty.”

Ps 133 shows calendric unity via the authority of the Aaronic priesthood.

Ps 133:1, “A song of the upward-steps, by David, Behold how good and how pleasant [is the] dwelling of brothers, yes-indeed in-unity.”

Ps 133:2, “[It is] like the good oil upon the head, descending upon the beard, Aaron's beard, descending upon the edge of his garments.”

Ps 133:3, “Like the dew of Hermon descending upon the mountains of Zion, because there YHWH commanded the blessing of life forever.”

Here Aaron, the first high priest, represents the Aaronic priesthood. Oil upon his head represents authority upon the priest. This is saying that dwelling in unity is like the oil of authority upon the priesthood. It shows the authority of this priesthood for the calendar. This priesthood that was used to achieve unity was only given residence within Israel (Num 35:2-8).

[5] Hebrew *chodesh* refers to the Day that Begins each Month

Now compare Num 10:10 with I Chr 23:30-31.

I Chr 23:30, “and [the sons of Aaron are] to stand every morning to thank and to praise

YHWH, and likewise at evening,”

I Chr 23:31, “and for all the burnt offerings to YHWH for the Sabbaths, for the new-moons [2320 *chodesh*], and for the appointed-times [4150 *moed*] in the count [of animals], [according to the] ordinance concerning them continually before YHWH.”

In I Chr 23:31 above we notice that the burnt offerings on the new moons [2320 *chodesh*] are mentioned, and in Num 10:10 above we notice that the burnt offerings on the beginnings of your months [2320 *chodesh*] are mentioned. The whole phrase “beginnings of your months” appears in verse 10 compared to “new-moons” in verse 31, showing that a month begins with a new moon. Verse 31 translated this word *chodesh* as “new-moons”, while verse 10 translated the same word as “months”. Other examples also show a double meaning for this word. Some examples where *chodesh* means “month” are Gen 29:14; Num 10:11; I Ki 5:14. Some examples where *chodesh* means “new-moon” are II Ki 4:23; Ezek 46:3; Hos 2:11; Amos 8:5.

[6] Full Moon occurs about the 15th Day of the Biblical Month; Psalm 81:3

Both of the Hebrew words that mean month, namely *yerach* and *chodesh*, also occur in similar contexts in the Ugaritic language from near northern ancient Israel. From one clear context in ancient Ugaritic there is a phrase for the full moon at month day 14 or 15, showing that the full moon occurs about the 15th day of the month. This indicates that the start of the biblical month occurs at a time that is approximately opposite the full moon because an average moon cycle lasts for about 29.5 days.

Ps 81:3, “Blow at [the] new-moon [2320 *chodesh*] [the] shofar, [also blow it] at [the] full-moon [3677 *keseh*] on [the] day of our feast.”

The translation “full-moon” in this verse is attested by Aquila's translation from Hebrew to Greek c. 130, the Syriac Peshitta translation from Hebrew to Syriac c. 150, and from Semitic archaeological texts. Jerome's translation from Hebrew to Latin c. 400 has “middle of the month”, but for the same word in Prov 7:20 Jerome has “full-moon”. This Semitic word is the approximate full-moon rather than the astronomically exact full-moon. The feast mentioned is either the 15th day of the first month or of the seventh month, so this agrees with the context in Ugaritic that the 15th day of the month is the approximate full-moon. This brings us to the important conclusion that the new-moon day, *chodesh*, occurs at the time that is approximately opposite the full-moon.

[7] A Biblical Month is a Whole Number of Days with a maximum of 30 Days

A cycle of the moon around the earth is about 44 minutes more than 29.5 days, but soon

we shall see from some verses using both of the Hebrew words for month, namely *chodesh* and *yerach*, that in the Tanak, a month is a whole number of days, with no fraction remaining. The literal expression *a month of days* as seen in several Scriptures is idiomatically translated *a full month* in almost all translations. These examples (see Gen 29:14; Num 11:19, 20, 21; Deut 21:13; II Ki 15:13) show that a biblical month is a whole number of days.

From the use of lights in Gen 1:14-15, the light of the moon must be involved to define the start of the biblical month because a biblical month is a cycle of the moon. Suppose the moon cannot be seen at all for some number of days when the month would normally be expected to end? How many days can a biblical month continue if the moon is not seen at all?

During the flood in the days of Noah, when there were 40 days of rain and then thick clouds due to water covering the earth, it was difficult to see the moon at all near the part of the moon cycle opposite the full-moon. From Gen 7:11; 8:3-4 we note that five months lasted 150 days, so that each month apparently had 30 days during that time of lack of visibility of the moon when opposite the full-moon. Thus a biblical month is not permitted to have more than 30 days.

[8] The Start of the Biblical Month relates to the Sighting of the New Crescent

We have seen that a biblical month is a cycle of the moon, and that the beginning of the month is approximately opposite the full moon, and is determined by a light from the moon. The only candidates that are available from this information are the old crescent and the new crescent.

The Hebrew noun *chodesh* [2320] (meaning *month* as well as *new-month* or *new-moon*) has the same consonants as the Hebrew adjective *chadash* [2319] (almost always translated “new”, and having the meaning “new”) and the Hebrew verb *chadash* [2318] (about half the time translated “renew” and half the time “repair”). Hence the collective association of *new*, *renew*, and *repair* is associated with the Hebrew word *chodesh*, rather than the concept of old, dwindling, or thinning, which is associated with the old crescent. The association with something new rather than old shows that *chodesh* must refer to the new crescent rather than the old crescent. Hence the biblical start of the month is seen to mean the new crescent. **The biblical day that begins with the approximate time of the sighting of the new crescent in the western sky near sunset is the day that begins the biblical month, except that a biblical month cannot have more than 30 days regardless of visibility conditions.**

[9] From Where should the New Crescent be Sighted to begin a Month?

The Aaronic priesthood was the authority that provided unity (Ps 133). They were only supposed to dwell within Israel (Num 35:2-8).

The borderline for visibility of the new crescent is wide and fuzzy. Humidity and a great height above sea level can even cause gaps in visibility within a geographical region. The wide fuzzy path of first visibility of the new crescent not only has gaps, but its path on the surface of the earth is curved and the shape of the curve varies from month to month for any one place. Any rule to reconcile this is arbitrary and subject to debate. If visibility at each location were to separately determine the beginning of a month, there would be a lack of unity near the fuzzy borderline each month, and it would disrespect the authority of the Aaronic priesthood that was commanded to dwell within Israel. Furthermore, in ancient Israel there was unity rather separate local determination.

[10] Introduction to the Determination of the First Month

Probing into Gen 1:14 with regard to its last word *years*, what could the lights in the heavens involve for the beginning of a year? Candidates include the sun, moon, stars, planets, and comets. The fact that the Feast of Booths relates to a time literally described as “*in your gathering of the produce*” (the Hebrew does not actually have a past tense for this in Ex 23:16; Lev 23:39; Deut 16:13), implies that the biblical year closely approximates the agricultural year, so that the long-term average length of the biblical year is the same as the ordinary tropical year, which is about 365.2422 days. This eliminates the planets and comets from consideration for *years*, because their pattern of visibility has no relation to the period of the tropical year. In fact this also rules out the stars because the phenomenon described in astronomy books under the name “*precession of the equinoxes*” causes the time of the visibility of the constellations to advance 14.1 days for each 1000 tropical years. With the elimination of the stars, planets, and comets, only the sun and moon are left to consider. The moon determines the start of the months, but it does not determine which month is the first month. By process of natural elimination, the sun must be involved for the determination of years from the literal and direct viewpoint of Gen 1:14.

[11] Light Triggers and the First Month of the Year

In order to understand what is intended from Gen 1:14 for *years*, we should look for a consistent pattern in what we already know about the beginning of *days* and *months*. Light from the sun or moon is a trigger for the events described. The light trigger for distinguishing a new day is the transition from light to dark of the sun, allowing the

moon and stars to rule at night. The light trigger for beginning a new month is the new crescent in the western sky. Gen 1:14 declares that the lights themselves determine these matters, not a prediction of these lights, and not an approximate calculation of these lights.

For the start of a day and the start of a month: (1) The **light trigger occurs at the beginning of the event**; and (2) Only the **lights themselves, no advance prediction or calculation** is present. We should expect these two characteristics of a light trigger to apply to the determination of *years*. This continues the pattern.

To continue this biblical pattern we should expect these two characteristics of a light trigger to apply to the determination of each new year. Num 28:14 has the expression “*each month throughout the months of the year*”. Hence a year consists of whole months, and the months are numbered as seen in Lev 23. We need to consider a light trigger that determines the first month. To be consistent with the pattern having the two characteristics described, we should seek a light trigger that identifies which new crescent is the first in the year, it should occur at or shortly before that event, and the trigger should not require advance prediction. The sun must be involved.

There are only four repeatable signs of the sun that recur in an annual pattern: the two equinoxes and the two solstices. Among these four, only the vernal equinox fits the time of the year that the Israelites left Egypt for the following reason.

Jer 36:22, “Now the king was sitting in the winter house in the ninth month, with [a fire] burning in the hearth before him.”

This shows that the ninth month occurs in the winter. Since there are roughly three months per season, this would imply that the sixth month occurs in the autumn, the third month occurs in the summer, and the first month occurs in the spring. Of course the spring begins with the vernal equinox. Another Scripture that corroborates the involvement of the vernal equinox is Ex 34:22, which calls the Feast of Weeks the “*firstfruits of the harvest of wheat*”. This occurs in Israel from about mid-May through early July. If you back up from this 50 days plus about another 20 with consideration for the count to the Feast of Weeks, that is about two months and 10 days. This also approximates the time of the vernal equinox. Hence two separate biblical identifiers lead to the vernal equinox. The other three signs of the sun are too far away in time to be candidates. Thus Scriptural descriptive approximations are used to point to the vernal equinox as the only candidate for Gen 1:14.

Therefore, from Gen 1:14 (along with some helping Scriptures) we note that the vernal equinox is the trigger of light from the sun that points to the new crescent that begins the first month.

Next, consider why the vernal equinox must occur at or shortly before the first new

crescent to fulfill the pattern and avoid advance prediction. For example, let us suppose that someone proposes that the first new crescent is the one for which the 15th day of that month is on or after the vernal equinox. That would mean when the new crescent for that month is seen, one would have to know in advance (a prediction) that when the 15th day arrives, it will be on or after the vernal equinox. Someone may argue why it should matter whether we know in advance. Why can't people merely wait until the 15th day arrives and compare that with the vernal equinox? In other words, why is it necessary to know at the beginning of the month whether it is the first month or the 13th? Consider the people in ancient Israel and what they were expected to do for the first month.

When people are expected to leave their homes to attend the Passover festival in one central location (Deut 12:5-7) throughout all Israel, they need to know at the beginning of the month whether it is the first month or the 13th month so they can make preparations of clothing, food, exchange of goods for silver, wagon repair, long distance travel over hilly land (Deut 11:11, and Jerusalem is about 2500 feet above sea level), etc. The whole family was ideally expected to go (Ex 12:25-27), so that travel was not rapid. They must prepare and leave in advance in order to arrive for the Passover. Gen 1:14 literally speaks of the lights in the heavens, not predicted lights in the heavens.

The conclusion is that the new crescent that occurs on or after the vernal equinox begins the first month. This definition for the first month is a natural result from Gen 1:14 and a few other Scriptures that relate to the year, such as Deut 12:5-7.

[12] What is the Biblical Vernal Equinox?

In this modern age astronomers define some astronomical terms in a way that would have been impossible for ancient people. What is the meaning of the vernal equinox from the biblical viewpoint?

The three greatest pyramids bear witness to the unchanging orbit of the earth around the sun with the earth's axis remaining very stable. These pyramids are carefully aligned with one wall exactly along the east-west line, showing the day of the equinoxes because the shadow of the sun upon a thin vertical object at the edge of that east-west wall falls along that straight line only on the day of the two equinoxes, even agreeing with the day based upon the modern astronomer's definition. These pyramids were built long before the time of Moses.

Ancient peoples could determine the true east-west line based upon the fact that only on the days of the equinoxes, the sun's path (and the sun's shadow of a thin vertical object) falls along a straight line all day from sunrise to sunset. **This is the straight line definition of the equinoxes.** The vernal equinox is the day of the equinox when the weather is changing from cold toward hot in the northern hemisphere. This straight line definition holds true for all areas except near the poles of the earth. Some ancient people imagined that this is the day upon which there is equal daytime and nighttime

everywhere on the earth, but this is not true. The day upon which there is equal daytime and nighttime varies with the latitude upon the earth, having a variation of about five days in the tropic and temperate zones. There were no ancient clocks capable of determining this.

[13] Adoption of the Babylonian Month Names

The conclusion from Gen 1:14 that the first month is the one whose first day occurs on or after the vernal equinox will now be corroborated with a historical event that has a basis from Scripture.

In the context of Jerusalem, Ezra 6:15 mentions the month Adar (month 12) and Neh 6:15 mentions the month Elul (month 6). These are Hebrew transliterations of month names in the Babylonian calendar. Scripture is a witness here that ancient Israel adopted the month names of the Babylonian calendar by the time of Ezra and Nehemiah c. 450 BCE. This would cause confusion within the Persian empire that contained Israel unless the names of the months in Israel almost always agreed with the time of the names of those months in the remainder of the Persian empire. The Babylonian calendar became patterned with the vernal equinox so that its first month did not begin before the vernal equinox from 499 BCE onward. The Babylonian calendar also began its months with the sighting of the new crescent, not allowing a month to have more than 30 days.

The Persian king Xerxes ruled during 485-465 BCE, and his queen was Esther. Est 9:20-21 [NASB], “Then Mordecai recorded these events, and he sent letters to all the Jews who were in all the provinces of King Ahasuerus, both near and far [this would include Judah], obliging them to celebrate the 14th day of the month Adar, and the 15th day of the same month annually...” Est 9:1 states that the 12th month is Adar. The context is the region called Susa (Est 9:6), and Est 9:26-32 shows this to be the origin of the Jewish festival of Purim. Persian society used the same month names as did the Jews living there.

[14] Barley does not Determine the First Month in the Biblical Calendar

The hail plague (Ex 9:22-34) shows that *aviv* means “ears” of a plant (Ex 9:31), and in this situation the ears are from the barley plant. From the southern end of the Nile River that is part of Egypt to the northern end is about 500 miles. Barley ripens five weeks earlier in the far south than in the far north. The word *aviv* is used in Ex 9:31 to pertain to all of the land of Egypt. Multiple stages of barley ripening are included in this variation of five weeks. In Israel the variation in the ripening time for barley is seven weeks from the earliest location to the latest. The name of the first month, Abib (*aviv*) is a general characteristic, but its meaning is too broad to be a trigger for the first month.

Its meaning is too non-deterministic to be used for a clear trigger. While some people have made the assumption that the Hebrew word *aviv* refers to grain that is first ripe, the context of the hail plague shows that this assumption is incorrect.

The Septuagint translation (c. 280 BCE, but existing copies only date back to c. 350 CE), Aquila's translation (c. 130), and Jerome's translation (c. 400) of *aviv* agree that *aviv* means “new ears”, i. e., ears of a cereal crop that is now in growth without specifying any degree of ripeness. The Mishnah (Kilayim 5.7), dated c. 200, uses *aviv* in the sense of pre-ripe ears in a context that does not lend itself to further precision. From the Dead Sea Scrolls, The Temple Scroll (abbreviated 11QT, dated c. 1 CE) 19:7 uses *aviv* in a context of the primary ingredient for making bread, so this indicates that *aviv* may be fully ripe. The most important contribution to the meaning of *aviv* is the context of the hail plague. **In summary, the Scriptural meaning of *aviv* is “ears”, and in context, this is too broad in crop growth to be used as a trigger to determine the first month, despite the fact that the first month has the characteristic or name *aviv*.**

Deut 16:1 is loose in its Hebrew wording so that it is capable of various interpretations; hence nothing specific can be demanded from this ambiguous passage. Lev 2:14 also contains the word *aviv*, but it is also lax in narrowing the meaning of *aviv*.

The wave sheaf offering mentioned in Lev 23:9-16 does not specify any condition of the sheaf. The Hebrew word for sheaf, *omer*, in the early translations of the Tanak, show that it refers to an armful of stalks, again not specifying any degree of ripeness. Deut 16:9 has a scarcity of Hebrew words that hinder a precise demand in timing with regard to the new crop.

[15] Summary

The biblical day that begins with the approximate time of the sighting of the new crescent in the western sky near sunset is the day that begins the biblical month, except that a biblical month cannot have more than 30 days regardless of visibility conditions. The sighting of the new crescent should be performed from Israel.

The vernal equinox in Israel would be determined during the daytime using the straight line definition. The new crescent that occurs on or after the day of the vernal equinox in Israel begins the first month.

The reader may consult further documents from BiblicalCalendar.org. The document Basics.pdf should answer many questions. After reading that document, if further questions remain, send an email to herb_so@yahoo.com.