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[1] Luke 2:41-42 Shows that the Temple Calendar was Correct Before 70

Luke 2:41-42, “And His parents went into Jerusalem year by year at the Feast of the Passover. And when He was 12 years [of age] they went up to Jerusalem according to the custom of the Feast.”

Our Messiah never sinned. He with His parents kept the Passover using the correct calendar in the early first century at the Temple in Jerusalem.

[2] Authority of the Aaronic Priesthood regarding Preservation of the Calendar

According to the law of Moses certain activities related to the calendar are required to be performed by the Aaronic priesthood. Specifically, 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.”

Num 3:10, “And you [Moses] shall appoint Aaron and his sons that they shall keep their priesthood. And the layman/outsider [2114 *zar*] who comes near shall be put to death.”

Num 18:7, “And you [= Aaron] and your sons with you shall keep your priesthood for everything pertaining to the altar and for that behind [the] veil, and you shall serve. I give your priesthood [to you as] a service of gift. And the layman/outsider [2114 *zar*] who comes near shall be put to death.”

Lev 21:10, “And the high priest among his brothers on whose head the anointing oil was poured, and [hence] whose hand [= authority/power] was filled to put on the garments, shall not uncover his head nor tear his garments”.

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.”

Verse 2 mentions Aaron, the first high priest, who thus represents the Aaronic priesthood. Anointing with oil upon the head bestows authority on the priest (Ex 28:41; 29:7-9; 30:30; 40:13-15). This is saying that dwelling in unity is like the oil of authority upon the Aaronic priesthood, because unity can only come about if the priesthood

properly teaches the law (Lev 10:8, 11; Mal 2:7) and signals the beginning of each month through their blowing of the two silver trumpets (Num 10:1-2, 8-10). The appointed-times, the days of holy convocation, were announced by this priesthood at the beginning of the first and seventh months. This was a means of promoting unity in collective worship and unity of the days of holy convocation. There could be no opposing opinions and disunity concerning the day of the beginning of a month because of the authority of the high priest to achieve unity. This priesthood that was used to achieve unity was only given residence within Israel (Num 35:2-8).

Positive evidence that calendric unity was only to be achieved through the authority of the Aaronic priesthood does exist in Ps 133. In that psalm the unity of the brethren was to be achieved through the anointing oil upon Aaron's beard, which symbolizes the bestowing of authority upon that priesthood to bring about unity.

Despite the friction between the Sadducees (priests, Acts 5:17) and the Pharisees in the early first century, as long as the Temple remained, the calendar was correctly preserved because the priesthood continued its hereditary responsibility.

There was a serious complaint against the Levitical priesthood in Mal 2. The punishment to that priesthood for its continuing sin is discussed in Mal 2:3 where the eventual punishment is: "take you [= priests] away". This language is similar to that of exile rather than a permanent abolition.

[3] Dominant Priestly Authority at the Temple in the First Century

The Parable of the Wicked Vinedressers

Luke 20:9 [NKJV], "Then He began to tell the people this parable: A certain man planted a vineyard, leased it to vinedressers, and went into a far country for a long time."

Luke 20:10, "... the vinedressers beat him ..."

Luke 20:11, "... they [the vinedressers] beat him also ..."

Luke 20:12, "... they [the vinedressers] wounded him also ..."

Luke 20:13, "... I will send My beloved son ..."

Luke 20:14, "... vinedressers ... reasoned among themselves ... let us kill him."

Luke 20:15, "... they [the vinedressers] ... killed [him]. Therefore what will the owner of the vineyard do to them?"

Luke 20:16, "He will come and destroy those vinedressers and give the vineyard to others. And when they heard [it] they said. Certainly not!"

Luke 20:17, "Then He looked at them and said, What then is this that is written: The stone which the builders rejected Has become the chief cornerstone!"

Luke 20:18, “Whoever falls on that stone will be broken; but on whomever it falls, it will grind to powder.”

Luke 20:19, “And the chief priests and the scribes that very hour sought to lay hands on Him, but they feared the people - for they knew He had spoken this parable against them.”

The parallel passage in Mark starts in Mark 11:27 where it mentions, “the chief priests, the scribes, and the elders came to Him”. The continuous flow of the narrative goes down to Mark 12:12, “And they [chief priests, scribes, and elders] sought to lay hands on Him, but they feared the multitude, for they knew He had spoken the parable against them.”

The parallel passage in Matthew begins in Mat 21:33 and ends in Mat 21:45-46, “Now when the chief priests and Pharisees heard His parables, they perceived that He was speaking of them, but when they sought to lay hands on Him, they feared the multitudes, because they took Him for a prophet.”

In this parable the phrase, “the stone which the builders rejected” is mentioned in Mat 21:42; Mark 12:10; Luke 20:17 directly before the conclusion which shows that the leaders of Israel correctly perceived He was talking about them as the builders who rejected Him (the stone), and also about them as the vinedressers who killed Him (the son). Israel is the vineyard.

In the midst of the conclusion to this parable, when He says, in Mat 21:43, “the kingdom will be taken from you”, it is clear that He is agreeing with their interpretation that they are the leaders and that the kingdom refers to Israel and especially its government.

Luke says, “chief priests and scribes”. Mark says, “chief priests, scribes, and elders”. Matthew says, “chief priests and Pharisees”. Despite these differences, all three mention chief priests first. These leaders understood that they themselves were the vinedressers in the parable, and the vineyard was Israel. Thus the parable teaches that at the general time of the crucifixion, the leading position among Jews in Judea was in the hands of the chief priests, which were Sadducees, but the Pharisees also had some leadership. This is the clearest statement of which group held the leading position from the standpoint of the seat of semi-autonomous government permitted by the Jews under the Roman Empire.

Mark 15:10 [NKJV], “For he [Pilate] knew that the chief priests had handed Him over because of envy.”

If the chief priests did not have primary authority, but instead the Pharisees controlled the Temple area, the chief priests would have had less reason to be envious of the authority exercised by the Messiah through the miracles. Instead the Pharisees would have played a more prominent role during the trial due to their authority, and the

Pharisees would have shown envy. Note that Mark 15:10 does not say, “The Pharisees had handed Him over”, but instead, “the chief priests had handed Him over”. The last two times in Matthew that the Pharisees are mentioned are Mat 23:39; 27:62, but the trial occurred between these places. The last time that the Pharisees are mentioned in the other three Gospels are Mk 12:13; Lk 19:39; John 18:3, but these are all before the trial began. Thus the Pharisees by name seem totally absent from the trial.

Acts 22:30 [NKJV], “The next day, because he [the Roman commander] wanted to know for certain why he [Paul] was accused by the Jews, he released him from his bonds, and commanded the chief priests and all their council [= Sanhedrin] to appear, and brought Paul down and set him before them.” Here the Roman commander shows that he understands “their Sanhedrin” to be that of the chief priests despite the fact that in Acts 23:6 Paul perceives that both Sadducees and Pharisees were present. Thus the chief priests were dominant.

[4] Nehemiah Shows that the Temple Calendar was Correct after the Captivity

Neh 5:14 shows that Nehemiah was appointed governor of Judah under the Persian King Artaxerxes. This shows that Judah was part of the Persian Empire, not a fully independent nation. Note the following words of Nehemiah in the context of Jerusalem and also recognizing that in Neh 13:17-21 the Sabbath was enforced by Nehemiah's command.

Neh 13:30 “Thus I cleansed them [the people according to the law] from everything foreign and appointed duties for [the] priests and for [the] Levites each in his task.”

Nehemiah had the authority to keep the religion pure even though Judah was part of the Persian Empire. Persia allowed the different peoples within its empire to keep their own religion.

Neh 8:2, “And Ezra the priest brought the law before the assembly of men and women and all who could hear with understanding on the first day of the seventh month [2320 *chodesh*].”

Neh 8:9, “And Nehemiah who [was] the governor, and Ezra the priest the scribe, and the Levites who taught the people, said to all the people: Today is holy to YHWH your Almighty.”

Since the day that is stated to be the first day of the seventh month is definitely declared to be holy by the Tanak, it must have been determined correctly, and this was after the return from the captivity under Ezra and Nehemiah. This, along with Neh 13:30 shows that the restored religion in Jerusalem included the correct calendar. The priesthood that was restored at the Temple kept the calendar correctly from the days of Ezra and Nehemiah until the first century as indicated in Luke 2:41-42.

It is important to recognize the historical continuity preserved by the Aaronic priesthood at the Temple from the days for Nehemiah until the first century when the Messiah lived.

[5] Biblical Key to the Calendar is Gen 1:14-18

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* (the Hebrew has the plural)], 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.”

Gen 1:16, “And the Almighty made the two great lights, the greater light to rule the daytime and the lesser light to rule the night, and [He made] the stars.”

Gen 1:17, “And the Almighty set them in the expanse of the heavens to give light upon the earth”

Gen 1:18, “and to rule by daytime and by night, and to separate between the light and the darkness.”

In verse 14 the word *moed* appears in the plural. Lev 23 is the festival chapter and *moed* occurs six times in that chapter. From Gen 1:14-18 it should be clear that the lights in the heavens determine the plural of the word *moed*, which includes the festivals. The general meaning of *moed* is appointed-time, but when the lights in the heavens are specified in verse 14, then the appointed-times are the festivals and the sabbath.

Since the annual festivals (plural of *moed*) are determined by the calendar, Gen 1:14-18 makes the calendar dependent on the lights in the heavens.

[6] The Sun, Stars, and Years

The last word in Gen 1:14 is years. According to Ex 34:22 the Feast of Weeks occurs when the firstfruits of the wheat harvest should be available for offering. This pertains to the approximately stable agricultural year, which has a long-term average equal to the “tropical year” commonly called *the year* in modern society. **Hence the biblical year must have a long-term average length that is equal to the modern year of about 365.2422 days.**

Now consider the possibility that the visible stars (or visible constellations) may determine the beginning of the biblical year. Each year there is a time of first visibility of each constellation. In modern astronomy books concerning the solar system there is almost always a discussion of the concept called the “precession of the equinoxes” which is caused by the gravitational pull of the moon upon the center of mass of the earth, and the earth is pear-shaped rather than an exact sphere, so that there is a lack of symmetry in the earth-moon gravitational attraction. **This lack of symmetry causes the**

axis of the earth to make one complete cone-shaped cycle each 25,800 years, called precession of the equinoxes. The stars gradually shift in their annual time of visibility based upon this 25,800 year cycle. Hence every 1000 years the stars shift about 14.157 days further away from the vernal equinox. This means that from the time of Moses (about 1450 BCE) until today there would be a shift of when the stars are seen of about 49 days in the yearly cycle. This shift would destroy the required long-term harmony between the agricultural year and the biblical year. Therefore the visible stars cannot be used to determine the start of the biblical year.

The lights seen in the sky are the sun, the moon, the stars, the planets, and comets. The comets do return periodically at a long time interval. For example Halley's Comet returns at a period of 75 years. Each planet has its own time period for circling the sun and it is different from the earth year. The stars have already been discussed, showing that due to precession of the equinoxes their appearance gradually shifts away from their annual stability so that the stars fail to qualify for the required long-term average of 365.2422 days. The moon cycle that averages 29.53 days has no light indicator to show how one particular month could be known to be the first month yet still adhere to the long-term required average. Only the sun remains to consider, so that the sun must be involved to determine biblical years.

[7] W. Robertson Smith's Commentary on Barley in Exodus 9:31-32

Some people favor the examination of barley in Israel to be the sole factor in order to determine the first month of the biblical year. When they see Gen 1:14-18, they explain this to mean that the annual effect of the sun to ripen barley is the correct way to interpret Gen 1:14 to determine the first month. They refer to this as indirect reasoning of the lights in the heavens to recognize the first month rather than using the lights directly to determine the first month.

The purpose of this chapter is to explain the greatest problem with the above reasoning in favor of the use of barley alone. Other questions need to be addressed concerning this matter, but those questions will be postponed until later. The Hebrew expression that is found six times in the Tanak that is relevant to this question is *chodesh ha-aviv*, literally “month of the *aviv*”. It will soon be shown that there is a context where the word *aviv* refers to some aspect of the growth of barley.

From the earliest place in **Israel** where barley is harvested to the latest place in **Israel** where barley is harvested is **seven** weeks, which is close to two months. Therefore barley alone does not identify only one month. This objection is answered by some people by saying that it is the **first** location within Israel that shows the condition of *aviv* that matters for the determination of the first month. The problem with this explanation is that the Tanak does not say “month of the **first** *aviv*”; it omits the word “**first**”. Hence people who favor the use of barley alone are left with the problem of assuming their

conclusion by adding the extra word “first” that does not occur in the Hebrew. The meaning and use of the word *aviv* is a crucial key here. This word occurs in Ex 9:31 and Lev 2:14 besides the six places where “month of the *aviv*” occurs. The latter verse in Leviticus will wait until later.

In the context of the hail plague that occurred throughout Egypt, we note the following.

Ex 9:31, “And the flax and the barley were ruined because the barley [was in] ear [= *aviv*] and the flax [was in] flower [1392 *gevol*]”.

Ex 9:32, “But the wheat and the spelt were not ruined because they [ripen] later.”

W. Robertson Smith wanted to obtain information on the time of the year of the occurrence of the hail plague from which the above is quoted. This is the eighth plague (Ex 9:22-32). He wrote to three knowledgeable people in Egypt who had personal experience or knew others who had personal experience on the growth of barley in Egypt, and he received responses from them. The following two quotations are from p. 299 of Smith's paper from 1883.

“The data of the [barley] harvest varies greatly in different parts of Egypt.”

“The difference between upper and lower Egypt is about 35 days.”

Based on information from this paper, the 35-day period for the typical time of reaping barley in the south to the typical time of reaping barley in the north is the time from latter February to the first part of April. When this is studied in more detail, it is seen that the hail plague would have occurred in the middle of February at the latest. This is outside the context of Ex 12:1-2.

The real problem for those who favor the use of barley alone is that the reason given in Ex 9:31 for the ruin of the barley crop in all of Egypt is that it was *aviv*, and this applies to the 35-day variation in the growth of barley. **Hence the meaning of the word *aviv* requires too wide a variation in growth to identify one specific condition for which to test to determine that the first month has arrived** (using the barley hypothesis).

People who attempt to use a test on barley for the first month invent a definition of what to test for that is not in the Tanak, and whatever it is, would be contrary to the wide use of *aviv* in the hail plague. It should now be clear that the phrase “month of the *aviv*” does not describe only one month. This indicates that the phrase shows a name that does not uniquely describe only one month.

Later the wave sheaf offering will be discussed.

[8] Light Triggers and the Vernal Equinox

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 heavenly bodies 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. 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 these two events (start of a day and 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. (The latter hints at the modern Jewish calendar that uses a calculation that approximately predicts the position of the moon and the sun.) 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. Deut 11:12 has the expression “*from the beginning of the year*”, showing that a biblical year has a definite beginning. 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.

As already mentioned, 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 the beginning of years in Gen 1:14.

Therefore, from Gen 1:14 (along with some helping Scriptures above) 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 on the day of the vernal equinox or afterward. This conclusion stems from the two above principles for the light triggers for the calendar. It avoids prediction and calculation.

[9] Starting with the Nearest New Crescent to the Vernal Equinox has problems

To keep matters simplest, let us suppose that the nearest new crescent to the vernal equinox is defined to be the new crescent whose 15th day of the month is on or after the vernal equinox.

This would mean when the new crescent for that month is seen, one would have to know in advance 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, and long distance travel over hilly land (Deut 11:11, and most of Jerusalem is about 2500 feet above sea level with Mt. Zion a few hundred feet higher). 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. Once they arrive, it makes no sense for them to be told that the vernal equinox is one day later so that they need to go home and return one month later. Gen 1:14 literally speaks of the lights in the heavens, not predicted lights in the heaven.

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.

This is not the only problem with using the nearest new crescent to the vernal equinox. In chapters soon to come, other evidence will be presented to show that the new crescent needs to be on or after the vernal equinox to begin the first month.

The biblical vernal equinox is the straight line path of the sun during the daytime when passing from cold weather into milder weather in the northern hemisphere.

[10] Adoption of the Babylonian Month Names in Jerusalem

In the year 539 BCE Persia defeated the Babylonian Empire and adopted the Babylonian calendar, although they did not prevent local calendars from continuing to exist. For example, the local Persian calendar (the Zoroastrian religious calendar) still continued and the Egyptian civil calendar still continued. In fact the Persians dated legal documents in both the Babylonian calendar and the Egyptian civil calendar, thus using two calendars simultaneously.

One similarity between the Babylonian calendar and the ancient Jewish calendar is that both began their months with the sighting of the new crescent in the western sky near sunset. The city of Babylon was at the Euphrates River and this was the primary place at which the Babylonian calendar and astronomical work was directed until the city was destroyed by the Romans in the first century. It was sometimes cloudy and rainy at this location, so that would sometimes prevent the sighting of the new crescent and thus cause some months to have the maximum of 30 days if there were successive days when the moon was not visible at the end of the old month. This put pressure on the Babylonians to try to predict the sighting of the new crescent. Not very long before the time of Alexander the Great, the Babylonians were quite successful at predicting the sighting of the new crescent, but this was kept a secret, and it was not until 1997 that a book was published on how they probably did this.

The Egyptian civil calendar had 12 months of 30 days each, plus five additional days, so that each year had exactly 365 days. In the ancient Persian capital city of Persepolis, ancient documents have been found with events dated in both the Persian version of the ancient Egyptian civil calendar and the Babylonian calendar. The Persian version of the ancient Egyptian civil calendar also had 12 months of 30 days each, plus five additional days. However, the names of the months were different and the placement of the five additional days was different. A simple chart could be used to convert any date from the Egyptian civil calendar into its Persian version. All this illustrates that the Persian Empire did not demand uniformity in calendar usage within its empire.

In the context of Jerusalem in Ezra 6:15 there is mention of the month named Adar without mentioning that it is the twelfth month using the Babylonian month name.

In the context of Jerusalem in Neh 6:15 there is mention of the month named Elul without mentioning that it is the sixth month using the Babylonian month name.

In the context of Persia in Neh 1:1 there is mention of the month named Chislev without mentioning that it is the ninth month using the Babylonian month name.

In the context of Persia in Neh 2:1 there is mention of the month named Nisan without mentioning that it is the first month using the Babylonian month name.

We see that in Nehemiah, both in the context of Persia as well as in the context of Jerusalem that Babylonian month names are used without mentioning the number of the

month.

We understand how the ancient Babylonian calendar worked because their eclipse records agree with modern computer simulation data for those eclipses. There are hundreds of eclipse records from ancient Babylon preserved on clay tablets between 747 BCE and the first century. A little less than 200 of them also have the time of day based on their water clocks. Using computers and the formulas of astronomy to compute the time of those eclipses that were time-stamped by the ancient astronomers, we know how the ancient Babylonian calendar worked.

From 499 BCE until the Babylonian calendar's last recorded year of 75 CE, its first day of the first month did not begin before the vernal equinox. During the century from 499 to 400 BCE Nisan 1 fell on the day of the vernal equinox five times based upon the clay tablet evidence. Prior to the year 499 BCE the Babylonian calendar did allow the **beginning** of its first month Nisan to swing erratically on both sides of the vernal equinox. Ezra returned to Jerusalem in 457 (Ezra 7:7-9). Nehemiah returned in 444 BCE (Neh 2:1 and further). Neh 13:6-7 shows that Nehemiah was still active in Jerusalem in 432 BCE.

The very obvious fact that in Nehemiah above where the Babylonian month names appear both outside and inside Jerusalem without any month numbers yet there is no attempt to make any distinction in the use of the calendar of these month names based upon location is significant evidence that there would rarely be a difference between Nisan in the Babylonian calendar and Nisan in the Jewish calendar after 499 BCE.

Based upon what the Jews would be able to notice in their environment in Babylon and Nehemiah's use of the same month names in Jerusalem, the Jewish calendar would use the rule that their first month would be the one whose new crescent would be seen on or first after the vernal equinox. There is no simpler rule. If there would often be a difference by one month, then it would cause confusion to use the same month name for different months within the same empire.

The Babylonians were very secretive about their work in astronomy and the calendar. Their writings in this field were written in the Akkadian language with its nearly 500 symbols. We have no surviving record of their own explanation of their calendar. Whatever we know about it comes from examining the dates from their clay tablets written in the Akkadian language matched with eclipse records. The Aramaic language gradually replaced the Akkadian language so that by c. 700 BCE the Akkadian language was nearly a dead language. We have no knowledge about what the Jews knew about the Babylonian calendar from the time it was synchronized to the vernal equinox beginning in 499 BCE. Multitudes of Jews were living in Babylon, so they had constant opportunity to witness its operation, but whether they knew more of its theoretical details is not known.

If the leadership of the Jews did know more about the theoretical operation of the Babylonian calendar, they may have kept it a secret.

If the Jews had used the nearest new crescent to the vernal equinox to begin the first month instead of the new crescent that was on or after the vernal equinox, then half the time the first month would have been different, causing much confusion in society half the years.

If barley were used to determine the first month in some way, then that would also have caused confusion in many years because of lack of agreement in the month that is used with the same name.

[11] The Passover Letter shows the Jerusalem Nisan was the Babylonian Nisanu

A unique document written in Aramaic has survived from the year 419 / 418 BCE written on papyrus. This document is called the Passover Letter, and it is an exceptional witness to the use of the name Nisan for the first month in that year when the calendar of the Jews was correct in Jerusalem.

About 500 miles south of the Mediterranean Sea in the Nile River, there was an island named Elephantine serving as the southern defensive base of Egypt to prevent an invasion from Sudan to the south. On that island the Persian Empire established a military base with mercenaries, many of whom were Jews.

In southern Egypt, the Persian Empire controlled the region that surrounds the city of Scyene and the island of Elephantine where ancient documents have been discovered with events dated in both the Egyptian civil calendar (exactly 365 days per year) and a long distance version of the Babylonian calendar. Both dates were used on most documents, and that was called double dating. Before 1990 there was a debate within the scholarly community concerning whether these documents were dated using the Jewish calendar or the Babylonian calendar, but since the 1990 paper by Bezalel Porten was published, we have solid grounds for the scholarly acceptance that a long distance version of the Babylonian calendar was used there.

Because the Babylonians kept their astronomy and their calendar secret in their details and the distance from the city of Babylon to the provincial administrative headquarters in Scyene is about 1000 miles, one may expect that on occasion there would be some discrepancy between the normal Babylonian calendar and its implementation in the region of Scyene that included the island of Elephantine close to Scyene. One kind of discrepancy is that the Babylonians began each month with the new crescent while the Egyptians began each month with the morning that followed the last seen old crescent in the eastern sky. Some scribes in that region used the Egyptian method to begin the month and some did not, yet they used the standard Babylonian month names. This difference in how to begin the month could cause some month to begin one day before

the Babylonian month. Travel from the city of Babylon to Scyene was not frequent so that on rare occasions a thirteenth month might be added in Babylon, but not added in the region of Scyene. Over 30 double dated documents have been found in the region and two of these show that a thirteenth month should have been added to make them agree with the Babylonian calendar in those two years, but a thirteenth month was neglected to be added. Jews in Jerusalem would generally not be aware of these unusual discrepancies between the Babylonian calendar and its long distance implementation in the region of Scyene.

In the Passover Letter found buried on Elephantine, the Hebrew-Aramaic alphabetic characters in this letter along with an English translation are found on pages 56-57 of Lindenberger. In the following quotations from the letter, the square brackets and the contents within them appear on page 57 of Lindenberger. The letter contains “This year, year five of King Darius”, which dates the letter in 419/418 BCE. There are gaps in the letter because it is poorly preserved. The addressing of the letter says “[To] my brothers Yedanyah and his colleagues, the Jewish garrison, from your brother Hananyah”. It was written from one Jew in friendship to the Jews on the island with whom the author had familiarity. Part of the preserved text of the letter says, “Be scrupulously pure. Do not [do] any work [...]. Do not drink any [...] nor [eat] anything leavened [...] at] sunset until the twenty-first day of Nisan [...]”.

Another translation of this same segment of this letter is on page 283 of Whitters where he adds in square brackets some guesses in gaps in the text as follows, “be pure and take heed. [Do n]o work [on the 15th and the 21st day, no]r drink [fermented drink, nor eat] anything [in] which the[re] is leaven [from the 14th at] sundown until the 21st of Nis”.

Note that the final letter of Nisan is missing in the poorly preserved papyrus so only “Nis” is shown. This provides historical evidence that after the return from exile under Ezra and Nehemiah, Jews named the first month Nisan as a substitute for the word *aviv*. On page 283 Whitters comments, “The letter came from one Hananiah, who apparently wanted the Jews in Egypt to celebrate Passover and Unleavened Bread appropriately. The address and greeting rule out a local Egyptian official or Persian overlord.” If the name Nisan was not significant for the first month to Jews, the letter could simply have said the first month or used an expression with Abib (Hebrew *aviv*) to signify the first month. This should be accepted as ancient historical evidence outside the Tanak that Jews of the fifth century BCE considered the Babylonian month name Nisanu as equivalent to the first month of their year.

There was a distance of over 500 miles from Jerusalem to the island of Elephantine ignoring the curves in the Nile River that would make the distance longer, and it was all uphill from the mouth of the Nile River on the northern coast to

Elephantine. It would not be feasible that this letter would get from Jerusalem to Elephantine in time for any report about the condition of barley in Israel, and nothing in the letter mentions barley or *aviv*. The fact that the name of the first month was changed from *aviv* to Nisan is also a strong indication that barley was not involved in the calendar.

This letter shows that the Jews in Jerusalem expected that Nisan in the Babylonian calendar used by Jews in Elephantine would be equivalent to Nisan in Jerusalem.

[12] Philo explains when the First Month of the Biblical Year begins

Philo of Alexandria is tainted with influence from Hellenism (for example he used the zodiac) and he admitted in his writings that he mingled what he was taught in the synagogue with what he found in Scripture. To Philo, Scripture was the Septuagint, because scholarly opinion is that he did not know Hebrew. He also used elaborate allegories in his thought process. He suppressed possible controversies within Judaism in his writings. Hence he is not a perfect source of pure truth. Nevertheless, he did represent Judaism as the head of a Jewish delegation to Rome, so he was in the mainstream as a Jew in Alexandria, although not in Jerusalem. In Philo's writings he did not use Babylonian month names in contrast to Josephus who did use those month names. One explanation for this difference is that Josephus lived in the environment of the Temple in Jerusalem, while Philo did not live there. When Philo discussed the first month, he never hinted that anyone came from Jerusalem to give a report about the ripeness of barley to know when the first month might be.

Philo wrote on page 151 of Philo_7 (Special Laws I.90), "Who else could have shewn us nights and days and months and years and time in general except the revolutions, harmonious and grand beyond all description, of the sun and the moon and the other stars?" *Notice that the way Philo asks this question emphatically shows that agriculture is not the way to determine years and the first month.* Philo leaves no place for the use of barley in calendric determinations.

Philo discusses Ex 12:2 on pages 2-5 of Philo_QE (Exodus, Book 1.1). On page 2 he wrote, "'This month (shall be) for you the beginning of months; it is the first in the months of the year.' (Scripture) thinks it proper to reckon the cycle of months from the vernal equinox. Moreover, (this month) is said to be the 'first' and the 'beginning' by synonymy, since these (terms) are explained by each other, for it is said to be the first in order and in power; similarly that time which proceeds from the vernal equinox also appears (as) the beginning both in order and in power, in the same way as the head (is the beginning) of a living creature. And thus those who are learned in astronomy have given this name [the Ram] to the before-mentioned time [the vernal equinox]. For they [astronomers] call the Ram the head of the zodiac since in it the sun appears to produce the vernal equinox." Then on page 3 he writes, "And that (Scripture) presupposes the

vernal equinox to be the beginning of the cycle of months is clear from the notions of time held in the ordinances and traditions of various nations.”

What did Philo mean by “the traditions of various nations”? The Roman Empire promoted the Julian calendar so that any local lunar calendar was only continued through the motivation of ethnic peoples who had an interest in continuing with it. The Babylonian astronomers continued to publish their lunar-solar calendar until the year 75 CE, and some peoples in the eastern part of the Roman Empire continued its use with the substitution of Macedonian (Greek) month names for the Babylonian month names. Josephus is an example of providing both the Macedonian month names as well as the Jewish month names, but the latter names were actually Babylonian. When Josephus called them Jewish month names, he was indicating that the Jewish authorities had the control of declaring the calendar. This is the only place where Philo makes a statement about the first month that is capable of some explicit comparison with the vernal equinox. **Philo nowhere compares the Passover with the vernal equinox. Philo never mentions the full moon in relation to the vernal equinox.**

[13] Summary of Evidence that favors Specific use of the Vernal Equinox

- (1) Gen 1:14-18; Ex 34:22; Jer 36:22 were explained to show that a light trigger from a heavenly light determines the beginning of the year, and specifically the light trigger is the vernal equinox. The new crescent on or after the day of the vernal equinox begins the first month of the year, using Deut 12:5-7 (“one place” and the needed time to arrive).
- (2) The Babylonian calendar's first month was named Nisanu, which the Jews transliterated into Hebrew as Nisan. From 499 BCE onward the Babylonian calendar did not permit Nisan to begin before the vernal equinox. Ezra 6:15; Neh 6:15 show the use of Babylonian month names in Jerusalem, yet with Jews using these names throughout the Persian Empire. Neh 13:30 shows that the restored religion in Jerusalem included the correct calendar. The priesthood that was restored at the Temple kept the calendar correctly from the days of Ezra and Nehemiah until the first century as indicated in Luke 2:41-42. This evidence is mentally strengthened by the next evidence.
- (3) The Passover Letter in 419/418 BCE, written from a Jew in Judea to Jews on the island of Elephantine near the southern border of Egypt where Persians administered a long-distance version of the Babylonian calendar, explained that Nisan was the month of Passover. This shows that the Jew who wrote the letter from Judea expected that Nisan in the Babylonian calendar would be the same as Nisan in Judea, since that was the month of Passover. Thus this letter that has survived in the very dry desert from over 2400 years ago on this island is primary historical evidence that the month names in Jerusalem were expected to agree in time with the same month names in Persia.
- (4) Philo of Alexandria in the first century states that the vernal equinox begins the first month as in other nations, Some ethnic peoples in the east still used the Babylonian

calendar, although Greek names were often substituted.

[14] Historical Aspects of Barley and the First Month

(A) The Tosefta c. 250 CE

The rabbinic writing known as the Tosefta was published c. 250 CE and was a follow-up to the Mishnah from c. 200. The Tosefta is the first **rabbinic** document known to speak about when the first month should occur after the Temple was destroyed in 70. It has multiple contradictory opinions about when the first month should occur. These opinions include brief contradictory statements about using the vernal equinox, the autumnal equinox, the new barley crop, as well as other factors. When the Tosefta does mention the barley, it does **not** do so in relation to the wave sheaf offering. The Tosefta does **not** mention the Hebrew word *aviv*. The Tosefta never presented reasoning for the whole variety of factors that relate to the time of the first month. Instead, it gave brief opinions. The Mishnah c. 200 does discuss the wave sheaf offering, but the Mishnah does not require that any test must be applied to that offering to validate that the month is the first month. The Mishnah does not discuss the subject of how the first month should be determined. That question is left for the Tosefta. The Mishnah mentions the word *aviv* one time, where the context shows it to mean barley that is far from being ripe.

(B) The Early Church and the First Month

During the time that the Tosefta was in process of being written by the rabbinic Jews in the greater region of Tiberius, Sepphoris, and Caesarea (greater Galilee), the early church father Origen was living in Caesarea, and he had many discussions with rabbis about their beliefs and their Scriptures. The bishop of the Church of Alexandria began sending out letters to the various bishops of major cities concerning its determination of the month of Easter from c. 230 onward. Origen was well aware of this and c. 245 he wrote a short work *On the Passover*, which discussed the time of the first month. His conclusion was that he did not know when the first biblical month should occur. Origen did have the works of Josephus and Philo in his library, and he was aware of the controversy of the determination of the first month that apparently began c. 222 by Hippolytus of Rome who was relying on Josephus. About 23 years after Origen died, another churchman, Anatolius of Alexandria, wrote a work on the time of the first month, and he wrote that Origen agreed with his (Anatolius's) explanation of when the first month should begin. This was obviously not true, and neither was the claim of Anatolius that Philo agreed with him. **The evidence points to the conclusion that Anatolius was trying to justify the practice of the Church of Alexandria rather than objectively show what was actually known.** Neither Philo, nor Josephus, nor Origen, nor Hippolytus, nor Anatolius indicate that the barley had anything to do with the determination of the first month.

The belief that the “**nearest new crescent to the vernal equinox**” should begin the first

month originates with a misunderstanding of what Josephus wrote by people in Alexandria where the sign of the zodiac named Aries (our Latin name) had a different meaning in time of the year than it had in Rome where Josephus wrote, Anatolius did not understand what Josephus meant, and what Anatolius wrote is a contradiction to what Josephus meant. The alleged history to which Anatolius refers before Philo has no substantiated history behind it, and this alleged history contradicts both Philo and Josephus. The use of the “**nearest new crescent to the vernal equinox**” must be rejected as a misunderstanding of Josephus, and as false promotion by Anatolius.

(C) History of the Viewpoint that Barley alone points to the First Month

Above, the use of Babylonian month names by Ezra and Nehemiah in the context of Jerusalem show that barley was not being used to determine the first month because the name Nisan replaced the use of Abib for pointing to the first month, and there would have been confusion using Babylonian month names if that had disagreed with some method to use barley that was actually being used.

Above, the historical evidence of the Passover Letter showed that the barley could not have determined the first month in the year 419 / 418 when the Aaronic priesthood controlled the calendar.

Above, there is a quote from Philo to show that he believed that the heavenly lights determine the time of the festivals, and not agriculture.

There were multiple competing calendars promoted within the Dead Sea Scrolls. This shows that freedom prevailed among Jews who chose to differ on the calendar. All of the competing calendars were based upon astronomy alone. The vernal equinox was the key for the focus of the start of the first month among these calendars, as well as for Philo. Barley is not mentioned in any calendars of the Dead Sea Scrolls for the calendar.

The earliest known historical record of any Jew or Israelite promoting the use of barley alone to determine the first biblical month is that of Anan ben David who taught c. 770. This account was reported c. 1000 by Al-Biruni 1879.

On p. 777 of Gil 1992 we find, “The origins of the Karaites and their early development are shrouded in obscurity. The sources which describe these beginnings single out the figure of ‘Anan, who is considered the founder of Karaism.” On p. 778 we read: “As to the Karraite sources themselves, Qirqisani says that 'Anan lived in the days of the second Abbasid caliph, the founder of Baghdad, Abu Ja'far al-Mansur (754-775), which fits what has been said above.”

On p. 211 of Schur 1995 we find, “Now that Anan's real position in Karaite history begins to be better understood, Benjamin Nahawendi looms much larger, as he was the first real leader and unifier of the sects which eventually made up Karaism. He hailed from Nihavend in Persia (in the province of Media), and might have lived (in the first

half of the ninth century) in Persia or in Iraq.” P. 213 states: “Nahawendi’s importance is attested to by medieval Arabic accounts, which call the Karaites ‘the followers of Anan and Benjamin’. Saadia Gaon and Judah Halevi regarded Anan and Nahawendi as the two founders of Karaism.”

The Karaite named Levi ben Yefeth wrote a book about 1006-7 in which he mentions three prevalent views of how to determine the first month. This is reported on pp. 303-304 of Ankori 1959. The first view he presents is that of the Rabbanites who use the modern calculated Jewish calendar. The next quotation from pages 303-304 has square brackets with words added by Zvi Ankori in the midst of his translation from Levi ben Yefeth, where we read, “The second group consists of people in the Land of Shine'ar [= Babylonia] from among our brethren the Karaites. They follow the [computation of the vernal] equinox alone; yet, they stipulate certain conditions which are different from those stipulated by the Rabbinites. This is why we have listed this group as separated from the Rabbinites... Now, this second group does not inquire, nor search, for the abib at all; [its members simply] wait and do [the proclamation of Nisan] when the sun reaches the Constellation of the Ram...”

In the Middle Ages the Constellation of the Ram meant the 30 degree segment of the zodiac beginning with the vernal equinox, not what it meant to Pliny the Elder and Josephus, and not the actual star group that formed the constellation.

Next, on page 304, Zvi Ankori, continues his translation: “The adherents of the third group [i. e., the Palestinian-oriented Karaites] observe [the New Year] on the strength of abib alone and they do not investigate [the position of] the sun at all.”

The Karaites in Israel today are a continuation of the third group mentioned above by Ankori. However, they are not organizationally unified. There are other Karaites who use the vernal equinox alone as with the second group reported by Ankori above.

All available historical evidence before Anan ben David c. 770 is against the use of barley alone as the determining key for the first month.

[15] Abandonment of the word *aviv* to indicate the First Month

If the name or word *aviv* had been the key element to determine the first month into the first century, then its importance would have elevated the biblical phrase *chodesh ha-aviv* to continue in use down into the first century by the Jews. The phrase “month of Nisan” is used by the Maccabees and by Josephus, as well as by other books of the Tanak after the Pentateuch. The word *aviv* occurs only once in the Dead Sea Scrolls in the making of bread. It only occurs once in regard to agriculture within the rabbinic writings, where it refers to an unripe state of grain that was not nearly ripe.

[16] The Problem of a Biblical Test to Perform on the Barley

In discussing the Karaites, pp. 392-393 of Nemoy state, “Some of them [from the

Middle Ages] begin the ‘(month of the) fresh ears’ (with the appearance) of (any kind of) green herbage, whereas others do not begin it until (fresh) garden-cress is found all over Palestine; others begin it only when (at least) one piece of ground becomes ready for harvest; still others begin it even when only a handful of corn is ready for harvest.”

This indicates that Karaites in the Middle Ages who wanted to use vegetation to determine the first month could not agree among themselves on the method, undoubtedly because the Tanak does not provide a botanical description to determine the month of *aviv*.

Many modern adherents of the use of barley to determine the first month attempt to use the wave sheaf offering to create a definition of how to test barley for the first month. This will be discussed a below.

Among all the biblical contexts containing the word *aviv*, the only one that has the word barley is Ex 9:31. The other key verse, Lev 2:14, applies to all grains, not just barley. It is certainly true that barley is the first of the grains to ripen in Israel as the winter departs, but the word *aviv* is not defined clearly in the Tanak. The phrase *chodesh ha-aviv* is open to some interpretation, but it is clear from the hail plague that *aviv* has a broad meaning. It is literally “month of the ears”.

Those who promote the use of barley alone strongly argue for the first appearance of “*aviv*” within Israel, but the Tanak is not explicit on this. The actual phrase *chodesh ha-aviv* does not possess the detail of “first place in Israel to show it”.

From the earliest location within Israel that barley may be harvested (the lower Jordan River valley) until the latest location in Israel that barley may be harvested (the northern higher elevations) *spans a time length of seven weeks*.

The reader who favors the barley usage alone for the first month needs to take a step back for a moment and recognize certain assumptions that were never stated by some of the modern Karaites. The phrase *chodesh ha-aviv* may be understood as descriptive of that month of the year (*but not exclusive to only that month*) instead of being a defining phrase whose interpretation explicitly can only apply to one month.

Since the year 2000 there have been multiple independent groups of people examining the barley in Israel to make a determination for the first month. Every two or three years there is a lack of unanimity on whether the month coming up should be considered the first month by these groups. This is despite the fact that they seem to be trying to use the same criterion that is not stated in the Tanak. Part of the problem is that one field of barley does not show all stalks of barley at the same stage of growth. Then the question becomes the definition of a percentage of the stalks. Such a percentage is arbitrary. How many stalks do you count to get a percentage?

The criterion of what to look for in the barley is promoted to be the definition of *aviv*.

But where in the Tanak is there such a definition of *aviv*? There are only two possible Scriptures available: Ex 9:31 and Lev 2:14. Neither of these defines a narrow criterion.

[17] The Time and Geographical Context of Exodus 12:1-2

Ex 12:1-2, “And YHWH said to Moses and to Aaron in [the] land of Egypt, saying 'This month [shall be] to you [the] beginning of months, it [shall be the] first of [the] months of the year to you.'”

The question before us is whether there is anything in the biblical context of these two verses to inform us about the timing of the first month.

When I visited Dr. David Marshall (a specialist in barley and wheat genetics) at his office at Texas A & M University in 1992, he told me that in one of his trips to Egypt, he visited with farmers who still used the ancient sickle to harvest barley on their personal plot of land. They cut the stalks when the barley kernels had about 30 percent moisture according to his tests. The farmers did not know the percentage, but they could tell when to cut it by their personal experience. That 30 percent value is low enough moisture to obtain flour from the barley, and that is mildly ripe. Dead ripe has from 8 to 10 percent moisture, and that is very hard kernels. At very early stages of the ear, the ear has over 90 percent moisture. When machinery is used to harvest barley, the moisture content may be about 15 percent because the yield of flour is greater at that percentage. The additional time on the stalk for the moisture content to decrease allows the ears to gain more solid matter and yield more flour. Using primitive methods the Egyptian farmers do not wait until the barley is very ripe before harvesting it because some of it would then shatter (pieces would fall off the stalk) and there would be some loss of the grain.

At the time of the hail plague, the barley in the far north of Egypt would not have been ripe because if it had been ripe, then the barley in the far south would have been five weeks further ripe and with primitive methods of harvesting, they would not have let it last that long on the stalk in the far south. Since Ex 9:31 uses *aviv* to describe all of the barley in Egypt at the time of the hail plague, at least some of the barley was not yet ripe (in the north) yet is was still called *aviv*. ***Hence aviv must include stages of barley before it is ripe.***

Based on information from W. Robertson Smith 1883, the 35-day period for the typical time of reaping in the south to the typical time of reaping in the north is the time from latter February to the first part of April. Hence the hail plague had to occur before the latter part of February. ***When this is studied in more detail, it is seen that the hail plague would have occurred in the middle of February at the latest. This is not in the time context of Ex 12:1-2 which is certainly more than a month later for the start of the first month.***

Many people who favor the use of barley alone to determine the first month of the

biblical year make the claim that the hail plague is part of the context of Ex 12:1-2, or Ex 13:4 is part of the context of Ex 12:1-2 and hence the claim is made that the word *aviv* is part of the meaning to be associated with Ex 12:1-2. This is false reasoning because of the time gap that breaks the context. ***Ex 12:1-2 is silent concerning what Moses and Aaron were told at that time.*** The hail plague was the eighth plague and was not really very close in time to Ex 12:1-2 when the events are closely examined.

Consider now the contextual relationship between Ex 13:4 and Ex 12:1-2. Ex 12:1-2 is part of instructions prior to the Passover. Then the Passover itself occurs. Ex 13:4 is a context beyond the actual Passover, and it discusses future years rather than the first Passover. Thus Ex 13:4 is not within the context of Ex 12:1-2. Ex 13:4 is not a clear Scripture just as Ex 12:1-2 is not a clear Scripture concerning when it occurs.

The geographical context of Ex 12:1-2 is Goshen in Egypt, not ancient Israel. Moses had never been in ancient Israel and later Moses commissioned 12 spies to spy out the land of Israel to know what it was like. Nothing in the context of Ex 12:1-2 indicates that Moses was told about the state of the barley in Israel.

The point to this discussion is that the context of Ex 12:1-2 does not include the hail plague or Ex 13:4.

[18] Septuagint's Translation of *aviv*

The Septuagint translation of the Pentateuch was made c. 270 BCE when some Jews from Alexandria annually visited Jerusalem to witness the ceremonies associated with the first month. If barley was being used to determine the first month at that time, then the meaning of *aviv* would have been associated with the barley in some specific way so that the meaning of *aviv* would have been well known.

The use of the Septuagint here does not imply that it has the authority of inspiration, but it is used because it is a primary source of how Jews from Alexandria understood the word *aviv* during that time in history.

Concerning all six places in which the Hebrew expression *chodesh ha-aviv* (month of the *aviv*) occurs in the Tanak (Ex 13:4; 23:15; 34:18, 18; Deut 16:1, 1), only one expression is used in the LXX, the Greek *meni ton neon*, which means "month of the new". The grammatical form of *ton neon* is plural, so that it implies a plural noun. This consistency in all places lends weight to the belief that the translators wanted to use the same meaning in all places; however, it indicates that they were not sure of its meaning because there is no plural noun. It seems safe to accept the belief that the translators knew it referred to new plant growth with plural connotations. The word "new" can imply freshness or recent growth, and does not commit to any degree of ripeness or what vegetation was involved. In all six places the very literal careful NETS translation of the LXX has "month of the new things", thus highlighting the noticeable lack of clarity for

the word *aviv*. These six places are seen in the Greek on page 922 of Hatch and Redpath under the word for month, or they may be looked up individually in Brenton.

In Ex 9:31 where *aviv* occurs, a literal translation from the Hebrew is “barley [was in the] ear”. The LXX has the Greek word *parestekuia* where *aviv* occurs, and this Greek word is discussed on pp. 56-57 of Lee 1983. Lee provides a few ancient examples of its use in an agricultural context. On p. 56 Lee provides the approximate choice of meanings “‘be ripe’, ‘be fully grown’”. It makes sense that the translators were not aware of the variation of difference in development of the barley from southern Egypt to northern Egypt of five weeks, so that it could not be fully grown throughout the region (otherwise it would have been harvested in the south where it would have been too ripe to leave on the stalks). The Greek with translation may be seen in Brenton (who did not have the examples that Lee had); the Greek is also on page 786, column 1, of Hatch and Redpath under the Greek word *krithe*, meaning barley, at Ex 9:31. It is plausible that the translators of the LXX at Ex 9:31 created the meaning of *aviv* from this context rather than from a deep knowledge because they did not carry this meaning into any of the other seven uses of *aviv*. Perhaps they did not remember that they gave this meaning to *aviv* when they reached its next use in Ex 13:4 where they simply used the single vague Greek word meaning “new [things]”.

In Lev 2:14 where *aviv* occurs, the LXX has *nea*, which means “new” or “fresh”. This is not precise. The very literal careful NETS translation contains the following group of words, “new, roasted, pounded, wheaten-groats”. This must include both *aviv* and *karmel*. Here it seems that the translation for *aviv* is “new”, and the translation for *karmel* is “wheaten-groats” because that follows the order of the two Hebrew words. This makes it doubtful that the translators of the LXX knew the meaning of either Hebrew word.

This shows that the LXX is imprecise and vague in every case for *aviv* except where the context has much to offer in Ex 9:31. This indicates that the Jews in Alexandria do not seem to be aware of any important significance for this Hebrew word, although some of them undoubtedly went to Jerusalem during the seven days of unleavened bread, witnessed the wave sheaf offering, and understood how the first month was determined. It does not make common sense to think that the calendar's first month after Ezra and Nehemiah was being determined by the use of the word *aviv* when the LXX translation is considered.

[19] The Meaning of Sheaf [*omer*] in the Wave Sheaf Offering

The passage on the wave sheaf offering in Lev 23:10-16 contains the word sheaf [6016 *omer*] in Lev 23:10, 11, 12, 15. This Hebrew word occurs in the following ten other places: Ex 16:16, 18, 22, 32, 33, 36; Deut 24:19; Ruth 2:7, 15; Job 24:10. From Ex 16:36 we see that it is “**a dry measure of volume**”, but Ruth 2:7, 15 provide an

alternate meaning, namely “**a sheaf of growing stalks with expected ears of grain**”. We are faced with the problem of resolving the ambiguity between the two meanings of *omer* in the context of the wave sheaf offering.

The second meaning above does not indicate any particular stage in the development of the grain on the stalks. A growing standing sheaf may have unripe ears of grain or ripe ears of grain.

The key to understanding which of these two meanings is correct for Lev 23 is based upon the fact that the priesthood at the Temple was practicing the wave sheaf offering each year from the time of Ezra and Nehemiah until the Temple was destroyed, along with the fact that the Septuagint used different Greek words to translate the two different meanings. The Septuagint should preserve the correct meaning because some Jews from Alexandria would have made annual visits to Jerusalem to keep the Passover and to witness the wave sheaf ceremony. Thus personal experience of observers of the ceremony should know the meaning of *omer* (sheaf) in Lev 23. Modern scholars who specialize in the Septuagint understand that the translators' knowledge of the Greek language exceeded their understanding of the Hebrew language, so that the translators were very likely from Alexandria.

For the wave sheaf offering the Septuagint uses the Greek word *dragma* as the translation of *omer*. This word *dragma* is also used in Deut 24:19; Ruth 2:7, 15. Moreover, in Gen 37:7 where the Hebrew word for sheaves is *aluma* (Strong's number 485), its Greek translation in the Septuagint is also *dragma*. The Septuagint translation by Brenton for Gen 37:7 is: “I thought ye were binding sheaves [= *dragma*] in the middle of the field, and my sheaf [= *dragma*] stood up and was erected, and your sheaves [= *dragma*] turned round, and did obeisance to my sheaf [= *dragma*].” (Plural forms of *dragma* are used where the translation is plural.) **Thus a bundle of tied stalks is called a sheaf (*dragma* in Greek).** Hence this would be its meaning where *dragma* is used for *omer* in the wave sheaf offering in the LXX.

Gustaf Dalman first gave the above explanation for the Hebrew word *omer* in the wave sheaf offering, and his explanation has been accepted by many Jewish commentators including the commentary on Leviticus in the series by the Jewish Publication Society of America.

On page 73 of H. L. Ginsberg 1982, he translates *omer* in Lev 23 as “armful”, judging the quantity that might be tied into a bundle and handed to the priest.

On page 506 of Danby's translation of the Mishnah in Menahot 10:4, talking about the wave sheaf ceremony and specifically the grains of barley (after they were separated from the husks), we find, “They put it in a grist-mill and took therefrom a Tenth [of an Ephah of flour] which was sifted through thirteen sieves.” Danby added the explanation in square brackets, “a Tenth [of an Ephah of flour]”. Ex 16:36 states, “Now an *omer* is

one-tenth of an ephah.” Danby is showing the common rabbinic understanding that the Mishnah accepts the viewpoint that the Hebrew word *omer* means the dry measure quantity instead of a tied bundle of stalks. This contradicts the understanding given above using the Greek word *dragma* from the Septuagint, which was translated long before the Temple was destroyed.

Modern Jewish scholars who are not Orthodox Jews reject the meaning of *omer* given in the Mishnah. Typically, Orthodox Jewish scholars accept the rabbinic writings as inspired in most situations, so that they accept the meaning of *omer* in the Mishnah. The main reason for accepting the meaning in the LXX is that the LXX is a primary historical source from the time that the LXX was written when the wave sheaf ceremony was still being performed. While it is true that we do not possess any complete copy of any books of the LXX from before the fourth century CE, so that on picky points of an isolated verse there is uncertainty concerning the original LXX, yet surviving handwritten copies do have much in common. Caution must be exercised when using the LXX, especially because the translators sometimes did not know the correct meaning of a Hebrew word, **The Mishnah is not a primary historical source because it was written about 130 years after the Temple was destroyed. The original performance of the wave sheaf offering was not available to the writers of the Mishnah.**

The conclusion should be that the *omer* is a **bundle of stalks of grain**. It remains to be discussed whether there is anything else in the context of the wave sheaf offering to indicate any particular stage of growth of the grain.

[20] Wave Sheaf Offering and the Harvest / Crop (Hebrew *ketseer*)

In Lev 23:10 the typical translation shows the English word “harvest” twice for the Hebrew word *ketseer* [7105]. Sometimes an English word may have normal implications that are not necessarily implied by the Hebrew word. This is true for the Hebrew word *ketseer*. The implication of this word is discussed next.

In the recent past, some Karaites have promoted the claim that the word *harvest* in Lev 23:10 means “*harvest-ready*”, and thus **it makes the wave sheaf ceremony the most important factor among some Karaite claims that barley alone must determine the first month**. I have examined several books about the Karaites and their claims about the first month, and such writings do discuss the wave sheaf offering because of a historical dispute in how the count to the Feast of Weeks should be made. The Karaite writings from the Middle Ages that discuss the wave sheaf offering do **not** promote the idea that the word *ketseer* must mean “*harvest-ready*”. This will now be discussed.

The word *ketseer* occurs on page 894 of BDB where three meanings are derived from the biblical contexts: (1) “process of harvesting”; (2) “what is reaped, harvested, crop”; (3) “time of harvest”. The second meaning is often overlooked. Consider some

examples.

Isa 17:11, “In that day you will make your plant to grow, and in the morning you will make your seed to flourish. But the harvest [= *ketseer*] will be a heap of ruins in the day of grief and desperate sorrow.” Here the word harvest refers to the crop as it is still growing at the time of the invasion. In this sense the word harvest simply refers to the crop in its current state before the time of typical general reaping.

Joel 1:10, “The field is wasted, the land mourns. For the grain is ruined, the new wine is dried up, the oil fails.”

Joel 1:11, “Be ashamed you farmers, wail you vine dressers, for the wheat and the barley, because the harvest [= *ketseer*] of the field has perished.” Again the word harvest refers to the crop, but not the time of normal harvest.

The variation in the biblical meaning of the Hebrew word *ketseer* defeats the claim that the wave sheaf offering **must** occur when the general barley harvest is about to begin. This Hebrew word may merely refer to the crop itself regardless of how close it is to the time of the general harvesting. No doubt this is the reason that the Karaites from the Middle Ages did not attempt to make this argument in their writings.

Concerning the conjecture that in Lev 23:10 the word *ketseer* must mean “**harvest-ready**”, there is no biblical evidence that the state of the stalks of barley in the wave sheaf offering had to reach any particular state, and there is no evidence that it was eaten by anyone after the ceremony. The burden for evidence is upon the person making the conjecture.

Several reasons have been given above to show that the barley does not determine the first month. The first reason is that Scripture does not say that the barley determines the first month. The second reason is that the hail plague shows too great a variation for the word *aviv* to specify one test to perform on the barley. The third reason is the adoption of the Babylonian month names. The fourth reason is the replacement of the use of the word *aviv* for the first month with the word Nisan. The fifth reason is the apparent lack of understanding of the LXX translation for the word *aviv*. The sixth reason is the difficulty in giving a test that various peoples can use and avoid disagreements when attempting to apply such a test; however, the crux of the problem is that the Scripture does not have any statement of a test. The seventh reason is that Gen 1:14-18 points to the lights in the heavens to determine the festivals. The eighth reason is the statement by Philo that the cycles of the lights in the heavens determine the elements of the calendar.

Answering the above points is a challenge for those favor the sole use of barley for the first month. These points argue against the insistence that the ambiguous word *ketseer* must mean “**harvest-ready**”. The history of the Karaites from the Middle Ages does not

attempt to promote this view of “**harvest-ready**”. Their emphasis is on the phrase *chodesh ha-aviv*, and specifically the word *aviv*.

[21] The Lack of firstfruits [*bikurim*] in the Wave Sheaf Offering

The wave sheaf offering cannot be understood without a deep study of Lev 23:10, which still has an important item for examination aside from *omer* and *ketseer*, discussed above.

The wave sheaf offering is discussed in Lev 23:10-16; Deut 16:9-10. In these Scriptures the Hebrew word *aviv* does **not** occur and the Hebrew word *bikurim* does **not** occur. However, both of these Hebrew words do occur in Lev 2:14. The passage Lev 2:14-16 explains how to perform a firstfruits [106 *bikurim*] offering of grain. Lev 2:14-16 explains what to do with the firstfruits offering, including mashing it into a type of cereal, thus showing its grain to have value. In contrast to this, nothing is said about any specific usefulness of the content of the sheaf. After the performance of the wave sheaf offering, Scripture is silent about what may happen with the sheaf. The word *omer* (sheaf) does **not** occur in Lev 2:14-16. There is so little in common between Lev 2:14-16 and the wave sheaf offering that they should not be associated with one another.

When a farmer in ancient Israel grows a crop and the crop reaches a **useful** state of growth, at anytime afterward the farmer is expected to contribute a portion of the new crop to the priesthood. This contribution of a **useful** portion of the new crop to the priesthood is called **firstfruits** [1061 *bikurim*]. This word may also be translated “ripe” in contexts that do not involve a contribution to the priesthood. The word “ripe” implies useful. The word *bikurim* is the only technical word in Hebrew that means “firstfruits” in the sense of giving a commanded contribution to the priesthood.

In Lev 23:10 some translations have the word “firstfruits” and some have the word “first” (or “beginning”) for the Hebrew word *raysheet* (Strong's number 7225). The question before us is whether the word *raysheet* should be translated **firstfruits**. This suggested translation “firstfruits” for the word *raysheet* is confusing because *bikurim* properly means firstfruits. The word “firstfruits” (the Hebrew word *bikurim*) implies usefulness. The answer to our question relates to the technical difference between the Hebrew words *bikurim* and *raysheet*.

When a fine point of the law of Moses is under discussion in a translation of the Tanak where many contexts are involved, it is generally safer to consult a committee translation made by Jewish scholars because in a multitude of counsel there is wisdom, and because Jewish scholars would be more sensitive to fine points of the law than others. Two recent committee translations by Jewish scholars are Tanakh-JPS and Tanach-Stone. The former of the two had contributors from all branches of Judaism, while the latter is an Orthodox rabbinic work that was influenced by Jewish sages of the past.

Neither of the above two committee translations of Lev 23:10 use the word “firstfruits”.

Prov 3:9, “Honor YHWH with your wealth, and with the best [= *raysheet*] of all your produce.” Here Tanakh-JPS translates *raysheet* “best”, but Tanach-Stone translates it “first”. Some translations use “firstfruits” here. This indicates a subjectivity in one's decision of how the context should be viewed.

The word *raysheet* occurs 51 times. There are two places among the 51 in which both Tanakh-JPS and Tanach-Stone agree to use “firstfruits” for *raysheet*: Neh 12:44 (Tanakh-JPS has “first fruits” and Tanach-Stone has “first-fruits”) and Ps 78:51 (Tanakh-JPS has “first fruits” and Tanach-Stone has “first fruit”).

Since *bikurim* and *raysheet* are two different Hebrew words with different connotations, it seems best to avoid using the translation “firstfruits” for *raysheet*.

There is no need to ever translate *raysheet* into “firstfruits”.

Lev 23:10, “Speak to [the] children of Israel and say to them, ‘When you come into the land which I am going to give to you and reap its harvest / crop [7105 *ketseer*], then you shall bring [the] first [7225 *raysheet*] sheaf [6016 *omer*] of your harvest / crop [7105 *ketseer*] to the priest.’”

In Lev 23:10 the phrase “when you come into the land” is often used in the special sense of “from the time that you come into the land onward”, not specifically “when you come into the land for the first time”. This is seen in the following examples: Lev 14:34; 19:23; 25:2; Nu 15:2; Deut 17:14; 26:1.

The portion of this verse prior to the word “**then**” is a unit of thought that relates to what happens every year after they first enter the land. The portion after the word “**then**” relates specifically to the wave sheaf offering. It must be admitted that this verse is not fully clear upon a casual reading and it requires much study. The word “reap” may be understood to begin with the wave sheaf offering. It does not imply that the time of the general harvest has arrived. It is a symbolic first sheaf.

If Lev 23:10 would have had the Hebrew word *bikurim*, then it would show that the sheaf (*omer*) had grains in it that had attained a useful stage of growth.

[22] Month of the Sheaf?

When the weakness of the use of *aviv* is understood from the hail plague, there is often a tendency among promoters of the use of barley to determine the first month to switch the emphasis of reasoning away from the word *aviv* toward the use of the wave sheaf offering. Such a shift in emphasis puts a great focus upon the sheaf, which has been discussed above. **The sheaf is an armful of stalks without specifying any degree of ripeness from the word sheaf.** This ceremony occurs shortly after the middle of the first month. If indeed the wave sheaf ceremony does have such a profound impact on the

biblical calendar's first month, then the name of the month should have been "month of the sheaf", or *chodesh ha omer* rather than *chodesh ha aviv*. But the emphasis is on the word *aviv* in the way of referring to the first month. There is no biblical emphasis on the sheaf for identifying the month.

[23] Is there a command to search for *aviv*?

The phrase *chodesh ha-aviv* occurs twice in in Deut 16:1. That phrase should mean the same thing in both places within the same verse. Hence in its first usage in that verse it should not be interpreted to claim that it is a command to physically search for *aviv* to know that the first month is arriving. Deut 16:1 begins the same way that Deut 5:12 begins.

It is true that Lev 23:14 prevents eating of the new grain crop before the wave sheaf offering.

It is not true that Deut 16:9-10 prevents harvesting the new crop until the wave sheaf offering. Deut 16:9 is a difficult verse to understand because of the absence of Hebrew words where English words are added in italics, thereby introducing speculation.

[24] Bibliography

Al-Biruni. *The Chronology of Ancient Nations*. Translated by Eduard Sachau. London: W.H. Allen, 1879

Ankori, Zvi. *Karaites in Byzantium*. New York: Columbia University Press, 1959

BDB. *A Hebrew and English Lexicon of the Old Testament*. Revised from a previous lexicon of Wilhelm Gesenius by Francis Brown, Samuel Rolles Driver, and Charles A. Briggs. Oxford: Clarendon Press, 1907

BDB. *The New Brown–Driver–Briggs–Gesenius Hebrew and English Lexicon*. Revised from a previous lexicon of Wilhelm Gesenius by Francis Brown, Samuel Rolles Driver, and Charles A. Briggs. Peabody, MA: Hendrickson Publishers, 1979. This reprint has Strong's numbers added.

Brenton, Lancelot C. L. *The Septuagint with Apocrypha: Greek and English*. Grand Rapids: Zondervan, 1980 (original 1851)

Danby, Herbert. *The Mishnah*. London: Oxford University Press, 1933

Gil, Moshe. *A History of Palestine, 634-1099*. Cambridge: Cambridge University Press, 1992

Ginsberg, Harold Louis. *The Israelite Heritage of Judaism*. New York: Jewish Theological Seminary of America, 1982

Hatch, Edwin and Redpath, Henry A. *A Concordance to the Septuagint*, 2nd edition. Grand Rapids: Baker Book House, 1998

- Lee, John A. L. *A Lexical Study of the Septuagint Version of the Pentateuch*. Chico, CA: Scholars Press, 1983
- Lindenberger, James M. *Ancient Aramaic and Hebrew Letters*. Edited by Kent Harold Richards. Atlanta: Scholars Press, 1994
- Nemoy, Leon. "Al-Qirqisani's Account of the Jewish Sects", pp. 317-397. *Hebrew Union College Annual*, Vol. 7, 1930
- NETS. *A New English Translation of the Septuagint*, edited by Albert Pietersma and Benjamin G. Wright. Oxford: Oxford University Press, 2007
- Philo_7. *Philo*, Vol. 7, by Philo of Alexandria, translated by F. H. Colson. Cambridge, MA: Harvard University Press, 1958
- Porten, Bezalel. "The Calendar of Aramaic Texts from Achaemenid and Ptolemaic Egypt", pp. 13-32. *Irano-Judaica: Studies Relating to Jewish Contacts with Persian Culture throughout the Ages*, Vol.2. Edited by Shaul Shaked. Jerusalem: Ben-Zvi Institute for the Study of Jewish Communities in the East, 1990
- Schur, Nathan. *The Karaite Encyclopedia*. Frankfurt am Main: Peter Lang, 1995
- Smith, W. Robertson. "Note on Exodus IX. 31, 32", pp. 299-300. *The Journal of Philology*, Vol. 12, 1883
- Tanach-Stone. *The Stone Edition Tanach*. Edited by Nosson Scherman. Brooklyn, NY: Mesorah Publications, 1996
- Tanakh-JPS. *Tanakh: a New Translation of the Holy Scriptures according to the traditional Hebrew text*. Philadelphia: Jewish Publication Society, 1985
- Whitters, Mark F. "Some New Observations about Jewish Festal Letters", pp. 272-288. *Journal for the Study of Judaism*, Vol. 32, 2001