REPORT OF COMMITTEE ON

HISTORICAL BASIS, INVOLVEMENTS, AND VALIDITY OF THE OCTOBER 22, 1844, POSITION

PART V--CRUCIFIXION DATE, AND ASTRONOMICAL SOUNDNESS OF OCTOBER 22

A. The Problem and the Factors Involved.

Factor 1. In archaeological reports, in astronomy, theology, and history, the date of the death-year of Christ is a theme frequently discussed. It would appear that no generally accepted authority on the passion date, in either science or theology, exists today. Every discussion, however, in both astronomical journals and religious periodicals, reaches out for new evidence from the Bible. Early patristic testimony, fragments of ancient calendars on parchment or stone, ecclesiastical records which have survived the centuries, are still so wide apart in meaning that it seems virtually impossible to establish the crucifixion date from the standpoint of history alone.

There are related sources upon which constant demand is made by those considering the subject. These include the various calendars of the nations, their standard and local almanacs, the Jewish year book and system of keeping time, the ancient "boundary stones" and tablets with their revealing figures and difficult cuneiform, the dated business contracts of old Babylon, the Assuan papyri, various other ancient manuscripts, the prophecies of Daniel--for almost no chronologist, heathen or Christian, omits Daniel--and above all the New Testament record of the life of Christ.

In the endeavor to fix upon the crucifixion date, a year with a Friday passover in a period consistent with the time of the public ministry of Christ has for some time been the accepted index to the problem. This is the lead followed in the majority of current articles on the date of the crucifixion. But aside from the persistent stand of Catholic writers for April 3, 33 A.D.,[1] and of the Rabbins for a Friday passover in that year, none of late seem to draw a

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[1] Sidersky, David, "Astronomical Origin of Jewish Chronology," ch. II, par. 30, in "Memoires presentes par divers savants a l'Academie des Inscriptions et belles-lettres de l'Institut de France," Paris, 1913, Vol. XII, part 2; Boylan, Patrick, "Date of the Crucifixion," Studies, March, 1933, p. 1.

conclusion without an alternative date.

Factor 2. The variety of conclusions offered by these scholars may be charged to three principal causes:

a. The location of the paschal moon in the proper spring month;

b. The determination of the true day of the Hebrew first month, with which the full moon coincides; and

c. The number of passovers in the ministry of Christ.

Factor 3. It should be made perfectly plain that if these two coordinate facts concerning the passover moon--her position in the zodiac and her place in the month--are not definitely located, and pointed out with accepted authority, no astronomical list of new and full moon dates for the spring months of the suggested years of Christ's ministry can be of any use whatever in deciding this question. Nearly every writer builds his argument upon such a list. However, all these tables of the moon are practically the same, though taken from French, German, or English ephemerides (almanacs).

In the quest for solving the prophecies concerning Christ, some of these moon tables go back many centuries, covering 3000 years or more of time, and marking out the phases of the moon from year to year. The difficulty in calculation does not lie in an error in these dates which astronomy offers the student of prophecy and chronology, because they are in the main attested and correct. In fact, they can be easily computed and proved from known positions of the moon in our own century, by trailing her back through the one hundred cycles she has coursed around the earth since the first century A.D., from 1930 to 30 A.D.--and similar intervals of time.

Today we can learn from a standard almanac the moon's position in her orbit; when she is fast and when she is slow; when she is near the earth, and when she is far away; when north of the ecliptic--the apparent course of the sun--and when south. Her very same performance has been determined for the first century, and her position in the sky mapped out in the time of Christ. The difficulty, we

would emphasize, does not lie in a variation of these lunar tables which astronomy offers to the field of research in the twentieth century.

Factor 4. Before the cause of the numerous dates offered for the crucifixion can be understood--and the several years, 28 to 35 A.D., are by different writers considered possible--the early history of the change from Passover to Easter must be taken note of. Almost contemporaneously, both Jews and Christians were striving to fix their methods of marking time.[2] Because they had been scattered by Rome's persecution, and could no longer "observe" the moon, and flash their fire signals from mountain to mountain to proclaim the new month, the Jews felt compelled to compute a fixed calendar. The early councils of the Christian church, convened by the state, were likewise seeking the prerogative of regulating the calendar, which function had formerly been assumed by the ancient pontifex maximus of Rome. Mar-Samuel of Narhardea,[3] in the third century, pioneered a computed calendar for the Jews; and the Council of Nicea in 325 A.D. did the same for the Church. In the end, both the Jewish patriarch and the pope kept the charge, the one for Jewry, and the other for Christendom. But the ecclesiastical Council of Nicea dictated a change in the time of the Jewish passover, upon which the church wished to build her Easter feast,[4] and to which the scattered Hebrew people ultimately paid homage in the calculations of their almanac.

Factor 5. This change involved placing the earliest Jewish passover in March, instead of April, the limits of the cycle of the paschal new moons extending even from before the spring equinox, to April 5.[5] But Scaliger, master

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2 Sidersky, "Origin of Jewish Chronology," ch. II, par. 45.
3 Hoffmann, David, "Mar-Samuel," Leipsig, 1873.
4 Clavius, Christophor, "Romani Calendarii A Gregorio XIII P.M. Restituti Explicatio," ch. III.
5 Scaliger, Joseph, "De Emendatione Temporum," Francofurt, 1583, p. 108.

of chronology of the nations, computes that in the times of the Messiah, the earliest passover was April 8, and that the latest was May 6.[6]

Factor 6. Another most important feature of the change, one which apparently has not been noticed in connection with the problem of the crucifixion date, related to the command of the Nicean Council that the Passover--which, it should be particularly noted, both Christians and Jews were celebrating, even for a hundred years after the Apostles[7]--was to be placed on the first "Luna XIV" after the vernal equinox.[8] These words, "on" and "after" make all the difference in the world in the use of the dates of the Jewish passover moons for deciding the time of the death of Christ.

If we accept the testimony of Aristobulos, 200 years before Christ--that the passover of the Jews followed the sunset of the day when the full moon rising in the east faces the setting sun in the west--we can reasonably conclude that the Jewish passover, which is repeatedly described in the Bible as the 14th day of Nisan, was the day following the full moon date, and not on it. Herein seems to lie the crux of the many assertions which have been offered in regard to the time of the passion of Christ. Though the modern Hebrew calendar is faithful in a way, to the laws of astronomy governing the new moon and her phasis,[9] yet no longer does this Talmudic authority recognize the appointed moon of barley harvest for the passover. Since the destruction of the second temple, the Biblical sheaf of ripe barley corn has no longer been waved by the priest.

Factor 7. It has been contended by some astronomers, ans also by certain theologians, that one cannot say just how the Jews computed time when Jesus was here, and that their system of calculation was too irregular and too uncertain to be traced with certainty nineteen centuries after. Moreover, the influence of Nisan 15 in place of Nisan 14; for the Passover, in the Jewish calendar of today, is per-

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[6] Scaliger, op. cit., p. 265. Note: Scaliger, Joseph Justus, (1540-1609) was one of three great men who laid out the Gregorian reforms of the calendar in 1582, concerning whom George W. Robinson (Harvard) says: "Of his primacy beyond all rivalry, among the scholars of modern times, there can be no doubt." (Autobiography of Joseph Scaliger," Cambridge, 1927, preface, p. 7.)

[7] Scaliger, p. 105.

[8] Clavius, "Roman Calendar," ch. I, par. 3.

[9] Cf. Calendar in American Jewish Year Book.

haps as equally responsible as is the question of the placement of the full moon date itself, for this uncertainty on the part of many scholars, both Hebrew and Christian, in regard to the crucifixion date.

These early historical facts, and the Jewish calendar features mentioned, are closely connected with any solution of the passion date. Therefore, the attempt is here made to include some of these unsolved questions in the problem to be considered, especially as regards the paschal moon of Nisan. A chronological setting should not detract from the spiritual picture of the cross of Christ, if it shows it immovable in time and prophecy.

Many scholars are out of agreement as to the length of Christ's ministry and the number of passovers; but the events and scenes in the gospel record are so correlated that it seems entirely possible to relate the epochal years of His life to an outline which fits the chronology involved, both from a prophetic and historic viewpoint. As these inspired pictures of Christ are placed side by side, His whole life portrait is redrawn, as it were, and the scenes become harmonious and complete. Suddenly is revealed a depth of meaning between prophecy, history, and the science of time.

Factor 8. It is purposed here to show (1) that the method of reckoning time used by the Jews in the first century was scientific, and in harmony with known laws of the moon's behavior; (2) that, inasmuch as their system was the result of many centuries of observing the moon, in seeking from the Jewish mode of reckoning the facts concerning the luni-solar year, we are appealing to the original source of this kind of time, and consequently to one of primary authority.

B. Timekeeping in the First Century.

1. The Jerusalem Era. The year 170 of the Seleucid era (about 142 or 143 B.C.) marked the recognition of Jewish independence by Demetrius, of the house of Seleucus. Simon, the last of the Maccabean brothers, was then high priest in Jerusalem. In this same year, the people of Israel began to date their documents and public instruments according to the year of the high priest, as mentioned in the Apocrypha. Thus: "In the first year of Simon, the high priest, the governor and leader of the Jews."[1] This custom evidently continued on down to the time of Luke, who similarly dates the ministry of John the Baptist, with joint reference to emperor, governor, and high priest.[2]

The "Jerusalem Era" was thus established, and has been found engraved on the coins dated the fifth year of Simon's reign.[3] "Mathematicians therefore computed for them [the Jews] the cycles, and taught them how to find, by calculation, the conjunctions and the appearance of new moon."[4] Sidersky claims it is probable that "these calculations go back much further" in point of time.[5] He thinks highly of the happy comment of Scaliger, who several times refers to the method of Jewish reckoning as "the most ingenious and most elegant of all systems of chronology."[6]

Thus the Hebrew people came up to the time of Christ with a dated chronological system--a factor of importance in our quest. The Sanhedrin determined each

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1 1 Maccabees 13:42. (Wace edition, London, 1888, Vol. II.)
2 Luke 3: 1,2.
3 Reproduced by Benzinger, in "Hebrew Archaeologie," Leipzig, 1904, p. 196.
4 Albîrûnî, "Chronology of Ancient Nations" (trans. by Sachau), London, 1879, p. 68.
5 Sidersky, David, "Etude sur l'origine astronomique de la chronologie juive," in Memoires presentes par divers savants a l'Academie des Inscriptions et belles-lettres de l'Institute de France, Vol. XII, part 2. Paris, 1913, Introduction, p. 597.
6 Scaliger, Joseph, "De Emendatione Temporum," Francofurt, 1593, p. 108.

Jewish year by means of astronomical calculations. Although the formula used by the Secret Council for Intercalation has not been found, yet it was referred to by Moses Maimonides, who said that he possessed it.[7] Mar-Samuel of Nahardea also had it, and by it computed a Jewish calendar for 60 years to avoid the necessity of double festival days. This he sent to Rabbi Johanan in Jerusalem as proof of his knowledge.[8] It was Hillel II who, in the 4th century, passed the secret on to the outer world, and so it became the basis of the modern Jewish calendar.[9]

The Jews doubtless had known the length of the year from Egyptian times, but their method of intercalation was different on account of their Passover feast. This they regulated by the "maturity of the barley."[10] Moses commanded that they should not even reap their barley until the first fruits of it had been offered to the Lord at the time of the Passover. Sidersky adds, "The aim of the Mosaic command was to regulate the months according to the course of the moon, and the whole year in accordance with the course of the sun--by assigning as a starting point the lunar month coinciding with the beginning of a determined solar season."[11] That "determined solar season" was still the barley harvest in the time of Christ. Later on, as after the dispersion of the Jews, "The Sanhedrin did not content itself to observe the maturity of the barley, but added

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7 Maimonides, Moses, "Constitutiones de Sanctificatione Novilunii," published by Blaise Ugolin, Venise, 1755, quoted by Sidersky, p. 662. Note: Maimonides, or Moses Ben Maimon (1132-1204), is sometimes called the "second Moses." His essay on the Jewish calendar makes him important both to Jewish and Christian scholars.

8 Hoffman, David, "Mar-Samuel," Leipzig, 1873, p. 21. Note: Mar-Samuel said, "The heavenly courses are as well known to me as the streets of Nahardea." (Jewish Encyclopedia, art. "Mar-Samuel.")

9 Graetz, Heinrich, ("History of the Jews," Philadelphia, 1893, Vol. II, p. 573) says: "Hillel II. . . placed at everyone's disposal the means of establishing the rules which had guided the Sanhedrion up till then in the calculation of the calendar and the fixing of the festivals."

10 Lev. 23:14; Sidersky, "Chronology of the Jews," pp. 615,623. Note: Sidersky insists that the Jews also used the 19-year cycle from the time of their independence in 142-3 B.C., but that it was a result, not a cause, of the ritual ceremonies, which were the older. (p. 631.) In like manner, he considers the modern Jewish calendar to be founded on the primitive ceremonies of the luni-solar year. (op. cit., pp. 640,649.)

11 Sidersky, "Chronology of the Jews," p. 625.

to it the observation and calculation of the equinox."[12]

The ceremony of the barley harvest was the divine rule by which the position of the month Nisan was located. If by the first of Nisan, the barley was not sufficiently advanced for the passover festival, then a leap-month was added, and the feast period of the year was delayed until the following month.[13] The Lord had promised Israel, when He ordained the Passover, that He would send rain in due season in order that the corn should be reaped in time for the feast.[14] On account of this ceremony, a special field of barley for the temple was sown in the sheltered Ashes-Valley across the Kidron.[15]

Such a provision as the barley-harvest control of the year thrusts definite certainty into Jewish reckoning in the time of Christ--one which held until the Jews were scattered after the destruction of Jerusalem.[16] By this rule, we know that the Nisan paschal moon could not come until the rains were over and the barley ripe.[17] On these two counts, a passover in Dystrius, the ancient name for March, is out--for all the reports on agriculture and meteorology in Palestine, ancient and modern, show that March is the month for the latter rain, and that barley ripens in April.[18] The Hebrew paschal song included this refrain: "The rain is over and gone."[19] Consequently, as regards the astronomical element

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12 Op. cit., p. 623.

13 The Karaites were accustomed to make the test also in Shebat, 50 days before the passover. (Albîrûnî, "Chronology," p. 69.)

14 Deut. 11:14. (The early rain came in December; the latter rain in March.)

15 Edersheim, Alfred, "Life and Times of Jesus the Messiah," New York, 1896, Vol. II, p. 619.

16 Sidersky says: "It was no more possible under Constance to apply the old calendar." ("Chronology," p. 651.)

17 Compare Part V, Sec. E. Note: The modern Jewish calendar is based upon an equinoctial moon which came in March, in direct opposition to the barley-harvest moon of the first century, which came in April.

18 See Part V, Sec. B. Note: The Nestorians in Persia keep count of the ancient Jewish Passover which is always placed on Nisan 14, or Luna 14, in April. "April is the month of barley-harvest and March is the month of rain." (Lamsa, G.M., Nestorian authority.)

19 Song of Solomon 2:10-13; "Patriarchs and Prophets," pp. 537, 538.

that enters into the date of the crucifixion, one should look in the ephemeris for passover moons in April, and not in March! Scaliger says that in the time of Christ the paschal moon limits were April 8 to May 6. He showed that those who later used the Dionysian moon tables thought that they were celebrating the Jewish Passover in Nisan when it was ten times in Adar during the cycle of nineteen years. He learned this, he said, from the Jews themselves.[20]

Another feature pertaining to Jewish reckoning in the first century concerns the day itself upon which the New Year was started. The Jews, Arabs, Chaldeans, and Damacenes all had the same custom in reference to the beginning of their months--they started the new month with the first appearance of the new moon after conjunction. The presence of the moon in the western sky at sunset was called the phasis,[21] and marked the following day as the first of the new month. This period from conjunction to phasis, Hevelius called the interlunary period,[22] while Scaliger called it the translation of the moon.[23] In this discussion in Part V, the term "translation" is used in the sense that it refers to the time between conjunction and the sunset marking the beginning of a new month--the sunset near to which the phasis always occurs.[24]

The Jewish new moons (that is, the new moons that marked the first day of the month), commonly exceeded the ordinary "size of the phasis," or first appearance of the moon.[25] While the Greeks started their month from the conjunction itself, it was a certain "shape of the moon" that regulated the beginning

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20 Scaliger, "De Emendatione Temporum," p. 107.

21 The plural of phasis is "phases," which is pronounced with a soft "s". On the contrary, the plural of the ordinary word "phase" is likewise spelled "phases," but is pronounced pha-zes. The context must identify the words as used in this discussion.

22 Hevelius, Johannes, "Selenographia, sive Lunae Descriptio," Gedani, 1647, p. 274.

23 Scaliger, "De Emendatione Temporum," p. 85.

24 It was not the actual minute at which the phasis of the new moon was observed which marked the new days, but the sunset near which it took place. Scaliger says repeatedly that the Jews started their month "from the phasis of the moon," ( ἀpὸ phaseōs selēnēs), but always places the phasis at sunset--ab accaso Sole.("De Emendatione Temporum," p. 85.)

25 Scaliger, op. cit., p. 6.)

of the Jewish month. Scaliger sometimes called it the "horned moon."[26] Rabban Gamaliel, chief of the Sanhedrin in the middle of the first century, had pictures of the moon on a tablet on the wall of his upper chamber. By means of this chart, he examined the witnesses who had observed the moon, and would ask, "Didst thou see it [the moon] on this wise or that?"[27]

In Jerusalem was a large courtyard where the witnesses were examined by the Beth-Din. They were questioned: "Say, in what position did you see the moon, in front of the sun (i.e. to the east of it), or behind it? To the north of it, or the south? What was its elevation on the horizon? To which side was its inclination? What was the width of the desk?"[28] The accompanying illustration makes a little plainer the meaning of the questions asked, which after all were truly scientific.

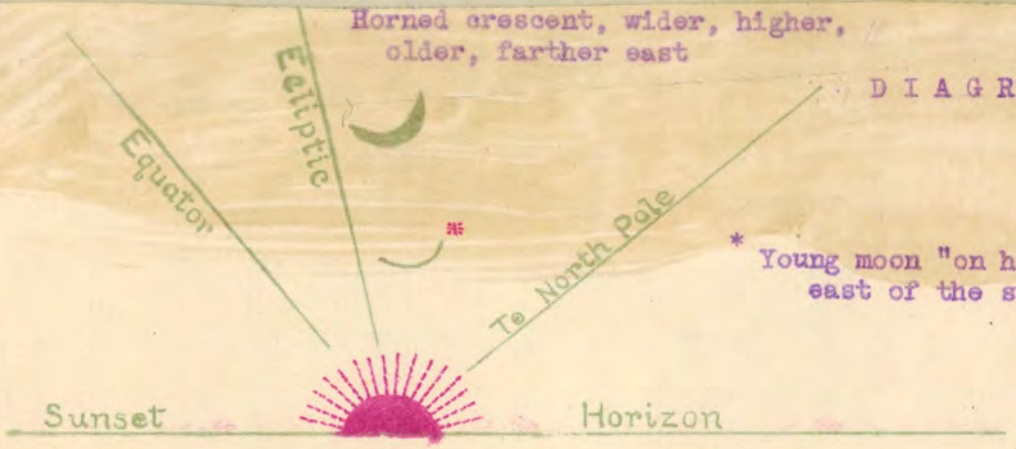


DIAGRAM A

"In the spring, because of the steep ecliptic the crescent moon is level with the horizon. With very young moons it looks like a very fine bright thread from left to right.. . It often happened to me that in the spring, when I was looking for the young new moon, which is as fine as a thread, I would believe for a moment that such a colored horizon stripe was the crescent, and have exclaimed: 'I have it,' only to see a minute later, that I had been mistaken, because the thread disappeared or divided itself."--Albert Schoch, in a letter to P.J. Schaumberger, quoted in Biblica, November, 1927.

26 Idem, p. 77. Note: Hevelius fully describes the "horned moon," and designates when the moon appears as such. ("Selenographia," pp. 281, 282.) This will be further demonstrated in Part V, Sec. E.

27 Jerusalem Talmud, Section Moed, Vol. VII, Rosh Hashana 2:3.

28 "Jerusalem Talmud, "Section Moed, Vol. VII, Rosh Hashshana 2:8; Sidersky says: "The calculation of which [the conjunction] was known in the course of the last centuries preceding the Christian era. . . by calculating this visibility in advance by means of inductive methods established by the ancients in consequence of observations over centuries."(Appendix B, p. 661.)

The very nature of these questions shows the extent of the astronomical knowledge which the Sanhedrin possessed concerning the moon's phasis. The historical testimony is obviously true that this tribunal had in hand the calculations pertaining to the moon's position and her translation at the time of the new moon.

These observations were continued even long after the knowledge of astronomy made it possible to calculate the date of the new moon in advance[29]--at least a century before the time of Christ. The deliberations of the Sanhedrin always took place behind closed doors, thus surrounding with mystery their secret council, called the "Sod-haïbour."[30]

The questions asked the Hebrew "observers" in the first century A.D. involve the same principles as used today in computing the common almanac. "How wide was she?" inquired Rabban Gamaliel. So it is that the width of the moon from horn to horn determines her position in relation to the earth. The relatively widest moon is nearest the earth, that is, in perigee; the least wide moon is farthest off, or in apogee.[31] The witnesses reported how near the sun was to the moon, and how low on the horizon. The altitude of the moon above the horizon, and her distance from the sun at sunset indicate in a general way the moon's age; namely, how many hours have elapsed since conjunction. The older she is, the later she sets after the sun.

The proclamation of the new moons by the Sanhedrin constituted one of the strongest elements of cohesion among the Jews, and was jealously guarded as a

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29 Hoffman, "Mar-Samuel," p. 20; Sidersky, "Chronology," p. 661. Note: Full details of this court in Jerusalem and the ceremony of signaling the announcements of the new moons, are given in the Mishna (Rosch Hashshana, I and II.)

30 Zuckermann, B., "Materialien zur Entwick, der altjüd. Zeitrechnung im Talmud" (Material for the Development of the Ancient Jewish Time Calculations in the Talmud), Breslau, 1882, p. 21.

31 Note: By comparing the various dates of the moon in the American Ephemeris (1939, p. 146,) for apogee or perigee, with the dates of her various diameters (pp. 147-162), it will be noticed that on whatever date she is in perigee, her diameter is greatest, and when in apogee, she is the least in width.

special prerogative of Palestine.[32] Rabban Gamaliel said that he knew the value of the synodic month from his grandfather, Hillel the Babylonian,[33] and in the "Meghilath Taanith" we have the first complete enumeration of the Jewish months in their order,[34] which, according to Schwab, "must have been written and introduced about 6 or 7 A.D."[35] The Palestinian Jews of the first century kept their calculations based on the true conjunction and phasis, in contrast to which the Jews of Babylon, and those under Babylonian influence in the time of Hillel II (359 A.D.), computed their calendar on the Moled, or mean conjunction.[36] There may be, however, as much as 14 hours difference between these two conjunctions.[37]

The significance of this fact must not be overlooked as a most important feature of Jewish time in the first century; for in the study of the dates pertaining to the years of Christ's ministry, we are dealing entirely with the true astronomical moon as employed by the Palestinian Jews, and not with the fictitious moon of any cycle as is the basis of the Catholic Church Collect, and of the modern calendar of the Jews.

After 1500 years of experience, the Jewish Sanhedrin were well versed in the the science of reckoning time. The famous treatise of Maimonides, philosopher and Hebrew sage of the thirteenth century, is perhaps our best example of the ancient Jewish astronomy, which became his later heritage. He claimed that his formulas of computation of the moon's phasis had long been known to the Jews, and that they used these calculations as a check on the testimony of the witnesses.[38] "An identical method is still used by the Karaite scholars for making up their

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32 Graetz, "History of the Jews," Vol. III, pp. 117, 118.
33 Talmud, Rosh-Hashshana, 25a, quoted by Sidersky, p. 656.
34 "Rouleau des Juives," quoted in Sidersky, p. 619.
35 Schwab, M., XI Congres des Orientalistes, 1897.
36 Hoffman, "Mar-Samuel." "It was the modern computation with the elements of calculation established by the Babylonians and accepted by the Palestinians, which Hillel II, by virtue of his power as chief of the Sanhedrin of Palestine, officially passed on to universal Judaism thus assuring their universal unity until our day." (p. 20)
37 Sidersky, "Chronology," p. 659.
38 Sidersky, "Chronology," p. 626.

calendar, as described by Kokisoff."[39]

Thus the translation of the moon--or calculation which determined the first day of each new month--is perhaps the most complex feature of the three involved in connection with Jewish timekeeping in the first century, which are: (1) a dated era; (2) a festival ritual governing the position of the paschal month; and (3) the translation of the moon marking the first day of each month.

From the days of Ezra and Nehemiah to the present time, a long series of historical and astronomical source materials now offer a complete picture of the new moon and her phasis. Every detail of her performance is described either on tablets, stone, or parchment, or in books of ancient and modern astronomy. Thus has the way been prepared for effective chronological study with reference to Jewish luni-solar time, and its bearing upon the death-year of Christ.[40]

Any reasoning that Jewish time in the first century was based on a plan so irregular and secret that it is now impossible to lay bare the system is not at all in harmony with the facts. The historical records, and the customs and ceremonies connected with the Jewish form of year are fully recognized and understood by both Hebrew and Christian scholars, and may not be ignored. To the Jews

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[39] Sidersky, op cit., p. 673.

[40] The leading sources and authorities supporting the basic principles of this argument in reference to the moon are: (1) The "Venus Tablets of Ammizaduga"--on which Kugler worked so long, and on which he based his "Babylonische Mondrechnung"--is perhaps our earliest reference; (2) Geminus, who worked out his mathematical astronomy on the moon's motions in the century before Christ; (3) The House of Hillel, which presided over the regulation of the year for the Jews in the time of Christ; (4) after the destruction of Jerusalem, Mar-Samuel (c. 170), who was called "Yarchinaah," because he knew so much about the moon; (5) then Hillel II (359), who applied the Jewish secret of time to a fixed calendric system; (6) the Karaites, who arose in the 8th and 9th centuries as defenders of the Mosaic ceremonies pertaining to lunar-solar time; (7) Albîrûnî (1000), who presented the first complete record of the Jewish calendar; (8) Maimonides (1178), who produced his famous essay on the translation of the moon and her phasis; (9) Abraham Hanassi (1120), who was another Hebrew computer of note; (10) Scaliger (1582), who has been called "victor over time," and who numbered all days by the Julian-day numbers; (11) Hevelius (1648), Polish astronomer, who left a complete record of all the various kinds of lunar translations and their causes; (12) Fotheringham, Schoch, and Neugebauer, who were pioneers in modern research on the moon's phasis; (13) Sidersky, Zuckermann, Kokisoff, able computers in Jewish time; and (14) the Oppolzer, Schram, and Brown tables, together with the Standard Ephemerides, which constitute invaluable aids to astronomical research in the 20th century.

had been committed, through the prophet Daniel, a long series of time prophecies relating to the principal nations of earth, recognized by both oriental and modern chronology as important, and definitely dependent for orientation upon a stable system of common time. This has been provided for us in the blending of Jewish and Roman timekeeping.

Both Julius Caesar and Augustus did their part in regulating the civil calendar of Rome,[41] while the Jerusalem era proved to be a stable epoch in time-keeping. Each day of those years has a definite number in the universally-accepted Julian-day numbering.

2. Julian Calendar. In modern times, civilization largely follows the Gregorian calendar, which originated in 1582 A.D. From the first century on to the days of Gregory XIII, in 1582, dates are commonly recorded in Julian time.[42] Every day in each week of this long period of time has its designated number in Scaliger's Julian-day reckoning.[43] This system offers a simple but absolute method for determining the feria, or day of the week, for any given date in the time of Christ. Scaliger carried his numbers back to a point many centuries before Christ, his zero number ending on a Monday.[44] Every Julian-day number, therefore, represents a certain number of weeks with a remainder. These remainders correspond to the days of the week according to Schram's table:

| Remainders | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| Feriae - | Mon. | Tues. | Wed. | Thurs. | Fri. | Sat. | Sun. |

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41 "Encyclopedia Britannica," art. "Calendar."

42 In the American Ephemeris (1939 ed., pp. 808-811), appears the standard formula and tables for converting Gregorian dates into Julian time.

43 This table is found in any late American Ephemeris. The Julian-day tables have been called the "Astronomer's Bible," so universally have they been adopted in astronomical circles.

44 See Schram, Robert, "Kalendariographische und Chronologische Tafeln," Leipzig, 1908.

In other words, since the Julian-day numbers ended with Monday, any remainder of a number, after the weeks are taken out, will represent just so many days this side of that first Monday. If there is no remainder, then the number itself represents Monday. For example, to find the day of the week for April 27, 31 A.D.: Its Julian-day number is 1732497.[45] Taking out the weeks--by dividing by 7--we have four days left. Add these four days to Monday, and we get Friday.

If one does not have access to the American Ephemeris, a simple table may be made for first century dates as follows: January 1 (1 A.D.), Julian time, was Saturday.[46] By reckoning forward from this point to the year 31 A.D.--observing the leap-years--January 1 will be found to be Monday for that year. From Monday (inclusive) add the 117 days reaching to April 27, and we similarly get Friday.

Every day has been astronomically numbered as far back as history goes. No feria, or day of the weekly cycle, has ever been added or dropped. The first century was not only true to the days of the week, but the Julian calendar was

Insert, Part V, p. 15, as footnote.

[47] At this time, the Hebrews had been calculating the conjunctions and phases for at least a century (Albiruni says "nearly 200 years after Alexander,"--op. cit., p. 68), and perhaps longer. (Sidersky, "Chronology of the Jews," p. 615). They had divided the hour into 1080 scruples, a value which was very old, which had originated with the ancient sexigesimal (or fractional) system of the Chaldeans about 400 B.C., and which agreed with the "Almageste" of Ptolemy (Sidersky, op. cit., p. 639). With the important feature of the moon's fast and slow motion, the Beth-Din must have been indeed familiar, for all the questions asked the Hebrew witnesses, though directly referring to the moon's position in the sky, thereby had specific relation to her rate of motion. In the century before Christ, Geminus wrote in the "Isagogue," "the sixtieth part of a degree is called a minute; the sixtieth part of a minute is called a second. Likewise the second is divided into sixty parts, and each sixtieth part is called a tertie." [Italics mine.] ("Elementa Astronomiae," p. 205) He further showed that with this table in hand, the Chaldeans had recorded the angular distance the moon travels in compassing the zodiac belt; that they had actually observed that in 19756 days she had gone around the zodiac 723 times and 32 degrees over. (Op. cit., pp. 203,205) And so the least and maximum daily movement of the moon had become known facts before Jesus was born. They had been computed by the scientists of Babylon, the "home of astronomy." (Hoffman, "Mar-Samuel," p. 17.) It is said that the Jews learned from the Babylonians much of the science of astronomy in which they had "multiple knowledge." Also, "among them the study of this science was declared a religious duty." (Op. cit.)

In other words, since the Julian-day numbers ended with Monday, any remainder of a number, after the weeks are taken out, will represent just so many days this side of that first Monday. If there is no remainder, then the number itself represents Monday. For example, to find the day of the week for April 27, 31 A.D.: Its Julian-day number is 1732497.[45] Taking out the weeks--by dividing by 7--we have four days left. Add these four days to Monday, and we get Friday.

If one does not have access to the American Ephemeris, a simple table may be made for first century dates as follows: January 1 (1 A.D.), Julian time, was Saturday.[46] By reckoning forward from this point to the year 31 A.D.--observing the leap-years--January 1 will be found to be Monday for that year. From Monday (inclusive) add the 117 days reaching to April 27, and we similarly get Friday.

Every day has been astronomically numbered as far back as history goes. No feria, or day of the weekly cycle, has ever been added or dropped. The first century was not only true to the days of the week, but the Julian calendar was of such a nature that the seasons came at the proper time of year in contrast to the Egyptian calendar, whose feast days wandered through all the seasons, because its year was too short.

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[45] American Ephemeris, p. 808.
[46] Encyclopedia Britannica, art., "Calendar."

3. Accuracy of Barley-Harvest Intercalation. From the time of the Nicaean decree until the present day, it has been passed on from generation to generation that the Jewish Passover "was at the first full moon after the equinox of spring."[20] The tables of the modern Jewish calendar follow this plan. Many historians, both ancient and modern, have taken it for granted that the Jews had always kept their Passover at this time, and that such was therefore the case in the days of Christ. The Karaites, who according to Chwolson closely adhered to the Sadducean literature, and represent a pre-rabbinical view of the Mosaic law,[21] apparently have been the chief opponents to this ruling. Their prolonged polemic with the Rabbanites in the eighth and ninth centuries,[22] is an evidence that such regulation of the Jewish Passover was not the original precept of Moses. This far-reaching influence of the Karaite teaching made itself felt upon the Adventists in 1844.[23]

Since the original Mosaic law--not the Mishnaic or Talmudic reflection of it[24]--involved a barley-harvest paschal moon instead of an equinoctial moon, the question naturally arises as to when this change was made, and how it came about. In the Jewish period following the destruction of Jerusalem, the Sanhedrin at Jamnia "became the heart of the Jewish nation."[25] The Jewish calendar had not yet been "permanently fixed," and had to be regulated from time to time. The festivals were dependent "upon the course of the moon, and upon the influence of the sun on the harvests." Every two or three years the solar year exceeded the lunar by about a month, and a month was inserted, making a leap year of thirteen months. This "intercalary month was announced by the Patriarch in a circular letter to the community." About fifty days before the Passover, witnesses examined the state of

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20 Lindsay, Jas. B., "Chrono-Astrolabe," Dundee, 1858, p. 119; Sidersky, "Chronology of the Jews," p. 626. Note: Scaliger (p. 106) makes this enlightening statement: "Some were using the pure Jewish year, and others were fixing their cycle at the vernal equinox."

21 Chwolson, Daniel, "Das letzte Passamahl Christi," Leipzig, 1908, pp. 31,176, Note 2.

22 Poznanski, Samuel, "Ben Meir and Origin of Jewish Calendar," Jewish Quarterly Review, Vol. X, pp. 152-160. Note: Sidersky mentions the Sadducees, Essenes, and Bethusae in the 2nd century B.C., as fighting the calendar. (p. 623.

23 See Part II, Secs. VI and IX.

24 Chwolson, op. cit., p. 17.

25 Graetz, "History of the Jews," Philadelphia, 1893, Vol. II, ch. XIV.

the barley to determine if it would be ripe in time for the feast.[26] Since the days of Moses, the maturity of the barley had been a determining factor in regulating the Jewish year.[27]

Up until the Council of Nicaea, the Christian Easter, especially in the East, had been celebrated for the most part at the time of the Jewish Passover, and "indeed upon the days calculated and fixed by the Sanhedrin in Judaea for its celebration."[28] On the contrary, in Europe, "some earlier, some later, were intercalatin the months . . . the Europeans were placing their cycle at the equinox, and were celebrating the Passover on the next full moon after the equinox."[29] These contentions had agitated the church since the time of the Roman bishop Victor, who had persecuted the churches of Asia for following the "14th-day heresy," as they called it, in reference to the Passover.[30] But at the Council of Nicaea, "the last thread was snapped which connected Christianity with its parent stock."[31] The future Easter observance was to be rendered independent of Jewish calculation according to these words, which have been attributed to Constantine:

> "Henceforward let us have nothing in common with this odious people; our Saviour has shown us another path. It would indeed be absurd if the Jews were able to boast that we are not in a position to celebrate the Passover without the aid of their rules."[32]

In the subsequent years, the Jews went through "iron and fire."[33] The Christian emperors forbade the Jewish computation of the calendar, and did not allow the announcement of the feast days. Graetz says, "The Jewish communities were left in utter doubt concerning the most important religious decisions" as pertaining to their festivals.[34] The immediate consequence was the fixation and calculation

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26 Albîrûnî, "Chronology of the Ancient Nations," p. 69.
27 Lev. 23:10.
28 Graetz, Vol. II, p. 563.
29 Scaliger, op. cit., p. 106.
30 Op. cit.; see also Eusebius, "Ecclesiastical History," bk. V., ch. 24.
31 Op. cit.; Graetz, Vol. II, p. 563.
32 Graetz, Vol. II, p. 564. See also Eusebius' "Life of Constantine," bk. III, ch. XVIII.
33 Sidersky, "Chronology of the Jews," p. 640.
34 Graetz, Vol. II, p. 571.

of the Hebrew calendar by Hillel II, who (359 A.D.) placed above the dignity of the Patriarchate, the unity and cohesion of the scattered Jewish communities, to whom he made known the secret of Jewish reckoning. According to Graetz, the Jewish system conformed to a cycle of nineteen years, in which seven leap years occur, although he adds that it "has not been ascertained how much of this system was invented by Hillel."[35]

The decrees of Nicaea, "destroyed the Temple of the Law in Judea," as it were, and the ancient regulation of Moses for harmonizing the course of the moon with that of the sun was ultimately replaced by calculations involving the vernal equinox,[36] after which the nearest full moon was chosen to be the paschal moon. From this equinoctial point, the church built up her ecclesiastical calendar and its Easter feast. It is easy to gloss over the real significance of the Council of Nicaea and its bearing upon the Jewish system of time, for though the church desired to depart from Jewish calculation, and to adopt a movable feast,[37] yet in the end, it turned out that both the Jewish and Roman Catholic festivals came to be computed from the same point of time--the time when the sun crosses the equator, the first point of Aries, or the vernal equinox. Although it is clear that the responsibility for this change rests with the bishops of Nicaea, yet, according to Clavius, the church merely enjoined that which had been sanctified by the ancient Roman Pontiffs:

"The Catholic Church has never used that [Jewish] rite of celebrating the Passover, but always in its celebration has observed the motion of the moon and sun, and it was thus sanctified by the most ancient and most holy Pontiffs of Rome, but also confirmed by the first Council of Nicaea."[38]

Clavius, quoting from Socrates and Theodoret, cites the letter that was sent from the Nicaean Council to the church of Alexandria, and to the brethren in Egypt, Libya, and Pentapolis:

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35 Op. cit., p. 574.
36 Sidersky, "Chronology of the Jews," p. 624.
37 Clavius, op. cit., p. 54.
38 Op. cit., p. 54.

"But because it concerns the opinion of all over the celebration of this most sacred feast of the passover, because, wisely, the controversy over this thing has been intelligently undertaken at your requests, and has been conveniently settled, in order that all the brethren who dwell in the east, and who were previously accustomed to immitate the custom of the Jews in the observation of the feast, and all of you who hold from early times to that same custom as we in that celebration, may thus now at length carefully follow us Romans with united minds in the same celebration."[39]

Consequently, it should be recognized and made perfectly plain that the plan of the church and of the modern Jewish calendar as well, to regulate the passover with reference to the position of the sun at the spring equinox, and of the full moon next after, has to be referred back, according to Clavius, to the "most ancient and most holy Roman Pontiffs," and has no connection at all with the original Mosaic command. The Council of Nicaea confirmed what was evidently the prevailing custom among the churches, when it added that "the fourteenth of Luna of the first month must be sought through the cycle of the golden number nineteen."[40] This command shows that the church calendar henceforth was to be based on the nineteen-year cycle. Eventually the Jews followed the same regulation.

But though the Nicaean Council had set the passover back toward the first point of the spring equinox, yet the church soon recognized that Aries, the zodiac sign of the vernal equinox, did not extend as far as the primitive "first month" mentioned in Moses' command. She therefore added five days to the end of Aries, making her furthest paschal limit April 25. In reference to this Clavius, after quoting Theophilus, says:

"From this regulation it is plain that in that time [third century] the passover was wont to be celebrated from March 22 even to April 20, yet to which time there were afterward added five other days, because the first month of necessity required this, so that the passover could be celebrated even to April 25 inclusive. For the first month is not that one in which the sun runs through the whole of Aries, as the Fathers in the Caesarean Synod seem to have wished, but whose Luna 14 falls upon some one day from March 21 inclusive, upon which the equinox is, even to April 18 inclusive [the limits of Aries]. From which it follows that the paschal rite can be celebrated upon April 25, as we shall explain a little later."[41] [Italics mine.]

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39 Op. cit., p. 55; Socrates, "Historie Ecclesiasticae," lib. 1, cap. 6; atque Theodoretus, "Hist. Eccles.," lib. 1, cap. 9.

40 Clavius, op. cit., p. 56; Sidersky, "Chronology," p. 560. Note: The 19-year cycle was adopted by the church council of 284 A.D. Cf. Siderksy, op. cit., p. 650.

41 Op. cit., p. 55.

The foregoing reference definitely shows that the period of the equinoctial moon, corresponding to the sign Aries, did not coincide with the so-called "first month" of Moses' command.[42] But even though the church added five days to the equinoctial period in which her paschal moon must occur, even so, the limits of this period did not then coincide with the limits of the period in which the barley harvest moon had to full--the latter being shorter, and open to only one full moon--while in the place chosen by the church for her Easter feast sometimes two full moons could happen.

The period appointed for Easter has had also other pronounced irregularities. The equinoxes, due to precession, have wandered far from their positions known in the infancy of astronomical knowledge. The whole ecliptic, since creation, is said to have shifted backwards as much as the sun moves in 81 days.[43] After the first century of the Christian era, every leap day which the Julian Calendar unnecessarily introduced, as in the centurial years not divisible by four, resulted in moving backward the position of the vernal equinox by one day. The wandering vernal equinox, which in 325 A.D., the Nicaean Fathers thought to be forever fixed, made necessary the correction of the calendar in 1582. It happened "that the pasch was celebrated very often 7 or 28 or 35 days other than in the generation which the decrees of the Fathers enjoined.[44]

The differences between the "full-moon-of-barley-harvest" Mosaic rule, and the "first-full-moon-after-the-vernal-equinox" Nicaean regulation of the church are vital. Though both were featured by a period of time, which was to be marked by the first light of the full moon, yet the barley-harvest period did not always coincide with the equinoctial,[45] and both rulings were wide apart in character, purpose, and meaning. This will be seen by the following outline:

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[42] Ex. 12:2.

[43] Ferguson, "Astronomy," (London, 1811), says: "From the shifting of the equinoctial points, and with them all the signs of the ecliptic, it follows that those stars, which in the infancy of astronomy were in Aries, are now in Taurus, those in Taurus in Gemini, etc." (p. 189.)

[44] Calvius, op. cit., Caput II.

[45] The moons were different in embolismic, or leap years.

| BARLEY HARVEST MOON | EQUINOCTIAL MOON |
|---|---|
| 1. A command of Moses for Jewish Time. | 1. A decree of Nicaea for the church calendar. |
| 2. Only one moon. | 2. Could be two moons. |
| 3. A permanent and regular control of Jewish feasts. | 3. A very irregular index to the time of Easter. the sign, |
| 4. Coincided with "first month," or Nisan. | 4. Coincided with Aries, and often with Adar. |
| 5. A sure index to the crucifixion Passover. | 5. Not the paschal moon which marked the death of Christ. |

Of these two methods of determining a festival feast, the barley harvest has been commonly regarded as a period too elastic to represent an actual point of time. But be it noted, that the controlling conditions relating to the barley-harvest moon in the time of Christ were as exact, if not more so, than those which have thus far governed the vernal equinox in its control over Easter. The time of barley harvest in the Ashes-Valley field across the Kidron was remarkably accurate and permanent in its regulation of the passover festival. The latter rain extended into the first week in April,[46] and very quickly thereafter the barley would ripen. Into this defined and limited period one full moon only could occur.

Three conditions--(1) the ending of the latter rain, (2) the regular period of the ripened barley, and (3) the fulling of the one moon possible in that limited time after the first week in April--exactly determined the paschal feast and all the other festivals of the Jewish year. The results were dependable and specific. [illegible] the rule which Moses had commanded. It persisted to the generation in

Insert, Part V,p. 21, as footnote.

[48]The real meaning of Josephus' well-known statement about the passover, "when the Sun is in Aries" ("Works," p. 75), seemingly rests on a Pharisee interpretation of the paschal moon as the equinoctial moon of Aries--a definition in no sense in accordance with the Mosaic rule, nor in accordance with the Sadducean position which was dominant in the time of Christ's ministry. If Moses had appointed the passover to be in the ancient constellation of Aries, then another constellation, due to precession, would have marked the time of the feast in the first century A.D. (Ferguson, "Astronomy," p. 189.) On the other hand, if Josephus referred to the zodiacal sign Aries, as is probable, and not to the actual constellation itself, then on another count Moses can in no way be held responsible for the inference of Josephus, for it was not until seven or eight centuries after Moses' time that the "ecliptic was divided into twelve equal divisions, not associated with the actual stars," and the constellations were replaced by the signs. (Maunder, op. cit., p. 319.) These signs have never changed. The ecliptic is a circle of reference; and on it, from its first point of Aries, every celestial longitude is reckoned. (Young, Charles A., "General Astronomy," New York, 1898, pp. 11, 142.) Cf. Scaliger, op. cit., p. 169.

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|---|---|
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[46] See Table II, p. 23, on rain record.
[47] Sidersky, "Chronology of the Jews," pp. 615, 624.

PART V, Sec. B, p. 22 a.

# MOSAIC PASSOVER AND EASTER LIMITS

Only one full moon possible in the PASCHAL PERIOD

BARLEY EXAMINED--50 DAYS TO PASSOVER

LATTER RAIN

PASSOVER PERIOD

BARLEY HARVEST

1 week 28 days

FIRST MONTH

April 8 NISAN May 6 [2]

## MOSAIC RULE

1 JEWISH MONTHS

2 JULIAN MONTHS

3 SIGNS OF ZODIAC

SHEBAT ADAR

MARCH APRIL MAY

PISCES ARIES 29[1] TAURUS

## EASTER RULE

ALSO
(RABBINICAL RECKONING)

EASTER PERIOD

March 23
Vernal Equinox
in First Century

25 (April)

35 days

Two full moons possible in the EASTER PERIOD

[1] "The passover was wont to be celebrated from March 22 to April 20, even to which time were added five other days, the first month requiring this."--Clavius, "Romani Calendarii," p. 55.

[2] "In the times of the Messiah . . . the earliest passover was April 8 . . .the latest was May 6."--Scaliger, "De Emendatione," p. 265.

The Mosaic Passover Period involves a barley-harvest moon; the Easter Period, an equinoctial moon. In common years, the moons were the same; in leap years they were a month apart. If the time of the passover is wrong, the determinate date of the crucifixion is bound to be wrong--for a passover in March will occur upon a different day of the week from a passover in April of the same year. Consequently, all the March passover dates found in the tables of moons appearing in past and present discussion of the crucifixion date are thereby called in question--seeing that March passovers are not Mosaic, but Nicaean.

TABLE IX

C. Length of Christ's Public Ministry.

1. Daniel's 70th Week. When Jesus came into Galilee preaching, "The time is fulfilled,"[1] He referred to the "70th week" of Daniel 9.[2] According to Fraidl,[3] the Christian exegetes up to the Reformation, with but few exceptions, recognize a Messianic prediction in the prophecy.[4] Sir Isaac Newton was a later witness.[5] Ferguson's "Astronomy" was also one of many sources which early suggested to the Millerites the remarkable chronological relation of the "week prophecy" to the death of Christ.[6] Eusebius was perhaps the first to connect the half of this prophetic week with the public ministry of Christ.[7]

When the prophetic events in Daniel 9:23-27 are listed, they are found to include (1) the command that was to go forth to restore and to build Jerusalem (verse 25); (2) the anointing of the Messiah (verse 25); and (3) the cutting off of the Messiah (verse 26). This anointing and cutting off of the "Anointed One," outlined in prophecy give centuries before Jesus was born, finds its exact fulfillment in the beginning and ending of Christ's ministry. The Father and Holy Spirit bore witness to the anointing of Christ at His baptism,[8] and later, He himself preached openly that the event had been fulfilled.

Throughout the Christian era, there has been concerted agreement that in the prophecy of Daniel 9, the public ministry of Christ, ending in His death, is foretold. Fraidl insists that concerning no other prophetic text does so united an opinion exist.[9] The influence of this concept was in part transmitted to the

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1 Mark 1:15.
2 White, Ellen, "Desire of Ages," p. 233.
3 Fraidl, Franz, "Die Exegese der 70 Wochen Daniels," Graz, 1883, pp. 2, 28, and 154, et al.
4 In the foregoing citation, Fraidl tabulated practically all the commentaries on Daniel 9, both of Hebrew and Christian scholars, from the time just preceding the first advent to the Reformation. See pp. 156-159.
5 Newton, Isaac, "Observations upon the Prophecies of Daniel" (London, 1733), ch. 10
6 Ferguson, James, "Astronomy," Vol. 1, p. 192. (Old Edition quoted in Midnight Cry, April 20, 1843, pp. 19, 20.
7 Mommert, Carl, "Zur Chronologie des Lebens Jesu," Leipzig, 1909, pp. 92, 93.
8 Matt. 3:16, 17.
9 Fraidl, op. cit.

Millerites by Ferguson's "Astronomy," from which we quote:

"Now, as it is generally allowed, that by each of Daniel's prophetic weeks is meant seven years, the middle of the week must be in the fourth year."[10]

This is specific reasoning, for it indicates that in the history involved, as pertaining to Christ's ministry, between three and four years are to be accounted for. One of the important features therefore offered by the "70 weeks" prophecy is its index to the length of Christ's ministry. Fraidl's designation of Gabriel's words in Daniel 9 as the "week prophecy" is significant.[11] It is indeed the only prophecy in either Daniel or the Revelation, which presents its time period in terms of the week. But inasmuch as all other prophetic periods are interpreted on the year-day basis, the "seventy weeks" is of course cataloged according to this same vital principle. Each week of the seventy, as Newton and Ferguson allow, must be a week of years. It is the location of the last week which concerns the death-year of Christ.

From the time of Daniel's first appearance before Nebuchadnezzar down to the time of the ninth chapter, he had seen in prophetic vision the leading nations of the world, even to the end of time. But not until Daniel 9 does the Jewish nation, as such, enter the vision. Daniel had been waiting and praying for some sign or symbol of his own people. The answer finally comes, in which Gabriel tells him plainly and simply that the seventy weeks refer to his own people, the Jews. Consequently the seventieth, or last week of the prophecy, must also refer to the Jews.

The Jewish nation had been organized by a covenant with God,[12] and had been ordained by a system of sacrifices and oblations,[13] but Gabriel solemnly declares that in the midst of the seventieth week, the sacrifices and oblations would cease. He also implied that the Messiah would be cut off during that same "week."[14]

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10 Midnight Cry, April 20, 1843, p. 19.
11 Fraidl, op. cit., Introduction.
12 Ex. 24:8; Heb. 9:19,20.
13 Heb. 9:1.
14 Dan. 9:25,26. Note: Since the seven weeks and three score and two weeks were to reach to Messiah the Prince, who was to be cut off after the three score and two weeks, therefore the "cutting-off" must be in the last, or seventieth week.

These two startling events of the prophecy not only bring it to an end in the time of Christ, but the two events coincide, showing that Jesus was to die in the midst of the week, for it was to be His death that would cause the Jewish sacrifices to cease.[15]

There are no features of the passion week of Christ that enter with more difficulty into the redrawing of the picture than those last scenes connected with the paschal rite itself, especially as relating to the Jews and their leaders. The harmonizing of some of the parts that are hard to understand has been ably presented with new and fresh meaning by Chwolson, who sees in the time of Christ a division in Jewish circles, as between the Pharisees and Sadducees, concerning the slaying of the paschal lambs on Friday.[16] We know from the "week" prophecy that God's appointed end had come for the Jewish service, that its meaning was lost, perhaps its form somewhat changed.[17] Jesus had not kept the third Passover at Jerusalem,[18] and now at the fourth, He "was standing at the point of transition between two economies and their two great festivals,[19] and ordains a new feast for His church before He suffers. "He, the spotless lamb of God, was about to present Himself as a sin-offering, and He would thus bring to an end the system of types and ceremonies, which for four thousand years had pointed to His death."[20]

In the uncertainty that surrounds the slaying of the lambs of the last Passover--their number, and the time of the offering--many, with Paul, see on the cross in the "midst of the week" the true Lamb of God, and say, "Even Christ our Passover is slain for us."[21] This Scripture has been quoted again and again by

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15 Heb. 10:5-9.

16 Chwolson, pp. 87, 129, 147. "Not the Pharisees, but the Sadducees were in power in Christ's time." (p.87.) Note: For thirty years, Daniel Chwolson was professor of Hebrew and Biblical Archeology in St. Petersburg University. At eighty years of age, he was a profound student of the text (1892).

17 "Desire of Ages," p. 33.

18 He remained in Galilee. John 6.

19 "Desire of Ages," p. 652.

20 Op. cit.

21 1 Cor. 5:7, margin. Cf. Frey, Joseph, "Scripture Types," New York, 1841, p. 107.

recent writers on the date of the death of Christ to show that on that passion Friday, Nisan 14, Jesus the true Lamb, took the place of the typical lamb, which would appear to have been offered in the temple on the day before.[22]

2. Number of Passovers. The following outline makes plain how the passovers, during the public ministry of Christ, may be identified and numbered--four in all:[23]

First Passover. (John 2:13)

"And the Jews' passover was at hand."

Second Passover. (Luke 6:1)

"And it came to pass. . . that He went through the corn fields." Luke's "ears-of-corn Sabbath," or a spring barley harvest, witnesses to another harvest year, and therefore to another passover between Christ's return to Galilee to announce His mission,[24] as in Luke 4:14, and the death of John the Baptist in Luke 9 at the time of the third passover. The "feast of the Jews," spoken of in John 5:1, may be the passover of this second year of Christ's ministry.

Third Passover. (John 6:4)

"And the passover, a feast of the Jews, was nigh." This third passover was at the time of the feeding of the five thousand, which event is described by the three Synoptics, as well as by John. Hence, it should be noted, each reference to this scene in Galilee in the other gospels is a testimony that the third passover also is nigh, and this correlation harmonizes the chronology of certain events in all four narratives.

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22 Chwolson, op. cit., pp. 37-40.

23 A careful reading of the sequence of events in the "Desire of Ages," will lead the student to the same conclusion as in this outline. See also Armstrong, W. P., "International Standard Bible Encyclopedia," 1915, art., "Chronology of the New Testament." Vol. I, p. 646.

24 This was after the first passover, and after John had been cast into prison. The ears-of-corn Sabbath is mentioned by all three Synoptics. They uniformly place this event midway between the Baptist's imprisonment--which was after the first passover--and his death, which is always immediately connected with the feeding of the five thousand, a circumstance preceding the passover in John 6. This was without doubt the third. Since each passover represents a barley harvest, the one in Luke 6:1, given midway between two passovers, must therefore correspond to another passover, doubtless the second.

Fourth Passover. (John 13:1)

"Now before the feast of the passover." This fourth passover is recorded by all four evangelists.

The gospel narrative outlining four passovers therefore accords with the "seventy-weeks" prophecy of Daniel, that between three and four years were involved in the public ministry of Christ--or to be exact, three and one-half years. The accompanying Table illustrates this outline of the passovers.

D. Ancient Position of Jewish Passover.

1. The Mosaic Rules. In all the ancient references to the Passover, the "fourteenth day of the first month" is emphasized as the day on which the Passover was kept.[1] There were no double passover days in Old Testament times. If ceremonial defilement prevented an individual from observing the regular festival, then he was commanded to keep the service on the fourteenth day of the following month.[2] Thus is pointed out the importance of the day, which was numbered "according to the moon;" that is, the days of the month were the same as the days of the moon.[3] Indeed the Hebrew word "hodesh " for month, means "new" moon.

It was the actual new moon, not any fictitious new moon that regulated the great festivals, for it was an "observed moon."[4] On the other hand, the barley harvest, ripened by the sun, marked out the paschal month, for the first fruits of ripe barley must be waved in the temple on the 16th day of Nisan when Israel came into the land. In other words, the Jewish feast period began with the month of barley harvest; and its paschal moon, or moon of Nisan, was the appointed moon of barley harvest.

The agricultural calendars of Palestine show that April is the month for the ripening barley. "From the time of harvest or the middle of April to the middle of September, there is neither rain nor thunder."[5] The same story in agriculture is engraved on the Gezer calendar stone, whose fourth-named month has been translated "barley harvest."[6] In Palestine, March is the month of the latter rain, which lasts until the first week in April.[7] After this the barley corn ripens rapidly.

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1 2 Chron. 35:1.
2 Num. 9:11.
3 Josephus, Flavius, "Antiquities of the Jews" (Trans. by Whiston), Cincinnati, 1844, p. 75.
4 Maunder, E. Walter, "Bible Astronomy" (2nd Ed.), p. 297; Deut. 16:1.
5 Jahn, Johann, "Biblical Archeology" (Trans. by Upham), Andover, 1823, p. 22. See also Buhle, Johan, "Economical Calendar of Palestine," in "Calmet's Dictionary of the Bible," London, 1830, Vol. III, pp. 704, 705.
6 Lidzbarski, Mark, "Old Hebrew Calendar-Inscription from Gezer," in Quarterly Statement of Palestinian Exploration Fund, 1909, p. 29.
7 Quarterly Reports on Palestinian Exploration Fund, art., "Meteorology."

However, the Mosaic ceremony connected with the barley harvest, so vital in its control of the Jewish year, did not long survive the first century of the Christian era, because of the dispersion of the Jews. The period of persecution which followed the fall of the second temple ultimately brought about a fixed calendar for the Jews--one that was based upon an entirely different rule of intercalation than the ancient barley harvest regulation. About the 8th century A.D., the Karaites arose to oppose the influence of the Rabbanite fixed calendar,[8] and to restore the barley-harvest schedule as the important index to regulate the leap-year. This controversy over the Hebrew calendar raged for several centuries.[9] It really represented a rivalry between Palestine and Babylon for the prerogative of keeping time for the Jewish nation. Though the Karaites were Biblically correct, in the end the Babylonian Jews gained control of the calendar, and Karaism dwindled. Since 1780, the Karaites have been slowly compromising with the Rabbanites on this question, and today follow a fixed calendar.[10]

2. Fourth Century Changes. After the destruction of Jerusalem, the unity of the scattered Jews more than ever depended upon the festivals being observed on the same days.[11] But two vital changes overtook the ancient Hebrew Passover. First, as pertains to the day, the persecution of the Jews had made impossible the use of fire signals in Judea for announcing the new month. Therefore, in order to keep with certainty a feast day in common with the home land, two festival days--particularly for the Passover--became the custom among the scattered people. The Jews of Palestine, and those among the Greek churches, kept Passover on the 14th day of the moon, while the outlying groups of Jews kept on the safe side by both observing the Passover on the day appointed by the Scriptures, and on the day following, called "Second feast-day of the Diaspora."[12] In this manner the Passover came to be observed on both Nisan 14 and 15. In the end, the computed calendar of the Jews preferred

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8 Albîrûnî, "Chronology of Ancient Nations" (Trans. by Sachau), London, 1879, p.69.
9 Malter, "Saadia Gaon," Philadelphia, 1921, pp. 70-77.
10 Kokisoff, Jufuda, "Brief Information on the Karaite Calendar," in Polish Encyclopedia (Trans. from Russian by Erna Borm). Note: Kokisoff says, "Thus in the near future is to be expected a simplified calendar in the sense that out of three rules only one will be made, i. e., the first of the month will always be the first evening following the true new moon."
11 Sidersky, "Chronology of the Jews," p. 623.
12 Poznanski, in Hastings' Encyclopedia, art. "Jewish Calendar."

Nisan 15 for the feast, and it is a feature of the modern Jewish calendar of today.

This early controversy in Jewry formed the background of the bitter conflict over Easter, which began in the second century among the Christians.[13] The argument was still over the same question--the 14th or 15th of Nisan. At length, in the 4th century, the Council of Nicaea met this issue.[14] The Christian feast was placed on the first Sunday after the Jewish Passover, which was confirmed as "Luna 14" of the first month. This was appointed as the first full moon following the spring equinox, in place of the full moon of barley harvest, which on account of persecution had fallen into neglect.

Second, as pertains to the month, this decree of Nicaea was really the cause of the large series of March passovers which characterized the calendar of Dionysius in 532.[15] The Dionysian tables were the basis upon which the church built up her own ecclesiastical calendar. In the discussion that arose in 1582 over the Julian calendar, Scaliger said plainly that the so-called paschal moons of the Dionysian tables came largely in Adar instead of Nisan; that they were, in fact, principally March passovers.[16]

This change in the paschal month is vital in the relation of Jewish time to the Julian calendar in the first century, for it is the passover day which ties Jewish time to our common calendar.[17] It is to be particularly noted that if this passover day is in March, it will occur upon a different day of the week from a passover in April of the same year. Consequently, all the March passover dates in the first-century tables of moons given in the general discussion of the crucifixion date are thereby called in question. And it is therefore evident that if the passover month is wrong, the determinate date is bound to be wrong.

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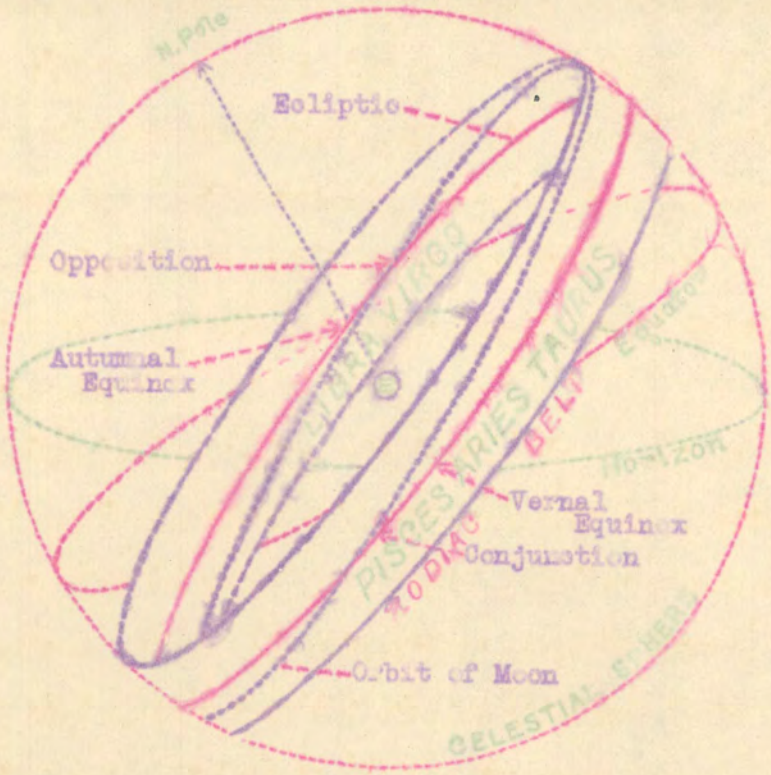
13 Hales, "Chronology," p. 67.

14 Clavius, "Romani Calendarii Restituti Explicatio," cap. ii, p. 63. Note: The exact words of Clavius are: ". . . Concilii Nicaeni, quae semel, atque iterum inculcant, Pascha celebrandum esse a Luna Xiiii. primi mensis exclusive" (. . of the Council of Nicaea, which once and again enforced that the Pasch must be celebrated by Luna 14 of the first month exclusively); Eusebius, Pamphilus, "Life of Constantine," Bk. III, Ch. 17.

15 Scaliger, "De Emendatione Temporum," p. 107.

16 Op. cit., pp. 106, 107, and Prologue.

17 Part V, Sec. E, Postulate I. (Table V)




MOON'S APPARENT MONTHLY COURSE IN ZODIAC BELT

Through the center of the ZODIAC BELT runs the ECLIPTIC, or sun's apparent path in the sky, as seen from the earth. The moon's apparent path is also projected by the eye upon the zodiac, around which she appears to travel every month. Though millions of miles apart, the paths of both sun and moon seem to be traced upon the same celestial belt. In one month's time the sun has advanced one sign only, while the moon has accomplished nearly the whole zodiac. Her orbit is inclined to the ecliptic with an angle of about 5 degrees, and upon this small inclination all her phases depend.[1] She passes through the zodiac in an irregular velocity, causing her to move north and south of the sun each month. Her smallest daily movement amounts to $11^{\circ}\ 6^{m}\ 35^{s}$, and her largest, $15^{\circ}\ 14^{m}\ 35^{s}$.[2] The sun requires 6 months to go from Aries to Libra, that is, from the Vernal Equinox to the Autumnal. The moon apparently travels this distance in about 2 weeks, as from new moon to full moon. In her daily revolution the earth turns from Aries to Libra in 12 hours.

1 Young, "Astronomy," p. 155.
2 Geminus, "Elementa Astronomiae," p. 211.

E. Translation of New Moon for Nisan.

1. The Moon's Motion. In order to understand any astronomical argument which may pertain to the crucifixion date, it is necessary to review the relation of the moon to the sun and earth.[1] The path of the sun in the heavens is a great circle called the ecliptic. A belt 8° wide on each side of the ecliptic is known as the zodiac. This particular width was chosen by the ancients because the paths of the moon and all the principal planets keep within this belt, and it is therefore a very convenient circle of reference. And in reference to this, the longitude and latitude of a star is reckoned in degrees, minutes, and seconds.

About 800 years before Christ, the zodiac was divided into 12 parts called signs, at which time the signs were separated from the primitive constellations of the same name. Each sign is 30° in length. The signs kept the same names as the original constellations, all being named after some animal, with the exception of Libra. The ones frequently referred to in this discussion are Pisces, Aries, and Taurus in the spring, and Virgo, Libra, and Scorpio in the autumn.

Another great circle in the heavens is the celestial equator, which is an imaginary projection on the sky of the equator of the earth. At two points 180° apart--known as the equinoxes--the path of the sun crosses the celestial equator. At those times day and night are equal. When the earth is nearest the sun, as at perihelion (about December 31), her orbital motion is most rapid; and at aphelion, the opposite point of the ecliptic (about June 30), her motion is slowest. Any motion of the earth of course influences the moon's motion.

The moon travels around the earth every 29 1/2 days, and in that same time passes up and down in its path through the zodiac belt. Sometimes she is north of the sun, sometimes south. Her rate of travel through the zodiac is irregular, sometimes fast, sometimes slow, because of her distance from the sun and earth. When the moon is between the sun and earth, this position is called "conjunction," and the moon is new. At this time the moon cannot usually be seen for a period of

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[1] The astronomical facts appearing here are found in any standard text on astronomy.

from 1 to about 4 days.[2] When the earth is between the sun and moon, this relation is called "opposition," and the moon is full.

All of these facts and figures have a direct bearing upon the time it takes the moon to come into sight after conjunction, and they therefore take on a definite relation to the moon's changing rate of motion. From new moon to full moon, i.e. from conjunction to opposition, the moon travels through the first half of her monthly circuit around the earth. This first half of the moon's circuit was of great importance to the Jews, because of (1) their "new moon" feasts which were gauged by the conjunction and its attendant phasis; (2) the passover sacrifice right after the opposition or full moon of Nisan; and (3) the three special days in the fall--(the New Moon Day of Tisri or Rosh Hashanah, the Day of Atonement, and the Feast of Tabernacles--which were connected with the new and full moon of Tisri. The true time of the moon in this period from conjunction to opposition runs in a cycle of 14 moons as follows:[3]

TABLE IV MOON'S CHANGING RATE OF MOTION
(In a 14 Moon Cycle)

| Years in Cycle | Calendar Year | (1) New Moon | | (2) Full Moon | | (3) Period from New to Full Moon | | (4) Period from Conjunction to Phasis[4] | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | d h m | | d h m | |
| 1. | 1930 | Apr. 28 | 19h 8m | to May 12 | 17h 29m | --13 22 21 | -- | 1 0 8 | |
| 2. | | May 28 | 5 36 | June 11 | 6 11 | --14 0 35 | -- | 1 14 24 | |
| 3. | | June 26 | 13 46 | July 10 | 20 1 | --14 6 15 | -- | 2 6 32 | |
| 4. | | July 25 | 20 41 | Aug. 9 | 10 57 | --14 14 16 | -- | 1 23 14 | |
| 5. | | Aug. 24 | 3 36 | Sept. 8 | 2 47 | --14 23 11 | -- | 2 15 29 | |
| 6. | | Sept. 22 | 11 41 | Oct. 7 | 18 55 | --15 7 14 | -- | 3 6 13 | |
| 7. | | Oct. 21 | 21 47 | Nov. 6 | 10 28 | --15 12 41 | -- | 2 19 4 | |
| 8. | | Nov. 20 | 10 21 | Dec. 6 | 0 39 | --15 14 18 | -- | 3 5 43 | |
| 9. | | Dec. 20 | 1 23 | Jan. 4 | 13 14 | --15 11 51 | -- | 2 14 32 | |
| 10. | 1931 | Jan. 18 | 18 35 | Feb. 3 | 0 25 | --15 5 50 | -- | 2 21 55 | |
| 11. | | Feb. 17 | 13 10 | Mar. 4 | 10 36 | --14 21 26 | -- | 2 4 12 | |
| 12. | | Mar. 19 | 7 50 | Apr. 2 | 20 5 | --14 12 15 | -- | 2 10 23 | |
| 13. | | Apr. 18 | 0 59 | May 2 | 5 14 | --14 4 15 | -- | 1 18 1 | |
| 14. | | May 17 | 15 27 | May 31 | 14 33 | --13 23 6 | -- | 1 4 17 | |

[2] Hevelius, "Selenographia," p. 273; Note: Very seldom, according to Hevelius, does the phasis occur on the same day as conjunction. This research found two times in which phasis and conjunction coincided on the same day: Oct. 13, 1844 (Boston); Sept. 19, 1933 (Greenwich).

[3] The moon phases were taken from "American Ephemeris," 1930-31.

[4] The full moon cycle was computed by subtracting each new moon date from the next full moon date.

In a cycle of 14 lunar months, in Table IV, the period of time in days, hours, and minutes in column 3--"Period from New to Full Moon"--represents the actual time it takes the moon to go from new moon to full moon. In this cycle, she travels her half circuit around the earth from high accelerated velocity ($13^d\ 22^h\ 21^m$), to slow ($15^d\ 14^h\ 18^m$), and back again to high. In 14 rounds she completes her cycle, which represents the moon's varying motion.[5] From age to age, in saecula saeclorum, she has kept up this 14-moon cycle, the periods varying slightly each moon, or month.

The Translation Cycle, under column 4, represents the actual time in days, hour, and minutes it takes the moon to go from conjunction, when she cannot be seen, to her phasis, or first appearance. The phasis always marked the sunset beginning of each new month for the nations using the luni-solar year. These translation periods also run in a 14-moon cycle, which follows fairly closely the longer waves of the moon from conjunction to opposition. When the moon is slow, then the translation period is long--over 3 days; when the moon is fast, her translation is short, usually a little over 1 day. The following Diagram C shows how closely these two cycles correspond:

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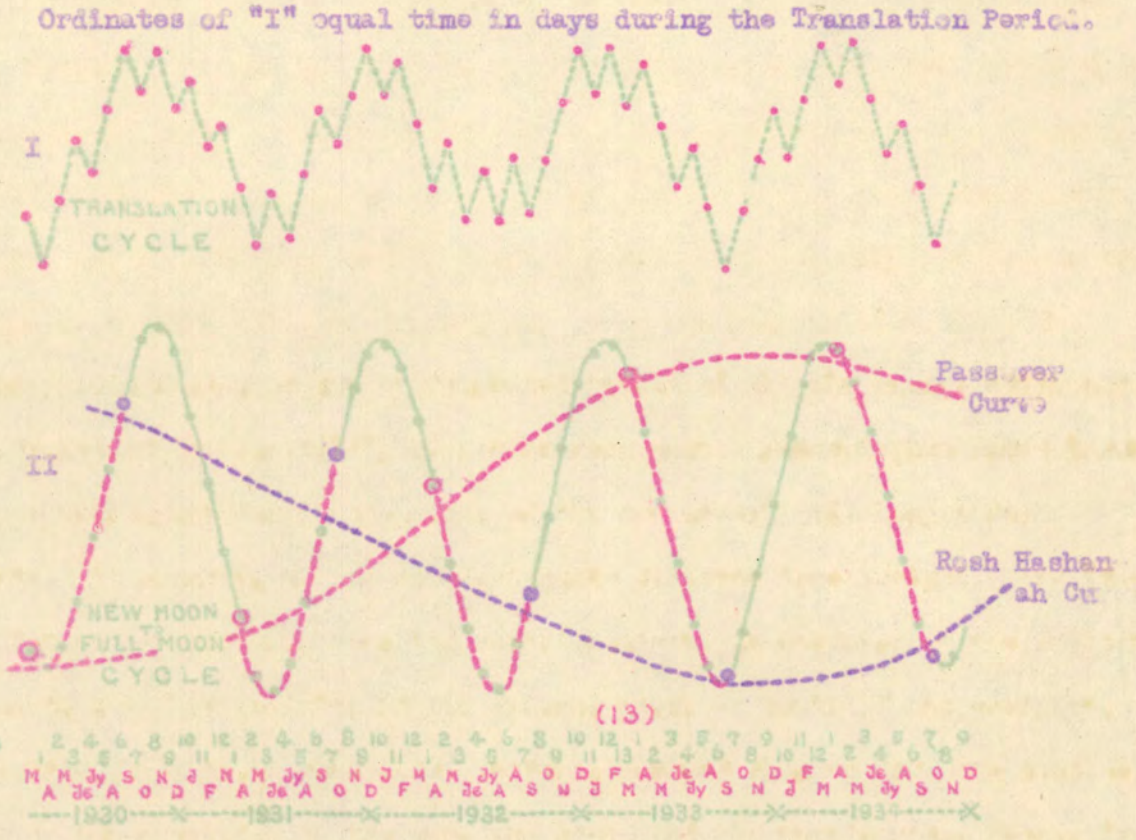
5 Diagram C represents but a small portion of a large lunar sine curve covering over 20 years, in which the Translation Cycle was figured according to Postulate I, Table V, and the full moon cycle as in Table IV. Both curves keep the same defined relation throughout, showing the influence of the same lunar motion upon each curve.

# MOON'S CHANGING RATE OF MOTION

Each spot or point in "I" represents the Translation Period for the corresponding Jewish month.




Ordinates of "II" equal time in days from new moon to full moon.

Abscissae of "I" and "II" equal time of the lunar month of 29 and 1/2 days.

Each spot in "II" represents the time from new moon to full moon. The heavy red lines on the moon's curve correspond to the Jewish feast period from Nisan 1 to Tisri full moon.

The phases of the moon, from which the new-moon-to-full-moon periods were computed, were taken from the "American Ephemeris."

The figure "13" in red in the Jewish month tabulation, denotes an extra moon in the year 1932.

DIAGRAM C

THE MOON'S VARYING MOTION
(Controlling the Jewish Feasts)

In the phasis curve, we see the combined result of all the causes which conspire to hasten or retard the visibility of the nascent moon. Fotheringham names three causes as affecting the first appearance of the new moon:[6] (1) Longitude; (2) Latitude; (3) Anomaly, or the moon's angular distance from perigee. The longitude refers to the moon's distance from the vernal equinox, as measured on the ecliptic, and the latitude to her position in the zodiac, north or south of the ecliptic. Maimonides also gives these same three factors, summing them up into one conclusion--that "knowing the positions of the sun, the moon, and the moon's node, respectively, you have all necessary elements to establish by calculation whether the new moon will be visible or not."[7]

Hevelius has also left on record a complete description of the new moon and her phasis. He likewise presents the same three causes, though differently described, which result in the moon's visibility, early or late: (1) The obliquity of the

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[6] Fotheringham, "Date of the Crucifixion," Journal of Philology, (XXIX), 57. London, 1903, p. 105.

[7] Maimonides, quoted by Sidersky, "Chronology of the Jews," p. 668.

sphere leading to long or short settings; (2) the position of the conjunction, whether it is near the northern part of the zodiac or not; and (3) the relation of the moon to perigee; that is, her anomaly.[8] He names Pisces, Aries, and Taurus as being signs of long settings, and Virgo, Libra, and Scorpio as signs of short settings. Ferguson also testified the same when he said that the "ecliptic sets slowest in Aries, and fastest in Libra,"[9] a similar statement from Ferguson being printed in the Midnight Cry.[10] (We shall see this contrasting relation of the moon to these opposing signs--Aries and Libra--work out exactly as specified by astronomy in the event of the crucifixion and the October 22 date in 1844.) Hevelius further shows how these various causes or factors conform to the moon's motion:

"But if the causes mentioned as advancing the quick coming forth of the moon, do not always conspire, but even one is lacking, then on the next day after the interlunary period, this first phasis at length appears: but with two requisite causes absent, it can happen that finally the first phasis of the moon may fall in sight on the third day. But with all three conditions deficient, accelerating the rising of the moon. . . then this first appearance of the moon finally happens on the fourth day after conjunction with the sun."[11] [Italics mine.]

Then Hevelius adds the important observation that the "three requisite causes [for a quick phasis], as now told, commonly very rarely appear, so that the moon is in the signs of long settings [as in Aries], in perigee, and in the northern border, plainly in the time of conjunction or phasis."[12] Equally important is still another citation from the same paragraph that "the same rising of the moon does not commonly happen on the first day after the interlunary period [or. translation], but at length, on the second, often also on the third and fourth; this is plain to all observing her."

In harmony with this last statement, Scaliger shows that the Jews took a later moment for the moon's phasis:

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8 Hevelius, op. cit., pp. 274, 275.
9 Ferguson, op. cit., p. 244.
10 Midnight Cry, Apr. 20, 1844, p. 19.
11 Hevelius, op. cit., pp. 274, 275.
12 Hevelius, op. cit., p. 276.

"But the Jewish, Arabic, and Samaritan new moons usually exceed the size of the phasis [that is, the first slender streak of the moon] so that the civil new moons of the lunar months are of a triple kind: the Attic, as from conjunction; the Calippic from the waning of the moon; and the Jews, Samaritans, and Arabs from the 'shape' of the moon, from the third day, I say."[13]

With these two authorities on the moon's phasis, both Geminus in the first century B.C., and Hales in the 19th century, agree.[14]

The three causes of an early or late phasis, as given in the foregoing citations, have all entered into the visibility test for the first appearance of the moon after conjunction as outlined by those recently studying the computation of time in the first century.[15] But it is noticeable that in the results given, though many moons have been observed, a translation period extending to the 3rd or 4th day after conjunction is seldom seen. Usually the results are from 1 to 2 days--and thus are contrary to the testimony of Hevelius, Geminus, Scaliger, and Hales. The phasis often appears in the modern Jewish calendar even on the day of conjunction.[16] Questions have already arisen as to the validity of these visibility tests.[17]

One question yet remains to be answered: "On what day of Nisan shall we place the full moon dates belonging to the years of Christ's ministry?" The following table represents the new and full moons of the years 28 to 33 A.D., which embrace all the years within which the ministry of Christ is usually located.[18]

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13 Scaliger, "De Emendatione Temporum," pp. 6, 105. Scaliger also emphasizes the "horned moon" as characteristic of the Hebrew phasis (p. ). Hevelius devotes a whole chapter to the "horned moon"--an older crescent shape--and shows how such a phasis is identified (pp. 281-284).

14 Hales quotes as follows from Geminus: "Geminus, a Grecian astronomer says, 'that when the moon is in perigee, and her motion quickest, she does not usually appear until the second day, nor in apogee when slowest, until the fourth.'" ("New Analysis of Chronology," Vol. 1, London, 1830, p. 67.)

15 Fotheringham, Schoch, Neugebauer, Gerhardt, and Schaumberger, among others.

16 See American Jewish Yearbook. Note: According to Sidersky, the Jewish calendar has an interval of 48 hours, or more, between conjunction and phasis, and provides for one or two days additional by its system of postponements, "the purpose of which is to retard by one or two days the official new moons." (Sidersky, op. cit., p. 64.) Thus the Jewish reckoning recognizes the full translation period as demanded by astronomy and history.

17 Dittrich, E., "The Death of Jesus of Nazareth," Astronomical News, Vol. 241, May, 1931. Note: Dittrich observes that the calendar and the position of of the moon do not agree in these tests.

18 The spring of 27 A.D. does not come into this list, because the baptism took place in the fall of the year. The dates in Diagram D were computed from Schram's tables by Associate Astronomer Glen Draper of the U.S. Naval Observatory, Washington, D.C., leading computer of the "American Ephemeris and Nautical Almanac."

DIAGRAM D

| A.D. | New Moons | Feria | Full Moons | Feria | Jewish Time |
|---|---|---|---|---|---|
| 28 | Apr. 13 $16^h$ $51^m$ | Tuesday | Apr. 27 $12^h$ $23^m$ | Tuesday | Tuesday |
| 29 | Apr. 2 21 15 | Sabbath | Apr. 17 12 1 | Sunday | Sunday |
| 30 | Mar. 22 20 12 | Wednesday | Apr. 6 20 9 | Thursday | Friday |
| 31 | Apr. 10 14 51 | Tuesday | Apr. 25 22 45 | Wednesday | Thursday |
| 32 | Mar. 29 21 58 | Sabbath | Apr. 14 11 39 | Monday | Monday |
| 33 | Mar. 19 13 14 | Thursday | Apr. 3 17 27 | Friday | Friday |

As shown in Part V. Sec. A, it makes a fundamental difference on what day of Nisan the full moon is placed. Throughout early patristic writings, the passover day is repeatedly called Luna 14, that is, the 14th day of the moon,[19] and it is clear from Moses[20] that this was also Abib (or Nisan) 14. Therefore, inasmuch as the extreme limits of the full moon cycle, in Table IV, extend from $13^d$ $22^h$ $21^m$ to $15^d$ $14^h$ $18^m$,[21] and because the translation period itself, according to history, uses up from 1 to 3 full days, and some over, it would be impossible for the full moon to fall on any other than Nisan 13, and harmonize with these periods. If 1 day is taken from $13^d$ $22^h$ $21^m$ (the shortest period), the remainder coincides with Nisan 13; in like manner if 3 days are taken from the longest period, Nisan 13 is again proven.

In harmony with this, we have the testimony of Geminus, who definitely states that the earliest full moon comes on the 13th of the lunar month.[22] Aristobulos also maintained that the "day of the paschal festival began on the 14th of Nisan, after the evening when the moon stands diametrically opposed to the sun, as everyone can see at the time of full moon."[23]

The Arabs had special names for each series of three nights of every month, which were derived from the state of the moon and her light. The fifth three nights

19 Clavius, "Romani Calendarii Restituti Explicatio," p. 63.
20 Ex. 12:2.
21 Table IV.
22 Geminus, op. cit., p. 129.
23 Caspari, C.E., "Introduction to the Life of Christ" (trans. by Evans), Edinburgh, 1876, p. 9; Eusebius, "Ecclesiastical History," bk. VII, ch.XXXII.

# LUNAR TRANSLATION FOR NISAN

## POSTULATE 1

CONJUNCTION PASCHAL MOON ON NISAN 13 OPPOSITION

JERUSALEM CIVIL TIME

Place full moon date on Nisan 13, and count back to Nisan 1 and new moon date, the difference between which equals the Translation Period.

NEW MOON FULL MOON

Apr. 15 16h 51m Tu — Apr. 27 12h 23m Tu — 28 A.D.

Translation Period ( Period between new and full moon)

Apr. 2 21h 15m Sa — Apr. 17 12h 1m Su — 29 A.D.

Mar. 22 20h 12m W — Apr. 6 20h 9m Th — 30 A.D.

CRUCIFIXION

FRIDAY, APRIL 27 31 A.D.

Apr. 10 14h 51m Tu — Apr. 25 22h 45m W — 31 A.D.

Mar. 29 21h 58m Sa — Apr. 14 11h 39m M — 32 A.D.

Mar. 19 13h 14m Th — Apr. 3 1?h 27m F — 33 A.D.

The new and full moon dates were computed from Schram's Tables by Glenn Draper, Associate Astronomer at the U.S. Naval Observatory, Washington, D.C.

(13-15) were called bid, because they were white by the light of the moon. The night between 13 and 14 is called badr, because in it the moon is full, and her light complete.[24]

2. Calculation of Moon's Phasis. According to ancient practice, and in harmony also with later testimony, the full moon is marked on the day of Nisan 13, as in Table IV, and the days are numbered back to Nisan 1. If the moon fulls between sunset and midnight, the full moon dates are placed early on the 13th of Nisan, between sunset and midnight. Now notice the year 33 A.D., in connection with the Table V, Postulate I. The full moon time was April 3, $17^h\ 27^m$ J.C.T. (Jerusalem Civil Time), on Friday. This means 5:27 P.M., Friday, April 3. The place of the moon is therefore marked near the sunset on that day, calling it Nisan 13. Then count back by common calendar days to Thursday, March 19, on the 13th hour of which is conjunction. Number the days forward to Nisan 1, which is Sunday. From the 13th hour on March 19 to the sunset beginning of Nisan 1 is the period from conjunction to phasis, known as the "translation period."[25] A glance shows this to be two whole days and a few hours over.

From the Nautical Almanac, the sunset time for March 21 is found, which coincides with the beginning of Nisan 1. This is 6:10 P.M.[26] From the 13th hour on March 19 to sunset at 6:10, beginning Nisan 1, are $2^d\ 4^h\ 56^m$ for the translation period of Nisan 1, in the year 33 A.D. This means that the full moon date in the year 33 A.D. was on Friday, Nisan 13, and that the passover day fell on Nisan 14, Saturday, April 4. Fotheringham also agrees with April 4, Saturday, as being the passover in 33 A.D.[27] The real error in Fotheringham's Table consists in the fact that his passovers in the years 28, 29, 31, and 33 are a month too early. On the other hand, a full moon as

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24 Albîrûnî, op. cit., pp. 6, 75.
25 Op. cit., p. 144.
26 The same sunset table for every year can be used because the longitude of the sun is marked from a fixed point on the ecliptic--the vernal equinox--which does not change.
27 Op. cit., p. 107.

early as April 3 could not be a barley-harvest moon in Judaea, and is therefore too early for the passover feast. A moon later places the passover in 33 A.D. on Sunday.

The same manner of figuring is operative for 30 A.D. The full moon date is after sunset of April 6, which in Jewish time is Friday, and which we must call Nisan 13 according to Poltulate 1. Saturday then becomes the Passover, on Nisan 14. So then the year 30 A.D. falls out, because Friday is Nisan 13 and not 14.[28] in that year. The years 32, 29 and 28 likewise fall out, because their passovers are on Tuesday, Monday, and Wednesday, respectively. And the year 33 A.D. is out, because Friday is Nisan 13.[29] This then leaves 31 A.D. as the only year within the period of Christ's public ministry with a passover on Friday. It came on April 27, Nisan 14--meeting all the requisite factors.

The translation period of the moon has been described again and again all through the Christian era, especially by the Jewish chronologists. Hevelius puts it this way:

"Quomodo vero haec observatio fuerit instituta, Rabbini eorum, & ex iis recentiores chronologi, abunde tradunt." (How this phasis [or observation] should be established, their Rabbins and their more recent chronologers abundantly report.)[30] [Italics mine.]

Possibly Hevelius was referring particularly to Maimonides, who lived in the early 13th century,[31] and worked out by spherical trigonometry the translation period of the moon.[32] This is not only based on higher mathematics, but also on the complex astronomy of the moon to which modern research testifies as the "deep things of astronomy." Nearly all the recent articles on the date of the crucifixion include a discussion of a simple form of Maimonides' complex figures, known as the "visibility test."

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[28] According to Neugebauer, the moon at this time in 30 A.D. was over 2 days old, in harmony with Table V. (Neugebauer, P.V., "Tafeln der Mondphasen," Leipzig, First Century.)

[29] Both Schoch and Fotheringham (op. cit., p. 107) place Friday, April 3, 33 A.D. on Nisan 13 by their tests for "visibility."

[30] Hevelius, Johannes, "Selenographia," Gedanum, 1647, p. 273.

[31] Maimuni's (Maimonides') "Neumondsberechnung," Teil III (trans. by Baneth), Berlin, 1902.

[32] His complicated problem has been translated into German by Baneth. Fotheringha J.K., Journal of Philology, (XXIX) 57, London, 1903, p. 107.

It would consequently seem as if the modern application of this Jewish secret makes the translation period in general too short. On this basis--that is, if we should shorten the translation periods say by one day--all the full moon dates on Table V would be thrust forward by one day, to Nisan 14; and, as Fotheringham complained in his application of the problem, there would be no Fridays in the series.[33] But this same plan of the full moon on Nisan 14 throws out the years 28 and 29, because in the case of 28 A.D., the translation period would be only about 1 1/2 hours; and for 29 A.D., 21 hours--both too short. Therefore such a hypothesis falls out--that is, that the full moon occurs on the passover day itself.

The postulate itself--that the full moon date must be placed on Nisan 13, in harmony with history--is thus its own proof; for it is the only position of the full moon providing sufficient time for a translation period of from 1 to 4 days. On the basis of this Postulate alone, astronomy can tie Jewish time to the Julian Calendar.

The translation period of the moon leading to Nisan 1, in the year 31 A.D., was $3^d\ 3^h\ 33^m$. This was one of the moon's long interlunary intervals. Not being the longest, it came well within the realm of historical testimony, which allows the moon from 1 to 4 days in which to appear after conjunction, and that "often also on the third and fourth day." This period of a little more than 3 days was but one of a cycle in which the moon's motion swings interminably fast and slow between her limits of acceleration. To the astronomer, the phasis of the moon on April 14, 31 A.D., was just an ordinary first appearance, more ordinary than as if her showing had been quick and rapid. But on April 25, Julian day number 1732495, toward midnight, the moon was in eclipse;[34] and on Friday, April 27, at noonday, the unaccountable darkness of the sun occurred, marking the approaching death of the Son of God.

The following vital facts in reference to the passover of the crucifixion are made known by this simple astronomical method of translating the moon of Nisan, as illustrated on Table V:

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33 Fotheringham, op. cit., p. 107.
34 Oppolzer, Th., Tables in "Denkschriften der kaiserlichen Akademie der Wissenschaften." Wien, 1887, p. 344, No. 1910.

1. Nisan 14 was Luna 14, the Passover Day.
2. Nisan 14 was the day after the fulling of the moon.
3. Nisan 14 was the crucifixion-Friday.
4. Therefore, according to Table V, the only day of the entire series that answered to all these stipulations was April 27, 31 A.D.

F. Translation of the New Moon for Tisri.

Early in the spring of 1843, as shown in Part II, the Millerites began to study the problem of the translation of the moon in relation to the calculation of the Jewish month and year. Finding in Ferguson's "Astronomy" a table of lunar conjunctions and phases for the time of Christ,[1] they printed it in the Midnight Cry of April 20, 1843, together with his description of the moon's position. In another edition of his "Astronomy," Ferguson makes the statement that the 14th day of the Jewish month answers to the 15th day of the moon,[2] and that consequently, the passover was always kept on the day of full moon. But in the table given in the Midnight Cry, the full moons were placed in various positions--on the 12th, 13th, and 14th of the Jewish month Nisan. On such a basis, all his translation periods could not but be irregular, and they would by no means correspond to the motion of the moon, which, if slow, requires more time for her phasis than when fast.

In the quotation given, Ferguson mentions the large angle which the ecliptic makes with the horizon in the spring (See Diagram D), and figures that at such a time, and in such a position, the moon would in 24 hours set about one hour later than the sun. Consequently--perhaps following the suggestion of Albîrûnî for a 24-hour translation constant (or mean period), as consistent with the Jewish computation--Ferguson's table was not very helpful to the Millerites in regard to the true translation period of the new moon, whose phasis was to mark the first day of a new month. Yet accuracy here was imperative if they were rightly to calculate Tisri 1, the 7th month for 1844.

Ferguson's table of the first-century spring moons was striking in that all the translation periods were short. It made all the new moons, but one, visible on the next day after conjunction.[3] In the paragraphs quoted from his "Astronomy,"

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1 Ferguson, "Astronomy," Vol. 1, par. 352. (Old Edition.)

2 Op. cit., (Edinburgh ed., 1811), p. 464. Note: This is contrary to Postulate 1, Table V, and to patristic testimony, which always called the paschal day, or Nisan 14, the 14th of the moon, i.e., "Luna 14."

3 Certain other computers, as Würm, Ideler, and Turner, use a constant period for translation, as suggested by Albîrûnî, on p. 68 of his "Chronology."

no mention was made of other important factors which control the translation of the moon, aside from her inclination and position in reference to the Zodiac. He gave the slowest moon of the series, as in the year 32 A.D., almost the same time for translation ($1^d\ 18^h\ 41^m$) as for the fastest moon, as in 28 A.D., for which his table allows $1^d\ 16^h\ 56^m$.[4] His exact table follows:[5]

| "True time of conjunction at Jerusalem | d. | h. | m. | Moon visible at Jerusalem | Jewish full moon |
|---|---|---|---|---|---|
| "A.D. 28 Mar. | 15 | 1 | 4 Morn. | Mar. 16. | Mar. 31. Wed. |
| 29 Apr. | 2 | 7 | 30 After. | Apr. 3. | Apr. 17. Sun. |
| 30 Mar. | 22 | 8 | 45 After. | Mar. 23. | Apr. 6. Thur. |
| 31 Mar. | 12 | 1 | 51 Morn. | Mar. 13 | Mar. 27. Tues. |
| 32 Mar. | 29 | 11 | 19 After. | Mar. 31 | Apr. 14. Mon. |
| 33 Mar. | 19 | 1 | 12 After. | Mar. 20 | Apr. 3. Fri. |
| 34 Mar. | 9 | 5 | 12 Morn. | Mar. 10 | Mar. 24. Wed." |

As a matter of fact, Ferguson's first-century table--embracing the years of the 70th week--represents the very extremes of the moon's motion from new moon to full moon; that is, her fastest and slowest gait. Consequently, her translation periods should also correspond. Table V, on p.38a, shows the limits of translation in the years of Christ's ministry actually to be from $1^d\ 1^h\ 35^m$ for a fast moon, to $3^d\ 3^h\ 33^m$ for a slow one.

It was William Hales[6] who directed the Adventists to a source of authority on the phasis of the moon--to the "Isagogue" of the astronomer Geminus in the first century before Christ. Geminus taught that the earliest phasis of the moon is on the first day after conjunction, and the latest on the third or fourth. Scaliger also emphasized the third, as mentioned in Section E,[7] and Hevelius two to four days.[8] The error concerning the time of translation on the part of Ferguson, and the fact that he placed some of his passovers in March, too early for the barley-harvest, resulted in the ultimate rejection of his table by the Millerites, together

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4 Cf. table V on page 38a for the length of the moon's course.
5 Midnight Cry, April 20, 1843, p. 20.
6 Hales, "New Analysis of Chronology," London, 1830, Vol. 1, p. 67.
7 p. 37
8 p. 36

with his argument on the date of the crucifixion.[9]

In the early part of the 1844 movement, the leaders had started the year which they counted to be the last one of the 2300-year period, with the vernal equinox. This was the "Jewish sacred year 1843." But even before the vernal equinox of 1844 had passed, which they believed would close the Jewish year 1843, the Karaite teaching regarding the ancient Jewish mode of computing the moon's phasis, directed them to a closer study of the Jewish year, and its relation to the 2300-year prophecy, as noted in Part II, Sec. VI. Almost at the same time their attention was called to an autumnal ending for the prophetic year, as suggested by the 10th day of the 7th month--the Jewish day of Atonement and the Jubilee.[10] For this reason there does not seem to have been any attempt on their part to compute the translation period for the new moon of Nisan in 1844, although the Nisan conjunction was given in the Almanac as April $17^d\ 11^h\ 31^m$.

The Jewish date for starting another new month was also mentioned--this to correspond with the Karaite reckoning, the Rabbanite Nisan having been a month earlier, or in March. The whole attention was ultimately centered on the translation of the new moon of Tisri, upon a scientific basis, and upon one that would harmonize with the prophecy. The following statement from an editorial in the Midnight Cry, shows how closely the Adventists of that time reasoned in regard to the identity of the day, October 22:

"The new moon being probably seen in Judea on the second evening from its change, when it would be one day and 17 hours old, and which corresponded with 11 A.M. in Boston--strengthened us in our opinion that this must be the month."[11]

Before attempting to analyze the exact meaning of the quotation here given, it is essential to bear in mind just what is involved, astronomically, by the every-day language, "change of the moon." Though everyone uses this expression, it has direct application to certain astronomical events known as the four phases

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9 See Part II, Secs. VI, IX, and XII.
10 Lev. 23:27; 25:9.
11 Oct. 31, 1844, p. 141.

of the moon, which mark off her performance every 29 and 1/2 days. The new moon phase mentioned in the foregoing Midnight Cry editorial is, as noted, technically defined as conjunction, and represents that instant of time when the geocentric longitude of the sun and moon are equal, as measured from the center of the earth, the moon being between the earth and the sun.[12]

As has been stated, when the moon in her elliptical circuit is nearest the earth, she is said to be in perigee. Then her motion is rapid. When she is farthest away, as in apogee, then her motion is slow in relation to the earth. Her manner of travel, fast or slow, is most important as concerns calculation. In ancient times, this phenomenon was a guide in the starting of the Hebrew month,[13] and also came to the attention of the Millerites as an important factor to the translation of the moon as they were coming to their fundamental conclusions on the prophetic dates of the 2300-year period. As regards the real significance of conjunction, we should likewise understand that, being reckoned as from the center of the earth, this phase of the moon therefore represents that instant of time which would have a different local time designation for each longitude on the surface of the earth.

The quoted expression, "11 A.M. in Boston," in the foregoing reference, was obviously based on the difference in time between Boston and Jerusalem, which is 7 hours and 5 minutes.[14] No mention is made in the Midnight Cry or Advent Herald of an almanac for Jerusalem. In fact, it was said, "we have no certain means of knowing," when the Karaite passover month really commences there,[15] but the sunset time at Jerusalem on October 13 could well be considered near 6:00 P.M. If from this point of time, 7 hours are subtracted for the coincident time of Boston, the hour would be 11 A.M. To be exact, it would be 10:27 A.M.--if the true difference

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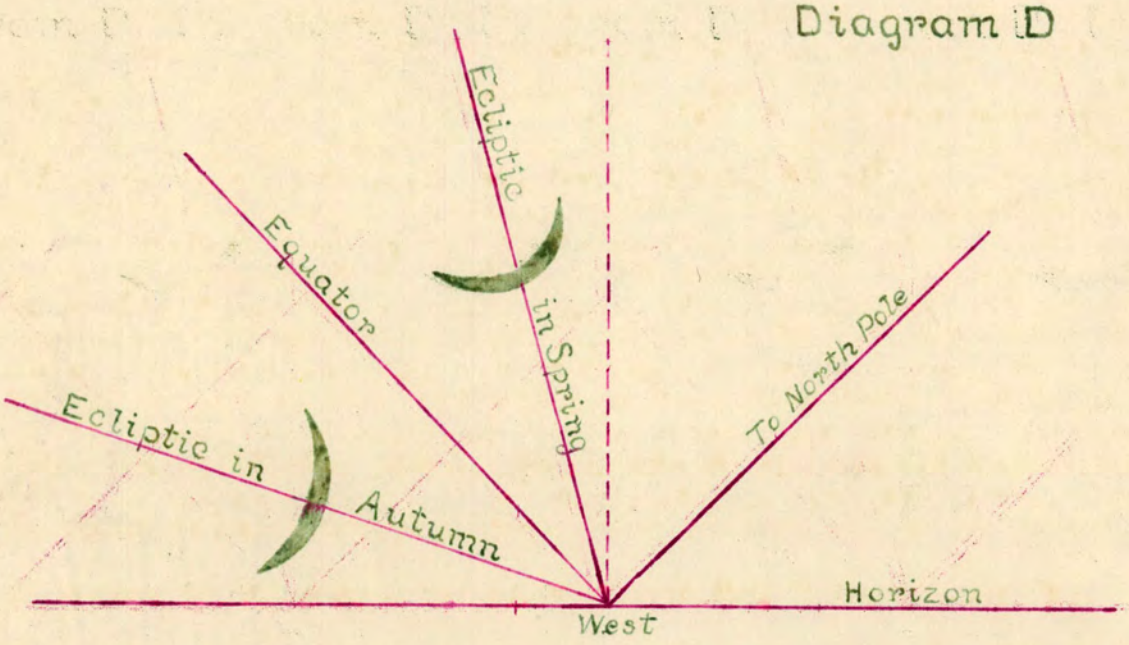
12 See "Conjunction," in Webster's International Dictionary.

13 Hales, ("Analysis of Sacred Chronology," Vol. 1, London, 1830, p. 67), includes a quotation from Geminus on the phasis of fast and slow moons.

14 The difference in hours between Boston and Jerusalem is the sum of $4^h\ 44^m\ 19^s$ (time of Boston, west from Greenwich) and $2^h\ 20^m\ 53^s$ (time of Jerusalem, east of Greenwich), or $7^h\ 5^m\ 12^s$.

15 Advent Herald, Sept. 11, 1844, p. 45.

Diagram D




## POSITION OF THE NEW MOON AT THE EQUINOXES

"The significance of the crescent being shown as lying on its back is seen at once when it is remembered that the new moon is differently inclined to the horizon according to the time of year when it is seen. It is most nearly upright at the time of the autumn equinox; it is most nearly horizontal, "lying on its back," at the spring equinox."--Maunder, Walter E., "Astronomy of the Bible," p. 316.

"If the moon is some distance north of the sun at the time of new moon there will be a tendency towards an early phasis; if it be some distance south of the sun there will be a tendency towards a late phasis. If, again, the moon is near perigee it will move quickly; its right ascension and time of setting will advance rapidly, and there will be a tendency towards an early phasis; if it is near apogee, it will move slowly, and there will be a tendency towards a late phasis."--Fotheringham, J.K., Journal of Philology, Vol. XXIX, 1903, pp. 105, 106.

in time, or $7^h\ 5^m$, be subtracted from the exact sunset hour in Jerusalem, on Oct. 13, which, for 31 degrees north latitude, is authoritatively given as 5:32 P.M.[16] In either case, the argument and conclusion would be the same--the beginning of Tisri 1, in Jerusalem was on October 13, and the corresponding time in Boston was still the 13th.

In Boston, the new moon of October, 1844, in conjunction, occurred October 11, $18^h\ 40^m$, reckoned from midnight, or 6:40 P.M.[17] Being a fast moon--her time from conjunction to opposition (or full moon) took $14^d\ 5^h\ 30^m$, or less than the mean--and her motion increasing, for she was nearing perigee, she could be visible on October 12, right after sunset. To quote from Fotheringham, who has summed up the factors which come into play as regards an early or late phasis of the moon:

"If again, the moon is near perigee it will move quickly; its right ascension [or longitude] and time of setting will advance rapidly, and there will be a tendency towards an early phasis; if it is near apogee, it will move slowly, and there will be a tendency toward a late phasis."[18]

Fotheringham followed the rules of Hevelius, as may be seen from a scanning of the "Selenographia." He found that under favorable circumstances--as when the moon is fast and in perigee, and new early in the evening--she could be visible the following evening.[19] The conditions all conspired for a quick phasis of the new moon in October, 1844, so that in Boston she could be seen within 24 hours after conjunction. But because of the difference in time between Boston and Jerusalem, her crescent was not seen in Jerusalem until the following evening. (Diagrams E & F.) The quick phasis in Boston was an unusual translation. Hevelius declares that the causes for such a rapid lunar translation seldom occur together.[20]

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16 "American Nautical Almanac for 1939," p. 239.
17 Standard Almanacs for Britain, Germany, and France in 1844, as U.S. Nautical Almanac goes back only to 1858.
18 Fotheringham, J.K., Journal of Philology (XXIX) 57, 1903, p. 106.
19 Hevelius, "Selenographia," Gedanum, 1647, pp. 274, 275. novennium haec tria
20 Op. cit., p. 275. Note: Hevelius' exact words are (p. 276): "Etenim intra requisita vix una ingruent." (For within a period of nine years these three requisite [causes] with difficulty coincide.)

The Adventists understood at least some of the factors controlling a rapid phasis of the moon, hence the sunset of October 12--marking the beginning of October 13, Jewish time--was rightly fixed upon, in New England, as the proper instant for the first appearance of the new moon. The sunset on that day was at 5:26, in Boston,[21] and there were yet 10 minutes in which the young moon, nearly 24 hours old, could be seen, for she did not sink beneath the horizon until 5:36 P.M.[22]

A check was also made by the Millerites on this same conjunction in Jerusalem which was dated Oct. 12, $1^h\ 45^m$, or 7 hours and 5 minutes later. But there the moon could not be seen in so short a time as the first sunset after conjunction, which would be a period of only 15 hours and 48 minutes.[23] Therefore, the Adventists reasoned, the Jerusalem new moon would certainly be seen at the second sunset, which was nearly "one day and 17 hours" later than conjunction.[24]

The moon herself was scheduled to set soon after the hour of 6. Subtracting from this point of time the approximate difference in time between Boston and Jerusalem--that is, 7 hours--they arrived at 11 A.M. on the same October 13, as the coincident time of Boston. Diagrams E and F, which follow on p. 49, show this October conjunction in 1844, in its relation to these two cities:

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21 "American Nautical Almanac of 1939," p. 239. (Boston is 42° N. Latitude.)

22 "American Almanac," Boston, 1844.

23 Time from 1:45 A.M. on Oct. 12 to 5:33 P.M. at following sunset, Jerusalem.

24 Time from conjunction at 1:45 A.M. on Oct. 12 to moonset at 6:25 P.M. on Oct. 13, Jerusalem civil time. Moonset was computed from "British Nautical Almanac," 1844.

Had it been possible, in 1844, for one to telephone from Boston to the Patriarch in Jerusalem at sunset, on October 11, asking the time of day, he would have answered, "Yes, this is October 12, 1:45 A.M., and the moon is just now new; she is in conjunction"--except of course that the date would have been given in Jewish time. Let us therefore place, as in Diagrams E & F, the Boston P.M. clock along side the one in Jerusalem which is an A.M. clock, so that October 11, $18^h\ 40^m$ coincides with October 12, $1^h\ 45^m$, as the same instant of time.

From this point, mark off the days and sunsets for Boston and Jerusalem. Then note that every point of time in Jerusalem--as for instance midnight, ending Oct. 12--occurs 7 hours and 5 minutes earlier than the midnight ending Oct. 12, in Boston. Consequently, at sunset of October 12, in Jerusalem, because the new moon is too young to be seen, being only about 16 hours old, Tisri 1 begins the second sunset after conjunction. In contrast, Tisri 1 in Boston began the first sunset after the change. Therefore we see these first days of Tisri--the one in New England, and the other in Palestine--overlap each other for a period of nearly 7 hours. Diagrams E & F show the common instant of the two conjunction dates, the relation of the clock events of our civil time, and the position of the Jewish month Tisri in these two wide-apart places of the earth. This was understood and declared by the Millerites.

The translation of the moon was, in this instance of October 11 to 13, 1844, dependent upon the simplest of the principles which govern the moon's performance relative to the starting of the Jewish month. But the position of the moon was unusual in that her phasis in Boston occurred within 24 hours after conjunction. The scene at Jerusalem was carefully reconstructed by the Millerites, evidently to acquaint themselves with the inequalities of the moon in the land where God had said, "Observe the new moon,"[25] for the marking of their year and its holy feasts. It was right that they should do this, for Jerusalem is the prime meridian of ancient Jewish time, and of prophetic time. On October 13, in Jerusalem, the sun

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[25] Deut. 16:1.

set at 5:32, and at about 6:25 P.M. the moon also dipped below the horizon. So she was at least "one day and 17 hours old," as intimated in the reference from the Midnight Cry.

One more bit of evidence from this date offers itself to prove that in 1844 the right time was chosen for the phasis of the new moon of Tisri. In October, Jerusalem civil time, the full moon occurred on Oct. $26^d\ 7^h\ 26^m$. By placing this full moon date on Tisri 13, on the basis of the same postulate as for the Nisan moon, (See Part V, Sec. E), and marking off the calendar days, both Jewish and Gregorian, back to the beginning of Tisri--it can be noted that Tisri 1 began on sunset of October 13 in Jerusalem, which phasis, we have shown, corresponded to the phasis of October 12 in Boston. This check works both ways, so that the translation of the moon in 1844, for the meridian of Jerusalem confirms Postulate 1, which places the full moon on the 13th of the Jewish month.

Such was the problem that the earnest truth-seekers in 1844 faced and mastered. It was the harmonious conclusions of such precision in applied calendar science that "strengthened" them in their opinion that October 22 would be indeed the very 10th day of the 7th Jewish month Tisri. No other day could have answered the joint demands of the Scriptural law of the appointed feasts, the irregularities of the moon, the factors governing her translation, the undeviating course of the earth and sun, and the illusive geographical problem introduced by the difference in longitude between Boston and Jerusalem.

G. Summary of Conclusions.

1. Only by the true dating of the beginning and ending of Christ's public ministry is it possible to determine the correct chronology of the full 2300-year prophecy, and the related events of history.

2. The Jewish calendar of today--man's most complex system of computing time, and described by Joseph Scaliger as the "most ingenious and beautiful of all

systems"--is evidence of early Jewish development of a dependable method of reckoning time, in harmony with known and fundamental principles of astronomy and chronology.

3. Through the principles of astronomy and calendrical science, we are able to tie Hebrew time reckoning in the first century to the current Julian calendar of the Romans.

4. By a correlation of astronomical science, Biblical specification, and historical record, the disputed date of the crucifixion has been determined.

5. By means of this correlation, (a) the true placement of the paschal month Nisan, and (b) the date of the true paschal day (Nisan 14) have been shown.

6. Friday, April 27,, 31 A.D., Julian time, has been demonstrated to be the only date during the public ministry of Christ which satisfies (a) the Bible requirement for a Friday-passover crucifixion and (b) the definite demands of astronomy for the corresponding coincident positions of sun, moon, and earth.

7. The complementary relation between the crucifixion on April 27, 31 A.D. and the great antitypical Day of Atonement ushered in on October 22, 1844, at which time the 2300-year period ended, has likewise been demonstrated.

Grace Edith Amadon

JEWISH FEAST CYCLE (1843 and 1844)*
(Boston Civil Time)

| | 1 Jewish Month | | 2 New Moon | | 3 Full Moon | 4 Festivals | 5 Moon's Time | |
|---|---|---|---|---|---|---|---|---|
| | 10 | Tebet | Dec. 31 | to Jan. 16 | | | =15d-13h- m | |
| 1843 | 11 | Sebat | Jan. 30 | " Feb. 14 | | | =15 - 8 8 | |
| | 12 | Adar | Mar. 1 | " Mar. 16 | | | =14 -23 -56 | |
| | 1 | Nisan | Mar. 30 | " Apr. 14 | | Passover | =14 -40 -40 | |
| MOSAIC | 2 | Iyar | Apr. 29 | " May 13 | | (Apr. 14 = Nisan 14) | =14 - 6 -15 | 172 days |
| | 3 | Sivan | May 29 | " June 12 | | | =14 - 0 -16 | between |
| also | 4 | Tammuz | June 27 | " July 11 | | | =13 -21 -45 | Passover |
| | 5 | Ab | July 27 | " Aug. 9 | | | =13 -23 -11 | 1843 and |
| Rabbinical | 6 | Elul | Aug. 25 | " Sept. 8 | | Tisri 10 | =14 - 4 -22 | Atonement |
| | 7 | Tisri | Sept.23 | " Oct. 8 | | =Oct. 4 | =14 -12 -23 | |
| | 8 | Ḥesvan | Oct. 23 | " Nov. 7 | | | =14 -21 -46 | |
| | 9 | Kisleu | Nov. 21 | " Dec. 6 | | | =15 - 6 -27 | |
| | 10 | Tebet | Dec. 21 | " Jan. 5 | | | =15 -12 -25 | |
| 1844 | 11 | Sebat | Jan. 19 | " Feb. 4 | | Rabbinical | =15 -14 -24 | |
| | 12 | Adar I | Feb. 18 | " Mar. 4 | | Passover | =15 -12 -16 | |
| | 13 | Adar II | Mar. 18 | " Apr. 3 | | April 4 | =15 - 6 -40 | |
| | 1 | Nisan | Apr. 17 | " May 2 | | Passover | =14 -22 -43 | 172 days |
| | 2 | Iyar | May 17 | " May 31 | | (May 2 = Nisan 14) | =14 -13 -53 | between |
| MOSAIC | 3 | Sivan | June 15 | " June 30 | | | =14 - 5 -50 | Passover |
| only | 4 | Tammuz | July 15 | " July 29 | | | =14 - 0 -10 | 1844 and |
| | 5 | Ab | Aug. 13 | " Aug. 27 | | | =13 -22 - 2 | Atonement |
| | 6 | Elul | Sept.12 | " Sept.26 | | Tisri 10 | =13 -23 -57 | |
| | 7 | Tisri | Oct. 11 | " Oct. 26 | | =Oct. 22 | =14 - 5 -41 | |
| | 8 | Ḥesvan | Nov. 10 | " Nov. 24 | | | =14 -14 - 5 | |
| | 9 | Kisleu | Dec. 9 | " Dec. 24 | | | =14 -23 -16 | |

172 d. ↔ 172 d.

EMBOLISMIC

* Moon's phases computed from the British Nautical Almanac

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The spring of 1843 offers only one date that can possibly correspond to the new moon of Nisan -- March 30. From this spring moon, the Jewish year in 1843 began, the Passover coming on April 15, and after 172 days, Tisri 10 coming on October 4. Column 2 shows that the time from March 30 (the first new moon after the vernal equinox in 1843), to March 18, inclusive, the last new moon before the vernal equinox in 1844), is exactly 13 moons. In order to coalesce with the extra moon, the Jewish year should intercalate a second Adar, whose full moon would then come on April 3, 1844. This Adar moon could not be the Mosaic paschal moon, for it is too early--the latter rain not yet being ended, and the barley corn not yet being ripe in Palestine. Hence the next new moon, whose conjunction is on April 17, must mark the month Nisan in 1844. The Passover would therefore come on May 3, the day following full moon; and the Tisri new moon would of necessity fall in October, the day of atonement coming on October 22 at the end of 172 days from Passover. The one place for the new moon of Nisan on March 30, 1843, and also of the full moon of April 3, 1844--which must belong to Adar because it is too early for Nisan--represent two fixed positions of the moon that exactly determine the date of Tisri 10 in 1844 to be the 22nd day of October.

# COMMENTS ON THE 1844 CHRONOLOGY

In the 1844 problem in prophetic time, an ancient Jewish date presents itself for confirmation. Neither ancient sources nor the Bible appear to provide a law for computing dates of the primitive type according to passover reckoning, on meridians other than Jerusalem. The original pentateuchal law stipulated that the passover (Latin transitus, or Hebrew pesach) be slain at one place only (Deut. 16:6), on one date only (Lev. 23:5), except in case of the levitically unclean (Num. 9:11), and at one hour only--the going down of the sun (Deut. 16:6). Even today the Samaritans are a witness to the prescribed hour, and so also were the Karaites for many centuries.

The Millerite leaders faced great obstacles; but they were faithful and persistent in ascertaining the true paschal season for the spring of 1844. This was one of their first problems, and they left May 2 on record as their chosen passover date of the ancient type, which was correct for America in that year.[1] However, they evidently obtained this date, either by counting forward from their discovered civil date for 1 Nisan as April 19, or else by adding the Karaite intercallary month of 29 days to the rabbinical 14 Nisan on April 3. The Millerite chronology was therefore primarily based upon Nisan new moon reckoning, and not upon the passover date. But their recognition of the true paschal season, coincident upon the barley harvest full moon, led them to decide upon the right passover month--a whole moon later than the rabbinical.

In the solution of their problem, they had to make choice between many alternatives. The following are important to the 1844 chronology:

| Rabbinical | Mosaic |
|---|---|
| 1. Equinoctial March moon (Nicean), | or Barley harvest April moon (biblical) |
| 2. Talmudic law | or Pentateuchal law |
| 3. Crucifixion in 33 A.D., | or Crucifixion in 31 A.D. |
| 4. Rabbinical lunar cycle, | or Karaitic lunar cycle [Dan. 8:14 |
| Tenth Tishri on Sept. 23, | or Tenth Tishri on Oct. 22 for end of |
| 5. 458 B.C., | or 457 B.C. for beginning of Dan. 8:14 |

[1] Jewish Year Book, 1917, p. 26.

1. The voices were many that took part in the analysis of these problems, and they were heard from near and far. From the Glad Tidings published in Rochester, an anonymous writer offered the following significant definition of the true paschal moon, in opposition to the Nicaean full moon, which is the first in Aries:

"That new moon, which brought the first succeeding full moon to take place after the vernal equinox, is the first month of the Jewish year." [2]

This definition of the primitive paschal full moon, naming it always the first full moon after the equinoctial new moon, is indeed exactly to the point; for it is not only in agreement with pentateuchal barley-harvest law, but also with the ancient inscriptions of the Babylonians, who from earliest times similarly followed the barley-harvest principle in regulating the year.[3] Millerite editorials argued that it remained to be proved "that our Saviour was crucified on the first full moon after the vernal equinox,"[4] and the conclusion was finally reached that the ecclesiastical Nicaean full moon could not coincide with the Jewish 14th of Abib of the crucifixion.[5] This is one indisputable reason why the calendars of neither the Catholic Church nor the Jews can identify their calculations with the crucifixion date. And on this same basis the argument of the "Wednesday" people falls down. It is fitting that every student of Jewish calendation should ask himself the question, "Why did the Millerites refuse the rabbinical March 21 for 1 Nisan in 1844, and accept the Karaitic April 19 for 1 Nisan? The answer is--Pentateuchal Law.

In support of their barley-harvest argument the Millerites found many statements by travelers in Palestine. Here is one from the "Encyclopedia of Religious Knowledge:"

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[2] Midnight Cry, Sept. 21, 1843, p. 38, col. 1.

[3] Schoch, Karl, Planeten-Tafeln fur Jedermann, cols. XLII, XLIII. Berlin-Pankow, 1927.

[4] Bliss, Sylvester, Signs of the Times, Dec. 5, 1843, p. 133, col. 2.

[5] Ibid., p. 135, col. 2.

"Barley is in full ear all over the holy land in the beginning of April, and about the middle of the same month, it begins to turn yellow, particularly in the southern districts."[6]

And in harmony also are the following two statements from the Spirit of prophecy:

"Barley was the earliest grain in Palestine, and at the opening of the feast it was beginning to ripen. A sheaf of this grain was waved by the priest before the altar of God, as an acknowledgment that all was His. Not until this ceremony had been performed was the harvest to be gathered."[7]

"From the harvest fields the first heads of ripened grain were gathered, and when the people went up to Jerusalem to the Passover, the sheaf of first-fruits was waved as a thank-offering before the Lord. Not until this was presented, could the sickle be put to the grain, and it be gathered into sheaves."[8]

This relationship of the barley sheaf to the ancient passover feast was fully acknowledged by the Christian church of early centuries, as, for example, Theophilus testifies, about 400 A.D.:

"For not in the twelfth month [Adar], as I before said, when the time of winter still exists, is the month of new fruits located; when indeed the new fruits are not yet ripe, and the sickle cannot yet be put to the harvests. For this especially [the sickle] the divine law has constituted as the sign of the first month."[9]

Thus the early Christians upheld the traditional barley harvest principle, but the Jews themselves, under heavy duress, refuted it, even before the redaction, or completion, of the calendar of Hillel II. In the well known letter of Constantine to the churches at the time of the Nicaean Synod, he accuses the Jews of antedating the Nicaean equinox (March 21) in the observance of their passover.[10] And this also Ambrose even more clearly affirms in the year 387 A.D., namely, that the Jews would celebrate their passover in that year, one day before the Nicaean equinox--even in the twelfth month Adar![11]

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[6] Midnight Cry, Oct. 19, 1844, p. 133, col. 3. Editorial.

[7] White, Ellen G., Patriarchs and Prophets, p. 539. Conflict of the Ages Series.

[8] Desire of Ages, p. 786. Conflict of the Ages Series.

[9] Bucherii, Aegidii, De Doctrina Temporum, p. 472. Antverpiae, 1634.

[10] Ibid., Preface, p. xiii.

[11] Ibid.,Preface, p. xiii, and also p. 477 of the text.

2. For other reasons also the Millerites rejected the modern rabbinical calendar. They found it based upon decisions that were unknown in the time of Christ. After serious study of the Hebrew tractates--Mechilta, Sifra, and especially the Tosefta--Chwolson describes this literature as the "confused," "disarranged," and "chaotic" workshop itself, and the very image of the customs and manners which in later, not early, times arose among the Jews.[12] The law of Moses prescribes that the paschal lambs should be slain at sunset. This even the Mishna upholds about 200 A.D. The Talmud, on the contrary, sees fit to slay the lambs at 1:30 p.m. on Friday, the "eve of the Sabbath"[13] in order that they might be roasted before sundown! This daring Talmudic change in the law of Moses has brought grave confusion into the whole problem of ancient Jewish time.

3. According to Hales, the year 33 A.D. as a crucifixion year was first proposed by Friar Roger Bacon in the thirteenth century.[14] The argument was based upon the assumption (1) that Daniel's "seventy weeks" ended in this year, and that (2) the crucifixion coincided with the end of the seventieth week instead of with the "midst."[15] Astronomer Ferguson passed these assumptions on to the early Millerite students of chronology, but discovery of the Karaite reasoning corrected the error:

> "If the Caraite Jews are correct, the true passover in A.D. 33, was held one moon, or 29 days later than Ferguson supposed, which would bring it that year on Saturday." [16]

This was a good argument, though Millerite Billings' "Saturday" was wrong, because Ferguson's moon dates were wrong.[17] And today chronologers commonly admit that the year 33 A.D. had an embolismic spring that delayed the passover

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[12] Chwolson, Daniel, Das letzte Passamahl Christi, p. 164. Leipzig, 1908.
[13] Ibid., pp. 164,165.
[14] Bliss, Sylvester, Signs of the Times, Dec. 5, 1843, p. 135, col. 3.
[15] Ibid.
[16] Billings, N., Signs of the Times, July 12, 1843, p. 149, col. 1.
[17] The date should be Monday, May 4, by passover reckoning. Cf. JBL, vol. LXI, Part IV, December, 1942, p. 232.

a whole month.[18] Even the Catholic church has had to change her assumed Friday crucifixion on April 3, 33 A.D. to another date,[19] because the form of cycle to which 33 as a common year would belong, does not agree with that of the archeological inscriptions.

Therefore, as early as 1843, through the influence of Karaite teaching, pentateuchal law, and Hales' Chronology, the Millerites learned the true crucifixion year, 31 A.D. This conclusion was in harmony with a three-year period of public preaching by Christ, and four passovers. Dr. Hales brings forward two very early historical testimonies that support these deductions. The first one is from Ignatius, the disciple of John the Apostle, and bishop of Antioch, the second in succession from Peter. Ignatius was martyred in the reign of Trajan, 107 A.D. The following testimony is found in his epistle to the Trallians:

"God the Word, having lived in the world three decades of years, was baptized by John truly, and not seemingly; and having preached the gospel three years, and wrought signs and wonders, He, the Judge, was judged by the false Jews and Pilate, was scourged, smitten on the cheek, spit upon, wore a crown of thorns and a purple robe, was condemned, was crucified, truly, not seemingly, nor in appearance, nor by deception; he died truly, and was buried, and was raised from the dead." [20]

The second witness to the length of Christ's ministry is from Eusebius, bishop of Caesarea, about 300 A.D.:

"It is recorded in history, that the whole time of our Saviour's teaching and working miracles was three years and a half, which is the half of a week [of years]. This John the Evangelist will represent to those who critically attend to his gospel." [21]

With reference to these two citations Dr. Hales remarks:

"They are indeed a host against all the discordant and absurd guesses,

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[18] Parker, Richard A., and Dubberstein, Waldo H., Babylonian Chronology, p. 46. Universityof Chicago Press.

[19] Cf. News Week, May 10, 1943.

[20] Cotelerius, J.B., SS. Patrum, Apostolicis, volumen secomdum, p. 68. Amstelaedami, 1724.

[21] Eusebius Pamphilus, Demonstratio Evangelica, vol. p. 400.

ancient or modern, about the longer or shorter duration of our Lord's ministry. . ." [22]

4. The Millerites, probably unknowingly, thus brought their chronology into complete harmony with the course of the 19-year barley harvest cycle from the first century on, even throughout the Christian era. This is illustrated by the observations of Thomas Shaw, Oxford regius professor, who was traveling in Palestine in the spring of 1722. In his oft-quoted statements he employed the Julian reckoning as was then customary in England:

"Barley, all over the Holy Land, was in full ear in the beginning of April [Old Style]; and about the middle of that month [Old Style] it began to turn yellow, particularly in the southern districts; being as forward near Jericho in the latter end of March [second week in April, New Style], as it was in the plains of Acre, a fortnight afterwards. But wheat was very little of it in ear at one or other of those places; and in the fields near Bethlehem and Jerusalem, the stalk was little more than a foot high. The Boccores likewise, or first ripe figs, were hard, and no bigger than common plums." [23]

At the conclusion of these observations, Dr. Shaw then says:

"According therefore to the quality of the season, in the year 1722, the first fruits could not have been offered at the time appointed; and would therefore have required the intercalating of the Ve-adar, and the postponing thereby the passover for at least a month." [24]

In other words, according to personal observation, we here have specific testimony that the year 1722 demanded an intercalary month. By equating three known intercalary seasons, (1) that of the crucifixion in 31 A.D., (2) Dr. Shaw's observation for a Veadar month in the spring of 1722, and (3) that of the Millerites for an intercalary month in the spring of 1844, we discover an indisputable relationship that ties these three embolisms to the 19-year cycle. And we can base the equation upon the crucifixion cycle, which likewise agrees with the results of the Babylonian barley harvest intercalation, and which also ties back to the cycle of the Assuan papyri in the Ezra-Nehemiah age. The following table illustrates the precision with which the barley-harvest full

[22] Signs of the Times, Dec. 5, 1843, p. 135, col. 3.
[23] Shaw, Thomas, Barbary and The Levant, pp. 137,138. Edinburgh, 1808.
[24] Ibid.

moon controls the ancient lunar cycle of the ancient year, upon which the

Millerite dates depended:

| | I<br>Crucifixion Cycle | II<br>Shaw's<br>Observation | III<br>Millerite<br>Reckoning |
|---|---|---|---|
| | 1691 years = 89 cycles | | 114 years = 6 cycles |
| A. D. | 31* | 1722* | 1836* |
| | 32 | 1723 | 1837 |
| | 33* | 1724* | 1838* |
| | 34 | 1725 | 1839 |
| | 35 | 1726 | 1840 |
| | 36* | 1727* | 1841* |
| | 37 | 1728 | 1842 |
| | 38 | 1729 | 1843 |
| | 39* | 1730* | 1844* |
| | 40 | 1731 | 1845 |

(* Years marked with "*" have a Veadar spring.)

Explanation: The three columns of years--I, II, and III--each represents a part of one and the same form of the 19-year cycle. Each column actually begins a new cycle because the interval between each series contains an exact number of complete cycles, as indicated by the equations heading the table. The years marked with an "*" have a Veadar spring.

The Veadar years in the crucifixion period are located through the relation of the full moon date to the barley harvest season, which, according to unquestionable authorities, extended from the end of the first week in April to about the same time in May. This is shown by the full moon dates in Table I, where the earliest full moon = April 6, and the latest = May 4.[32] In 1844 all the moon dates were about six days later than the corresponding cycle moons of the first century.[33] The Millerites contested whether the rabbinical full moon on April 3 in '44 was coincident with ripe barley in Palestine. In the foregoing table, the year 1844 corresponds to cycle year 39 of the first century, and the full moon corresponding to April 3 was March 28, 6 days earlier, and obviously too early for barley harvest.[34]

Hence (1) the Millerite reckoning for a deferred pasoover in 1844; (2) Shaw's similar conclusion for 1722; and (3) Luke's record of Christ's own words that the trees were in leaf during passion week, are decisions definitely showing that the spring of each one of these years had an additional month Veadar, and definitely tying each year to its own proper place in the 19-year cycle.

Thus the foregoing table links the barley-harvest cycle to which the year 1844 belongs, to the barley-harvest cycle of the crucifixion period.

5. The Millerite time problem involved not only the ending, but also the

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[32] Cf. Journal of Biblical Literature, Vol. LXI, Dec. 1942, Tables I, II.

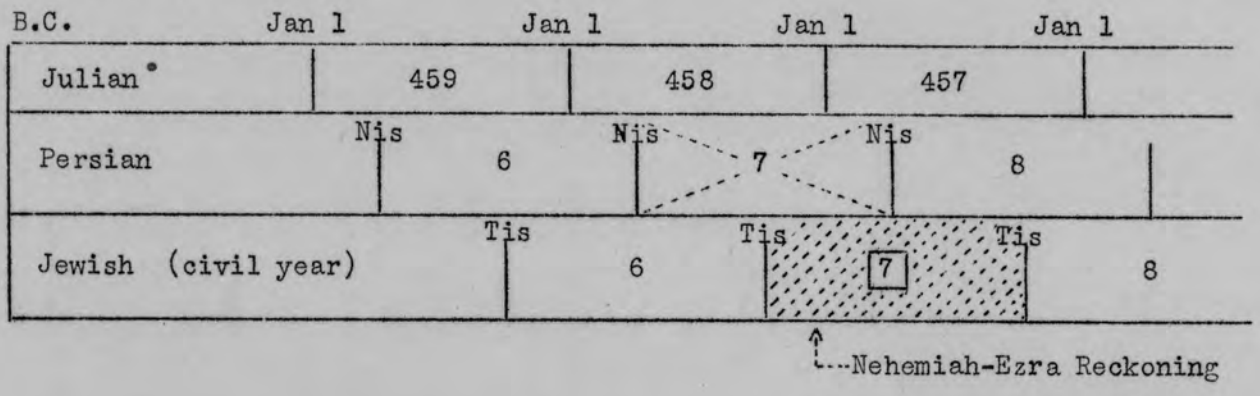
[33] In 1800 years--nearly 95 cycles--the moon takes about 8 days longer than the sun. But in the years 100 and 200, 2 days were added by the Julian calendar that Gregory XIII did not correct. This leaves only 6 days difference.

[34] Cf. Ginzel's Chronologie.

beginning of the 2300 years. Chiefly through the aid of Ptolemy's canon, agreement was reached that the spring of 457 B.C. marked the return of the Jewish captives from Babylon. But today it is claimed that Ezra based his dates in terms of the Persian calendar, which began its year in the spring; and that consequently he left Babylon in April-Nisan of 458 B.C., and not in 457 B. C.[35] On the contrary, it is necessarily admitted that Nehemiah computes his dates according to Jewish reckoning of the Persian regnal year, because of the fact that he counts both Kisleu and the subsequent Nisan in the same 20th year of Artaxerxes. In other words, he does not change the year of the king's reign on the first day of Nisan (Neh. 2:1). Hence he must have begun the 21st of Artaxerxes in Tishri (444-443 B.C.),[36] and by counting back, it is readily demonstrated that Nehemiah dated the "seventh" year of the Persian king as 458-457, reckoned from Tishri to Tishri. Consequently, the Nisan when the Jewish captives left Babylon, would obviously come in the spring of 457, for with Nehemiah, the year 458 began in the fall, and therefore had no Nisan in this portion of the regnal year.

The difference between Jewish and Persian reckoning of the seventh of Artaxerxes is illustrated by the following table:

"Seventh" of Artaxerxes




35 Morgenstern, Journal of Near Eastern Studies, Vol. II, April, 1943, p. 129, col. b.

36 Ibid.

Explanation: The Julian date for the "seventh of Artaxerxes," according to the Persian calendar, is 458-457 B.C.[37] Scholarship commonly acknowledges this date, for it is fixed by the double-dated synchronisms of the Aramaeans at Assuan, who obviously employed the calendar of their Persian overlords. If Ezra's "seventh year" is to be tied to the Persian calendar, then the month Nisan in which he left Babylon can coincide only with the spring of 458.[38] But, if this conclusion were correct, then, in the period between Nisan and Tishri, Ezra's "seventh" according to Persian reckoning, would actually be "sixth" of Artaxerxes according to Jewish reckoning. That is, in the summer, from Nisan to Tishri, the Jews counted the year of the Persians one less than the Persian reckoning, while, from Tishri to Nisan, both counts were the same. On the contrary, according to Parker, the Egyptian Aramaeans, who apparently started their year before the Persians in the Ezra-Nehemiah age, had the same regnal year as the Persians from Nisan to 1 Thoth, but in the winter were one in advance.[39] Thus the Aramaean rule of correspondence was definitely different from that of the Jews.

Therefore, it would obviously be absurd for chronology to maintain that by an Ezra Jewish calendar, the return was in the sixth year of Artaxerxes, and that by Nehemiah's Jewish calendar, the return was in the seventh of this king! The only consistent conclusion is that both Ezra and his colleague Nehemiah employed the same Jewish reckoning, and that the Nisan return from Babylon in the seventh year of Artaxerxes must have occurred in the spring of 457 B.C., and not in 458.

It is to be remembered that from the time of Moses, all the months of the Jewish year--even including the civil year from fall to fall--were numbered from the Nisan spring beginning of the sacred year. The Tishri fall beginning civil year was very ancient, and was ultimately employed in reckoning the reigns of the kings of Judah under the monarchy. It can be shown that Jeremiah, the chronicler, the writer of Kings, Ezekiel, as also Nehemiah and Ezra, used the Jewish civil year, from fall to fall, in recording their dates.

The Call-out-of-Babylon phase of the Second Angel's Message was based upon time. This special feature "was first proclaimed by the servants of God in the summer of 1844."[40] Nearly a century has passed, but all three of the

[37] Mahler, Eduard, Chronologie der Babylonier, Denkschriften der kaiserlichen Akademie der Wissenschaften, 62 Band, p. 652. Wien, 1895; Parker, Richard A., Dubberstein, Waldo H., Babylonian Chronology, p. 30. University of Chicago Press.

[38] For on the Persian calendar, the "eighth" of king began with 457.

[39] Parker, Richard A.,"Persian and Egyptian Chronology," The American Journal of Semitic Languages and Literatures, July, 1941, p. 299.

[40] White, Ellen G., Life Sketches, p. 59.

messages in Revelation 14 are still to be proclaimed.[41] It has been demonstrated that the "seventh month movement" in 1844 belongs to the same 19-year cycle as the cycle of the crucifixion in the spring of 31 A.D. Both events were based upon the prophecy in Daniel 8 and 9. This prophecy "pointed so unmistakably to the time of the Messiah's coming, and so directly foretold His death, that they [the Jews] discouraged its study, and finally the rabbis pronounced a curse on all who should attempt a computation of the time."[42] The following words are for the encouragement of those who seriously desire to understand the time message of 1844:

"Whoever is with singleness of purpose seeking to do God's will, earnestly heeding the light already given, will receive greater light; to that soul some star of heavenly radiance will be sent, to guide him into all truth." [43]

Grace Amadon,
Washington, D.C.

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[41] White, Ellen G., MS 32, Dec. 6, 1896.

[42] Great Controversy, p. 378.

[43] Ibid., p. 378.

# MILLERITE COMPUTATION OF THE OCTOBER 22 DATE

The question has frequently been asked, What calendar did the Millerites use in computing the prophesied Day of Atonement in 1844? And the inquiry is continued in the challenge why September 23--the rabbinical Yom Kippur in that year--is not just as consistent as the October 22 date. What difference would twenty-nine days more or less make to the period about to be ushered in? Another question also presses itself home: How would Adventist scholarship of today have handled an ancient Jewish calendar argument one hundred years ago? It can be briefly stated that the September Yom Kippur in 1844 was based upon modern Jewish calculation, while the October 22 date was computed in ancient Jewish time, in harmony with the calendar of Moses. A review of the Millerite experience and the discussion of the questions in 1844 chronology should be full of encouragement and inspiration to those who are interested in the foundation principles of the Advent teaching of historical prophecy.

The year 1844 belonged to a period of serious investigation all over the world regarding the second advent of Christ. The movement was brought to its final conclusion in America, from whose shores second-advent influence went forth to countries east and west. Millerite leadership faced difficult alternatives in the study of Biblical chronology. The question was asked many times whether the crucifixion passover was in March or April, and just when a passover of the ancient type would occur in the year proposed to end the 2300-year prophecy of Daniel. The death date of Jesus was basic to the problem to be solved. Was the year 33 A.D., 31A.D., or 30 A.D.? From the time of Roger Bacon (13th century), the year 33 A.D. had been the popular crucifixion date, and at first William Miller accepted this conclusion. He had no Spirit-of-prophecy literature to which he could turn for guidance. He writes that he "laid by all commentaries, former views and prepossessions" in the endeavor to understand the figures and metaphors of prophecy. Under the influence of his teaching and example, many people began to live in a very real

expectancy. Jesus might come any time. And when the day's work was over, one sought for assurance that his record was white and clean.

The Millerite Adventists met often in prayer together. Repeatedly they would spend the whole night in intensive study. These students of prophecy read and translated the Bible from its original texts. Some wrote in German, French, or Latin; others were astronomers and authoritative computers. They were called philomaths, and as recognized scholars they met other scholars in argument. They had at their disposal the best libraries in America, and they were fully acquainted with sanctioned writings at home and abroad on the subject of their investigation--the chronology of prophecy. Their documentary evidence is witness to their scholarship. But more than all else, they were of the number to whom it is said: "Behold, I have set before thee an open door, and no man can shut it." Even a Voice from the golden altar in heaven spoke to the Millerite age. The message was understood and was given at the appointed time. The Millerite movement was the preface to the hour of judgment.

Such was the spiritual atmosphere in which were analyzed and deciphered the important chronological problems and historical dates upon which Adventism of our generation has founded its teachings. We owe to the Millerites the interpretation of difficult chapters in prophecy, whose main features of exposition the Spirit of prophecy has also confirmed. Through their faith in the prophetic Word, the 2300 years have been demonstrated as an historical period, and thereby the age of Ezra has been tied to the nineteenth century. The decipherment was based upon principles of computation that were not only Biblical, but they were also astronomical and inherently adapted to the American continent.

William Miller's Chronology

The chronological investigation of William Miller was along general lines

only. The Biblical periods of prophecy were his specialty, and he himself did not therefore point out specific dates or days of the month. One of his great contributions was the revival of the year-day principle by which every prophetic period is calculated if in harmony with the historical school of interpretation. This principle was definitely understood in the time of Christ, but was largely lost and forgotten in the early centuries of apostasy. It was not fully recognized by Bede, the scholarly English monk of the seventh century. But when the time came for prophecy and history to meet again, men arose who recognized the coincidence between time and prophecy. And thus the fulfillment of every prophetic period has had its witnesses, who each proclaimed the year-day principle of prophetic computation. And more than all else, William Miller discovered that the year-day principle not only gives Bible history a definite chronological outline, but that by this same principle, the Biblical outline is linked with modern time. Let us state the law in the exact words of Mr. Miller's coadjutor: Each day of the prophetic period represents a true solar year.[1]

The Millerites were challenged as to the meaning of this principle. Inquirers wished to know how long the "true solar year" is. The answer was given that it is "365 days, 5 hours and a fraction" long. In William Miller's day, the exact length of the solar year had not been known for a century as yet. Another query was this: "But does not Mr. Miller reckon some years at 360 and some 365 days?" The answer was an emphatic "No."[2] It was carefully explained that a prophetic year is always the equivalent of 360 prophetic days, but that each one of these "days" equals a true solar year. The proof for this marvelous equation is found in Numbers 14:34 and Ezekiel 4:6.

There was a keen sense of humor in every Millerite discussion, and it kept

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[1] Signs of the Times [Boston, 1843], April 26, p. 61, col. 1.)

[2] Id., p. 60, col. 3.)

the participants in congenial temper. Throughout the year 1843, the important significance of the year-day method was continuously explained in the second-advent papers, and arguments on both sides of the question were published. But no one came forward with a consistent substitute, and the year-day principle was once more established as indisputable. Mr. Miller's calculations ultimately pointed to the spring of 1844 as the probable end of the 2300 days. But the vernal equinox passed, and Jesus did not come. A few students of prophecy had already figured out in 1843 that the 2300 years could not end in the subsequent March. Karaite literature pointed them to Leviticus as teaching that the ancient paschal season had to coincide with ripe barley, which, except in the valley of Jericho, occurs in April-May in Palestine--not in the March period. According to Dalman and others, Palestinian March is a winter month, and has a snowfall equal to that of January. Hence April is the barley-harvest month in Mediterranean countries, and therefore commonly the paschal month. Sometimes, however, the passover was as late as May. In the Near East, spring and winter stand in close connection, and the spring has strong meteorological contrasts, thus tending a delay in the harvest, and in the beginning of the Jewish year.[3]

Millerite Date for 1 Nisan in 1844

The Millerites rejected the rabbinical first day of Nisan on March 21 in 1844, and chose the April new moon for the beginning of the true type of the ancient first month. April 19 was the day.[4] They argued that the modern Jewish calendar is based upon decisions that were unknown in the time of Christ. The modern lengths of the Jewish year--either the 385 days or the 353 days--were not in vogue in the first century. The so-called postponements, according to which the modern Jewish passover never occurs on Monday, Wednesday, or

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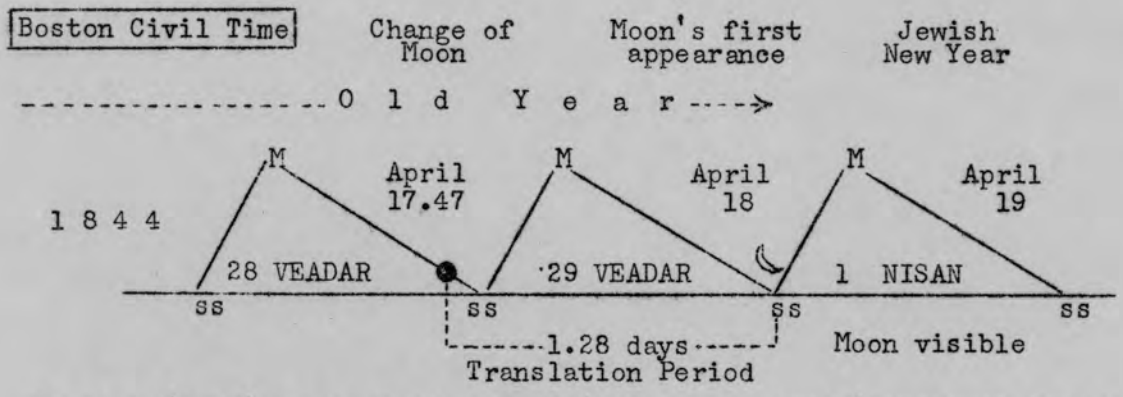
[3] Gustaf Dalman, Arbeit und Sitte in Palästina [Gütersloh, 1928], 3.Band, 1. Hälfte, pp. 305, 306.

[4] Joseph Bates, Second Advent Way Marks and High Heaps [New Bedford, 1847], p. 30.

Friday, are rules that were not adopted until the fourth century. For the crucifixion passover certainly occurred on Friday, and the passover in 28 A.D. was with equal certainty on Wednesday, April 28.[5] The Millerites also discovered that the modern rabbinical calendar has an entirely different paschal season from that customary in the time of Christ.

The following diagram presents the astronomical proof for the April 19 date, which the Millerites have recorded as the first day of the Jewish month Nisan in 1844. Anciently, the new moon's first appearance marked the beginning of the new year.




April 1 (1843) to April 18 sunset (1844 = 384 days (length of Jewish year)

There are only three possible positions for the April new moon's first appearance after its change in 1844: (1) April 17 sunset. This date is excluded because the new moon cannot possibly be seen within five or six hours after the change; (2) April 19 sunset. This date is impracticable, for it would add an extra day to the previous Jewish year, causing it to be 385 days long, which is improbable for the ancient type of lunar year; (3) April 18 sunset was therefore the only possible point of time for the April crescent to be seen. The first day of Nisan therefore occurred from sunset to sunset on April 18/19, and this was the Jewish day which the Millerites record as the "first appearance" of the April new moon. In common parlance it was called

[5] "Ancient Jewish Calendation," Journal of Biblical Literature [New Haven, 1942], December, p. 232.

April 19, while the moon appeared at sunset on April 18.

On April 18 the sun set at 6:37 p.m., and the new moon at 8:03 p.m., thus allowing the ample length of $1^h$ $26^m$ during which the new moon crescent could appear. Unlike the full moon, which has slowly filled its disk with light, the new moon appears suddenly in the dimness of the western horizon, and in the spring commonly needs quite an hour after sunset in order to appear. The new moon must be fairly high above the setting sun in order to be seen at all.

Jesus did not come on April 19, and the disappointment was great. Discouragement followed. Joseph Bates describes the experience as a "stupid, dark and still time."[6] Then "angels were sent to arouse the discouraged saints"; and they watched "with deepest interest the result of the heavenly messages . . . for another light was yet to shine upon them."[7] This additional light was based chiefly upon Daniel 9. Briefly stated, this is the Biblical argument that stirred the camp at Exeter, New Hampshire:

> Since the crucifixion occurred "in the midst of the week" in the spring of the year, and hence in the middle of a literal Jewish year and also of a prophetic year, therefore the end of the prophetic year must come in the autumn. In other words, the prophetic years of Daniel end in the fall and not in the spring.[8]

This reasoning came as a startling truth to the Millerites, and an impelling cry went forth in August that Jesus would come within the next three months. Already, a single voice had anticipated this cry in July, on a Sunday in Boston, proclaiming October 22 as the tenth day of the seventh month. This date was computed by adding six lunar months or 177 days, to April 19, and thereby obtaining as the first day of the seventh month, October 13, from which nine days more extended to the tenth day on October 22. The Millerites have

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6 Way Marks, p. 17.

7 Ellen G. White, Early Writings, pp. 235-238.

8 The Midnight Cry [Boston, 1844], August 22, p. 57, cols. 1-3.

left an official statement that they thus "reckoned" from the "appearance of the moon on the 18th of April" and thereby found that "the seventh Jewish month commenced with the appearance of the moon on the 13th of October, so that the tenth day of the seventh month synchronized with the 22d of that month."[9]

The "Midnight Cry" dates were the foundation impulse of the seventh month movement in the summer of 1844. The new moon crescent was seen at sunset of April 18, from which point of time the October dates were calculated in advance. It was the Biblical argument in Daniel 9 and Matthew 25 that gave impetus to the calendar facts, and a resulting momentum was felt throughout Advent communities. This reckoning was accomplished by means of the figures in a common almanac, which in early days was much more complete than a local almanac of the twentieth century.

There is no record that any actual observation of the October new moon was made by the Millerites, except the suggestion by Sylvester Bliss that the moon appeared on October 13. Indeed, this new moon could not be seen so far north as Boston at sunset of October 12, when there was only ten minutes between sunset and moonset. Obviously, because of this circumstance, the Adventist computers oriented their problem on the meridian of Jerusalem, and concluded that in that locality the October new moon would be seen at sunset of October 13, when the moon set a full hour after the sun.[10] They figured that the Palestinian new moon at sunset on that date was "one day and 17 hours old," as against 22 hours and 46 minutes for the new moon on the Boston meridian at sunset of October 12. It is just as impossible for the new moon to be seen on the same evening all around the earth as it is for every locality to have simultaneously the same solar date. For as astronomers state, the new moon is

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[9] The Advent Shield [Boston, 1844-5], Vol. I, p. 278.

[10] The Advent Herald [Boston, 1844], October 30, p. 93, col. 3.

frequently not seen in some place, while she is seen in another place not far to the west. But in some months, she may be seen in both places at once.

The Millerites ascertained this astronomical knowledge for themselves. They have left on record the deduction that in Judea the first day of the seventh Jewish month began at sunset of the second evening after the change, while in America it began at sunset of the first evening after the change. These two days in different parts of the world had seven hours in common, and this coincidence "strengthened" the Adventists that they had chosen the right moon. There were many in 1844 who made merry over a lunar reckoning that was not based upon the modern Jewish calendar. The answer was returned: "Every scholar knows that we are correct as to the Karaite seventh month." The Millerites were well aware of the rabbinical seventh month in September in 1844, and the circumstance was often mentioned in their papers. At the same time they were emphatic in their challenge that they dissented from the modern Jewish calendar because it did not agree with the laws of Moses.

The 1844 October 22 date on the American continent is historical. It was a specific example of the ancient season of the Jewish seventh month, and its computation illustrates the astronomical relation of the moon's change to the beginning of a new month. The Millerites necessarily had to calculate the October moon in advance, for its dates gave rise to the Midnight Cry and to the Second Angel's Message. Furthermore, there were astronomical reasons why this autumnal moon could not be seen in New England. On the contrary, the spring moon of April 18 was seen, and its "first appearance" acknowledged in the Advent Shield. In this Millerite record we have a key to the ancient form of the Jewish year, and we may therefore consistently conclude that the Jewish new year in the time of Christ was both computed and also confirmed by observation.

With reference to this historical date, October 22, Joseph Bates writes: "Many believed in that day. . . For myself I can truly say that it was the most triumphant and soul-inspiring point in all my Christian experience."[11]

Grace Amadon

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[11] Way Marks, p. 41.

HOW THE MILLERITES CHOSE OCTOBER 22

The Millerite argument, with its epochal conclusion, was based upon standard contemporary almanac tables of the moon, together with sound Jewish calendation. This involved rejection of the current Rabbinical calendar with its erroneous Day of Atonement, and a return to the basic principle of Mosaic calendation. The vital steps, taken progressively are as follows:

1. Confronted by rival Jewish calendars (the rabbanite and the Karaite), the Millerites deliberately rejected the rabbinical and adopted the Karaite principle of calendation, the decisive factor being the barley harvest principle in relation to the Passover full moon, as embodied in the original Mosaic instruction.

2. Confronted by the rival passovers of the respective calendars,(the Rabbinical April 3 or the Karaite, May 2) the Millerites rightly rejected the rabbinical April 3 as Nisan 14 and chose instead May 2 as conforming to the barley harvest stipulation for the true Nisan 14 in 1844.

3. Computing the true ending of the Jewish sacred year "1843," and the beginning of "1844" on the basis of the now adopted Karaite calendar principle, they terminated the Jewish year "1843" at sunset on April 18 (of the civil year 1844),instead of on Miller's original March 21, which he had based on rabbinical calendar practice.

4. April 19 was then taken to be the civil date, equivalent of the true Nisan 1, for the sacred Jewish year "1844" in contrast to the rabbinical new year's day.

5. The Nisan new moon in 1844, could not be seen on the evening of April 17 (the day of conjunction), for the required translation period time was too short. Nor could the phases, or appearance, be delayed to the sunset of

April 19, as the moon could be seen in Boston on the evening of April 18, for an hour and a half after sunset. This was therefore, chosen the sunset beginning of the Jewish New Year's day (April 18/19), which sets the entire series of Jewish feast dates.

Note: The Millerites chose the Nisan 1 date chiefly by this simple rule: That the moon's phases "usually appeared the second evening after its change." This was precisely the case at the time of the Ve-Adar conjunction, April 17 $11^h\ 45^m$ (that is $^{17}.49$), in 1844--or at approximately noon. The time from that noon to sunset--only about six hours--was entirely too short for the moon to be seen that first evening after conjunction. Consequently, the moon's first appearance in Boston, could not possibly occur on the evening of April 17. But on April 18, the sun set at 6:37 P. M. in Boston, and the moon at 8:03 P. M. The young moon was therefore high above the horizon in the northern sky for nearly an hour and a half ~~beyond~~ after sunset. Moreover, the calendrical limits of the year and the month forbade choosing an April 19 phases as a day too late. missed the point Consequently, the evening of April 18 constituted the required date for the moon's pre-Nisan phases in 1844, and Nisan 1 followed as April 19, according to abundant Millerite records.

6. The Millerites then "reckoned" Tisri 1 (first day of the Jewish seventh month) for 1844, by adding six lunar months (6 x 29 1/2, or 177 days), to Nisan 1 (April 19), which gave October 13 as the civil equivalent of the true Tisri 1.

7. As October 13 was Tisri 1, October 22 was therefore fixed upon as the fateful Tisri 10. (A few erroneously added ten additional days to October 13, and thereby obtained October 23 -- failing to recognize that October 13 was itself the first day of Tisri, and consequently but nine days were to be added to bring the tenth. The general position of the movement, however, was definitely for October 22.)

8. The foregoing "tenth-day-of-the-seventh-month-movement" position,

for October 22, was generally accepted during and immediately following, the memorable Exeter meeting in the middle of August, 1844, over two months prior to October 22.

9. Had the leaders waited until October to visually observe the first appearance of the moon by which to date Tisri 1, there could have been no seventh month movement, for there would have been insufficient time. They had to make their calculation in advance from standard moon tables which were abundantly available. The Tisri date had to be computed from the indisputable basis of the Nisan translation period, that could not be mistaken or shifted. Moreover, had they waited until October, the Tisri phasis could not have been ~~observed visually~~ seen so far north as Boston, for the moon was far south of the celestial equator, and was observable only in the central west and the extreme south of this land of the seventh month movement. That the Tisri dating was computed from the Nisan 1 date of April 19 is the clear declaration of the Millerites in their official report in January, 1845, as they reviewed and reaffirmed the technical soundness of the seventh month movement position on the crucial date of October 22:

put in statement of holding

"Reckoning from this [Nisan] moon, the seventh Jewish month commenced with the appearance of the moon on the 13th of October; so that the tenth day of the seventh month synchronized with the 22d of that month.--Bliss, The Advent Shield, January, 1845, p. 278. [Italics mine]

"It is therefore evident that the seventh month must have commenced with the new moon in October; and that the tenth day of the seventh month of the Jewish Sacred year, in A. D. 1844, could only synchronize with the 22d of that month."--Idem., p. 279.

COURAGEOUS ACTION OF MILLERITES ON "JEWISH CALENDAR" PROBLEM

William Miller and his associates faced an exceedingly difficult problem of far reaching import, as they sought to determine first the boundaries of the Jewish sacred year "1843," and then the civil equivalent of the precise tenth day of the seventh month in "1844." That the Jewish years did not parallel the civil year, but ran from spring to spring, was well known to them. They also knew that the 2300-year prophecy was inseparably tied to the true date of the crucifixion. This involved not only sound prophetic interpretation, but true calendation as well. Their remarkable stand of the Millerites, in 1843 and 1844, in rejecting the current Rabbinical calendation, and reviving the original Jewish year of the crucifixion period and the time of Ezra, that they might correctly determine the close of the 2300-year period, took clear, scholarly thinking, intensive research, extraordinary moral courage, and really heroic, decisive action. They risked all upon this crucial position. Note certain of the obstacles to be overcome.

Catholicism was solidly against their prophetic interpretations. Practically all Protestantism, furthermore, had succumbed to the post-millennial and return-of-the-Jews fallacies, and had adopted, perhaps unwittingly, the Roman Catholic praeterist or futurist counter-systems of interpretation. And especially they were divided and confused as regards the year-day principle and the papacy as anti-Christ. But most serious of all, Jewry had many centuries before abandoned the calendation given to Moses, which had been operative in principle and in essentially identical form in both the 5th century B. C. and the 1st century A. D. These particular centuries embrace, of course, the beginning year of the 2300-year prophecy and the certifying or sealing date of the Friday-Passover crucifixion, occurring in the midst of the 70th prophetic-week segment of the larger period.

But the Jews of the fourth century A. D., under pressure of civil and ecclesiastical Rome, adopted a new, arbitrary calendation tied to the vernal

equinox instead of the full moon of the barley harvest season. This threw the beginning of the Jewish sacred year usually one moon too early, forcing it out of alignment with that previous calendation comprising the first third of the 2300-year period. And as the lunar month averages 29½ days, a Friday Passover placed a month later than its true position, on the basis of the modern Rabbinical calendar, could not possibly locate a Friday-passover in the preceding month, on the basis of the calendation actually in vogue--for specified dates in the month, in lunar months of 29 and 30 days, do not repeat on identical days of the week. Only a 28-day month, which the Jews do not have, could synchronize with the unvarying recurrence of the days in the 7-day week. This the Millerites learned.

Moreover, the Jews, through their governing rules in this later Rabbinical calendar, excluded all Passovers from falling on a Friday--thus precluding any possibility of locating the Friday-passover of the crucifixion by means of this changed calendar. So, its system of postponements, this Rabbinical calendar, while kept in essential step with the pace of the moon, became utterly untrustworthy for determining prophetic chronology, so far as locating either a first-century day such as the Nisan 14 Friday-passover crucifixion occurring under another calendar, or a 19th century true day of atonement on the basis of the original calendation, as in 1844. This, too, the Millerites came definitely to find out.

Such was the basic calendar situation confronting the Millerites on the 2300-year time prophecy. Miller himself was at first quite unacquainted with the involvements of the question, and merely took, in a general way, the Rabbinical calendar in vogue as the basis of his early calculations. Yet he only approximated the Rabbinical year, which he knew ran from spring to spring, by fixing merely upon the equinoxes to bound his year of expectation--"from March

21, 1843, to March 21, 1844." And he similarly took, apparently without investigation, the commonly accepted 33 A. D. date for the crucifixion, commonly offered by astronomers and theologians who had attempted to find a Friday-passover by a calendar that, first of all, excludes a Friday-passover, and secondly, was not in vogue until 3 1/3 centuries after the cross. Miller then added the 1810 remaining years to 33 A. D., and obtained his year "1843."

As the advent movement gained momentum and attracted increasing attention, the defects in these basic arguments were forced upon the attention of Miller's associates by vigorous criticisms of Miller's prophetic and calendrical calculations. Painstaking, extensive study by careful minds in the Millerite ranks established the impossibility of using this later Rabbinical calendar to determine a 1st century Jewish Passover festival that fell on Friday, or of fixing upon a 19th century Day of Atonement that must be identified in their day through definite integration with the calendation operative 18 and 23 centuries, respectively, previous thereto.

Painstakingly studying the Karaite protest in the Middle Ages against the Rabbinical perversion of the calendar, they at last deliberately and irrevocably accepted, restored, and applied to their time-prophecy problem, the earlier calendation championed by the Karaites. And this they did in defiance of the whole body of Rabbinical scholarship and the general current practice of Jewry, which change was introduced <u>in the same century and at approximately the same time that the Roman Church, in the Synod of Laodicea, c. 364</u> (later confirmed by the General Council of Calcedon in 451), <u>changed the Sabbath by church law from the seventh to the first day of the week</u>.

The synchronous timing of these two vital perversions was not without significance and design. They were plainly calculated to entrench certain fundamental errors in the early church period that would make difficult and unpopular their challenge and repudiation by the reformatory advent movement of these last days,

under the acceptance and proclamation of the inseparable judgment hour and Sabbath aspects of the first, second, and third angel's messages, which in turn are themselves cumulative and inseparable. The change from Mosaic calendation would make difficult, unpopular, and "unscholarly" any acceptance of the true timing and verification of the terminus of the last great time-prophecy. This date was to mark the precise beginning of the investigative judgment, or antitypical day of atonement, in the Most Holy place of the heavenly sanctuary above, with its corresponding proclamation to men on earth.

Similarly, as we will know, the 4th century change of the Sabbath would make difficult, unpopular, and "unscholarly" the heralding of the 4th precept of the standard of that judgment, exposure of the unauthorized change of the day, the testing truths of the seal of God as against the mark of the beast, and the restoration of the true along with the rejection of the false.

It was incumbent upon the Millerites, as God's appointed heralds of the time of the judgment hour, to discover and correct, at the time appointed in 1843 and 1844, this error in calendation long ago pointed out by the Karaites (but which protest had now largely ceased), and to establish the true terminus of the time prophecy, just as it became our part and lot, in completing the arrested Reformation, to correct and restore the observance of the almost-universally abandoned seventh-day Sabbath. But we had the distinct advantage of the prophetic portrayal of both change and restoration, in Daniel 7 and Revelation 14, which error --of Sunday substitution--had been brought to the attention of the world centuries before by the Seventh Day Baptists in abstract, doctrinal form, though not connected by them with God's final prophetic message to man.

It must therefore be evident that it was part of the divine plan and expectation for the Millerites to correct the calendation by which alone they could reach such sound prophetic and calendrical conclusions that could not be contravened by

contemporary scholars, and which bear the validation of the Spirit of prophecy, as well as of sound astronomy, chronology, and true calendation. This was as necessary as it was for us to recover and espouse the seventh-day Sabbath and proclaim it to the world. Unquestionably, the changing of the "times" and the "law," in Daniel 7:25, involved and included this very feature of calendation as relating to the judgment hour, as well as to the primary change of the time in the law of the seventh-day Sabbath.

I would even go further and aver that, considering all the circumstances, it took more scholarship, more research, and more moral courage for the Millerites to break with Jewry, as well as with all Christendom, Catholic and Protestant, in coming to such revolutionary, chronological conclusions--which we have taken over bodily in our espousal of October 22, 1844--than for us to take over the seventh-day Sabbath from the long and active line of Seventh Day Baptists, and challenge the practice of merely the Catholic and Protestant worlds. We had the uniform witness of Jewry on our side, stretching back across the multiplied centuries to guide in determining the paralleling seventh and first days, while the Karaite protest against the calendar perversion had virtually ceased by 1780.

Fifteen centuries of popular Jewish precept and custom stood out against their rejection of the Rabbinical calendar and their espousal of the calendation operative prior to the fourth century--just as fifteen centuries of Christian Sunday keeping was pitted against us following the legal repudiation of the true Sabbath observed prior to the change.

The overwhelming sentiments and prejudices of Jewry stood as a deterrent against reviving and applying the true calendar by the Millerites just as the commitments of Christendom made difficult our flouting of Sunday sanctity and our revival of the true Sabbath. And the preponderent Jewish scholarship from the

4th century onward, denied and controverted the Millerites' sound historical position on the true Mosaic calendar--just as Christian scholars beyond number, likewise from the same fateful 4th century, controvert our position on the original Biblical Sabbath.

But all this powerful custom, sentiment, and scholarly witness had to be boldly and convincingly set aside by the Millerites, and unpopular prophetic and calendrical truth espoused, harmonizing with Biblical, historical, chronological, and astronomical fact. Their stand was consequently more difficult than ours, for they did not have the recognized prophetic picture of the change to guide them, as did we regarding the change of the Sabbath. And they were the pioneers. They first broke the trail. We followed on in the trail already blazed out by them--the sanctuary truth inevitably involving the Sabbath truth. Our task was much easier, once the initial effort had been made.

Truly all honor and esteem is due those really great men, in God's sight, who bequeathed this great heritage to us, for the terms and involvements of the first angel's message continue on and parallel the second and third messages, until their common terminus at the close of human probation.

# BRIEF REVIEW OF NEW VIEWS REGARDING MILLERITE CHRONOLOGY

In this limited sketch of two new positions with reference to the Millerite time problem, the following outline will be followed:

1. The Tisri New Year on October 22, Jerusalem meridian.
2. A request that the lunar meridian be dropped.
3. Principles employed in the calendation hitherto presented to the Committee.
4. Brief discussion of the lunar meridian "substitute."

1. Tisri New Year on October 22, Jerusalem Meridian

Proposition (1) is taken from Elder Andreason's first report with regard to the Millerite computations, and this was presented to the Committee last summer. The position then taken was much the same as that assumed by Bro. Wierts, and because of the importance of understanding this view, its argument will be examined. The following citation shows that the true calendar beginning of the Jewish day was understood:

"The 13th day of October begins at midnight, as all civil days do. But the Jewish day begins at sunset. The two days do not therefore synchronize exactly. The civil day begins at midnight, and the Jewish day begins the previous evening at sunset. The first day of the Jewish seventh month therefore began the evening of October 12 and lasted until sunset October 13."--M.L.A (1), p. 11.

So far this argument is excellent, and it is based on calendar facts. But immediately comes this conclusion:

"Their [Millerite] reasoning was this: According to the Karaite reckoning, the seventh month was October. The moon was in conjunction on October 11. It could not be seen until the 13th. As the visibility of the new moon determined the beginning of the new month, the 13th was the first day of the seventh month, and hence the 22nd was the 10th day on which they expected the Lord to come. This was clearly their reasoning, and in harmony with their accepted Jewish authorities."--M/L.A. (1), p. 11.

In a four-page supplement to this first report it is further stressed that

"The month did not begin the day after the first appearance of the moon, it began 'with' the first appearance, the thirteenth."--M.L.A., Supplement, p. 2.
"That they did place the new month on the 13th is evident. That they also placed the phasis on the same day is equally evident."--Idem, p. 4.

From these citations and others with regard to the moon's phasis, both in Boston and Jerusalem, the conclusions were then drawn that

1. In Boston, 1st day of Tisri was on October 13, and the phasis was also "visible the evening of the 13th."--M.L.A. (1), p. 13.

In other words, the 1st of Tisri, from sunset of 12th (p. 11) to sunset of 13th,

actually began 24 hours before the moon's first appearance. The second conclusion follows:

2. In Jerusalem, 1st day of Tisri was on October 13, and phasis was "on evening of the 13th," and "relation would be the same as in Boston."--Idem, p. 11

3. Final conclusion -- "the tenth day of the seventh month would come on the 22nd in Jerusalem as in Boston,"--Idem.

But this argument was not in harmony with the cited Millerite authorities in the 1844 periodicals. It was not the understanding of those who laid down the time argument for the seventh month movement, neither of him who wrote the paragraph, "Time at Jerusalem," for he plainly said that if the moon "did not appear till the evening of the 13th, then the first day of the tenth month [doubtless he meant seventh], might, even, be as late as the 14th."--Midnight Cry, Oct. 19, 1844, p. 132.

On this point, at least, the Millerites were clear in the spring of 1844, that the first day of the new month always followed the moon's first appearance, and did not precede it. This fact was quoted again and again throughout 1843 from Prideaux. Bliss also was foremost in stressing this point. These students of prophecy must also have been acquainted with the following from Sir Isaac Newton:

"For the Jews did not anticipate, but postpone their months; they thought it lawful to begin their months a day later than the first appearance of the new moon, because the new moon continued for more days than one; but not a day sooner, lest they should celebrate the new moon before there was any."--Newton, Sir Isaac, "Observations upon the Prophecies," p. 161, London, 1733.

This excerpt from Prideaux was several times printed:

"None of them [months] had fewer than 29 days, and therefore they never looked for the new moon before the night following the 29th day; and, if they then saw it, the next day was the first day of the following month."--[Prideaux, "History of the Jews," Vol. 1, p. 51.]--Signs of the Times, Dec. 5, 1843, p. 135, col. 1.

The conclusion, therefore, that the Tisri new year in both Boston and Jerusalem began on October 13, and that the moon's phasis was not seen until sunset of that day--24 hours after the Jewish day began -- is not at all in keeping with the authorities when the Millerites cite. Therefore the conclusion that the tenth day of the Jewish seventh month in Jerusalem was October 22 is not drawn from reliable sources, and if there is anything at all in the 1844 literature that suggests this, it comes from

editors and preachers who came into the movement at the last moment, as it were, and who had nothing whatever to do with the establishment of the time reckoning upon which the midnight cry was founded.

And neither is it sound astronomical reasoning that October 13 was even the first day of Tisri in Jerusalem, for that would mean that the moon's first appearance would have to occur on the previous evening of October 12, near sunset -- the very day itself of the sun's conjunction with the old moon. The following astronomical laws relate to such a calendar feature:

"Indeed, it does happen that the moon can be hidden and seen on the same day, but certainly this very rarely occurs; and it does not happen except, as Pliny says, when the sun is in Aries."--Ducherius, Aegidius, "Tractatus De Paschali Judaeorum Cyclo," p. 373. Antverpiae, 1634. [Ducherius is quoting from Scaliger.]

This famous statement from Pliny follows:

"The old and new moon are visible on the same day or night in no other sign except Aries, and indeed it has happened very seldom to any one to have witnessed it."--Pliny, "Natural History," Vol. I, p. 49. Tr. Bostock and Riley. London, 1855.

In 1844, nor in any other year, is the Tisri moon's phasis in the sign Aries. The Tisri moon was in Libra, 180° distant from the spring sign of the ram. Hence it is absurd, and the conclusions of this Committee would so appear to every student of astronomical science, if the calendar on the Jerusalem meridian were laid down in such a way as to represent old moon and the moon's phasis as actually occurring on the same day in the fall of the year.

Furthermore, such calendation as the foregoing, would place the Jerusalem passover right on the day of full moon, instead of after it. Thus the civil date October 22 in Jerusalem for the tenth day of Tisri not only defies the laws of astronomy and the moon's motion, but it contravenes those of the Bible also which commanded that the 14th of Nisan should follow the day of full moon in Jerusalem.

2. A Request that the Lunar Date Line be dropped

The recent review of the Millerite Chronology by Elder Andreasen is different from that he presented last summer. It is, he says, "a substitute for the invisible moon on the evening of the 12th of October in Boston in 1844," and "a substitute for the lunar date line as a basis of calendation."--W.L.A. "Observations," p. 8.

Before discussing any phase of this second position respecting the Millerite calculations, please allow me to state that after our series of sub-committee sessions last year regarding the lunar calendar line, Elder Andreasen made the proposition that if I would say nothing more with respect to the moon's meridian, and leave it out of the argument, he would accept the charts and figures as they then stood. And only recently, Elder Kern repeated that our Brother still has that in view.

The calendar work up to date does not use the lunar meridian argument. It has thus far been strictly kept in abeyance, as per request, and the Millerite time problem, both in Jerusalem and Boston has been solved entirely on another basis. I was therefore surprised that the subject should be again set forth. However, for this I am not sorry, and if the Committee desires to take time to seriously consider the laws and vital principles involved in the lunar meridian, they may sometime find these important truths of greater value than now appears.

3. Principles Employed in the Calendation hitherto presented to the Committee

In Jerusalem, the 19-year cycle was worked for the 1844 period, using the passover law that Nisan 14 occurs on the next day after full moon in Jerusalem. Both the Nisan and Tisri moons were translated according to known rules governing the moon's phasis, and the 1844 dates were confirmed by the time of the moonsets on several latitudes in the east. This work was wholly on an astronomical basis. No Millerite dates or rules were employed, and neither were the meridional principles introduced.

On the Boston meridian, two lines of solution were followed -- one representing the Millerite procedure, and the other, the astronomical confirmation of their resultant dates. These dates can be reconstructed in calendar form by the laws pertaining to the lunar meridian, but this was not the method used.

The Millerite reckoning of the final end of the 2300-day prophecy was different from that described by Elder Andreasen. It was not based on the Tisri calculation either in Boston or in Jerusalem. The few statements by belated editors and preachers with regard to Jerusalem, a short time before the disappointment, and also the few scattering October 23's, had nothing at all to do with the reckoning that started the seventh month movement earlier in the year. The time principles that gov-

erned the seventh month chronology had been brewing for at least two years, perhaps more. The essential truths were solidly founded on the ancient Jewish year, not upon an unnatural form of it. Again and again, throughout 1843, a complete series of all the calendar features controlling Jewish time appeared in the Millerite papers -- intercalation, leap month Veadar, 19-year cycle, Metonic cycle, 84-year cycle, length of Jewish month and Jewish year, Karaite principle of the barley harvest, the laws of the moon's visibility, the position of the first day of the month, and of the moon's phasis, double new moon days for the diaspora, single new moon day in Palestine, etc. And after the spring disappointment, "Jewish" year was repeated three or four months in succession.

But, even so, calculation was not altogether the key to the new chronology which suddenly confronted the people in the summer of 1844, and which gave life to the midnight cry. The mainspring lay concealed in Daniel 9 and Matthew 25. Samuel Snow was one of several to discover that six lunar months had yet to be added to the spring date -- itself a month later than first computed -- in order to complete the prophecy. Snow got this largely from Daniel 9. His argument was simple, but impelling -- that if Christ was crucified in the midst of the "week," in the spring, then the end of the week, and therefore the end, not only of the 457th year, but also of the 2300th year, would come six lunar months later in the autumn.

On Sunday, July 21 in Boston, Snow was heard nightly proclaiming, "Behold, the Bridegroom cometh on the tenth day of the seventh month -- in the autumn! Already, Bates says, they had settled that "the 17th day of April, 1844, Roman time, was the close of the year 1843 Bible time."--"Life of Bates," p. 297. If April 17, Roman time, or midnight, was the last day of the year "1843," then the first day of the new year would have to begin at the next point of time, or sunset of April 18. Sylvester Bliss gives the key statement relating to this date, and it is more technically correct than the majority of the Millerite records:

"Consequently, this Jewish year began with the appearance of the moon on the 18th of April, bringing the passover on the first of May -- an entire moon later than the Rabbinical passover. Reckoning from this moon, the seventh Jewish month commenced with the appearance of the moon on the 13th of October; so that the tenth day of the seventh month synchronized with the 27th of that month."--Advent Shield, January, 1845. p. 278.

Now, if the moon's first appearance was on April 18 -- and it could not be otherwise than sunset of that day -- then April 19 was the first day of Nisan on the calendar, as is abundantly testified.

"Reckoning from this moon," Bliss continues. That is exactly what Snow, Bates, and the and the whole Exeter camp did. And it was that reckoning that inspired Snow to herald with mighty appeal, "Behold, the Bridegroom cometh on the tenth day of the seventh month, October 22," For if the six lunar months, or 177 days, are added to sunset of April 18, and if the Jewish year began then, as Bliss says, the resultant date was sunset of October 12, when the first day of Tisri began in America.

The foregoing is the method that established the chronology of the midnight cry. The prophecy could not wait for Tisri computation either in Jerusalem or Boston. [For on that basis, the reckoning would have come too late for either midnight cry, or Second Angel's Message. And furthermore, the differences of opinion that arose late in the period would have been disastrous to the movement if there had not been an earlier firm foundation, based upon the Bible primarily, and upon the pure ancient Jewish year, and not upon a distorted form of it.

The astronomical demonstration of the Millerite dates will be omitted here, inasmuch as it has been fully demonstrated in this Committee. A further line of confirmation of the calendation employed consists of a series of historical checks, both from the Bible, and from known events in history, which are tied to the Jewish feasts and their corresponding days of the week. With the year proved, such synchronisms make an exact corroboration of this luni-solar time method that has been constructed and almost completed in these Committee sessions during the past two and a half years. The Aramaic papyri dates -- a representation of the true primitive Jewish reckoning -- being tied to the Jewish vague year, thereby also become an acceptable check upon the lunar calculation by which they are solved.

4. Brief Discussion of the Lunar Meridian "Substitute"

The lunar date line itself needs no substitute for two reasons: (1) The laws governing the meridional beginning of the true lunar new year have not, per agreement, been used in the solution of the Millerite time problem. This evidence, by

request, has been withheld. Then, why a substitute for that which has not been used?

(2) Also, there can be no true substitute for the governing principles of luni-solar time, which mark out to the minute the exact time and place of beginning of the moon's new year. These laws were established by the Creator from the very origin of time, and they will last throughout eternity. If they seem useless and impractical to us, it is because we do not understand them.

The substitute alternatives offered by the rabbinical cycles, the Catholic missal, and the Episcopal ritual do not synchronize with the moon's phases within two or three days. These calendars are all based on fictitious moons, which "full" according to certain tables. Hence these systems of time-keeping cannot verify dates in the centuries before their construction.

The method proposed by Elder Andreasen is practically the same as that of Elder Washburn. Quotes:

"It was 11 o'clock in Boston, sunset in Jerusalem. At that precise moment in Jerusalem [evening of the 13th] the new moon began. What were the people in Boston to do? There were still 13 hours left of the civil day in Boston before midnight. Doubtless this was the beginning of the seventh month."--p. 8.

The argument lying back of these figures is this: If the new month Tisri began in Jerusalem at sunset of October 13, then, a priori, the calendar civil date of the whole Tisri new year's day -- from sunset to sunset -- was October 13/14, and the tenth of Tisri was October 22/23. And then, it is concluded, without sources, or acceptable support, or even precedent, that 11 a.m. in Boston, the corresponding instant of the Jerusalem sunset on October 13, was "doubtless the beginning of the month." The whole first day of Tisri, therefore, in Boston, would be supposed to extend from 11 a.m. October 13 to 11 a.m. October 14, and 11 a.m. October 22 to 11 a.m. October 23.

The objections to this "substitute" calendation for the invisible Tisri moon are many. The following are important:

1. The Millerites themselves point out the fitting substitute for the invisible Tisri moon -- that of the Nisan moon in April. This moon is easier to translate than the one in Jerusalem. One can't go wrong with the April new moon!

2. If there is any calendar sense at all to the proposed reckoning that the Tisri new year in Boston, 1844, should begin at 11 o'clock in the morning, then certainly the Nisan new year ought to do the same. And Sylvester Bliss, two months after

the disappointment, was wholly at variance with such a scheme, for he left on record that "this Jewish new year began with the appearance of the moon on the 18th of April," which perforce, was at sunset. It is therefore reasonable to conclude that Bliss, the official recorder of the seventh month movement, and one of the two computers of Jerusalem time, did not allow that his own statement in any way changed the ancient beginning of the Jewish day in Boston.

3. The function of the moon's meridian is to point out the precise beginning of the new year. This is a creative office of the moon. She was appointed --created, in Hebrew-- for this very purpose. The new year begins at sunset, and it is always near sunset when the moon fulfils this charge. The substitute here proposed for this lunar agency is earth and sun performance with reference to the solar day. Thus is the true lunar new year obliterated, its time of beginning effaced, and the moon's office in the regulation of time completely ignored!

These irregular calendar features are important to understand. A year ago it was proposed here in the Committee that the tenth day of Tisri be October 22 in Jerusalem. The phasis was placed <u>after</u> the new moon day, instead of <u>before</u> it. Now the scheme has changed, the Boston date of the new year, and also of the tenth Tisri is advanced 17 hours, and the time-honoured place of the moon's phasis is abolished, while earth and sun substitute for the "faithful witness in the sky."

In conclusion, please allow me to suggest. It is too much to hope that this criticism will offer appeal to all of the Committee. Almost every day we are finding new and revealing Millerite statements that have been passed by. Inasmuch as we do not at present need the lunar meridian in our reckoning, why not let it rest until we have more evidence?

G. Amadon

#8? from Bryan Roberts

Box 2 Fld 4

# THE 1844 PROBLEM

(As checked by astronomy)

It is not at all the purpose of this research to apply an astronomical measuring-stick to every technical statement found in the records of 1844. The Millerite statements were at times ~~elastic, and not always technically consistent.~~ Sometimes ~~they missed the astronomical reckoning by a day or so.~~ The exact time of the moon's first appearance--~~whether at the beginning or end of the Jewish day~~--was not always clearly stated. Only the ultimate decisions, which became a characteristic "point of time," [1] relating to the event known ~~in prophecy~~ as the "midnight cry," are here considered.

## THE ADVENTIST RULES--

The Millerites had ~~a~~ few simple rules by which they reckoned the first day of the Jewish month:

1. "Usually the second evening after the change," and sometimes, "about a day" after conjunction.[2]
2. ~~Always~~ as coincident with the "first appearance of the moon" after conjunction.[3] The meaning of the expression "the new moon" was recognized.[4]
3. "If the moon were not seen, "they reckoned."[5]

These rules fitted the 1844 problem, although not altogether determinstive. The first rule--that the moon was seen "usually the second evening after the change"--was applicable to every conjunction but one, that was involved in the quest. The exception was the October conjunction as dated in Boston. But, on the central meridians of America, in places that are in the latitude of Jerusalem, even the October phasis occurred the "second evening" on account of the recession of the conjunction date. However, the third rule came to the aid of the New England Adventists, who definitely "reckoned" the first of Tisri from the new moon of April.[6]

The second rule--that the first day of a lunar month begins with the "first appearance," or phasis, of the moon--is a precise calendar principle. Even though

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1 White, Ellen, "Early Writings," p. 100. Fourth edition. 1891.

2 Advent Herald, Sept. 25, 1844, p. 60, col. 1.

3 Signs of the Times, Dec. 5, 1843, p. 134, col. 1.

4 "It should be remembered that "the new moon," when we speak of the Jewish Calendar, refers to the time when the moon is visible, after the change."--Midnight Cry, April 27, 1843.

5 "We therefore feel perfectly safe in reckoning this sacred year as commencing with the new moon of April 17, which would bring . . . the seventh month in October. Here, then, we rest in the assurance that the true seventh month began October 13th, and could not be a month earlier or later."--Midnight Cry, Oct. 31, 1844, p. 142, col. 3.

the Millerite use of this rule does not always seem to be clearly defined, yet the final decisive dates as October 13 and October 22 show that the moon's phasis had to occur at the sunset beginning of the new moon day, and not at its end. This is in harmony with Jewish chronology, which forbids the first day of the month to come before the phasis.[6] In the modern Jewish calendar it would be the exception if the moon should first appear after the new moon day.[7]

"A POINT OF TIME"--

The Millerite literature makes very plain that the Adventists in America considered Tisri 1 to be October 13, Tisri 10 to be October 22, and Tisri 30 to be November 11, in the year 1844.[8] These dates they obtained by "reckoning" from the new moon of April 17, that is, from the phasis, which, in America, occurred on the evening of April 18, causing Nisan 1, on the calendar, to coincide with April 19, although it nowhere seems to be mentioned in just these words. But, on the basis that October 13 was Tisri 1--a fact that is repeated a number of times--Nisan 1, calendrically, would have to be April 19.

Bates

The Adventists knew the exact time of the Jerusalem conjunction, and printed in their papers that it was "the morning of October 12th at Jerusalem."[9] To be exact, it was Oct. 12 $1^h$ $44^m$. From this date they computed the age of the moon to the beginning of Tisri 1 to be "one day and 17 hours," a point of time that they found coincident with 11 a.m. in Boston, on the same day, October 13.[10] They reasoned that if the prophecy was to be computed from Jerusalem, then the "first day of the seventh month might, even, be as late as the 14th."[11]

ASTRONOMY CHECKS--

Jerusalem and Boston

The foregoing figures represent definite calendar dates on two meridians, that the Adventist records in 1844 set forth as corresponding to the important first day of the Mosaic seventh month. In turn, these dates themselves agree with certain

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6 "For the Jews did not anticipate, but postpone their months . . . lest they should celebrate the new moon before there was any."--"Observations," p. 161.
7 Sidersky, David, "Chronologie . . . juive," p. 644.
8 Advent Shield, January, 1845, p. 273.
9 Midnight Cry, Oct. 19, 1844, p. 132.
10 Midnight Cry, Oct. 31, 1844, p. 141.
11 Same reference as No. 9.

known positions of the moon, that are described in detail in the ephemeris, and to them may be applied generally accepted standard rules for determining the lunar day of a lunar month. In such a manner the 1844 event of prophecy can be verified, by precisely marking out the first day of each lunar month involved. If the new moon days of the Millerites are found to agree with the laws governing the first appearance of the moon after conjunction, then they have the witness of the sun, moon, and earth.

It has been said that Jewish calendation corresponds to the simultaneous growth of astronomy in the world.[12] On the other hand, many astronomers of note have been earnest students of Jewish literature--notably the Bible; and most of the early books in astronomy include a discussion of the prophetic periods of the book of Daniel. It should therefore not be overlooked that the very ending of the 2300-year prophecy is characterized by a certain feature of astronomy--one, as it were, that places a revealing stamp upon the historic event of 1844. We refer to the October conjunction, as marked on the Boston meridian--71 degrees west longitude--which, calendrically, denoted the earliest "new moon day" ~~of the year~~ on the earth's circle for Tisri 1. It was closely tied to the true lunar meridian at 53 degrees west longitude, located in the Atlantic.

THE LUNAR MERIDIAN--

At some place on the earth, on some certain longitude, the civil day starts and stops. In the year 1844 an approximate position of the international date-line in the Pacific, corresponding, in general, to the 180th meridian was marked out.[13] Even as late as 1910 it was slightly amended.[14] In crossing the 180th meridian westward, each civil ~~day~~ date is increased 24 hours, that is, another day is in progress. The solar year also has its place of beginning. It is the instant, proposed by Bessel, when the sun's mean longitude is 280 degrees,[15] and its sidereal time is ~~always~~

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12 Sidersky, David, "Etude sur l'origine astronomique de la chronologie juive," p. 597.
13 Adams, C.E., "History of the Date or Calendar Line," New Zealand Journal of Science and Technology, Vol. XI, No. 6, pp. 385-88, 1930. Library of U.S. Observatory.
14 Idem.
15 Chauvenet, William, "Spherical and Practical Astronomy," Vol. I, p. 651.

$18^h\ 40^m$.[16] Similarly, the festival day, which designates the commencement of each lunar month, has its initial geographical longitude. But such a meridian is not alone fixed by either sun or earth; it is determined mainly by the moon. On this longitude, necessarily, the conjunction date will approach sunset, while the moon's age, at the ensuing sunset, will, according to Karaite ruling, be at least 22 hours.[17] Thus the moon, being only 22 hours of her motion east of the sun, that is, about 10 degrees, will set but a few minutes after the sun. These phenomena happen on some one geographical meridian, as the earth revolves, and they give notice of the earliest first day of a lunar month on the earth's circle. Such was the case on the evening of October 12, 1844, in Boston.[18]

The lunar meridian determines the new moon day for the rest of the world. It is the "fictitious lunar meridional equivalent of the Besselian fictitious solar meridian,"[19] that exactly marks out the beginning of the solar year. If, for instance, the lunar meridian should be located in the Atlantic ocean, then to the east, the last day of the lunar month is taking its course, while westward, throughout America, it would be "new moon day" on the calendar. Furthermore, paradoxical as it may seem, this earliest new moon day in the earth occurs a day earlier than on any other eastern meridian, because the local conjunction date has receded to a point near sunset, and because the moon can be seen a day sooner.

Such a change in festival dating, like the change in the civil day at the 180th meridian, is a matter of control for the standard almanac authorities of the world, and not for the individual. It is a calendar feature to be adjusted in advance for the months and years of every lunar cycle.[20] It is a most important calendar event,

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16 The tropical year on the meridian of Greenwich corresponding to this instant, varies in different years, as for example, the year 1939, by Besselian reckoning, runs over into the year 1940 over half a day--cf. American Ephemeris, 1940, p. 594.

17 Kokisoff, Juhuda, "Brief Information on the Karaite Calendar," p. 38.

18 Miller, William,

19 Description of lunar meridian given by Almanac Office, U.S. Naval Observatory.

20 Whether the time that intervenes between lunar meridians is to be given to the old month or to the new, is determined by the calendar itself, according to length of the month, the year, the lunar cycle, and the position of the moon.

for by it the problem of festival dating is accurately checked for both the east and west, and it is a necessary link in identifying dates in luni-solar time. However, the lunar meridian is in no way a substitute for the rules of observation of the moon; nevertheless, it is the basic rule underlying them, and those of the 19-year cycle. In the solving of the 1844 problem, by known and accepted rules of chronology, the lunar meridian was revealed at work in connection with a great historic event.

FIXED LUNAR MERIDIANS--

In this 20th century, luni-solar calendars in general are based upon a 19-year cycle, and upon fixed meridians. In Persia, Arabia, Egypt, India, and in Karaite communities, the meridians are local.[21] The feast calendar of the Catholic world is calculated on the meridian of Greenwich by Vatican computers.[22] The Jewish calendation, on the other hand, is figured on some meridian, which is as yet unknown. Apparently, no standard meridian has ever been accepted by chronology with reference to Jewish time. Sidersky argues that the physical instant which started the Jewish fixed calendar was a solar eclipse on the meridian of Soura, where, in southern Mesopotamia, was seated a Jewish academy, which was opened in 219 A.D., the very year of the eclipse.[23] These events he considers of sufficient importance to have laid a new foundation in Jewish reckoning, which was in confusion in that century. On the contrary, the Jewish Encyclopedia mentions a meridian 90 degrees east of Jerusalem as the first meridian of Jewish computation.[24] Jerusalem itself is thought by very many to be the start of Jewish calendation; Sinai has been spoken of.[25] But in the final analysis, no known fixed meridian has as yet been accepted by chronology for Jewish calendation, so that ~~and yet~~ it is impossible, without confusion, to work in Jewish time, on account of its meridian being concealed and unknown.[26]

But, if a fixed lunar date line were assumed for Jewish reckoning, like the so-

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21 Poznanski, "Encyclopedia of Religion and Ethics," Hastings, art. Calendar (Jewish).
22 Oral statement by Dr. Huber, professor of Church History, Catholic University, Washington, D.C.
23 Sidersky, "Chronologie juive," p. 648.
24 Jewish Encyclopedia, art. Jewish Calendar.
25 Idem.
26 Statement made by Almanac Office, Naval Observatory, Washington, D.C.

lar date line in the Pacific, what would it mean to chronology? Just this: a fixed meridian would thus become a substitute for the calendrical right and privilege on certain longitudes that Rosh Hasharah be placed a day sooner than in other countries, if so indicated by the moon. Astronomically, the moon demands such an appointment now and again in a 19-year cycle. Without this recognition, lumi-solar calendars cannot accurately check on the ancient, mediaeval, and late century dates. This is one of two important reasons why the modern Jewish calendar cannot substantiate the dates of the first century.[27]

In the year 1844, the lunar meridian for Tisri 1 coincided with the 53rd longitude west of Greenwich. The meridian was located in the Atlantic, where the 29th day of Elul finished its last round at sunset on October 12. The moon set a few minutes later, and the earliest first day of the seventh month of the Mosaic year had come. The 53rd meridian marked this fact for the whole American continent, where many thousands of voices announced the first day of the new seventh month, as in primitive times. All were agreed as to the day. Everywhere in advent communities in America, they called it Tisri 1/October 13. There was no confusion--no mistaking of the time. These few simple facts show how a lunar meridian operated in 1844, and with what precision it harmonized with the mind, notion, and feeling of a great historic movement, that, largely by reckoning, noted the end of the longest period of prophetic time.

Such is the historical picture upon which astronomy is asked to place its seal. The amazing feature of the 1844 problem lies in the exactness of its final setting, the rapidity of its consummation, and the marvelous agreement of history, science, and prophecy in its solution.

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[27] These two facts are (1) that its meridian of calculation is unknown, and (2) that the Jewish months are often designated a month earlier than those commanded by Moses, so that they are out of season with the feasts.

# WAS THE YEAR 1 8 4 4 AN EMBOLISMIC YEAR ?

A proposed embolismic Jewish year--1842-1843--as indicated in the TABLE presenting the 308th 19-year cycle, is based upon the Julian calendar of the 19th century, to which spring full moon dates of the years 1834 to 1853 were changed by adding 12 days. The dates chosen were thus transferred from the Gregorian calendar of the 19th century to the Julian calendar of the 19th century. An attempt was then made to make the years showing March full moons embolismic by adding "30 days" for the month Veadar. If the "seventh month movement" had originated in a land where the Julian calendar was in use, then there might be some reason for changing the dates of the British ephemeris to "old style" in order to apply an embolismic rule for intercalation. But in both America and Jerusalem in 1844 the official calendar was Gregorian, and naturally the Millerites adapted their rules for the Mosaic year to this kind of time. Furthermore, there are only two days difference a little over, between the Gregorian calendar of the 19th century and Julian time in the first century.[1] These two days, if subtracted from the paschal moon dates of 1844 and the adjacent years under discussion would make no difference at all in the application of any method of intercalation usually employed. Hence the same rule could be used for both America and Jerusalem, in harmony with the Adventist reckoning, without changing their calendar over to Julian time.

The list of full moons given in the so-called 308th 19-year cycle has no March moons. With the exception of two--1848 and 1851--this is a series of true paschal full moons just as it stands. Frequently tables are presented in connection with the Jewish passover that contain a mixture of equinoctial moons and April moons. The March moons are by some chronologers cast out as impossible because of the very fact that barley cannot ripen in Palestine during the March rains. In such tables, the presence of March moons, that is, equinoctial full moons, would point out the true paschal moon as coming a moon later in April, or around the 1st of May, as the case might be. But in the TABLES here under criticism, the full moons given are all true paschal moons with the exception of two, and need no correction. Consequently some other rule than the "March rule" for intercalation must be employed, in order to point out which moon is embolismic.

If the year 1842-1843 were made a leap year in Jewish time, the month of Nisan would come wholly in May at the time of wheat harvest in Judea, thus throwing the passover wholly out of its proper season. The month of Tisri would also come largely in November, causing the Day of Atonement to occur too late.

The Millerites discovered that the year 1844 was a true embolismic year. They found this out by comparing the common Jewish calendar with the Mosaic law, which specified ripe barley at the passover time. They chose the full moon nearest to the season of ripe barley, as it occurs in Palestine, according to the Gregorian calendar, and to it added the number of days which intervene between Passover and the 1st day of Tisri, and arrived at the day October 13, Boston Civil Time. It was a simple method, one which did not violate known rules of chronology, and it worked.

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[1] The Gregorian calendar coincides with the Julian calendar during the period 200 A.D. to 300 A.D. That is to say, 10 days were taken off for the years A.D. 1100,* 1000, 900, 700, 600, 500, 300, so that in adjusting the dates of the first century found in the Gregorian style to the Julian style, two days must be subtracted for the years 200 and 100 A.D."--General Sir Charles Warren, K.C.B., F.R.S. "Dates on which Paschal Full Moons Occur." Quarterly Statement Pales. Ex. Fund, April, 1900. Page 158.

* this article omitted the years 1300, 1400 and 1500.

Note: To be exact, there are about 13 hours difference between the Gregorian reckoning of the 19th century, and Gregorian dates in the 1st century. According to Schram, the Julian day numbers of Julian and Gregorian Time coincide in the year 201 A.D. This would make a difference of about 2 days and 13 hours between the Gregorian calendar of the 19th century and Julian time in the 1st.

# "CYCLES 213 AND 308"

The two 19-year cycles numbered 213 for the years 28-46 A.D., and 308 for the years 1835-1853 A.D. do not belong to the same series. Cycle 213 covers the time of Christ, and cycle 308, the time of the 1844 movement. The columns below, I and II, represent the two cycles and their corresponding years, as copied direct from the TABLES under consideration:

I

Cycle 213 First Century

| | | | | |
|---|---|---|---|---|
| Year | 1 | 27-28 | 1st Embolismic | |
| " | 2 | 28-29 | | |
| " | 3 | 29-30 | | |
| " | 4 | 30-31 | 4th | " |
| " | 5 | 31-32 | | |
| " | 6 | 32-33 | | |
| " | 7 | 33-34 | 7th | " |
| " | 8 | 34-35 | | |
| " | 9 | 35-36 | 9th | " |
| " | 10 | 36-37 | | |
| " | 11 | 37-38 | | |
| " | 12 | 38-39 | 12th | " |
| " | 13 | 39-40 | | |
| " | 14 | 40-41 | | |
| " | 15 | 41-42 | 15th | " |
| " | 16 | 42-43 | | |
| " | 17 | 43-44 | | |
| " | 18 | 44-45 | 18th | " |
| " | 19 | 45-46 | | |

II

Cycle 308 19th Century

| | | | | |
|---|---|---|---|---|
| Year | 1 | 1834-35 | 1st Embolismic | |
| " | 2 | 1835-36 | | |
| " | 3 | 1836-37 | | |
| " | 4 | 1837-38 | 4th | " |
| " | 5 | 1838-39 | | |
| " | 6 | 1839-40 | | |
| " | 7 | 1840-41 | 7th | " |
| " | 8 | 1841-42 | | |
| " | 9 | 1842-43 | 9th | " |
| " | 10 | 1843-44 | | |
| " | 11 | 1844-45 | | |
| " | 12 | 1845-46 | 12th | " |
| " | 13 | 1846-47 | | |
| " | 14 | 1847-48 | | |
| " | 15 | 1848-49 | 15th | " |
| " | 16 | 1849-50 | | |
| " | 17 | 1850-51 | | |
| " | 18 | 1851-52 | 18th | " |
| " | 19 | 1852-53 | | |

There are just 95 cycles' difference between cycles 213 and 308. This makes 1805 years, or 19 times 95. There should be exactly the same number of years between the 1st-century and the 19-century dates, which are used to start the cycles--or the years 28 and 1835 A.D. There is, however, between these two years a difference of 1807 years, thus showing that cycle 308 in 1844 is not a continuation of cycle 213 in the first century. One or the other, it would seem, must be given up.

[IV] G.M.T. 1 22 1 22 1 2122 122 2212

# BIBLE TIME (THE 308th CYCLE)

The 308th 19-Year Lunar-Solar Cycle Since Creation

NEW STYLE OLD STYLE

| 1 Lunar Year | 2 A.M. | 3 A.D. | 4 Nisan | 5 | 6 (Cycle) Moons | 7 Vernal Equinoctial Moons d h m | 8 Correction | 9 | 10 Days | 11 (Julian) | 12 Correction | 13 Veadar Years Days | 14 | 15 Correction | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 354 | 5835 | 1834-35 | 14 | Sun | Apr. 12 | 12 19 16 | Apr. h m | Sun. | − 12 = | Mar. 30 Fri. | Mar. 31 Sun. | + 30 = | Apr. 29 Sun. | + 29 = | Apr. 29 Mon. |
| 2 Em 384 | 5836 | 1835-36 | 14 | Sun | May 1 | Apr. 30 3 59 | 30 19 57 | Sat. | − 12 = | Apr. 18 Fri. | Apr. 18 Sat. | | = Apr. 18 Fri. | | = Apr. 18 Sat. |
| 355 | 5837 | 1836-37 | 14 | Wed | Apr. 19 | 20 8 39 | . . . . . | Thur | − 12 = | Apr. 6 Mon. | Apr. 8 Thur. | | = Apr. 6 Mon. | | = Apr. 8 Thurs. |
| 354 | 5838 | 1837-38 | 14 | Tues | Apr. 10 | 9 14 6 | . . . . . | Mon. | − 12 = | Mar. 28 Sun. | Mar. 28 Mon. | + 30 = | Apr. 27 Tues. | + 29 = | Apr. 26 Tues. |
| 5 Em 384 | 5839 | 1838-39 | 14 | Sun | Apr. 28 | 28 7 24 | . . . . . | Sun. | − 12 = | Apr. 15 Fri. | Apr. 16 Sun. | | = Apr. 15 Fri. | | = Apr. 16 Sun. |
| 354 | 5840 | 1839-40 | 14 | Fri | Apr. 17 | 16 7 55 | . . . . . | Thurs | − 12 = | Apr. 4 Wed. | Apr. 4 Thurs. | | = Apr. 4 Wed. | | = Apr. 4 Thurs. |
| | 5841 | 1840-41 | 14 | Tues | Apr. 6 | 5 13 31 | . . . . . | Mon. | − 12 = | Mar. 24 Sun. | Mar. 24 Mon. | + 30 = | Apr. 23 Tues. | + 29 = | Apr. 22 Tues. |
| 7 Em 384 | | | | | (May 5 | 2 5) | | | | | | | | | |
| 354 | 5842 | 1841-42 | 14 | Mon. | Apr. 25 | 24 11 27 | . . . . . | Sun. | − 12 = | Apr. 12 Sab. | Apr. 12 Sun. | | = Apr. 12 Sab. | | = Apr. 12 Sun. |
| 355 | 5843 | 1842-43 | 14 | Fri. | Apr. 13 | 14 2 29 | . . . . . | Fri. | − 12 = | Mar. 31 Wed. | Apr. 2 Fri. | + 30 = | Apr. 30 Fri. | + 29 = | May 1 Sat. |
| 10 Em 384 | 5844 | 1843-44 | 14 | Thur | May 2 | May 2 3 16 | . . . . . | Thur | − 12 = | Apr. 19 Tues | Apr. 20 Thur | | = Apr. 19 Tues. | | = Apr. 20 Thurs. |
| 354 | 5845 | 1844-45 | 14 | Mon. | Apr. 21 | 21 19 12 | . . . . . | Mon. | − 12 = | Apr. 8 Sab. | Apr. 9 Mon. | | = Apr. 8 Sab. | | = Apr. 9 Mon. |
| 355 | 5846 | 1845-46 | 14 | Sab. | Apr. 11 | 11 5 54 | . . . . . | Sat. | − 12 = | Mar. 29 Thur | Mar. 30 Sat. | + 30 = | Apr. 28 Sat. | + 29 = | Apr. 28 Sun. |
| 13 Em 384 | 5847 | 1846-47 | 14 | Fri. | Apr. 30 | 30 1 25 | . . . . . | Fri | − 12 = | Apr. 17 Wed. | Apr. 18 Fri. | | = Apr. 17 Wed. | | = Apr. 18 Fri. |
| 354 | 5848 | 1847-48 | 14 | Tues | Apr. 18 | 18 2 31 | . . . . . | Tues | − 12 = | Apr. 5 Sun. | Apr. 6 Tues | | = Apr. 5 Sun. | | = Apr. 6 Tues. |
| | 5849 | 1848-49 | 14 | Sun. | Apr. 8 | 7 3 49 | . . . . . | Sat. | − 12 = | Mar. 26 Fri. | Mar. 26 Sat. | + 30 = | Apr. 25 Sun. | + 29 = | Apr. 24 Sun. |
| 15 Em 383 | | | | | (May 6 | 19 6) | . . . . . | | | | | | | | |
| 354 | 5850 | 1849-50 | 14 | Sab. | Apr. 27 | 25 23 20 | . . . . . | Thur | − 12 = | Apr. 14 Thur | Apr. 13 Thur | | = Apr. 14 Thur | | = Apr. 13 Thurs. |
| 355 | 5851 | 1850-51 | 14 | Wed. | Apr. 16 | 15 10 35 | . . . . . | Tues | − 12 = | Apr. 3 Mon | Apr. 3 Tues | | = Apr. 3 Mon. | | = Apr. 3 Tues. |
| | 5852 | 1851-52 | 14 | Sun. | Apr. 4 | 4 2 23 | . . . . . | Sun. | − 12 = | Mar. 22 Fri | Mar. 23 Sun. | + 30 = | Apr. 21 Sun | + 29 = | Apr. 21 Mon. |
| 18 Em 384 | | | | | (May 3 | 10 33) | | | | | | | | | |
| 355 | 5853 | 1852-53 | 14 | Sab. | Apr. 23 | 23 3 11 | . . . . . | Sat. | − 12 = | Apr. 10 Thur | Apr. 11 Sat. | | = Apr. 10 Thur | | = Apr. 11 Sat. |

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Note--The Astr. Full Moons are copied from the Ephemeris, Royal Observatory, Greenwich, London, England. At the U.S. Naval Observatory, Washington, D.C. J.H. Wierts.

Cycle Dates in 1st. cen. 213

- 1 = Apr. 29 (Apr. 28)
- 2 = Apr. 18
- 3 = Apr. 7
- 4 = Apr. 27 (Apr. 26)
- 5 = Apr. 15
- 6 = Apr. 4
- 7 = Apr. 23
- 8 = Apr. 12
- 9 = Apr. 30 (Apr. 29)
- 10 = Apr. 19
- 11 = Apr. 8
- 12 = Apr. 27
- 13 = Apr. 16
- 14 = Apr. 5
- 15 = Apr. 25
- 16 = Apr. 14
- 17 = Apr. 2
- 18 = Apr. 21
- 19 = Apr. 10

Cycle Dates in 19th cen. 308

- 1 = Apr. 12 + 18 = Apr. 30 +
- 2 = May 1 − 12 = Apr. 19
- 3 = Apr. 19 − 12 = Apr. 7
- 4 = Apr. 10 + 18 = Apr. 28 +
- 5 = Apr. 28 − 12 = Apr. 16
- 6 = Apr. 17 − 12 = Apr. 5
- 7 = Apr. 6 + 18 = Apr. 24 +
- 8 = Apr. 25 − 12 = Apr. 13
- 9 = Apr. 13 + 18 = May 1 +
- 10 = May 2 − 12 = Apr. 20
- 11 = Apr. 21 − 12 = Apr. 9
- 12 = Apr. 11 + 18 = Apr. 29 +
- 13 = Apr. 30 − 12 = Apr. 18
- 14 = Apr. 18 − 12 = Apr. 6
- 15 = Apr. 8 + 18 = Apr. 26 +
- 16 = Apr. 27 − 12 = Apr. 15
- 17 = Apr. 16 − 12 = Apr. 4
- 18 = Apr. 4 + 18 = Apr. 22 +
- 19 = Apr. 23 − 12 = Apr. 11

constitute continuing cycles of the same series below

# "CYCLES 213 AND 308"

The two 19-year cycles numbered 213 (for the years 28-46 A.D.) and 308 (for the years 1835-1853 A.D.) do not belong to the same series. Cycle 213 covers the time of Christ, and cycle 308, the time of the 1844 movement. The columns below, I and II, represent the two cycles and their corresponding years, as copied direct from the TABLES under consideration:

| I | | | | | II | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Cycle 213 | | First Century | | | Cycle 308 | | 19th Century | | |
| Year | 1 | 27-28 | 1st | Embolismic | Year | 1 | 1834-35 | 1st | Embolismic |
| " | 2 | 28-29 | | | " | 2 | 1835-36 | | |
| " | 3 | 29-30 | | | " | 3 | 1836-37 | | |
| " | 4 | 30-31 | 4th | " | " | 4 | 1837-38 | 4th | " |
| " | 5 | 31-32 | | | " | 5 | 1838-39 | | |
| " | 6 | 32-33 | | | " | 6 | 1839-40 | | |
| " | 7 | 33-34 | 7th | " | " | 7 | 1840-41 | 7th | " |
| " | 8 | 34-35 | | | " | 8 | 1841-42 | | |
| " | 9 | 35-36 | 9th | " | " | 9 | 1842-43 | 9th | " |
| " | 10 | 36-37 | | | " | 10 | 1843-44 | | |
| " | 11 | 37-38 | | | " | 11 | 1844-45 | | |
| " | 12 | 38-39 | 12th | " | " | 12 | 1845-46 | 12th | " |
| " | 13 | 39-40 | | | " | 13 | 1846-47 | | |
| " | 14 | 40-41 | | | " | 14 | 1847-48 | | |
| " | 15 | 41-42 | 15th | " | " | 15 | 1848-49 | 15th | " |
| " | 16 | 42-43 | | | " | 16 | 1849-50 | | |
| " | 17 | 43-44 | | | " | 17 | 1850-51 | | |
| " | 18 | 44-45 | 18th | " | " | 18 | 1851-52 | 18th | " |
| " | 19 | 45-46 | | | " | 19 | 1852-53 | | |

of these two cycles

initial jewish years of the two cycles

There are just 95 cycles' difference between cycles 213 and 308. This makes 1805 years, or 19 times 95. There should be ~~exactly the same number of years~~ between the 1st-century and the 19-century dates, which are used to start the cycles--or the years 28 and 1835 A.D. There is, however, between these two years a difference of 1807 years, thus showing that cycle 308 in 1844 is not ~~a continuation of~~ cycle 213 in the first century. One or the other, it would seem, must be ~~given up~~.

* belongs because of this two year discrepancy.

It would seem therefore impossible to retain both cycles apparent with this discrepancy how is it possible to retain both cycles?

There should be exactly 1805 years between the corresponding years of the two cycles; as for instance in the 3rd year, if 29 were taken from 1836, or 30 from 1837. But the difference between these first-century years and 19th-century years is 1807. ~~which~~ This figure shows a discrepancy of 2 years, which indicates that cycle 308 in 1844 is not an exact continuation of the series to which cycle 213 in the 1st. century belonged. How do you account for this 2-years' disagreement?

#7? from Bryan Roberts

# ANDREASEN'S REVIEW OF MILLERITES

Elder Andreasen's research into the Adventist records of 1844 is most valuable. He seems to have uncovered the fact that the astronomical reckoning of the Millerites, if it may be called such, was largely worked out after the day had passed. To this might be added that it was William Miller's review of the types, as far back as May, 1843, that really gave the impulse that started the seventh month movement, after the disappointment in the spring of 1844. Already, in February of that spring, Snow was working on these types, and was prepared to give the whole subject in August, at the date of the Exeter campmeeting. From that time on, again and again, and continuously up to the very end, the five-point argument of the types--(1) the 6000 years from creation, dated in the fall of the year; (2) the seven times, or 2520 years from 677 B.C.; (3) the grand Jubilee, or 2450 years from 607 B.C.; (4) the 2300 years from 457 B.C.; and (5) the 1335 years from 509 A.D., the year Clovis, king of France, was made consul of Rome--was presented as the reason for choosing the fall of the year 1844 as the date of the second coming of Christ. Snow and Hotchkiss and Gosse (England) were among tho first who corrected the error that had been made in carrying the time over from B.C. to A.D. There were some who never did fully understand this mistake.

In September Himes and Litch had planned to go to England to help the mission there. They were not in exact harmony with the movement. Himes said that the types could only point to the year, not to the day and month. But the people had pretty generally accepted the "Karaite seventh month," as they called it, in contradistinction to the Rabbinical September. This point had evidently been in their minds settled by such authorities as Jahn and Michaelis, to whom frequent mention was made in the spring of 1844 of the Advent Herald. It was not difficult, therefore, to count seven new moons from the Karaite new moon of April, which they did, and obtain October as the seventh moon. This fact, and the argument from the Miller types spread over the land like a whirlwind, so that by the first of October the "midnight cry" had gathered so much momentum that Himes gave up going to England, and decided to immediately prepare for the coming of the

2. It emphasizes the delayed reaction of the less leading papers toward the seventh month movement, which fact seems to give as much if not more value to their statements made after October 22 as to those made before.

1. The Andreasen "Millerite Chronology" seems to be a clear statement of what the Millerites believed.

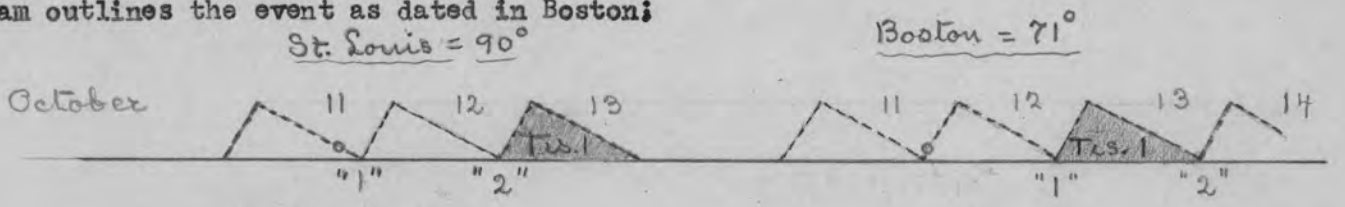
3. His attempt to show how the Adventists arrived at the exact civil date of the "tenth day" does not appear to be correct in that he misapplies their tranpolation rule.

4. His application of Southard's note - "June at Jerusalem" is based on the hypothesis that Southard made a mistake, putting the ~~a~~ made a mistake and wrote the date October 23 instead of the date October 22 which had been adopted for America.

Lord. As a result, on account of the Herald's delay in joining the movement, being the last to declare its approval, the Midnight Cry, in New York, under the editorship of Southard, was more forward in working out the civil date of the so-called "tenth day". There seems to have been pretty generally among the editors the idea that the tenth day was October 22 or 23, or about 22, until after the day had passed. The letters which came in to the papers almost always mentioned the "tenth day of the seventh month." But By October 2, in the Midnight Cry, Storrs writes that he thinks the event will be on the evening of the 22d. On October 6, William Miller inserted his striking announcement in the papers. for October 22.

Naturally, there had to be some special reason for choosing October 22 as the decisive date, and these reasons, as Elder Andreason has shown, were more especially discussed in detail after the day had passed.

The paragraph at the top of page 11 does not seem to me to represent the true Millerite application of the translation rule, "usually the second evening after the change," for as adapted by Elder Andreasen, it does not agree with the Millerite civil dates for the first and tenth days of the seventh month. The accompanying diagram outlines the event as dated in Boston:




Again and again the 1844 records call October 13 the first day of the seventh month in Boston, as Elder Andreasen has shown. In the Millerite mind, then, that day could not possibly have begun at its closing sunset, marked "2" in the diagram. Even I.R.Gates, who preached on that Sunday evening in Baltimore, called it "Oct.14," , probably thinking in Jewish time, by which the 14th had already begun. Inasmuch as Gates was arrested on Monday, which was October 14 on the civil calendar, he surely would not make any error in the date as given. Cf. Midnight Cry, Oct. 31, 1844, p. 143.

The sunset marked "2" in the diagram was the second sunset after the moon's

change in Boston, but it was not the sunset which marked the beginning of the first day of the seventh month. If it had been, then in America, the first day would have been October 14, and the tenth, October 23, and these dates would, upon retrospect, have become the ultimate dates approved. On the contrary, the ultimate date everywhere in America, was October 22, and this was the tenth day after the first sunset sunset that followed the change of the moon on the evening of October 11.

As pointed out on page 1 of "The 1844 Problem," this Millerite rule, "usually the second evening after the change,"--mentioned in the Advent Shield, p. 274,--applied to every conjunction involved in the Millerite quest but one. This "one" is the Boston meridian. On the other hand, it should be noted that this translation rule was primarily applied to the meridian of Jerusalem.

got the idea from Cruden's Concordance, Jahn's Archeology, Hale's Chronology, and from Scaliger, each one of whom is mentioned. These authorities all apply the rule to Jerusalem. While it is true that in one or two of the Millerite writings, where this statement is used, the meridian of Jerusalem is omitted, it would indeed be unfortunate to represent the Millerite argument in an attempt to adapt this rule to the longitude of Boston, — a meridian that it does not fit. In western parts of America, as in St. Louis, 90° west longitude, this rule is applicable, and here the "midnight cry" was sounding; as also in Alabama and Mississippi.

Inasmuch as this translation rule, "usually the second evening after the change," cannot be applied to every longitude and latitude, and inasmuch as the Millerite sources applied it primarily to Jerusalem, it is not conclusive that the Millerites applied this rule to the Boston conjunction, contrary to their civil reckoning for the first and tenth days of the seventh month, which would be October 13 and October 22.

written in reply to Andreasen

# L U N I - S O L A R  T I M E

The criticism of the astronomical chart submitted in verification of the 1844 movement maintains that it is not Biblical, that it is impractical, and that therefore it will be looked upon as a table especially prepared to support a certain astronomical event. The answer to this general contention embraces the following points:

1. The Diagram illustrating the Lunar Meridian.
2. The logical place of ending for the 2300 days.
3. Jerusalem--its bearing on the prophecy.
4. The Luni-solar Calendar itself--is it Biblical, reasonable, and in harmony with calendrical science.

1. The Lunar Meridian.--In the lunar meridian diagram presented, the last day of a Jewish month--a 24-hour day numbered "30"--is presented as extending from the meridian of the old phasis at sunset to the sunset point of the new meridian. The illusive error in this Diagram consists in the fact that the day numbered "30," corresponding to the red line, and extending from one sunset point to another, is actually 24 hours long, though, according to the Diagram, it is made to be only about 12 hours long, as the day travels. This difference in degrees between two consecutive phasis meridians cannot without confusion be introduced into this form of illustration. The lunar meridians, which intersect the earth's parallel, around which the 24-hour day travels, are simply geographical longitudes, marked out by the moon, and correspond to the moon's earliest phasis, for a particular first day of the month. The designation of these meridians is dependent upon geographical latitude and longitude, upon the place in the sky of both sun and moon, and upon the season of the year. Failure to base the theory of the Diagram upon accepted astronomical facts and definitions is its fundamental error.

On the other hand, whatever difference in longitude prevails between known lunar meridians, for this the Jewish calendar provides in its elastic months Hesvan and Kisleu. These variant months counterbalance inequalities of the moon that tend to vary the length of a luni-solar year. It should also be remembered that the luni-solar calendar itself has monthly differences of about 12 hours with the true

astronomical position of the moon, and that the moon is sometimes in advance of her mean, and sometimes behind. The controlling forces, though variable, keep the moon's motion in time with exact law, so that Scaliger was frequently led to declare that the Jewish calendar was the most certain, and the most ingenious of all.[1] Referring to the Nicaean fathers, he concludes:

"But if those ancients had followed this method, and, if they were unwilling to learn from the Jews, but had learned from the Arabs and Damascenes ]who used the same calendar as the Jews], their new moons would not now antedate the ancient epochs by a whole four days, as happened from so great carelessness and neglect."[2]

The "second feast-day of the Diaspora" was designed, among adherents of the Jewish fixed calendar, to meet the difficulty, which for many centuries has invaded luni-solar time-keeping on a round world.[3] A difference in festival dating is nothing new. It has been a source of continual controversy among the Jews ever since the destruction of Jerusalem. We have many historical testimonies on this point. The following are important:

"Elias of Nisibis (abiit post 1046) tells us that the year of the Hegira 309 began on Saturday, the 22nd of Ijar, in the year 1232 of the Greek era; and that, in this year, a schism broke out between the Eastern and Western Jews in reference to the dates of the Feasts. The Western Hebrews began their year on a Tuesday, the Eastern on a Thursday. . . We see also that the Western Jews, i.e., those in Palestine, followed the head of their school and kept Passover--and consequently all the other feasts--two days earlier than their Eastern co-religionists."

"The events here related we have also rediscovered in a Hebrew source, viz. in Sahl b. Mazliach's polemic against Jacob b. Samuel, Saadiah's pupil. The former, a Karaite zealot, says that in the time of the Fajjumite (Saadiah) a dispute broke out concerning the Feasts which the Palestinians kept on different days to the Babylonians."[5]

"Thus we observe seething among the Jews in the tenth century an agitation that was far from superficial, but, on the contrary, stirred men's minds to their depths . . . Possibly to this dispute about the calendar we may trace the fact recorded by Sahl, that some Rabbanites in Palestine kept two days of the Festival--one, according to the observance of the moon; and one according to the fixed calendar."[6]

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[1] Scaliger, Joseph, "De Emendatione Temporum," page 108, etc.
[2] Idem.
[3] Poznanski, Samuel, "Encyclopedia of Religion and Ethics," ed. by Hastings, art. Calendar (Jewish).
[4] Poznanski, "Jewish Quarterly Review, Vol. X, p. 154.
[5] Idem.
[6] Sidersky, "Chronologie juive," p. 623.

"Thus until this day the Karaites in the Orient, and in the Crimea, are seen to have their religious festivals celebrated on different days by different communities."[7]

This calendar quarrel even afflicted Jewry in the time of Christ, and was carried on by the various sects--Sadducees, Pharisees, Essenes, and Bethusaeans. We see the priest and Sadducean class, who in the year of the crucifixion were in power,[8] planning to eat the Passover on Friday evening,[9] contrary to Jesus and His Galilean disciples, who ate it on Thursday evening.[10] And after all, what did it matter? The types were finished, and the true Lamb was to be offered.

And under the operation of the Jewish fixed calendar, festival observance has not resulted in the ideal which the Jews seek, neither is their perverted form of worship, or its calendar, the answer to the divine purpose relative to the earthly ministration of the types. In the hands of astronomers, Catholics, and Jews,[11] the Jewish calendar and its nineteen-year cycle lead to the date, April 3, 33 A.D., or the year of the crucifixion. For this very reason the Millerites rejected the Rabbinical system of computation as a measure of time that did not fit their problem.

Is it not the Committee's problem to lay out a lunar calendar measurement for a known event of prophecy, and tie it to common civil time? No one need see in this a calendar scheme for world operation. Such is not its purpose. It has been encouraging that the calendar rules hitherto employed have led to results in harmony with the Spirit of prophecy. It is encouraging that they are in harmony with the Millerite conclusions. It would be of further encouragement to find other synchronisms that will coincide with the method of luni-solar calendation which has thus far proved true.

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[7] Sidersky, "Chronologie juive," p. 623.

[8] Chwolson, Daniel, "Die Letzte Passahmahl," pp. 87, 129, 147. "Not the Pharisees, but the Sadducees were in power in Christ's time." (p. 87.) At eighty years of age, Chwolson was a profound student of the text (1892).

[9] John 18:28.

[10] John 13:1

[11] Ferguson, the astronomer, Sidersky, Jewish chronologer, and many Catholic computers have used the Jewish calendar as a measure of time for the first century. By this system of reckoning, one common date is obtained for the crucifixion--April 3, 33 A.D.

2. On What Longitude Shall the 2300-Year Prophecy End?--This longest period of prophecy parallels the time of four other prophetic periods: (1) The seventy weeks; (2) the "time," or 360 years in Dan. 11:24; (3) the 1260 years; and (4) the 541 years and 15 days of Revelation 9. The Jewish period started the 2300 days, and the Turkish period virtually ended at the same time. Each one of the four earthly powers represented was put on probation for a certain limited period; each one failed to measure up to the divine purpose; and each respective prophetic period ended where it began. The seventy weeks began and ended in Jerusalem; the 360 years, as pertaining to the Roman empire, would begin and end in the stronghold of Rome; the 1260 years, in the western see; Turkish period, in the eastern empire.

But not so the 2300-year period, which, as a whole, related to the ministry of Christ, first on earth, and then in the heavenly temple. This ministry was not confined to Jews, Romans, or Turks, but pertained to the whole world. It demonstrated its meaning through types and shadows for a limited time on earth, then for the remaining 18 centuries of the prophecy, carried on in the heavenly temple itself. And when, at the end of the 2300 years, a change was made in this ministry, the event occurred in heaven, not in Jerusalem, which for a thousand years had been ruled largely by Mohammedan peoples, and where no Urim, no Thummim, no angel--all the ancient means of communication with God had fled.

The end is described in Revelation 10, when the mighty angel came down from heaven, with a rainbow upon his head, with his face as it were the sun, and set his right foot on the sea, and his left foot on the earth, and cried with a loud voice, taking solemn oath that there should be time no longer. Seven thunders answered with voices the loud voice of this angel. It was a place here on earth with loud voices that answers to the endinf of the 2300 years, not a small spot in Jerusalem, which was silent and speechless in reference to the prophecy. It was a place here on earth where rested the base of that mystic ladder, which "opened to the world the way into the "holiest of all," and on which the angels of God descended. ("Great Controversy," p. 19. Here in America only, the exact time of this message was

announced, and this longitude offers a concrete meridian on which the prophecy may be tied to civil time. The event as it occurred in America is primary, and without this history, the meridian of Jerusalem would be useless.

3. Jerusalem.--On the other hand, Jerusalem does have a certain calendar relation to the 2300-year prophecy; for (1) the paschal full moon on Nisan 13 is a chronological formula that works so far as is yet known, only on the meridian of Jerusalem. On this basis the luni-solar calendar can be laid down in astronomical harmony with all the positions of the moon. In this lies the important evidence of its validity. (2) The necessary form of year--whether common or embolismic--has to be tried out on an agricultural calendar basis in Jerusalem, as of old, and not from the state of the barley field in some other part of the world.

Near Jerusalem, was that special temple barley field in the sheltered Ashes-valley across the Kedron, which was always sown seventy days before the Passover, (Mishnah, Menach. viii, 1,2; Edersheim, Alfred, "The Temple," p. 258.) and which for centuries marked time for the feasts on that meridian. It was more reliable than any agricultural stone the spade could unearth, for it was a permanent, living thing, under promise of God who said that He would give rain in due season that the corn might be gathered in (Deut. 11:14). To break this promise, meant the disruption of the whole feast system of types and ceremonies, the method of instruction ordained of God for Israel. It was the influence of that centuries-old barley harvest in Jerusalem that made it possible for Michallis to conclude that only April and October correspond to the principle feasts of the Mosaic system.

The rules were simple, and the Millerites followed them. They rejected the Rabbinical April 4 for Passover in 1844 because it was a date too early for barley harvest in Jerusalem, and not for ripening barley in any other country. The state of the barley simply located the paschal moon, whether in April or May in the Holy Land. The moon did the rest, and her conjunction and opposition dates on other meridians differed from that of Jerusalem only by the difference in local time, except that the meridian marking the end of the festival day has to be noted. A barley harvest in Africa or California could be no guide at all in locating the paschal moon on some other meridian. When located by Jerusalem, in harmony with Mosaic law, it is an easy matter to follow

this moon around the world, but not, of course, a barley field!

4. The Luni-Solar Calendar Itself--Is it Biblical, Practical, Reasonable?--In 1844, for the first time since the end of the 70 weeks, a problem in luni-solar reckoning, directly related to the ministry of Christ, came up for solution. This problem reverted to the original Mosaic types, and therefore the calendar measure had to be a replica of the primitive Mosaic year. The following astronomical details were a necessary foundation for laying out this luni-solar calendar: (1) The appointed Jewish feast dates; (2) New moon and full moon dates, as found in standard tables; (3) Form and length of the Jewish year--common or embolismic; (4) Position of the moon in the heavens, and her times of setting; and (5) Difference in time between meridians.

The dates of the Jewish festivals, in Jewish time, are found in the Bible. They were given to Moses when he was in the mount with God. The books of Exodus, II Chronicles, II Kings, and the prophecy of Jeremiah contain definite dates for important events. Many such are found also in the prophecies of Ezekiel, Haggai, and Zechariah. They are all lunar time. These chronological references all go to show that the Jewish people, throughout the centuries, had a dependable calendar system, with its related festivals according to which events were reliably recorded. The feasts themselves occupied a period of more than half the Hebrew year, concerning which Moses had received instructions direct from God.

For nearly forty years Moses remained with Israel, and was thus responsible for the operation of those institutions which became an integral part of the Jewish polity. These were far-reaching in purpose, for God's original plan provided that all the families of the earth should come up to Jerusalem to keep the feast of Tabernacles. But a common center of worship in the earth, when, from one new moon to another, by lunar reckoning, and from one sabbath to another, by solar reckoning, all flesh would come to worship before God, shows that a luni-solar time system can be world-embracing in performance. Two millenniums after the world was created, Moses wrote that both great lights--the moon as well as the sun--were for "days and years."[12] The lunar year, therefore had a part in the great plan of creation, and is taken note of in the pages of Holy Write

Both new moon and full moon, in ancient practice, could be determined by observation. For at the beginning of every Hebrew month, the moon assumed a certain shape,[13] and position in the heavens, and with this performance the Jews were pre-

[12] Gen. 1:14. "And let them be for signs, and for seasons, and for days and years."
[13] Scaliger, p. 105: "For the new moons are reckoned according to the conjunction, as of the ancient Attics. . . or according to the shape of the moon, such as are the Jewish, Arabic, and ancient Chaldeans and Damascenes."

eminently familiar. It enabled David to say with finality to Jonathan, "Behold, tomorrow is the new moon."[14] It inspired the psalmist to call the moon a "faithful witness in the sky."[15] And so, in like manner, the Passover full moon had its special feature of observation, for Nisan 14 in Jerusalem always followed the day when the paschal full moon arose at sunset. This testimony has come down to us from the century before Christ, and is fully confirmed by history and astronomy throughout the Christian era.[16] It is an astronomical definition that the full moon rises when the sun sets. In every common almanac, on the day of full moon, the worlds moon rises are placed opposite the hour of setting sun. The "Book of Enoch," written about 150 before Christ, has this historic testimony concerning the full moon:

"She becomes full moon exactly on the day when the sun sets in the west, and from the east she rises at night."[17]

On the evening of Nisan 13, in 31 A.D., Jesus walked with His disciples through the streets of Jerusalem on His way to the mount of Olives. The light of the full moon shone upon a trailing vine, and, as if in response, He said, "I am the true vine." In comment on this scene, these words come from the "Desire of Ages:" "The moon is shining bright, and reveals to Him a flourishing grape-vine."[18] And then again, "The Passover moon, broad and full, shone from a cloudless sky."[19] There can be no uncertainty here, that, according to the Spirit of prophecy, the evening of Nisan 13 in the year of the crucifixion was the evening when the moon had come to her full in Jerusalem.

This is simply Postulate I--the paschal full moon always on Nisan 13 in Jerusalem. With this rule the Millerite reckoning has proved to be in harmony, for when they counted the autumn festivals in Jerusalem to be a day later than in America, it meant that the Passover in the spring in Jerusalem fell on Nisan 13. This Postulate is also in full agreement with the primitive lunar rule that started the lunar month with the "Horned" moon, also called the "second" moon, because of an earliest

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14 I Sam. 20:5.
15 Ps. 89:37 A.R.V.
16 See Page 8.
17 Charles, R.H., "The Apocrypha and Pseudepigrapha of the Old Testament," p. 244. [Oxford, 1913.
18 "Desire of Ages," page 674
19 "Desire of Ages," page 685.

appearance on the second day after conjunction, providing the necessary three factors were favorable.[20] Both astronomy and history say that this older moon was commonly the phasis that began the Jewish month. In like manner, the Millerites repeated among themselves many times that the first day of the Jewish month usually began "the second evening after the change."[21]

The standard ephemerides and astronomical tables of the 20th century give very complete lists of the full moons and new moons, not only for modern times, but also exact computations for the first century. History informs us that the Jews also knew the moon dates for their own day--that mathematicians had made the calculations for them in the time of Alexander.[22] In Jewish history and chronology, the children of Issachar, "men that had understanding of the times," are accounted as having a reputation in calendrical science, and that therefore they were classed as among David's chief officers.[23] It is probable that the Jewish nation learned from Moses the astronomy of the moon, and that this knowledge was passed on from age to age. There is also left on record this testimony written, it is said, in the century before Christ:

"For he hath given me an unerring knowledge of the things that are, to know the constitution of the world, and the operation of the elements; the beginning and end and middle of times, the alternations of the solstices and the changes of seasons, the circuits of years and the positions of stars."[24]

The book of Enoch, written about 150 years before Christ, also bears direct testimony to the 29 and 30 day months. The following is the reference:

"And three months she makes of thirty days, and at her time she makes three months of twenty-nine days each, in which she accomplishes her waning in the first period of time, and in the first portal for one hundred and seventy-seven days. And in the time of her going out she appears for three months (of) thirty days each, and for three months she appears (of) twenty-nine each."[25]

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20 Cf references on page
21 Advent Herald, Sept. 11, 1844, page 45, col. 2.
22 Albiruni, "Chronology of Ancient Nations," page 68, Tr. by Sachau.
23 I Chron. 12:32
24 Charles, R.H., "Apocrypha," Vol. I, p. 520.
25 Idem., Vol. II, p. 244.

The foregoing references to luni-solar time in the Bible, though few in number, are of primary importance in showing that an established and regular calendar system existed among the Jewsin ancient times. Since the Jews had 29 and 30 day months, in the time of Christ, they must have known the number of days between Passover and Atonement. Since they had to keep their feasts in season, they had also to intercalate their months from time to time. Since the Mosaic system was oriented on various meridians--Egypt, Sinai, Jerusalem and Babylon--Israel must have known the effect of a change of longitude on luni-solar time, and this very fact is a reasonable cause of the controversy which disturbed the Jews in the time of Christ over the calendar question. With these Biblical facts the luni-solar table submitted to the Committee is in agreement. It is in harmony with the Mosaic feast calendar, which was tried out on more than one meridian. It is practical and reasonable, because this form of calendar results in a single date only for the crucifixion, agrees with the statements of the Spirit of prophecy, and is in conformity with the Millerite conclusions.

If the calendar table by which the calendar- event may be verified fails to be in harmony with the laws governing the moon, then it is the wrong measure for time and prophecy. But of (1) it follows the known rules which direct the moon's performance; (2) is based, not on an elastic ecclesiastical cycle, but on the precise dates pertaining to the revolution of earth, sun, and moon, (3) gives full sanction to the Mosaic appointments, and to the acknowledged chronological statements in Holy Writ, (4) conforms to the demands of history and the Spirit of prophecy, and (5) is in ultimate accord with the specific determinations of those who worked out to conclusion the end of the prophecy in Daniel 8, is not this luni-solar computation a standard Biblical and scientific measure for the dates of prophecy?

OBJECTIONS TO THE USE OF THE WANDERING LUNAR DAY LINE AS BASIS IN DETERMINING JEWISH FEASTS AND THE BEGINNING OF THE BIBLICAL JEWISH NEW YEAR.

God's original plan for Israel embraced all the families of the earth

The original instruction of the Lord to Israel concerning the beginning of the New year was admittedly designed only for the Jews occupying a comparatively small area. Of this territory Jerusalem was the recognized center. Here was located the temple, the dwelling place of the Most High. Here appointed men supervised the necessary observations, and the computations were made that determined the yearly feasts. Under these circumstances there was, of course, no problem of any lunar day line, nor could there be as long as the Jews remained in Palestine.

No confusion would result because of difference in Solar time. We do not take the day with us — we keep the Sabbath on its proper — no one keeps the same Sabbath hours. Every meridian is different. Americans keep the Sabbath one day earlier than the Chinese — what of it?

Definite problems occur, however, when attempts are made to apply to the world that which was designed for a small, compact country. These problems are greatly magnified when determination of New Year and feast days is based upon local observations and computations. According to this plan each community decides for itself when the phasis of the moon occurs, and adjusts its New Year and feasts accordingly. It thus becomes not only possible, but inevitable, that a community located some distance west of the preceeding lunar day line would - should the new lunar day line fall between it and the former line - observe the coming feasts a day earlier than the community located east of the line. To be specific: if the lunar dayline should be changed from a point east of Jerusalem to some point west of Jerusalem - as for instance the middle of the Atlantic - New York would henceforth observe a designated feast before the same feast would be observed in Jerusalem, contrary to the ordinary movement of a day from the east to the west. Should the next lunar dayline happen to be located on a point still farther west, added confusion would result.

In course of time every meridian on earth would become the point of first appearance of the phasis. When the Nisan phasis occurred at a certain point, that point would become the starting point of the new year, and of a new calendrical scheme. The lunar day line would at times fall in the midst of the American continent. This would cause certain difficulties of a very practical nature. If the preceeding lunar dayline had been located somewhere in Europe, but now moved to some place between Chicago and Omaha, these two cities would not henceforrth observe the same day as they had formerly done. One would observe the same feast twenty-four ~~days~~ hours before the other, and Omaha would be first in its observation. The same would occur, of course, however near the cities were together if the lunar dayline should fall between them. Closely located cities would doubtless make some adjustment so as to keep together, but to that extent they would violate the rules of the new calendar, and very little would be gained by it. For wherever such a line be located there would be places close together who would have to observe different days where before they were together and united. It would not be easy to explain to the people that the God who advocated and instituted such an arrangement would be very concerned about the exact seventh day.

If an explanation were possible, and the people were at last adjusted to the shift in the feast day and the stability of the seventh day, it might be supposed that in time they would get used to the arrangement. But they would no sooner have become accustomed to this, till another shift is made. Now they shift back to where they were before. But neither is this settled or stationary. Another shift comes, and another and another. Now Denver observes the day before

Omaha does, then it observes the same day. Now Omaha and Chicago observe the same day, but at another time a different day. There is no uniformity, and just as the people get used to a certain arrangement, the day is changed again. Such is more than the common people can understand, and if we go to the people now with such a proposition, we must expect that confusion will result. And our enemies will not be slow to point out the difficulties and ring the changes on them.

The truth of course is that it is not possible to make regulations that were designed for a small country fit world conditions. As applied to the day of atonement it should be noted that this was more than the keeping of a day. There was a certain ritual connected with that day that could be performed only at one place, Jerusalem. To attempt to transpose that day to the ends of the earth, and to have that day subject to local conditions observed by each local community, only makes for confusion. As God originally ordained it, and as conditions were at the beginning of the 2300 day period, is doubtless, as far as any chronology is concerned, the way God would have then end. To begin a certain period on one kind of computation and to end it on another, is not consistent.

If in the new calendar scheme we are considering adopting it should be admitted that local communities have the right of making their own observations that would determine the new year, it would yet remain a question if the proper men competent for such observation would be available. It would doubtless be necessary to appoint a body of men competent to make the needed astronomical computations, and as these men could not make the journeys necessary for local observation, the dependence would be entirely on computation rather than on observation. This would doubtless be more exact, and would be imperative if consideration were to be given to other phases than the Nisan one, in order that the proposed scheme become a workable one. Hence some central body of scientists would become necessary and the biblical observation fall into discard. The work that our committee has done gives a little insight into the magintude of such a task. And this all comes about when it is decided to apply to world conditions what was never so intended. The seventh-day sabbath is clear and distinct. A child can understand its computation. Let not the people observing God's holy day sponsor a calendar that means confusion, and make our work unnecessarily hard. For while the proposed scheme does not in any way affect the succession of the days of the week, and hence does not affect the sabbath, nevertheless if the people observing the sabbath also advocates the new scheme of calendation, the resulting confusion will not be of any help to us.

It seems inconsistent to use a barley harvest in Jerusalem as the basis for calculating the beginning of a new year in California or South Africa. Consistency would demand that the barley harvest to be used would be the one where the computation is made. If a Jerusalem barley harvest is used, a Jerusalem computation should also be used. To apply a Boston computation on a Jerusalem barley harvest basis, does not sound consistent.

Under the proposed wandering lunar dayline computation, the southern hemisphere would need special consideration. In fact, the existence of a southern hemisphere emphasizes the difficulty of making a local Jewish calendar fit world conditions. If the local computation were used in South Africa, for instance, the results obtained from a South African barley harvest basis differ six months from a Northern hemisphere computation. And if a Jerusalem barley harvest were used, Pentecost would come in Mid winter.? The results would then be comparable to those now obtaining with reference to Christmas. The latter case might be admissable; the first would be ackward.

It is not denied, of course, that there is a constant shift in the meridian

where the phasis is first observed, and that this point can be astronomically determined. But the right to use such a wandering lunar dayline as the basis for determining a religious feast is challenged. This the more so as it is not now possible to observe such a ritual as was demanded for the observance of the day. This the more so that while the Jerusalem reckoning is abandoned, the Jerusalem barley harvest as a basis of computation id retained. This the more so as the proposed reckoning will apply to Boston only, and even then it cannot be used for the determination of the passover moon, at least not on the same method as applies in Jerusalem. This the more so as such a calendar as is proposed has never been in use before, and apparently cannot be constructed so as to apply to the world as a whole. In its present form it appears like special pleading, constructed to fit a certain situation, and inapplicable to world conditions. The 2300 began in Jerusalem; they were confirmed at the same place by the events of the seventieth week. 457, 27, 31, 34 form a straight line, all centering in Jerusalem. It would seem that 1844 should also terminate there. ?

Always the 22nd. luni-solar reckoning has to be considered from some certain meridian.

The committee has done a most excellent piece of work. The endorsing, unreservedly, of the plan now before us seems to me appears in its implications so loaded with dynamite, with TNT, that we might well beware. I would most earnestly warn the committee in this matter. I am afraid that the repercussions of such endorsement at this time will be felt in wide circles.

The confusion that will result and that is inherent in the plan proposed is illustrated in the accompanying diagram. The adoption of the plan provides for a year of unequal length in the eastern and western hemispheres. The shifting of the lunar dayline demands this.

Not always!

From the diagram it appears that whenever the lunar dayline is shifted from east to west, the intervening territory between the two lines will have an extra day in that particular year. If the line is shifted back, this difference adjusts itself. However, should the line be shifted still farther west, other complications would result. While the whole matter would ultimately become adjusted, it would certainly make for confusion. Seventh-day Adventists will soon have enough matters on their hands so that it will not be necessary to make trouble for ourselves before the time. The blank day may yet confront us. We cannot afford to start trouble of our own. To the world it will look that the present proposed calendar is advanced for a specific purpose - not for the purpose of adoption, for we will find that it is impossible of universal application,-mbut for the purpose of supporting the 1844 date. I do not believe that we are under that necessity. It must be possible to establish October 22 1844 without resorting to such devices.

A possible solution: I suggest that we make a report to Brother MaElhaney of what the Millerites believed and how they arrived at their conclusions, without, at this time, committing ourselves upon the correctness of their method. Let Brother MaElhaney publish this report in any way it may be thought best, and let us await the reaction. Thos, of course, would be only a preliminary report, and would be so designated. We will soon what fire it will draw. In the mean time let us study further on the final report. The reaction to the preliminary report may determine the form of the final. By that time my fears may all be dispelled. By that time the committee willl see light in my light, or I may be converted to their view. In any event, I hope that at this time there will not be made any attempt to present a report upon which we are not all united. God will yet hepp us.

What about Daniel 2?

M.L.A.

The third paragraph of section 6 deals with "the specific instance of the October conjunction in 1844." If the first seven months of the Jewish year must alternately consist of 29 and 30 days, and no variation can be permitted, then the conditions obtaining in the seventh month, namely that the new moon day first appeared in the western hemisphere, must also be true of the first month. If this is not the case, then somewhere a day is missing, and the 172days are not a fact. Whatever adjustment is to be made must be made before the beginning of the year; after that no change is possible if the 29-30 day arrangement is to hold. The real point therefore is concerned with the first month, and the realtion between the time of conjunction in Jerusalem and Boston. It must be shown that at the beginning of the year the moon was visible in Boston the ~~first~~ [it was the second] sunset after conjunction, and that it was not visible in Jerusalem until the [the third] second sunset. This is necessary to to assure the continuation of 29-30 days, and also necessary to the 172 days. If any adjustment has to be made after the first month, or in any month up to the seventh, it will affect what is said to be s staple cycle of 29-30. The proof concerning the conjunction Tisri 1/October 13 has no weight apart from corroboration of the Nisan new moon. It is Nisan that counts, not Tisri. If Nisan conditions show the new moon day beginning in the western hemisphere before it began in Jerusalem, all is well. Then the Tisri condition will substantiate what has been proved from Nisan. But Tisri alone will not do. There must not, there cannot be, any adjustment between Nisan and Tisri. Any such adjustment must be made before the beginning of the year. Hence it is necessary to know exactly what were the conditions Nisan 1, and upon the the argument must be built.

M.L.Andreasen

This is true

Josh Baird

I nearly forgot. The last statement in par. 1, section 6: "The Jewish New Year does not have a constant meridian", is unsupported. The proof hangs on that. That which is to be be proved must not be taken for granted. This assertion must be amply documented.

Eld. M.L. Andreasen,
202 Palouse St.,
Walla Walla, Washington.
Dear Brother Andreasen:

The Committee met with Wierts last evening for a straight five hours. He either could not, or would not, answer the six points of criticism, and asked for three months in which to make a written reply. Wilkinson was present. Apparently he was on the fence whether it was more desirable to stay by Wierts or to work with the Committee. He said plainly--two or three times--that he was worried about the question of the 1805 or 1807 years. Enclosed is a table on this point that was included as page 12 of the Wierts Analysis. Wilkinson seemed to think that if "tons of evidence" were not demanded, Wierts could eventually explain the discrepancy.

In the final analysis, Wierts refused to meet the Committee any more at the present time, or to have any further sessions with the sub-committee. Both Eld. Froom and other members were insistent that he do this, but he gave a definite "no" as his response to the requests. By vote the matter was referred to Eld. McElhany as to the next procedure. Eld. Froom will doubtless write you the outcome. Of this I have not yet been informed.

This year has been the climax of all years for me. It has been a great year. If a good angel should drop in and say, "Grace, you may wish," I would not ask for money, or for a job, although I need both. But I would say, "Please, kind angel, may I live this year over again?" I would then tuck in somewhere your class on the Sanctuary. I read everyone of your articles in the Review. They are human and real. There is not enough proof, to my notion. You see, Mr. Committeeman, you also have been bringing me up! "I am spoiled; nothing will ever again be the same!"

Enclosed, on separate sheet, is an answer to your calendar question. When you return, if there are yet any loopholes, we can talk it over some more. If you had been with the Committee in their sessions all through the year year, perhaps it would be easier now to tie up the tag end of the argument. I do not exactly remember just what tables you have. Much work is yet to be done in order to safeguard the proof in Part V. Every day new points and relations are showing up, and these correlations are inspiring. The very fact that the method of proof used offers only one single year for the crucifixion, is to my mind a good point in its favor. And then, on the other hand, other I have not yet found any actual proof of the crucifixion date by any investigator. There may be others, but I have seen no record of such. Like Wierts, all say a great many things, but prove nothing. And, like the Catholic Church, most writers play safe, and end up with more than one date. It has been interesting to the Observatory folks that at least we are offering a method of proof. Wierts thinks that he has done this too, but, with all his mistakes in computation, and errors in argument, it is not clear just what he has done.

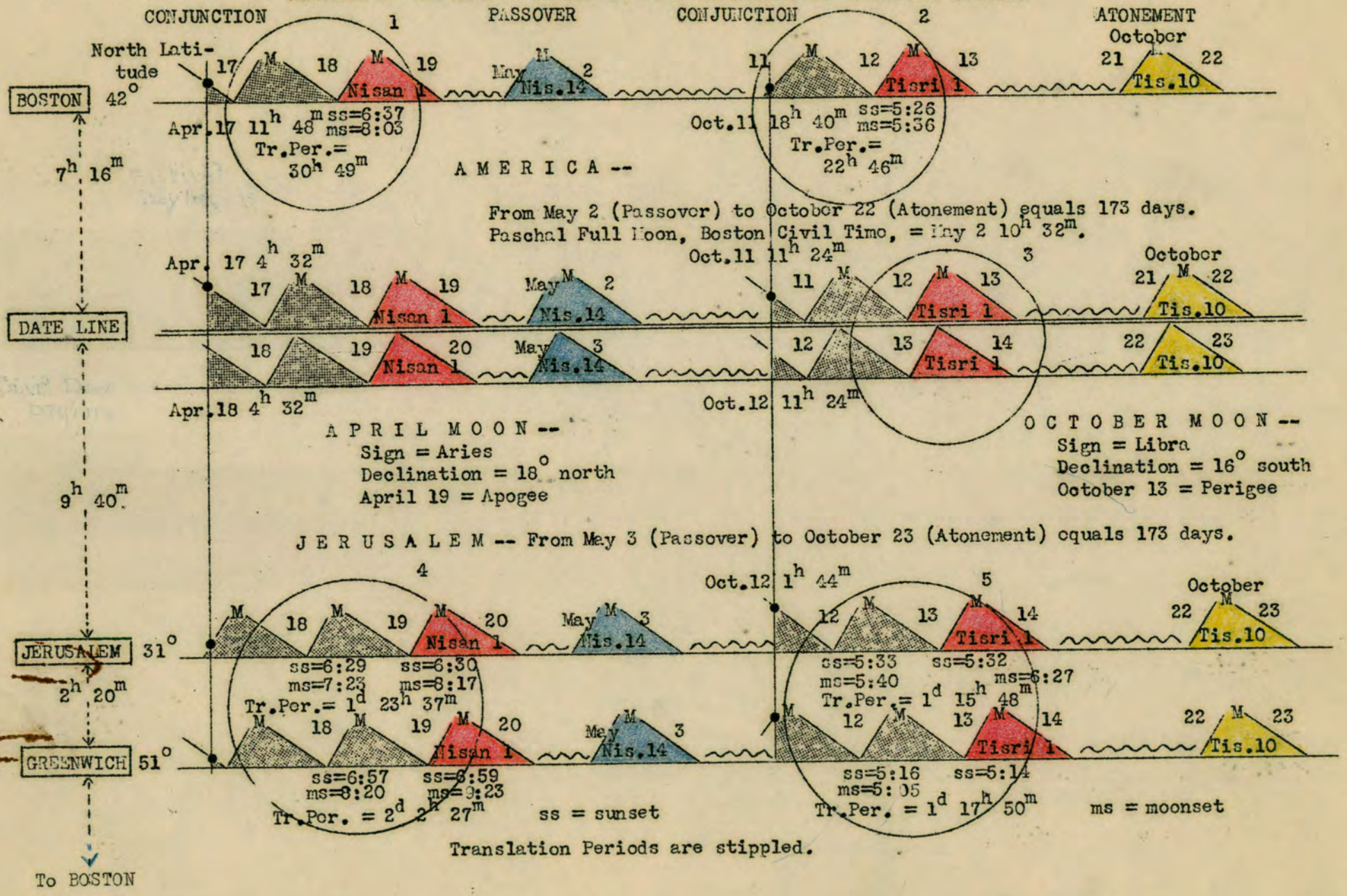
It is doubtless the disturbing element in the Wierts attitude--the fact that his investigation may not, after all, be final proof, and first proof. Well, God knows. I am not worried now. I did worry all day yesterday about the outcome of the meeting, but instead of honestdealing and worthwhile discussion of the subject in hand, the Committee had to hear for about the fourth time the same extravaganza which Wierts has been preaching for forty years, and impregnated now with chicanery and pretense.

Always thanking you for the inspiration you give,
I am yours very sincerely,

October 25, 1939,
220 Park Ave.,
Takoma Park, Maryland.

# MOSAIC FEAST PERIOD

1 3 4 4 DIAGRAM OF THE MOON'S PHASIS ON FOUR MERIDIANS -- APRIL AND OCTOBER



Written to Committee

# A LUNI-SOLAR CALENDAR IN HARMONY WITH THE MILLERITE RECKONING

The Millerites were confronted by the specific problem of laying out the Mosaic year such as could be applied to their own day and land. They used the ancient principles of calendation, which had been set forth by Moses and the prophets. The prophecy of Daniel marked out the year; the barley harvest determined the first month of the year; and the Jewish feasts, pointed out by the moon, set the first day. The Millerites left on record definite statements concerning their computations, which were based on the original practice of nations using the luni-solar year. The accompanying chart represents a synthetic diagram of a luni-solar year in its relation to the Jewish feast period, and the argument that follows shows that this form of year was in harmony with the position of the moon in 1844, with the laws pertaining to the Jewish feasts, and with the Millerite reckoning.

It is one thing to lay out on one meridian a festival calendar with its civil dates; it is another to check these dates so that they prove to be in harmony with other meridians around the earth. The Millerites themselves considered their problem on more than one meridian. Today, nearly one hundred years later, questions arise relating to the same astronomical riddle, which, after all, pertains to the deep things of calendar science. DIAGRAM M presents definite features that confirm the validity of its festival and civil dates. These features are marked out by Circles 1 to 5.

The Jewish feast period, consisting of 173 days from Passover to Atonement (inclusive), is in the DIAGRAM laid out on four meridians. It will be at once noted that Tisri 10 in America is October 21/22, while in Jerusalem, Tisri 10 is October 22/23, the day in Jerusalem having seven hours in common with the day in Boston. Similarly, the Passover in America is on May 2, the day of full moon; but in Jerusalem, the Passover comes on May 3, the day <u>after</u> full moon, in accordance with the ancient canons, and with the testimony of history.[1] This variation in the Jewish

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[1] Historical references are given on page 2.

festival dates on different meridians is caused by the joint motion of the sun and moon--by the sun, ~~to the extent that~~ because there are always two civil days in progress over the round world, one approaching the 180th meridian, and one leaving it, always older by 24 hours; and by the moon, in that the festival date, on some meridian, not fixed, acquires a 24-hour earlier civil date, because the phasis of the moon can be seen a day sooner. Two date lines, therefore, a lunar and solar, one movable, and the other fixed, confront a Jewish festival day every 24 hours of its compass of the earth. To drop out one or both from its path means but to distort the luni-solar calendar in its true relation to the motions of the sun and moon. The following threefold argument is offered in confirmation of the festival dates on the various meridians represented in the DIAGRAM:

1. DATE LINE ARGUMENT.--When Tisri 1/October 12-13 (as in Boston, 1844) came to the International Date Line--the 180th meridian--its civil date changed to October 13-14 in crossing westward, while the festival date Tisri 1 remained the same (Cf. Circle 3). Then, with its new civil date, Tisri 1 continued westward, coming to Jerusalem in less than 10 hours, still as Tisri 1/October 14. But if Tisri 1 in Jerusalem had actually been October 13 in 1844, as desired by some, then, in that year, the Holy Land was out of agreement with the solar date line. This discrepancy between these festival dates could be removed by the presence of a lunar meridian between the 180th and Jerusalem--one where the moon could change her phasis, and thus mark her festivals a day earlier. But no change of phasis can occur unless the conjunction happens near sunset. This was not the case in 1844 anywhere west of the International Date Line until the day came to Boston, a meridian seven hours still farther west of Jerusalem. Therefore, either Tisri 1/October 14 is the wrong date after crossing the Date Line, or else Tisri 1/October 13 is not the correct date for Jerusalem. The latter is the true inference.

The Millerite reckoning also called for October 13 in America as Tisri 1, and October 14 in Jerusalem, when they allowed that the moon was a sunset older in Jeru-

salem than in Boston at the time of the Tisri phasis.[2] A letter from Orlando squires to William Miller places the November phasis on November 12 in America, and on November 13 in Jerusalem.[3] This later date for the festival in Jerusalem in 1844 simply shows that Tisri 1 as October 14 in Jerusalem was the dating that followed after the day had crossed the solar date line, while Tisri 1 as October 13 in America corresponded to the festival day before it had come to the solar date line. Consequently, the Boston meridian represented the earliest date of Tisri 1 in the earth in 1844, the moon's phasis there occurring earlier than on any other meridian.[4] Hence, in this remarkable prophetic year, 1844, astronomy shows that the eastern shore of America, the land of the "midnight cry," was distinguished as the meridian where the moon changed her phasis, thus pointing out the earliest beginning of the festival day, the same as the 180th meridian designates the beginning of the civil day. The presence of this lunar meridian between Jerusalem and America, east of the solar date line, made it <u>impossible</u> in 1844 that a festival date could have the same civil date in the east as in the west.

2. BOSTON NISAN MOON ARGUMENT.--The April conjunction on the Boston meridian, as of Apr.17 $11^h\ 48^m$, B.C.T., allowed only $6^h\ 49^m$ to the first sunset (Cf. Circle 1). In this short time it was definitely impossible for the moon to be seen. But, seeing that she was $18^\circ$ north, and Boston herself $42^\circ$ north latitude, it was altogether possible for the moon to make a first appearance on the second evening after conjunction, or at sunset on April 18. This caused Nisan 1 to coincide with April 19 in America. As further corroboration of this dating, it should be noted that on April 19, the sun set at 6:37 in Boston, and the moon at 8:03 (Cf. Circle 1). Hence the moon was in the evening sky for $1^h\ 26^m$ after sunset, and therefore had plenty of time in

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[2] <u>Midnight Cry</u>, October 31, 1844, p. 141.

[3] Written from Amboy, Onondaga Co., New York, Nov. 4, 1844.

[4] The conjunction on the Boston meridian occurred so near sunset that the phasis of the moon could be seen a day sooner than on meridians farther east. The Nisan phasis also pointed out the Tisri phasis on the Boston meridian, from the fact that by Jewish reckoning the one was just 177 days from the other.

which to be seen.

Consequently, the Passover on Nisan 14 occurred on May 2 in America, and 173 days from this date reached to Tisri 10 on October 22, placing Tisri 1 on October 13. These dates are in harmony with the Millerite reckoning. They are confirmed by the position of the moon, as given in the DIAGRAM, and by the Jewish feast calculations as stipulated by Moses. In such a manner, the observation of the Nisan moon fixes the date for Tisri 10 as October 22, and Tisri 1 as October 13 in America. But the Tisri phasis, in order to be in harmony with the indisputable Nisan phasis, had to occur a sunset earlier than elsewhere--an astronomical event also demanded by the position of the October conjunction.

3. JERUSALEM TISRI MOON ARGUMENT.--It will be noted from Circle 4 that the moonsets on the Jerusalem and Greenwich meridians allow from $54^{m}$ (Jerusalem) to $1^{h}\ 20^{m}$ (Greenwich) after the first sunset for the time during which the moon was in the evening sky. But if it should be concluded that these periods gave the moon sufficient time in which to be seen on that first evening, and that the first sunset after conjunction marked the end of long enough translation periods,[5] for the phasis to occur, then it must be argued that, by this hypothesis, the whole Jewish feast period on these meridians would have to shift backward one day, causing Tisri 1 to occur on October 13 in Jerusalem and Greenwich, contrary to the Date Line reckoning. Furthermore, it would (1) move the phasis that marks Tisri 1 in Jerusalem back to the first sunset after conjunction, at the end of too short a translation period--that of only $16^{h}\ 49^{m}$, while in Greenwich, it would put the phasis on an evening when the moon set 11 minutes before the sun (Cf. Circle 5); and (2) it would not only place the phasis of the moon on the day of conjunction itself in October, but also in June and August. To find the moon's phasis on the day of conjunction is to discover an astronomical event of rare occurrence, and one wholly unsupported by the position of the moon all through the summer and fall of 1844. Consequently, in the year 1844, on the meridians of Jerusalem and Greenwich, the Tisri phasis has to

[5] In Jerusalem, the Nisan translation period at the first sunset was $23^{h}\ 36^{m}$; in Greenwich, it was $26^{h}\ 25^{m}$.

take precedence over the Nisan phasis in marking out the beginning of the festival year.[6]

From this threefold reasoning it may be concluded that if a luni-solar calendar were so constructed that it called for the same civil date of Tisri 10 in Jerusalem as in America in 1844, then consequences would occur as follows:

a. Either the International Date Line and its adjustment of civil dates would have to be set aside, or else the moon's phasis would have to change on some meridian east of Jerusalem, contrary to the position of the conjunction.

b. The laws governing the moon's phasis would have to be ignored.

c. The united testimony of history and astronomy that, in ancient practice, the Jewish Passover occurred on the day after full moon in Jerusalem, would have to be denied, although this testimony leads to valid proof of the crucifixion date, and in this respect has no rival.

It is, however, evident from this consideration of a luni-solar calendar, that the earliest Nisan phasis did not always mark the beginning of the Jewish feast period. This fact calls for careful weighing of the conclusions of Kugler, Strassmaier, Schoch, Neugebauer, and Fotheringham, who always started the luni-solar year with the sunset when the moon is first seen. Other chronologers, on the contrary, plainly admit that the Jewish translation period was from one to four days long;[7] Würm argues that from 24 to 48 hours had to be added to the astronomical calculation of the moon's phasis in order to establish the Jewish new moon day.[8]

The Jewish Passover, when placed on the day after full moon on the Jerusalem meridian, is after all, a decisive factor in determining the beginning of the Jewish year, and removes any uncertainty in reference to the observation of the moon. This postulate is the legacy concerning luni-solar time which history has passed on down to the 20th century, being confirmed by witnesses throughout the Christian era. It is not only of primary importance in the Mosaic reckoning for the first century, but it stands the test in the complex calendar problem for 1844, which involves more than one meridian. With the dates on the DIAGRAM it is in full agreement.

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6 On the evening of the Tisri phasis in Jerusalem, the sun set at 5:32, and the moon at 6:27, allowing 55 minutes in which the moon could be seen.

7 Geminus, Scaliger, Hevelius, Hales.

8 Caspari, G.E., "Introduction to the Life of Christ," page 15.

In the foregoing DIAGRAM, the calendar was laid out (1) from the positions of the moon and her conjunctions and oppositions; (2) the sunsets were taken from the standard ephemeris, and the moonsets were computed from the moon's declinations and hour angles as given in the ephemeris for 1844;[9] (3) the rules for the observation of the moon were in accordance with Hevelius, Scaliger, Maimonides, Schoch, Fotheringham, Kokisoff, Poznanski, and Sidersky; (4) the rules for the Jewish feasts were taken from the Bible; (5) the spring of 1844 in America, was considered as embolismic because a passover on April 4, as given in the American Jewish Year Book, was too early for a barley harvest in Jerusalem, and therefore too early for any other corresponding latitude.[10] On such a basis the full moon in Jerusalem fell on Nisan 13.

The 1844 dates, which the Millerites chose in connection with the short, sudden, epochal event, referred to in the parable as a "cry" at midnight, and in the Apocalypse as the "loud voice" of the mighty angel who stood on the earth and sea, and also as the Second Angel's Message of the 14th chapter of the Apocalypse, were determined on an entirely different basis than that just outlined. "Opposers could bring no arguments against the powerful reasons offered" by the Millerites for their decisive reckoning.[11] "A mighty work was accomplished by the midnight cry." "God's people were then accepted of Him."[12]

This important message "had a point of time," which prophecy has confirmed as October 22, 1844, in the land where the message was preached.[13] This date, October 22, and other associated dates, left on record by the Millerites, are in full agreement with the dates of the DIAGRAM. But it must not therefore be concluded that the Millerites necessarily used the arguments here presented for determining their decisive reckoning. Their work stood in the power and wisdom of God. They were under the direct influence of the angels of God; bright rays from the throne of God enlightened their minds, and the conclusions reached were under the penetrating influence of these powerful rays of light.[14]

On the other hand, it is reassuring to know that in the twentieth century, astronomy and history together can unite with the applied principles of the ancient canons of Moses and the prophets, and exactly mark out the calendar event of the prophet Daniel, to whom it was said,

"Unto two thousand and three hundred days; then shall the sanctuary be cleansed."

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9 The moonsets for the DIAGRAM were computed by Glenn Draper, Associate Astronomer at the United States Naval Observatory, Washington, D.C.

10 The southern portions of Indiana, Tennessee and Illinois correspond to the latitude of Jerusalem.

11 White, Ellen G., "Early Writings," page 101. Battle Creek, 1891.

12 Idem, page 103.

13 White, Ellen G., "Great Controversy," page

14 Early Writings, page 102.

## Scientific VERIFICATION OF MILLERITE DATES — 1844

### 1. The Problem

By both Biblical and calendrical reasoning, the Millerites determined the end dates that marked off the 2300th year of the Daniel 8 time prophecy. With an accuracy that is astonishing, the problem was demonstrated largely from Scripture. This method stirred the people far more than could have happened if they had been confronted by an array of astronomical data. Daniel 9 yielded the vital argument that if a half "week" ended in the first Jewish month, the whole "week," or termination of one 490th year of the prophecy, would end in the Jewish seventh month.[59] Then it was concluded that the last year of 2300 would so end, in the Jewish seventh month Tisri. This tremendous fact alone, almost over night, awakened the "sleepers" portrayed in the parable of the virgins. All that remained was the identification of the true Jewish first month with its proper civil equivalent. This was accomplished by the revival of the barley harvest law of Moses, which, in one stroke, as it were, had tied together feast, harvest, and moon, with a cord with a cord that was never broken so long as the temple stood. Consequently, the true Mosaic Passover must be sought after the spring rains were over in Palestine,[60] and in this period only from the second week in April to early May would the paschal moon appear.

In the barley harvest cycle, the Millerites discovered a calendar feature indispensable to their problem. This principle is very old. It is accepted by practically all Jewish chronologers, and others, but none apply it to first century practice. The "first full moon after the equinox" continues its centuries-old popularity of being the passover moon. Since the Karaite controversy of the 10th century, the Millerites of 1844 were the first to lift anew the sickle, "as the sign of the first [Jewish] month."[61] And no one can deny their assertion -- "Every scholar knows that we are correct as to the Karaite seventh month."[62]

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59 "And as the middle of the week was in the first month, so the week ended in the seventh month. The 2300 days must, therefore, end in the seventh month of this year."—Snow, Midnight Cry, Sept. 19, 1844, p. 87, col. 3.

61 Bucherii, Aegidii, "De Doctrina Temporum," p. 472. Antverpiae, 1634.

62 Advent Herald, Nov. 27, 1844, p. 124, col. 2.

60 Cant. 2:11. This song was sung on the way to the Passover. "Patriarchs and Prophets," pp. 537, 538.

But whole Millerite chronology is primarily a "new moon" question, if considered from standpoint of its historic solution; Consequently,

## 2. The New Moon

Here and there, in the Millerite literature, appear a few astronomical "definitions," relating to the 1844 time question. One, of these, most important, is the following:

"When the moon is in perigee, and her motion quickest, she does not usually appear until the second day, nor in apogee when slowest until the fourth." [63] that is, This rule implies the exception that the moon might sometimes be seen earlier, on the first day after conjunction, and even on the day itself of conjunction. But, according to Hevelius, the latter event is very rare; [64] and by the uniform testimony of chronologers who give attention to "observation" of the moon, the Jews did not employ the youngest moons in starting their months. Usually they waited for the "horned" moon, [65] which is also called the "second" moon, because this form of the moon usually appears first on the second day after conjunction. Hevelius calls it the "latest" phasis. [66] In harmony with astronomy, therefore, the Millerites, according to the statement, that the first appearance of the moon was usually the second evening after the change. [67] However, the moon's first appearance was not always that way in Judea, nor even usually the "second evening" [some] on other latitudes. For instance, at the pole itself, the moon is above the horizon continuously during one-half of each lunar month, and below the horizon continuously during the other half. Thus is the regularity of the translation period changed, the further away from the equator the observer is.

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[63] Signs of the Times, Dec. 5, 1843, p. 135, cols. 1, 2.

[64] "But, indeed, though all the three causes just related, which advance the earlier appearance of the moon, at sometime or other, should meet together, yet I doubt whether the latest and first moon can be seen on one and the same day (especially in these northern places); as also are the rarest examples that the phasis of the first moon and the last vision could be seen on the same day on the plane horizon."--Hevelius, "Selenographia," p. 275. Gedamum, 1647.

"Therefore, when the three causes before named occur about the time of the conjunction of the sun and moon, it can certainly happen that the first phasis of the moon is not seen on the day after Conjunction, but even in the evening, on the very day itself, in which the solar and lunar [separation] happens before noon. . . But if now, the three causes mentioned that advance a quicker rising of the moon, do not always conspire, but only one is lacking, then this first phasis at length presents itself on the day after the change of the moon."--Hevelius, pp. 274, 275.

"But that the first appearance of the moon does not commonly occur on the first day after the change, but at length on the second, often also on the third and fourth, is plain to all observing her."--Hevelius, p. 273.

[65] Scaliger, "De Emendatione Temporum," pp. ; Godwyn, Thomas, "Moses and Aaron," pp. 122, 123. London, 1685.

[66] Hevelius, p. 273.

[67] Advent Shield, January, 1845, p. 274.

## 3. April and October Moons in 1844

The Millerite problem was confronted to two principal conjunctions only: one in April, ushering in the beginning of the last six months of the prophecy, and the second moon of October, which finally ended the prophecy. From the April date of the change of the moon, it was easy to compute the first day of Nisan, because this position of the moon conformed to well-known rules in reference to the moon's first appearance. The First conjunction, on the other hand, was hard to compute, for it was out of the ordinary, and the governing factors none too well understood, even in astronomical circles today. Therefore, the simplest objective of this argument will be to establish the first day of Nisan by the astronomical principles involved, and then to present the calendrical reckoning to which the first day of Tisri had to agree.

The Millerites were emphatic in this phase of the problem that when the Jews did not see the moon, they "reckoned."[68] Godwyn also states that they used the greatest care in translating the beginning of their year; and he that shall diligently calculate these changes, shall find that all other translations depended on this first."[69]

In his assertion Godwyn was referring to the civil year, but the same is even more true in reference to the sacred year, which, for seven months, had an unvariable sequence in the number of its days.

## 4. Factors Controlling Moon's First Appearance

Hevelius enumerates three factors which govern the moon's first appearance. He mentions (1) Rapidity of moon's motion; (2) northern or southern place of the moon in the sky; and (3) the zodiacal sign in which the moon is traveling. In determining the moon's visibility, all observers make allowance for the place of the moon in the zodiac, recognizing that in some signs her rising can occur earlier than in others.[70] In reference to this, the Polish astronomer makes an important assertion that has a bearing on the moon's phasis in April, 1844:

"For although the moon may be in Perigee, and around the northern border [of the zodiac], yet if she does not befall a sign of long setting [Pisces, Aries, Taurus--vernal signs], in vain is the horned moon awaited on the second day."[71]

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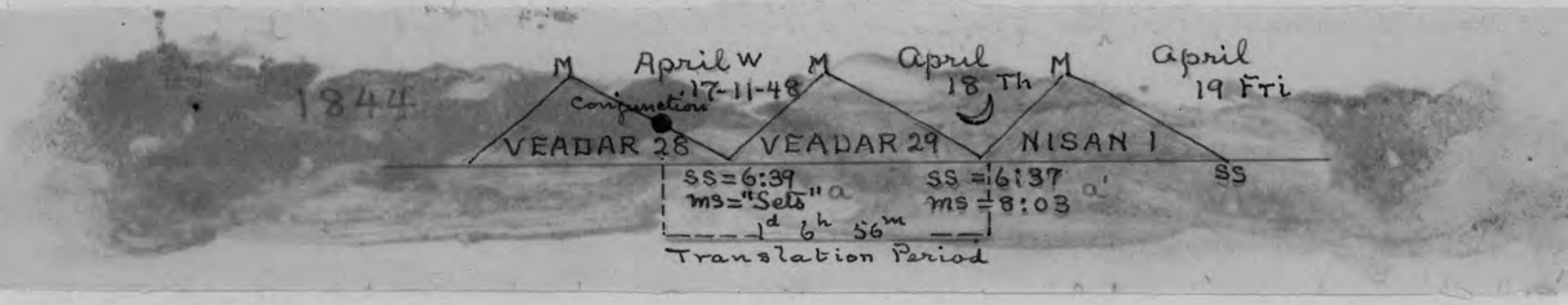
68 Advent Herald, Sept. 25, 1844, p. 60, col. 1.
69 Godwyn, "Moses and Aaron," p. 123.
70 Albiruni, "Chronology of Ancient Nations," p. 153. London, 1879.
71 Hevelius, "Selenographia," p. 281.

With such emphasis does Hevelius stress the importance of the spring signs as conducive to the first showing of the horned moon. On the day of conjunction, April 17, 1844, the moon was in Aries, and on the 18th, she entered Taurus. She was in that part of the heavens where she could be seen on the second evening, according to this Polish astronomer. Hevelius. Furthermore, she was in the north, and also north of the sun, another favorable factor for her first vision in the usual time.[72] She was, on the other hand, at her greatest distance from the earth, or apogee, and hence going slow; but the fact that she was in the right sign, and in the north, were the astronomical features in her favor, and confirms the decision of the Millerites, who placed her phasis on the evening of April 18, and called the first day of the new month Nisan, April 19,[73] the day following the first appearance of the moon. They bore definite and clear testimony that the first day of a lunar month always came after the moon's phasis, not before.[74]

The diagram below illustrates the Nisan translation period. Properly speaking, however, this short period belongs to the old month, but it ushers in the new.




Upon the placement of the Nisan phasis on the evening of April 18, the whole Millerite reckoning hung. The question at once arises, Could the moon have made her first appearance on any other evening -- either on the 17th or 19th, thus changing the "seventh month movement dates?" First: Could the moon have shown her face first on Wednesday evening, April 17, the day of conjunction? The answer is no; that would have been impossible. The conjunction at 11:48 a.m. on April 17 left only

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[72] British Nautical Almanac, 1844, pp.
[73] Bates, Joseph, "Way Marks and High Heaps," p. 30. Also said that Nisan 1 began on April 18, and this was exactly true. Midnight Cry, Oct. 12, 1844, p. 127, col. 2.
[74] Documentation, Point 18.

$6^h\ 51^m$ to sunset, and the moon in apogee could not move fast enough away from the sun to be seen in 7 hours. We have no records revealing that the moon anywhere could be seen in so short a time after conjunction. At sunset she was only 3° or 4° east of the sun. M. Danjon has demonstrated that the moon must be at least 6.75° away from the sun to be seen at all.[75] The Karaites figured 13°.[76] Maimonides allowed that the moon must be in the sky 34 minutes after sunset in order to be seen. On Wednesday evening, as given in all the local almanacs of New England, the moon set at the same time as the sun.

Furthermore, it is a very rare occurrence for the moon to appear on the day of conjunction, and never, says Hevelius, unless all three factors are present favoring a quick rising after the change.[77] In April only two factors assisted the moon--the spring signs, and her northern place.

Second: Could the moon have delayed her appearance to another day, or on April 19? By examining the little diagram on page it can easily be seen that by pushing ahead Nisan 1, either Veadar would have to be lengthened one day, or else the the moon's translation in some previous year of the cycle would be distorted and made altogether too long. In the spring and summer of the 1837, A.D. year, three times in succession, the moon was not seen until the fourth day after conjunction.[78] If the whole calendar were advanced, in order to show the phasis on the evening of April 19, it would mean that the phasis in March, May and July of the year 1837 would have to be placed on the 5th day after the change, contrary to the law governing the moon's appearance, which never accounts for more than four days. There is much testimony on this point, some of which has been given on page 2. Early Greek writers are constantly referring to this well-known fourth day -- the last day for the phasis. Every lunar cycle of 19 years will have two or three very long and also a few very short translation periods, for this reason, once the moon's place has been established on certain dates, no change can be made in her phasis without breaking the laws governing her

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[75] M. Danjon, "Juenes et Vieilles Lunes," p. 64. Bulletin Societe astronomique de France, Paris, 1932.

[76] Poznanski, Samuel, "Encyclopedia Religion and Ethics," Art. Jewish Calendar.

[77] See page 2.

position, not only in the current cycle, but also in remote periods of the past.

The Millerite marked the first day of Nisan in harmony with the laws that govern the govern the moon's place in the sky. With this date determined, it was very simple reckoning to count forward to the first day of Tisri, at the end of the 177th day. From Nisan phasis to Tisri phasis were just six intervening months, with an alternate sequence of 30 and 29 days to the months involved. Some difference of opinion exists as to just how orderly this sequence could be in ancient times, but there is sufficient proof, besides the documentary sources, for which leading testimony will follow at the end of this argument.

(Y)

# THE VARIABLE TRANSLATION PERIOD

(An interval of lunar invisibility ushering in each Jewish month)

Moon-phase Dates from
British Nautical Almanac

Jewish Sacred Year
1844/45 (355 days)
Boston Civil Time

29.5 Days (29.31-29.82)

Waning Period (Old Month) — Waxing Period (New Month)

| Months | Days | Full Moon | "Change of the Moon" Conjunction | Translation Period | W.Per. | Full Moon Date | |
|---|---|---|---|---|---|---|---|
| | | 1844 | 1844 | | 1844 | 1844 | |
| 13 VEADAR | 29 | 14 | Apr 17.49 * | 1.28 NISAN | Apr 19 14.95 | 14 May 2.44 (Nis) | |
| 1 NISAN | 30 | 14 | May 17.17 | 1.63 IYAR | 14.58 | 13 May 31.75 (Iyar) | 29.31 |
| 2 IYAR | 29 | 13 | June 15.82 | 1.00 SIVAN | 14.24 | 14 June 30.06 (Siv) | 29.31 |
| 3 SIVAN | 30 | 14 | July 15.40 | 1.42 TAMMUZ | 177 days 14.01 | 13 July 29.41 (Tam) | 29.35 |
| 4 TAMMUZ | 29 | 13 | Aug 13.91 | .88 AB | 13.91 | 13 Aug 27.82 (Ab) | 29.41 |
| 5 AB | 30 | 13 | Sept 12.35 | 1.41 ELUL | 14.00 | 13 Sept 26.35 (Elul) | 29.53 |
| 6 ELUL | 29 | 13 | Oct 11.77 | .96 TISRI | Oct 13 14.24 | 14 Oct 26.01 (Tis) | 29.66 |
| 7 TISRI | 30 | 14 | Nov 10.20 | 1.50 HESVAN | 14.59 | 13 Nov 24.79 (Hes) | 29.78 |
| 8 HESVAN | 30 | 13 | Dec 9.64 | 2.04 KISLEU | 14.97 | 13 Dec 24.61 (Kis) | 29.82 |
| 9 KISLEU | 30 | 13 | 1845 Jan 8.10 | 2.60 TEBET | 1845 15.30 | 13 1845 Jan 23.40 (Teb) | 29.79 |
| 10 TEBET | 29 | 13 | Feb 6.57 | 2.15 SHEBAT | 15.51 | 14 Feb 22.08 (She) | 29.68 |
| 11 SHEBAT | 30 | 14 | Mar 8.08 | 2.67 ADAR | 15.57 | 13 Mar 23.65 (Adar) | 29.57 |
| 12 ADAR | 29 | 13 | Apr 6.62 | 2.15 NISAN | 15.48 | 14 Apr 22.10 (Nis) | 29.45 |

Invariable Months of Jewish Feast Period

Variable Months

1844 to 1845

1 1 1 2 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

* Conjunctions always occur toward the end of the old lunar month--in this instance, on 28 Veadar.

# JEWISH SACRED YEAR (April 19, 1844 to April 9, 1845)

Year = 355 days

1844

V 1--21 M
E 2--22 A
A 3--23 R
D 4--24 C
A 5--25 H
R 6--26
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12-- 1 A
13-- 2 P
14-- 3 R
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17-- 4 E
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16--24

# EXPLANATION OF CHART "Y"

Chart "Y" demonstrates how the moon periodically changes during each lunation, and ushers in the new Jewish month. This so-called "change of the moon," or conjunction, always occurs toward the end of the old lunar month--its occurrence varying from the 26th to the 29th day. At this time, the moon's illuminated hemisphere is wholly turned toward the sun, and hence, cannot be seen on the earth. This period of invisibility lasts from "one to four days"--an interval of darkness called the "Translation Period." This period ends at the sunset soon after which the moon first appears as a slender crescent on the evening horizon. The interval from sunset to the crescent moonset varies from about 30 minutes to one hour and 30 minutes, and the longer the interval, the older the crescent. In order to be seen at all, the moon, after conjunction, must move about seven degrees east of the sun. However, the ancient Jews did not commonly employ the earliest new moons by which to begin their months. Their crescent moon ordinarily had well defined horns, and the period from sunset to moonset was sufficiently long to give ample time for discovering the "new light." Thus, the vision of the new moon became a check upon the calculated calendar months.

Although the Translation Period varies in length from one to four days, yet the interval conforms to a general trend of increase and decrease that keeps pace with the well known Waxing Period of the moon--the period between conjunction and full moon. If the Waxing Period is one of the longest, so also will be the Translation Period; but if the Waxing Period is one of the shortest, the Translation Period will also be one of the shortest. Hence the apparently uncertain "one-to-four day" definition of the period that marked the beginning of the ancient Jewish month, becomes definitely related and tied to an astronomical interval whose limits are recognized, and recorded in all standard almanacs.

In Chart "Y", the moon's change from month to month is represented throughout the Jewish sacred year 1844-45. Each lunation runs from the full moon of one month to the succeeding full moon in the next month. In the year 1844, on the Boston meridian, the conjunctions occurred on the 27th, 28th, and 29th days. In the Jewish feast period of this year, there were three unusually short Translation Periods: (1) in June, (2) in August, and (3) in October. The shortest was .88 days long, and introduced the month Ab. The longest of all the periods during the year was 2.67 days, preliminary to the month Adar. By comparing the table, it can be noted that these longest and shortest Translation Periods coincided with the longest and shortest Waxing Periods. These instances illustrate how the known limits of the Waxing Period become an important check upon the unknown Translation interval, whose length has to be ascertained.

The length of each Translation Period in Chart "Y" can be verified from the accompanying calendar "hook-up" of the Jewish and civil months. For example, the March 8.08 conjunction preliminary to Adar, lower part of column 8. Compute the interval between the conjunction point of time and the sunset beginning of 1 Adar, which was March 11 on the calendar.

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|---|---|---|---|---|---|---|
| Mar. | 8 | From conjunction | to | midnight | = .92 day | (1.00 -.08) |
| " | 9 | " midnight | " | sunset | = .75 " | (18 hours) |
| " | 9-10 | " sunset | " | sunset | = 1.00 " | (ss at 6 o'clock) |
| | | | | Total | = 2.67 days | |

In March, there is no correction for the sunset, for it occurs at nearly six o'clock throughout the month.

For Class in Prophetic Interpretation
g.e.a.