H. Washburn – M.S. sent in 1939.

Return to C. Anderson

THE DATE OF ARTAXERXES LONGIMANUS

The establishment of midsummer, 457 B.C., as falling in the seventh year of his reign necessitates proof that his reign began in 464 B.C., and not in 465 B.C., as given by many historians.

1. In the Canon of Ptolemy, whose accuracy is fully confirmed by numerous astronomical calculations, the first year of Artaxerxes is the 284th year from the Era of Nabonassar.

747 / 464 / 283

2. In this Canon, a king's reign is reckoned only to the last Egyptian New Year's Day, and the remaining fraction of year is reckoned to his successor (as in the cases of Alexander, Philip Arrhidaeus, and Caligula).

wrong

3. Consequently, what is reckoned as the first year of a king is simply the year in which he came to the throne. Artaxerxes then came to the throne some time in the 284th year from the Era of Nabonassar.

4. The 284th year began the Egyptian New Year's Day, Dec. 17, 465 B.C., and reached to Dec. 17, 464 B.C.., and Artaxerxes began to reign either in 465 or 464 B.C.

5. If the years of Artaxerxes' reign began between Jan. 1 and Dec. 17, his reign began in 464 B.C.; and he did not begin to reign in 465 B.C. unless it was after Dec. 17.

747 / 284 / 463

6. A comparison of Neh.1:1, 2:1, and Ezra 7:7-9, shows no change in the numbering of his years between some day in Kisleu and the fifth month, Ab, following. In other words, his reign began between the first day of the fifth month, Ab, and the last day of Kisleu, the 9th month.

7. If his reign began near the months 5 to 8, his accession must have been in 464 B.C.

8. If his reign began near the last of Kisleu, it might have been in 465 B.C., as Kisleu in certain years reaches past Dec. 17, even to Jan. 10, as in 1844-45, according to the ancient Jewish calendar, still observed by the Karaite Jews.

9. Did the month Kisleu, in 465 B.C., reach beyond Dec. 17? If not, the reign of Artaxerxes certainly began in 464 B.C. If it did reach past Dec. 17, then it is possible that his reign began in 465 B.C., and his seventh year did not reach to 457 B.C.

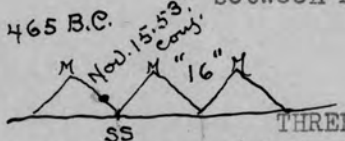
465-464, if emb., or 384 d.;
1 Nis = III 27
1 Kis = XI 18
30 Kis = XII 17

THE PROOF

In 465 B.C., there were solar eclipses on June 20, Julian Day 1,551,753 at 7 hrs. 16.9 min., G.C.T.; on Nov. 15, Julian Day 1,551,901, at 10 hrs. 19.6 min.; and on Dec. 14, Julian Day 1,551,930, at 22 hrs. 40.7 min. (Oppolzer, "Canon der Finsternisse, p.72. The astronomer's designation of 465 B.C. is "-464", as the astronomers count the year before A.D. 0las year "0", and historians call it 01 B.C. The year historians call 2 B.C., astronomers designate as "-1"). From this we determine that the Hebrew sacred year began

In 465 B.C., equinoctial full moon was Apr. 8.24, J.C.T. Hence a passover on April 7 would be before full moon, which is impossible.

with the visible new moon on March 25, that the Passover, Nisan 14, fell on Friday, April 7, and that the month Kisleu began with the visible new moon on Nov. 16, and ended on Dec. 15. The month Kisleu then did not reach to Dec. 17, and the reign of Artaxerxes DID NOT BEGIN IN 465 B.C., but in 464, between Ab 1 and Kisleu 30. On the contrary, Aramaic papyri make 465-464 a common, jutting passover on May 8, bringing Kisleu on Dec. 18. Thus Artaxerxes argument is therefore questionable! G. Amadon



If moon were visible on Nov. 16, and conj. was on Nov. 15.53, J.C.T., then Tr. Period was only 6 hrs., which is impossible!

THREE STAGES OF DEVELOPMENT:

1. Pre-exilic. Rested upon observation only.
2. Post-exilic or Talmudic, calculation employed to supplement and correct observations.
3. Post-Talmudic.

Lunar months of 30 and 29 days each. Length of lunar month is 29.530588 days.

The discrepancy with the solar year was corrected by inserting an extra month every two or three years (four times in 11 years).

A second Adar was inserted before Nisan, or Abib, meaning "green ears," whenever crops were not sufficiently advanced to permit presentation of the first fruits of the barley harvest on the 16th of Nisan.

In the 4th century A.D. the Jews adopted Meton's 19-year cycle, to which there were to be seven leap years: the 3rd, 6th, 8th, 11th, 14th, 17th, and 19th. The feast of Tabernacles was not to end before the autumn equinox, and the full moon of Passover not to precede the spring equinox.

There was a civil year, from early times, which began in the fall. Ex.23:16; 34:22; Lev.25:4,9.

A sacred year, beginning in the spring, was instituted at the Exodus. Ex.12:2.

CIVIL	SACRED			LENGTH (in later times)
VII	I	Abib or	Nisan	30 days
VIII	II	Ziv	'Iyyar	29
IX	III		Sivan	30
X	IV		Tammuz	29
XI	V		Ab	30
XII	VI		Elul	29
I	VII	Ethanim	Tisri	30
II	VIII	Bul	Marchesvan or Hesvan	29 or 30
III	IX		Kisleu	30 or 29
IV	X		Tebeth	29
V	XI		Sebat	30
VI	XII		Adar (Rishon)	29 (30 when followed by
Intercalary			Adar Veadar	29 Ve-Adar)

(3

A. D. 31

Do you mean 31 Q.D.?

Same Gregorian calendar as for the year 1934.
Day of Julian Period for Jan. 1, 1934 is 2,427,439
Day of Julian Period " " " 1931 " 1,732,381
Interval equals 695,058 days, exactly 99,204 weeks.

There were solar eclipses (new moons) on
Thursday, May 10, 7 hrs. 17.9 m., G.C.T. Julian Day 1,732,510
Saturday, Nov. 3, 15 " 48.2 " G.C.T. " " 1,732,687

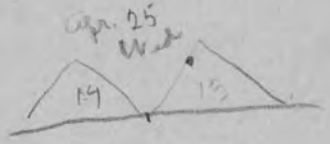
The visible new moons after these eclipses marked the beginning of the Hebrew months Sivan and Kisleu, if the modern Jewish custom be followed of taking the new moon preceding the vernal equinox as marking the beginning of the month Nisan.

But if Nisan was counted from the first new moon after the vernal equinox, according to the usage of the Karaite Jews, these moons would mark the beginning of 'Iyyar and Hesvan.

Annual Sabbaths			1 Nisan from first New Moon after V.E. (Karaites)			The Pasch as first Full Moon after V.E.			Modern Jewish custom to avoid 10 Tisri falling next to Sabbath.		
	Nisan	1	Thurs.	Apr.	12	Wed.	Mar.	14	Wed.	Mar.	28
Crucifixion	"	14	Wed.	"	25	Tues.	"	27	Thurs.	"	29
1st Un. Bread	"	15	Thurs.	"	26	Wed.	"	28	Wed.	Apr.	4
7th " "	"	21	Wed.	May	2	Tues.	Apr.	3	Sab.	Apr.	14
	Iyyar	1	Sab.	"	12	Fri.	Apr.	13	Sun.	May	13
	Sivan	1	Sun.	June	10	Sab.	May	12	Fri.	May	18
Pentecost	Sivan	6	Fri.	"	15	Thurs.	"	17	Tues.	June	12
	Tammuz	1	Tues.	July	10	Mon.	June	11	Wed.	July	11
	Ab	1	Wed.	Aug.	8	Tues.	July	10	Fri.	Aug.	10
	Elul	1	Fri.	Sept.	7	Thurs.	Aug.	9	Sab.	Sept.	8
Trumpets	Tisri	1	Sab.	Oct.	6	Fri.	Sep.	7	Mon.	Sept.	17
Day of Atone.	"	10	Mon.	Oct.	15	Sun.	Sept.	16	Sab.	"	22
1st Tabernac.	"	15	Sab.	"	20	Fri.	"	21	Sab.	"	29
8th "	"	22	Sab.	"	27	Fri.	"	28	Mon.	Oct.	8
	Hesvan	1	Mon.	Nov.	5	Sun.	Oct.	7	Tues.	Nov.	6
	Kisleu	1	Tues.	Dec.	4	Mon.	Nov.	5	Wed.	Dec.	5*
	Tebet	1	Thurs.	Jan.	3 (A.D.32)	Wed.	Dec.	5			

* Kisleu given 1 day less, to move next Day of Atonement from Friday to Thursday.

31 A.D. J.C.T.
Full Moon = Apr. 25.94. Hence this argument puts passover on Wednesday before the moon fulled! C.E.A.



A. D. 3 0

Same Gregorian Calendar as for the year 1939.
Day of Julian Period for Jan. 1, 1939 is 2,429,265
Day of Julian Period for Jan. 1, 1930 is 1,732,016
Interval equals 697,249 days, exactly 99,607 weeks.

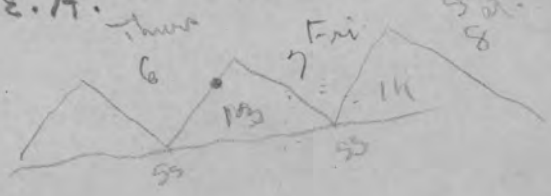
Should be 30 A.D.

There were Solar Eclipses (astronomical New Moons) on
Sunday, May 21, 1 hr. 36.8 m. G.C.T. Julian Day 1,732.156
Tuesday Nov.14, 0 " 49.4 m. G.C.T. " " 1,732,333

The visible new moons following these eclipses marked the beginnings of the months Sivan and Kisleu. As the first full moon after the Vernal Equinox was also the Full Moon following the first New Moon after the Vernal Equinox, the Karaite and later Jewish usage agree in the positions of the months, aside from a possible one day's difference due to observation of the new moon, and the later practice of adding a day to Marchesvan to move the next Day of Atonement from Sunday to Monday.

Annual Feasts			The Pasch as first full moon after first new moon after V.E.		
	Nisan	1	Sabbath, March 25		
Passover	Nisan	14	Friday, April 7	×	
1st Un. Bread	"	15	Sabbath " 8		Crucifixion
7th " "	"	21	Friday, " 14		A high day, John 19, 31
	Iyyar	1	Monday, " 24		
	Sivan	1	Tuesday, May 23		
Feast of Weeks	"	6	Sunday, May 28		Pentecost
	Tammuz	1	Thursday June 22		
	Ab	1	Friday July 21		
	Elul	1	Sunday Aug. 20		
Trumpets	Tisri	1	Monday Sept. 18		
Day of Atone.	Tisri	10	Wednes., Sept. 27		
1st of Taber.	"	15	Monday, Oct. 2		
8th " "	"	22	Monday, Oct. 9		
	Hesvan	1	Wednes., Oct. 18		
	Kisleu	1	Friday, Nov. 17		When Hesvan has 30 days
	"	"	Thursday, Nov. 16		" " " 29 "
	Tebet	1	Sunday, Dec. 17		If Hesvan has 30 days
			Sabbath, Dec. 16		" " " 29 "

In 30 A.D., paschal full moon was Apr. 6.93 J.C.T. In Jewry, this day was counted as Friday, day of full moon. Hence passover must have been the following day, Sabbath, April 8. G.E.A.



A.D. 30 — Washburne Chart sent in 1939 — A.D. 31

MARCH

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
ADAR			6	7	8	9
5	6	7	8	9	10	11
10	11	12	13	14	15	16
12	13	14	15	16	17	18
17	18	19	20	21	22	23
19	20	21	22	23	24	25
24	25	26	27	28	29	1
26	27	28	29	30	31	
2	3	4	5	6	7	

Nisan

MARCH

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
	ADAR			17	18	19
4	5	6	7	8	9	10
20	21	22	23	24	25	26
11	12	13	14	15	16	17
27	28	29	1	2	3	4
18	19	20	21	22	23	24
5	6	7	8	9	10	11
25	26	27	28	29	30	31
12	13	14	15	16	17	18

NISAN

By modern Jewish calendar, feasts would come one day later. [cf. Sir Isaac Newton]

Jewish day of full moon = Mar. 27, J.C.T., which in civil time = 27.56 G.E.A.

APRIL

SUN	MON	TUE	WED	THU	FRI	SAT
						1
		NISAN				8
2	3	4	5	6	7	8
9	10	11	12	13	14	15
9	10	11	12	13	14	15
16	17	18	19	20	21	22
16	17	18	19	20	21	22
23	24	25	26	27	28	29
23	24	25	26	27	28	29
30	1	2	3	4	5	6
30						
7	IYYAR					

Jewish day of full moon = April 7, which civilly was Apr. 6.93, J.C.T. G.E.A.

APRIL

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
19	20	21	22	23	24	25
8	9	10	11	12	13	14
26	27	28	29	30	1	2
15	16	17	18	19	20	21
3	4	5	6	7	8	9
22	23	24	25	26	27	28
10	11	12	13	14	15	16
29	30					
17	18		IYYAR			

IYYAR

MAY

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
	8	9	10	11	12	13
7	8	9	10	11	12	13
14	15	16	17	18	19	20
14	15	16	17	18	19	20
21	22	23	24	25	26	27
21	22	23	24	25	26	27
28	29	1	2	3	4	5
28	29	30	31			
6	7	8	9	SIVAN		

May 21 1:36.8 G.C.T.

Pentecost

MAY

SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3	4	5
		19	20	21	22	23
6	7	8	9	10	11	12
24	25	26	27	28	29	1
13	14	15	16	17	18	19
2	3	4	5	6 Pentecost	7	8
20	21	22	23	24	25	26
9	10	11	12	13	14	15
27	28	29	30	31		
16	17	18	19	20		

May 10 7:17.9 G.C.T.

SIVAN

◎ Solar Eclipses

○ Astronomical New Moons

Annual Ceremonial Sabbaths

On two counts this hookup is wrong:

1. In ancient times the Jews could not have a passover in March, for the barley was not ripe. See references in "Wednesday Crucifixion."

2. The passover (indicated by red cross) is in both years placed on the day of full moon. There has come down to our century abundant testimony that the ancient Jewish passover always followed the Jewish day of full moon.

3. Why cite modern Jewish calendar for first century?

G. Amador.

6/16/39

COMMENT BY H. A. WASHBURN.

Unfortunately this MS was addressed to me at the wrong address, so that it has come into my hands at almost the last moment before it must be returned. I have had to give hasty consideration, without time to comment on all points, and brief comment at best.

I was asked to jot on the margin of the MS any notation that occurred to me. This I have done in haste and in very poor form.

(1) My great criticism of Part IV is that its conclusions, or some of its conclusions, are CONTRARY TO THE CANON OF PTOLEMY, which is the greatest bulwark, absolutely invincible, for our position on the 457 date. Any conclus ions contrary to this must be wrong. This was the incontrovertible evidence set forth in the 1844 movement, and it still stands, after the archaeological discoveries of the past century, as evidenced by Driver: "The recently-discovered contemporary monuments have FULLY ESTABLISHED THE ACCURACY of the Canon."

I briefly state some facts, and then give some evidence from the Canon, with the variations therefrom in this Part IV.

As is well established, and clearly set forth (as for example in Spicer's "Hand of God in History," pp 46-49), the Canon gives the date of the beginning of the Egyptian year in which a monarch came to the throne. It affords the earliest possible date for the beginning of his reign, which might actually begin on the last day of that Egyptian year. The years are reckoned as beginning with the first day of the first Egyptian month, Thoth, which in 747 B.C., the first year of the Canon, fell on Feb. 26. The year consisting of 365 days always, this new year's day fell back one day every four years, ¼ day per year. The reckoning is from noon on Feb. 26, 747. The first year of the Canon is from noon, Feb. 26, 747, to 6 hours before noon on Feb. 26, 746 B.C. Nabonassar is given years 1 to 14, inclusive, Nadius, his successor, years 15 and 16. The fifteenth year of the Canon begins at midnight between Feb. 23 and Feb. 22, and is usually dated as beginning Feb. 22, 733 B.C. Nadius came to the throne some time between Feb. 22, 733 and Feb. 22, 732,B.C.

noon

(2) Nabopolassar's reign, according to the Canon, occupied the 21 years included from the beginning of the 123rd year of the Canon to the end of the 143rd year. The 123rd year began on Jan. 26, 625 B.C. Nabopolassar, by the Canon, came to the throne some time between Jan. 26, 625, and Jan. 26, 624 B.C. The MS upon which I am commenting makes Nabopolassar's reign begin in 626 B.C. The theory which makes this king's reign begin in 626 must be wrong.

Nebuchadnezzar's reign, in the Canon, embraces years 144 to 186 inclusive from the era of Nabonassar. The 144th year began Jan. 21, 604. The king began to reign some time between Jan. 21, 604, and Jn. 21, 603 B.C. The manuscript upon which I am commenting makes Nebuchadnezzar's reign begin in 605 B. C. A theory which makes Nebuchadnezzar's reign begin in 605 B.C. must be wrong.

Amel Marduk's reign, by the Canon of Ptolemy, began sometime in the 187th year from the era of Nabonassar, or between Jan. 10, 561 and Jan. 10, 560. Our MS has him coming to the throne in 562 B.C.

Nergal Sarusur, by the Canon, began to reign in the 189th year, which reached from Jan.10, 559, to Jan.10, 558 B.C. Our MS has him beginning to reign in 560 B.C.

Nabunaid, by the Canon, began to reign in the 193rd year from the Era of Nabonassar, which began Jan. 9, 555, and ended a year later. Our MS has his reign begin in 556 B.C.

Cambyses, in the Canon, is assigned years 219 to 226, inclusive. The 219th year began Jan. 2, 529, and ended Jan. 2, 528 B.C. Cambyses, by this great document, began to reign after Jan. 2, 529. Our MS has his accession in the year 530.

I think there is an inconsistency in the scheme upon which I am commenting which prevents still further contradictions.

> If we adopt these conclusions, we sacrifice the accuracy of the Canon of Ptolemy.
>
> But this Canon is not only in harmony with the great archaeological discoveries of the past century, as witnessed by Driver and many others, but it is confirmed by the faithfulness of the movements of the heavenly bodies. "There are no less than 85 solar, lunar, and planetary positions, with their dates, given in the Almagest, which have been verified by modern astronomers."
>
> Reasoning and theory which give conclusions contrary to this invaluable document MUST BE WRONG.

This MS gives practically no argument for the date 457 B.C. from the Canon of Ptolemy.

That Canon fully establishes our historical position on the prophetic dates.

Should not a document which is supposed to "go to the bottom" (Part II, page 2, last paragraph) of the evidence for the date 457 B.C. give the full force of evidence from that document in whose "preservation as a precious remnant ~~of~~ of antiquity the hand of Providence can be clearly traced?"

> "Providence . . . raised up . . Ptolemy . . to record the chronology of the previous nine centuries, and to associate it in such a way with the revolutions of the solar system as to permit of the most searching demonstration of its truth."

(Note, Part IV, p 3)

"In the 600th year of Noah's life . . were the fountains of the great deep broken up, and the windows of heaven were opened." Gen. 7:11

"Noah was 600 years old when the flood of waters was upon the earth." v.6

It may be argued that the transition from the 600th to the 601st year of Noah's life occurred between the beginning of the rain and the time when "the flood of waters was upon the earth."

Too narrow a basis is selected in this Note for its tremendous conclusions.

"And Noah was 500 years old: and Noah begat . . Japheth." It is too much to say that Japheth would be counted 1 year old when Noah became 500.

Gen. 5:3-5 checks without the theory put forward.

And Methusaleh does not survive the flood year by our accustomed counting of the years. Shem was born when Noah was 502 years old. Gen.11:10.

P. 3,

(Par. 1)

"Jewish reckoning is always 'inclusive reckoning.'" This statement is not true. If it were, then Menahem would have been declared to have reigned 12 years. His reign was from the 39th to the 50th years of Uzziah, ten years and two fractions, and the fractions are not counted. 2 Ki. 15:17,23. Argument upon this premise is not valid.

(3)

(4) Note 4 gives evidence that the writer reduces the 3 years of Dan. 1:5 to 1 year and two fractions. The Bible states that "at the end" of the three years they were to stand before the king.

And if 3 years in Scripture means 1 year and two fractions, then it may be argued that 1260 years means 1258 years and two fractions, 2300 years means 2298 years and two fractions, etc. Intolerable conclusions come from this theory.

(P.4) The eclipse of April 21, 621 B.C. in his 5th year does not prove that Nabopolassar began to reign in 626. It proves that he was reigning on April 21, 625, and no more.

(5) (P. 5.) The chart shows that the 4th year of Jehoiakim was the second year of the 70 year captivity. Jer. 25:9 shows that the captivity had not yet begun in the early part of this 4th year. But Nebuchadnezzar may have been already on his march, having left on the expedition in the 3rd year of Jehoiakim (Dan. 1:1), and the record in Babylon dating the expedition from that year, and before he reached Jerusalem the 4th year had begun and Jeremiah had spoken the words in chap. 25.

The B. C. dates on this chart down to 586 B. C. are open to criticism on a Scripture basis. They are accepted by scholars today, just as they accept Rabbinical chronology, but former Bible students who accepted Scripture fully (like the Caraites) had a solid basis for 588 B.C. for the fall of Jerusalem. This is too large a subject for elucidation in a few minutes at my disposal, and it is irrelevant to the main point of consideration.

(p.7) It may be argued that the short reign of Jehoiachin reached from the latter part of one year to the early part of the next, upon the statement in 2 Chr. 36:10. This point is of course a very minor item.

(6) (pp 5-9) The B. C. dates for these synchronisms are all based upon the assumption commonly taken, that the synchronisms all refer to the beginning of Nebuchadnezzar's reign as counted at Babylon. They do not take into account the old argument from Dan. 1:5; 2:1, that the Jews in Palestine counted the years of Nebuchadnezzar from the time when he came against Jerusalem, three years before his great dream, while his father Nabopolassar was yet living and whose orders he was obeying. (Berosus, in Josephus, Against Apion, book 1, par. 19.)

(Part IV, p 10)

The underscored statement fails utterly when applied to the reigns of the kings of Israel.

Jeroboam reigned 22 years to the 2nd of Asa. Nadab followed for "2 years" and was succeeded by Baasha in the 3rd year of Asa. Then Baasha is said to reign 24 years, to be succeeded by Elah in the 26th of Asa, whose reign of "2 years" and Zimri's 7 days was followed by Omri in the 27th of Asa. And Omri's 12 years ended in the 38th of Asa.

(p 10, note 11) (July 16, 523 B.C.)

This eclipse in the 7th year of Cambyses fully confirms the Canon of Ptolemy. It proves that Cambyses was reigning on July 16, 529, but does NOT prove that he began to reign in 530. By the Canon he began to reign after Jan. 2, 529 B.C.

(p 18)

A faulty argument based upon Neh. 1:1; 2:1; Ezra 7:7-9. These scriptures merely prove that in the years of the reign of Artaxerxes alone there was no break in the count of the year between the first day of the first month and some unknown day in the month Kisleu; that when he came to the throne the date was somewhere between the first day of Kisleu and the first day of Nisan, the first month. And this is the meaning our people have always held.

Our publications, such as those by Elder Spicer, make very clear, with diagrams, etc., that Artaxerxes began to reign somewhere between the last of Kisleu and the first of Nisan.

The Canon of Ptolemy shows that he began to reign at some date between Dec. 17, 465 B. C. and Dec. 17, 464 B.C.

If his reign began between Dec. 17 and Jan. 1, then he began to reign in 465 B.C.

To establish that his reign began between Jan 1 and Dec. 17, or in 464 B.C. is our problem. In other words, we must prove that he did not come to the throne between Dec. 17 and Jan. 1, XXXX

The month Kisleu sometimes reaches beyond Dec. 17. Did it in 465 B.C.?

If it can be proven that in 465 B.C. the month Kisleu did not reach to Dec. 17, the last gap is closed, in defense of the date 457 B.C.

There were solar eclipses, marking times of astronomical new moons, in 465 B.C. on June 20, 7:16 A.M., Greenwich Civil Time;

Nov. 15, 10:19 P. M. Oppolzer, Canon der
Dec. 14, 10:40 P. M. Finsternisse, p 72.

The visible new moon following the last eclipse marked the beginning of the month Tebet, and the month Kisleu was entirely in the past.

June 16, 1939

H. A. Washburn
Route 1, Box 57-A,
St. Helena, Calif.

My dear Brother Washburn:

Elder Froom has passed on to me the criticisms that you make concerning my portion of the manuscript for this special committee, and I was very glad indeed to get them. We certainly do not want anything to go that would misrepresent the truth, and I recognize that one dealing closely at hand with some of these problems is likely to frame his thought in such a way as to leave more or less ambiguity as someone else reads his thoughts. I only wish that you were here and we could sit down and talk over the whole matter together for I am sure that discrepancies and misunderstandings could be more quickly eliminated that way than by correspondence.

However, let me take up a few of your points, and if I do not make myself perfectly clear I will be delighted to have you ask more questions in order that I may make further explanations. My whole thought in the paper was to emphasize the accuracy of the Canon of Ptolemy rather than to throw any discredit upon it. In regard to the manner in which Ptolemy records his reigns it is quite evident that he does not take into account the accession year. He gives the death year of one king entirely to that ruler and begins the following year with the new king, calling it his first year. Then what are you going to do with the dated tablets which have dates not only in the first year but also in the accession year? This is a problem that has confused many historians, and for that reason has caused a discrepancy in the dates of these rulers. For instance, you say that according to the Canon the first year of Nabunidus is 555. If you will look in my tables you will find that I give it as his first year, putting the accession year back in 556 along with the fourth year of Nergol Sarusur. Under Chart B on page 13 you will note that I specifically state that all dates begin with the accession year of the king which is the same as the death year of the previous ruler. By this means I give an explanation to the accession year. After careful study of the dated tablets that are found in the excavations I find them to be exactly in harmony with the requirements of the Judaean method of reckoning the accession year and the death year as one.

On page 3 of your report you mention that we say Jewish reckoning is always inclusive reckoning. I should have qualified this by saying Judaean reckoning is always inclusive reckoning, for with one exception I think this is correct. The Israelitish reckoning seems to have been based on an entirely different scheme as I think I could very clearly show you were you here and could look over my chronological scheme. On the basis of treating this accession year as found in the tables in the same manner as the Bible treats the accession year of Jehoahaz and Jehoiakim as worked out from the 13th year of Josiah down to the 4th year of Jehoiakim, Jer: 25:1-3, I find that it harmonizes exactly with the Canon of Ptolemy giving the first year of the reign of Nabopolassar in 625, the first year of Nebuchadnezzar 604, etc., the same as you show in your letter. As near as I can figure it out these ancient chronologists had to work out some plan whereby fractions of years could be accounted for, and it seems to me they have done it in a remarkable and simple form. The Bible seems to be quite uniform in this method. I tried to explain this in a note but evidently it did not go into detail enought so that it was clear to you. Perhaps you could help me clearify it in a way that would be simple enough for anyone to understand.

I state that Adam lived 130 years and begat Seth. Does that mean that it was in his 131st year or in his 130th year that Seth was born? If he were born in the year 131 A.M. and after his birth Adam lived a full 800 years he would not die in 930 A.M. but in 931 A.M. would he not? While this increment might be negligible if you were considering only one or two generations, in the consideration of ten between Adam and the flood you might run into a difference of several years. On the other hand as we think of Adam as one being 1 year old in 1 A.M. so with his son born in 130 he would be 1 year old in 131 A.M., and thus the chronological sequence would not be in the least disturbed by any fractions of years.

You say, "It may be argued that the transition from the 600th to the 601st year of Noah's life occurred between the beginning of the rain and the time when the flood waters was upon the earth." That is, I suppose, you have reference to the 40 days that the rain was upon the earth before we could say that the flood of waters was upon the earth. Then according to the 11th verse of Chapter 7 the second month refers not to the second month of Noah's 600th year but to the second month of the year A. M., 1656. According to your statement his 601st year would begin, we will say, about the 4th month of the year, but would it not be more simple and just as effective and in harmony with the manifest working of the chronological scheme to think of his 600th year as coinciding with the A.M. year and then the 6th verse is entirely in harmony with it rather than being opposed to it. The only way, it seems to me, that you could have Methusaleh not survive the flood by our accustomed counting of the years would

be for his birthday to come within a month and 17 days of the beginning of the year, while in my method he could be born any time during the year.

You say that my chart shows the 4th year of Jehoiakim as the second year of the captivity, and yet that Jer. 25:9 shows that the captivity had not begun in the early part of this 4th year. Is it not correct to start the 70th year captivity in the 3rd year of Nebuchadnezzar when part of the vessels of the house of the Lord and certain of the children of Israel were taken captive, Dan. 1:1-3, and doesn't this solve the question of using the tablets dated in the accession year instead of the first year of Nebuchadnezzar?

I would be very glad indeed for your solution of the problem for 588 for the destruction of Jerusalem and still hold on to the 21 years of Nabopolassar's reign and the eclipse in the 5th year of Nabopolassar. I am just as anxious as anyone to accept the scriptural statements, and I am sure you realize that many of the scholars today make no effort to harmonize scriptural statements with actual archaeological finds. I firmly believe that all of the facts that we may uncover, properly understood, will not in any way disprove the correct interpretation of scripture, and my burden is to try and show the harmony that exists between these two. I don't know of anyone in the past who has tried to show the reasonableness that ~~you~~ may ~~show in~~ be shown by the proper interpretation of these accession year tablets.

I agree with you that your comment on page 10 where you say the underscored sentence with regard to the accession year breaks down completely when applied to the reigns of the kings of Israel. I will put a note in my paper clearifying that point.

You say on page 18 that the argument is faulty when I use Nehemiah and Ezra to show the Jews had a civil year as well as a sacred year. Do I understand from this that you think they did not have a civil year but that their year began in the spring as the Babylonian and Persian calendar did? If so, when did the Jewish civil year begin, ~~and~~ beginning with the month of Tisri come into effect?

I note from your last paragraph you say, "Our publications, such as those by Elder Spicer, make very clear, with diagrams, etc., that Artaxerxes began to reign somewhere between some day in Kislev, possibly the last of Kislev and the first of Nisan," but if you will refer to Brother Spicer's book again, "The Hand of God in History," pages 41 to 60 I think you will find him saying that the beginning of his year's reign must have been sometime between the 5th month and the 9th month. If Nisan, the first month comes in sequence after the 9th month how could he begin the year's reign in any time in that interval?

Having established what seems to me the reasonableness of the method of applying the accession year principle I begin with the 7th year of Cambyses and work right down through the reigns of Darius, Xerxes and Artaxerxes applying no new principle and without any difficulty come to the conclusion shown on Chart B. Perhaps I should have added another chart with explanations similar to the one that I am enclosing showing that according to the Olympiads Xerxes' death year was somewhere between July, 465 and July, 464. According to the Canon of Ptolemy his death year was somewhere between December, 465 and December, 464, and according to the regnal years worked out the 21st year of Xerxes and the accession year of Artaxerxes would have to be from April, 464, to April 463. This would give from April to July, 464, for the death of Xerxes. Thus you see that what I have shown is directly in harmony with and emphasizes what has already been shown, except that I am shortening the interval in which it is possible for Xerxes death to come.

I am afraid this is a long rambling letter, but if there are points that I have not explained please write again, for I am most anxious that this subject should be worded in a way that would be plain to all and would be in perfect harmony with the facts. I am more than glad to get the criticisms of my brethren on these matters before they are put into book form.

Earnestly and cordially yours,

LHW/ls
encl.

B. C. 625 604 529 464

Facts of History, and correct interpretation of the Canon of Ptolemy: A

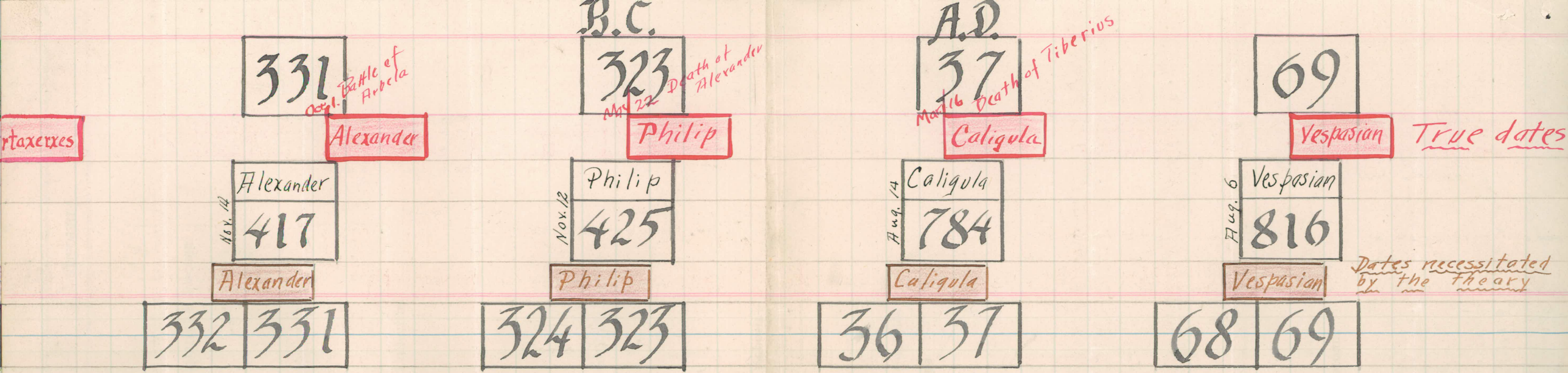
Canon:

King:	Nabopolassar	Nebuchadnezzar	Cambyses	Artaxerxes I
Year N.E.:	Jan. 27 123	Jan. 21 144	Jan. 3 219	Dec. 17 284

Theory:

Nabopollassar		Nebuchadnezzar		Cambyses		Artaxerxes	
626	625	605	604	530	529	465	464

that the Canon "gives the death year of one king entirely to that and that kings always began to reign in an accession year, previous to, and distinct from, their first year. Vespasian [and Artaxerxes also] in the year before their actual accession. The



ruler, and begins the following year with the new King."

. This theory would necessitate placing the accessions of Alexander, Philip, Caligula, theory contradicts these facts of history, and affords an argument against 457 B.C.

B.C.

466	465	464	463	462	461	460	459	458	457	456
Year of the Canon	283	284	285	286	287	288	289	290	291	292
Dec 18	Dec 17	Dec 17	Dec 17	Dec 17	Dec 16	Dec 16	Dec 16	Dec 16	Dec 15	Dec 15
Xerxes	21	1	2	3	4	5	6	7	8	9

Years of Artaxerxes as designated in the Canon of Ptolemy

Years of Artaxerxes I, (IF) as Bro. Wood writes says, Ptolemy "gives the death year of one king entirely to that ruler, and begins the following year with the new king." This would destroy the validity of 457 B.C. for his 7th year

1	2	3	4	5	6	7

466	465	464	463	462	461	460	459	458	457	
Actual Reign of Art.:	1	2	3	4	5	6	7	8		

He could not have begun to reign in that part of year 284 which fell in 465 B.C. after Dec. 17 for the month Kislev ended before Dec. 17.

[Solar Eclipses Dec. 14 Nov. 15 June 20]

By Canon of Ptolemy came to throne in this year 284 B.C.

Dec. 17

By Neh. 1:1; 2:1 Ezra 7:7-9 came to throne in this period of year.

First year

Nov Dec | Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec | Jan Feb Mar Apr May Jun July Aug Sep Oct Nov Dec

465 | 464 B.C. | 463

Nov Dec | Jan Feb Mar Apr May June July Aug Sep Oct Nov Dec | Jan Feb Mar Apr May June July Aug Sep Oct Nov Dec | Jan Feb Mar Apr

Kislev Nisan Ab Kislev Nisan Ab Kislev Nisan

8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12 1

Neh. 1:1 2:1 Ezra 7:7-9

The regnal years of Art. did not change during this period of the year.

The regnal years began in this portion of the year

First year

and ended in the same period.

Came to the throne in the Fall of the year, some time between the 1st of the 5th month and some day in Kislev

ANSWERS TO CRITICISMS OF PART IV BY H. A. WASHBURN

While the study of the Assuan Papyri has probably cleared up any possible point of controversy that might linger in the minds of any of our scholars, it will perhaps be an additional help if answers to definite criticisms of Part IV are given in detail. As the most carefully worked-out criticism was sent in by H. A. Washburn, his comments as covering all that came in, will be taken up point by point and answered. The quotations are from his comments.

- 1 -

"My great criticism of Part IV is that its conclusions, or some of its conclusions, are CONTRARY TO THE CANON OF PTOLEMY, which is the greatest bulwark, absolutely invincible, for our position on the 457 date. Any conclusions contrary to this must be wrong. This was the incontrovertible evidence set forth in the 1844 movement, and it still stands, after the archaeological discoveries of the past century, as evidenced by Driver: 'The recently-discovered contemporary monuments have FULLY ESTABLISHED THE ACCURACY OF THE CANON.'"

I think it will be evident to all that the study of the papyri has not only proved the accuracy of the Canon, but has also shown its harmony with other methods of reckoning, such as, the saros tablet and the chronology of the Bible.

- 2 -

"Nabopolassar's reign, according to the Canon, occupied the 21 years included from the beginning of the 123rd year of the Canon to the end of the 143rd year. The 123rd year began on Jan. 26, 625 B. C. Nabopolassar, by the Canon, came to the throne some time between Jan. 26, 625, and Jan. 26, 624 B. C. The MS upon which I am commenting makes Nabopolassar's reign begin in 626 B. C. The theory which makes this king's reign begin in 626 must be wrong."

As shown by Chart G, 626 B. C., shown as the accession year of Nabopolassar on the tables of Part IV equals the year 626 - 625. If the previous king died some time during the 123rd year of the Canon, that is, between

the 27th of January, 625 and the 26th of January, 624, Ptolemy would call that year, the 123rd, the first of Nabopolassar's reign. As has been shown by the papyri, the Jewish year in general lags behind the Ptolemaic dating about nine months. According to Jewish and Babylonian custom, the death year of the king is included in his reign, and is also called the accession year of the following king. This has been verified by the synchronisms shown in the first section of Part IV. The Jewish year from Tishri, 626, to Tishri, 625, (see chart G) is, therefore, both the death year of Ashur-bani-apal and the accession year of Nabopolassar. This sequence of years has been proved by the papyri. In the same way, it may be shown that Nebuchadnezzar's first year in the Ptolemaic Canon was 604 - 603, while, as is shown on Chart G, his accession year according to the Hebrew reckoning would be 605 - 604. In harmony with the double dating system proven by the papyri, these dates are carried down through the years as on Chart G, and can be easily verified by anyone.

- 3 -

> "Jewish reckoning is always 'inclusive reckoning.' This statement is not true. If it were, then Menahem would have been declared to have reigned twelve years. His reign was from the 39th to the 50th years of Uzziah, ten years and two fractions, and the fractions are not counted. 2 Kings 15:17,23. Argument upon this premise is not valid."

The statement concerning "inclusive reackoning" made in Part IV should be confined to only the period under discussion and refers to the Judaite method, not the Israelite (the ten northern tribes) of listing the reigns of kings. It is a bit confusing to bring up the Menahem problem in this connection because there are interregnums existing both in the lines of Judah and Israel in the period just before Uzziah and just after Pekah that do not give sufficient ground for finalizing the discussion. It has been clearly demonstrated in Part IV that the principle of inclusive reckoning was used by Judah from the time of Nabopolassar on.

"Note 4 gives evidence that the writer reduces the three years of Dan. 1:5 to one year and two fractions. The Bible states that 'at the end' of the three years, they were to stand before the king. And if three years in Scripture means one year and two fractions, then it may be argued that 1260 years means 1258 years and two fractions, 2300 years means 2298 years and two fractions, etc. Intolerable conclusions come from this theory."

It is just as reasonable to reduce Daniel's three years, "to one year and two fractions as it is to reduce the three-year seige of Samaria to one year and two fractions. 2 Kings 18:9,10. Daniel 1:5 speaks of an incident to take place at the end of three years and 2 Kings says that Shalmaneser came up against Samaria in the 7th year of Hosea and "at the end of three years they took it, even in the 9th year of Hosea." In fact, this reference gives good authority for crowding the experience of Daniel into its required time.

"The chart shows that the 4th year of Jehoiakim was the 2d year of the 70-year captivity. Jer. 25:9 shows that the captivity had not yet begun in the early part of this 4th year. But Nebuchadnezzar may have been already on his march, having left on the expedition in the 3d year of Jehoiakim (Dan. 1:1), and the record in Babylon dating the expedition from that year, and before he reached Jerusalem, the 4th year had begun and Jeremiah had spoken the words in chapter 25."

70 years had to do with all nations in Jer. 25

Jeremiah 25:9 is in perfect accord with the experience recorded in Daniel 1. There were three campaigns in the overthrow of Jerusalem. The first was in the third year of Jehoiakim; the second, in his eleventh year; and the third, from the ninth year to the eleventh year of Zedekiah. Though given in the fourth year of Jehoiakim, the length of the captivity is retroactive, beginning in the third year of Jehoiakim at the time Daniel and his companions were taken to Babylon. According to Chart G, this could be some time during the year 605 - 604.

465-464 B.C. if embolismic, then 1 Nisan = Mar 27
(Mar. 27 to Apr. 15)

∴ Kislev (30 days) = Nov. 18 to Dec. 17 inc.

Note: 1 Nisan could not equal Mar. 25, as Bro. Washburn insists, for it would not only make the year 386 days long, but it would bring the Nisan next year before the equinox, which in that year was March 26 or 27.

465-464 B.C., if common, then year = 355 days (Apr. 25 to Apr. 15)
"Papyrus B" calls for Apr. 25 as 1 Nisan in spring of 465.
Then Kislev and Heshvan both equal 30 days and
Kislev = Dec 18 to Jan 16. Kislev proof does not pan out. Q.E.A.

"The B. C. dates for these synchronisms are all based upon the assumption commonly taken that the synchronisms all refer to the beginning of Nebuchadnezzar's reign as counted at Babylon. They do not take into account the old argument from Dan. 1:5; 2:1, that the Jews in Palestine counted the years of Nebuchadnezzar from the time when he came against Jerusalem, three years before his great dream, while his father, Nabopolassar, was yet living and whose orders he was obeying. (Berosus, in Josephus, Against Apion, Book I, p. 19)."

To make Josephus imply that Nebuchadnezzar came and took Daniel captive three years before his dream does injustice to the clear statements as follows: Dan. 1:1, in "the third year of Jehoiakim;" Jer. 25:1-3; "the fourth year of Jehoiakim 'equals' the first year of Nebuchadnezzar;" Jer. 36:9; "the fifth year of Jehoiakim" must equal the second year of Nebuchadnezzar; Dan. 2:1; "in the second year of the reign of Nebuchadnezzar." A careful study of the references in Josephus will surely convince anyone of the synchronism of his account with the above Biblical references.

"This eclipse in the 7th year of Cambyses, July 16, 525 B. C.,

fully confirms the Canon of Ptolemy. It proves that Cambyses was reigning on July 16, 529, but does NOT prove that he began to reign in 530. By the Canon he began to reign after Jan. 2, 529 B. C."

According to theCanon of Ptolemy, the eclipse of 523 occurred in the 7th year of Cambyses. This year of the Canon began Jan. 1, 523, and closed Dec. 31, 523. In the "Cambyses 400" tablet, it is also recorded as having occurred in the 7th year of Cambyses. According to the Babylonian calendar, this year ran from April, 523, to April, 522, as demonstrated by the papyri. However, the sequence of years as proven by the papyri, demands that the 7th year of Cambyses, according to the Hebrew reckoning, shall extend from the autumn of 523 to the autumn of 522. The date, therefore, of the eclipse according to the Hebrew reckoning, would be the month of Tammuz in the sixth year of Darius. (See Chart G)

"A faulty argument based upon Neh. 1:1; 2:1; Ezra 7:7-9. These scriptures merely prove that in the years of the reign of Artaxerxes alone there was no break in the count of the year between the first day of the first month and some unknown day in the month Chisleu, that when he came to the throne the date was somewhere between the first day of Chisleu and the first day of Nisan, the first month. And this is the meaning our people have always held.

"Our publications, such as those by Elder Spicer, make very clear, with diagrams, etc., that Artaxerxes began to reign somewhere between the last of Chisley and the first of Nisan. The Canon of Ptolemy shows that he began to reign at some date between Dec. 17, 465 B. C. and Dec. 17, 464 B. C. If his reign began between Dec. 17 and Jan. 1, then he began to reign in 465 B. C. To establish that his reign began between Jan. 1 and Dec. 17, or in 464 B. C., is our problem. In other words, we must prove that he did not come to the throne between Dec. 17 and Jan. 1.

"The month, Chisleu, sometimes reaches beyond Dec. 17. Did it in 465 B. C.? If it can be proven that in 465 B. C. the month, Chisleu, did not reach to Dec. 17, the last gap is closed in defense of the date 457 B. C.

"There were solar eclipses, marking times of astronomical new moons in 465 B. C. on June 20, 7:16, a.m., Greenwich Civil Time
XI 15.53 Nov. 15, 10:19, p.m., Oppolzer, Canon
XII 15.04 Dec. 14, 10:40, p.m., der Finsternisse, p. 72.
The visible new moon following the last eclipse marked the beginning of the month Tebet, and the month, Chisleu, was entirely in the past."

The papyri prove that the system of counting Chisleu before Nisan does not apply to Artaxerxes' reign alone, but is a general custom applying to any king's reign. In the 21st year of Xerxes, Papyrus "B" states that the 18th of Chisleu synchronizes with the 17th of Thoth in the 1st year of Artaxerxes, and as proven by the computation, this was Jan. 2, 464 B. C. As the synchronism is exact, it proves Brother Washburn's contention faulty all the way through. (Dr. Wood)

Prof. Harry Washburn,
St. Helena, Calif.
Dear Professor:

Enclosed are a few Tables and some manuscript copies on these subjects under discussion. TABLE N was made out to show the Committee what would happen to the translation of the moon in Jerusalem if the 10th Tisri were made to fall with its greatest portion of time on October 22; the 1st of Tisri, in like manner, on October 13; and Nisan 14 on the day of full moon, May 2, that is, Jerusalem Civil Time. Of course, with one coordinate fixed, the whole series follows. There is a man here in Washington who wishes to make the civil dates in Jerusalem exactly coincide with the civil dates of the "seventh month" in Boston. The international date line, of course, makes this impossible. The Tisri New Moon day, which we see in Jerusalem on October 13/14, beginning at the second sunset after conjunction, is the latter part of the same new moon day which occurs in Boston on October 12/13, beginning the first sunset after conjunction. The Millerites seemed to understand this, for they mention "11 a.m." as the coincident time in Boston corresponding to the sunset beginning of Tisri 1 in Jerusalem. On account of the fact that the position of the moon is such in Boston that her new moon day can happen a sunset earlier after conjunction than in Judea, are we not justified in saying that this October 13 new moon day really began in America--where the "seventh month movement" was consummated as it had no counterpart elsewhere--crossed the date line as Tisri 1/ October 14, coming back to Jerusalem as the same, and coinciding with the same date there, which the Millerites statements point out, in the end returning to Boston ready for Tisri 2/ October 14, the logical civil date. Certainly we cannot make Tisri 1/ October 13 in Boston follow Tisri 1/October 14 in Jerusalem. This paradoxical trouble with Jewish time is of long standing. It gave rise to the double new moon days after the diaspora. It caused the fierce polemic between the Rabbanites and Karaites in the 10th century, who fought for a prime meridian--Jerusalem or Babylon. In the end neither got it. According to the Jewish Encyclopedia, the Jewish festival day with its civil date--I doubt the festival part--starts 90 degrees east of Jerusalem. That would be 60 degrees west of the day line. The festival date line, if we may call it such, could not have a permanent meridian, on account of the constant change of the phasis. This "oscillation" of Tisri, as Sidersky calls it, becomes a most interesting factor in relation to our problem. I wish that you would give it close study. Correct me if you think that I am wrong. I have discussed this with Mr. Draper, Associate Astronomer at the Naval Observatory, a number of times. He has taken keen interest in it, and often says, "Do not change one detail of the "Clock Chart," for you have it just right."

after 24 hrs.

It is the other way around.

Technically you may be correct about the actual ending of the 2300 years, especially in reference to Jerusalem, but practically, I would say not. The Millerites had to pick up time where they found it, and that was in New England. Furthermore, the revival that they represented--the short, quick, last feature as of the seventh month movement--was a fit counterpart to the revival of Ezra which at the beginning started the prophecy in Jerusalem. The time came in the fall of 457 B.C. for the 2300 years to begin. Ezra was correcting the terrible domestic confusion which had come into the camp of Israel. We do not know that Israel could observe the day of atonement at that time; probably not. But when the day came, the prophecy began. This was in Jerusalem. It seems as if, in the finishing of this longest period of prophetic time, America took the leading part. We have no record at all that any of the European churches took any part in the "seventh month movement." They scarcely knew anything of it. Elder Froom has gone into this thoroughly, and is of the same opinion. He will add to his report concerning this point, I think. You can see what it would have meant if the Adventists in Europe had accented the 10th day of Tisri as of October 23, while those in America set the day as October 22. That is the way things go at times. But in the great providence of God, it would seem to me that the final finish came in one country only, where the date was one.

TABLE V is enclosed --am so sorry that you did not get it. It will explain, I think, how I reckoned the translation periods. I had no positions of the moon for the first century--only the Ginzel Tables. The calendar itself, when laid out, produces all the translation times. I followed my Postulate, and reckoned the length of the year by the paschal moons as pointed out by the barley harvest.

I have gone over the references you mention. On page 51 I have not made myself clear--I see that. It was the Nisan moon on the 13th that is the crux of the argument. However, all but four of the other full moons in 1844 fell on the 13th of the month in Jerusalem. I was interested when I saw that the Tisri moon fell in line, but I did not make it plain. Thanks for telling me. Table IV was made out for the purpose of showing that the translation periods keep step with the motion of the moon. They change gradually in length from moon to moon. My figures may be wrong--I do make mistakes at times, for it is almost impossible not to. Although many of the moons are on the 13th, there are always some, here and there, that are not. The Nisan moon is the important one. Table IV has all the Nisan moons on the 13th; the others should come along as the calendar points out. As I can get time, I will check this

over, and let you know how the figures work out. It surely is very kind of you to take such keen interest in the details of this problem. I appreciate it more than I can tell you. There are very few in this country who have the ability to do what you have done in criticizing our report.

If you have time, and find it convenient, I would surely appreciate further criticism from you in regard to the matter of laying out the Jewish year after the Mosaic pattern, shall I call it? If you read over Sidersky, you will note that he claims there were no years in the first century either 385 or 353 days long. This he says is on account of the postponements of the modern Jewish calendar, which did not exist in the early times. I also have found this to be true when reckoning the length of the year as from paschal moon to paschal moon. I never find any year either 385 or 353 days long. We are dependent upon knowing the length of the year in order to determine the number of days in Hesvan and Kisleu. You will see from the Tables how the calendar works. I would greatly appreciate your attention to this, if you have time. But please take your time, and do not worry. Everything that you have sent us has been valuable. Before I make my final report to the General Committee I would like to know that we are in harmony if possible. It will mean much to me.

Am sorry to know that you are not in good health. Please do not hurry yourself on my account. Take plenty of time. That is our best asset, is it not?

Yours very sincerely,

Sept. 19, 1939.
Takoma Park, D.C.
220 Park Ave.

P.S. At present I am translating for Elder Froom in the General Conference building. When you write, use the address given above.

G.E.A.

P.S.[1] If I have not already sent you the Jewish year in calendar form for the Boston meridian--a counterpart of the Jerusalem Table J herin enclosed--please let me know and I will send one on. It seems as if I had sent you a copy, but I am not quite sure.

G.E.A.

Route 1, St. Helena, Calif.,
August 29, 1939.

Miss Grace Amadon,
~~Battle Creek~~
Takoma Park, Washington, D. C.

Dear Sister,-

You note from above error the persistence of old time recollections.

I very much appreciated the letter which I received from you last week, and the data which you enclosed. I should have written sooner, had I not been called away from home, and I am now writing before a hasty departure, so that I cannot write all that I would be interested in putting upon paper.

With reference to the data in your letter, there must have been an error in the dates of perigee in 1844, at least in June, and I think also in August. Perigee could not fall on June 13, Aug. 21 and Oct. 13, in any one year. When you look this up, please get the moon's latitude north or south of the ecliptic, not the declination nor or south of the equator, which was given, presumably for 0 hrs., on the dates of conjunction. Or did you compute the declination for the moment of conjunction? In giving the latitude, kindly indicate the precise time. and give me one date of ☊, and the Lat. 14 days later.
☊ = ascending node.

I should greatly enjoy working on such problems as these, had I access to a library.

I infer from your letter that you judged I held ~~that~~ the full moon of Nisan fell on the 14th; I think the testimony of Aristobulus sufficient to establish that in the month Nisan the full moon fell on the 13th.

I doubt very much whether the Jews anciently followed undeviatingly the 30-day, 29-day, 30-day, 29-day length of the months. They could hardly have done it, and begun their months upon the phasis of the moon. At a time when the new moons would appear at Jerusalem as they did at Boston in 1844, I think the ancient Jews would have given 30 days to Elul, beginning Tisri at sunset after the moon was visible, and allotting only 29 days to Tisri, would begin Hesvan as your chart showed, at phasis.

A ~~s~~tatement in your letter would not be always true: "In actual performance, when the paschal moon is placed on the 13th of Nisan, the other months run along, placing their full moon on the 12th to the 14th of the month."

I understand that you have this result, by assigning the customary modern lengths to the months as in the modern Jewish calendar; i.e., alternating 30, 29 days. In 1926-7, the full moon would fall on Nisan 13, Iyyar 12, Sivan 12, Tammuz 12, Ab 12, Elul 11, Tisri 12, Hesvan 11, Kisleu 12, Tebet 11, Shebat 12, Adar 12.

Throughout the year, in such a case, the month would not begin until the moon had been visible on one or two evenings previously, the translation period being 4 days for 8 months, and 3 days for 4 months. In the latitude of Palestine, four days is never necessary before a phasis of the moon. Only in northern latitudes, such Danzig, where Hevelius lived, would a four day translation period ever be necessary.

I mention this simply because of my interest in the astronomical facts, for I do not suppose this enters into the possible publication after the study is completed.

And the suggestions I made regarding expressions in the manuscript were only such as to safeguard it from adverse criticisms by enemies, and I made them all in a friendly spirit, not to find fault.

There is another expression in your letter which I fear is jumping at a conclusion.

"We have no record that the Millerites actually observed the moon on the evening of the 12th, but even so, though Boston was a northernmost part of Adventism, yet the moon could d o u b t l e s s be seen in the south and west." There was a similar remark in Brother Froom's letter.

But our opponents would not concede that there was no doubt. As a matter of fact the moon would ~~probably~~ certainly not be visible anywhere in the United States. The moon was only ten minutes from its setting point at sunset at Boston, that is, $2\frac{1}{2}^{\circ}$ on a parallel of declination, or less than 2° vertically above the horizon. At New Orleans, $1\frac{1}{4}$ hours west of Boston in longitude, the moon would not be much farther east of the sun than it was at Boston. Even at perigee the moon gains only 14° on the sun in longitude in 24 hours, and in $1\frac{1}{4}$ hours it would move only $\frac{3}{4}^{\circ}$ further from the sun. The moon was certainly invisible there.

Much more consequential, I think, is another expression in your letter: "The seventh-month movement was strictly an American movement."

That statement by itself is all right. But its setting gives countenance, I feel, to an erroneous idea. It seems to be part of an argument that the tenth day of the seventh month was from sunset on Oct. 21 to sunset on Oct. 22 at Boston.

Now the prophecy of the 2300 days was not an "American" prophecy. The 69 weeks were not weeks in America, beginning and ending there. The midst of the week when the Messiah was cut off, was a day in Palestine, not in America. The 2300 days began, the 70 weeks began, with a certain time in Palestine. They ended at a certain time in Palestine. The 2300 days began at a certain time in Palestine, and ended exactly 2300 years later, as time was measured in Palestine, not in America. // When the 10th day of the seventh month came in Palestine, // the 2300 years ended, and not before.> That 10th day of the seventh month, as I showed on diagram sent to Brother Froom, began at 10:15 AM Oct. 22, at Boston. That was the moment, Boston time, when the 10th of Tisri began in Jerusalem. The 2300 years could not have ended a minute earlier than that. Oct. 21 sunset must be given up.

The enclosed sheet contains simple statements sufficient to show that Oct. 22 was the correct day for the American believers to select. We do not need to use any presumptions.

I have had to write hurriedly, and may not have made myself plain. I have not kept a copy, so that my words will have to be quoted to me if I am to answer inquiries regarding them.

Yours sincerely,

A. A. Washburn

I greatly appreciate the work you have done. You have dug out things I have searched for, for years, but had no opportunity for library research.

That statement from Aristobulus is worth a lot to me. Wish I had it in the original Greek. Can you get it?

Part V argues for a visible new moon a t Boston, on Oct. 12, 1844, at sunsset.

This was an impossibility. (See computation and diagram) not given here

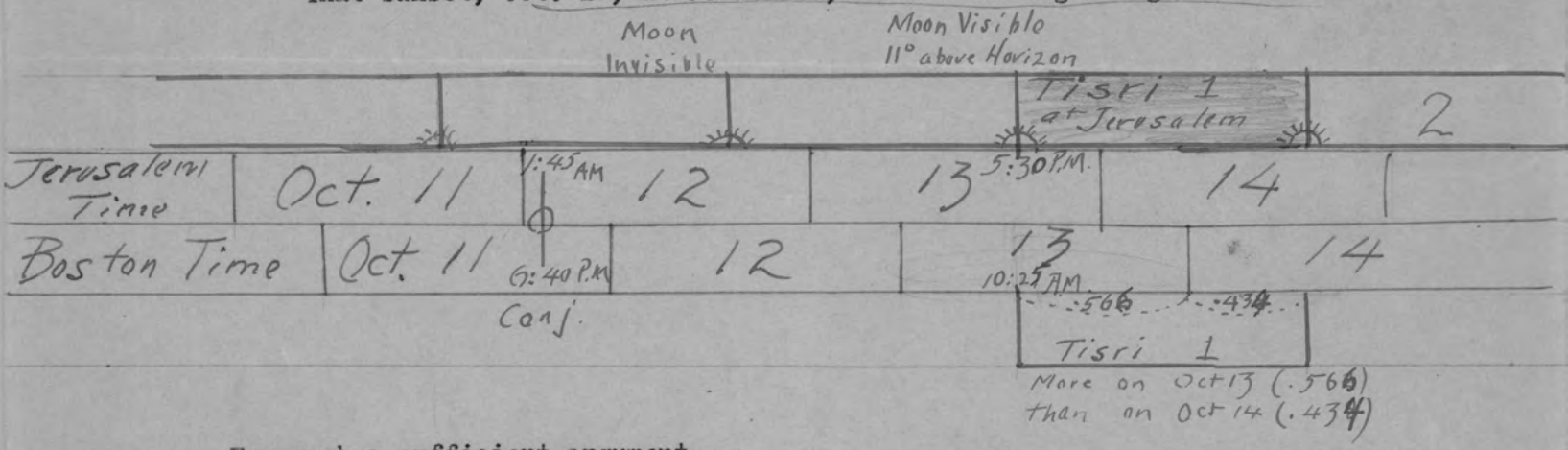
And this argument is not necessary. #2

All that needs to be argued for is:

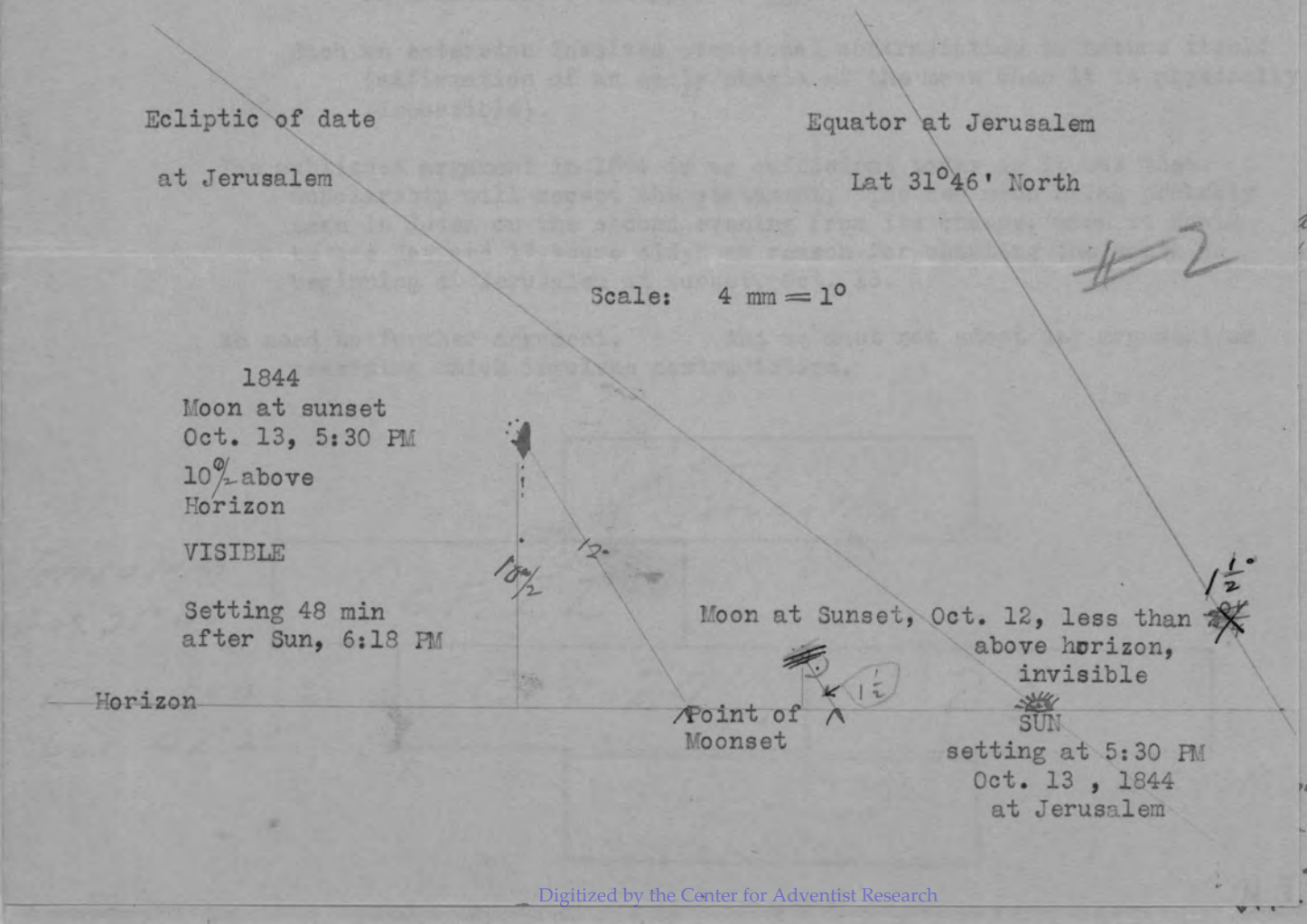
That Oct. 22 at Boston, more than any other day, coincided with the 10th of Tisri; at Jerusalem.

That Oct. 13 at Boston, more than any other day, concided with Tisri 1;

That sunset, Oct. 13, at Jerusalem, marked the beginning of Tisri 1.



For such a sufficient argument



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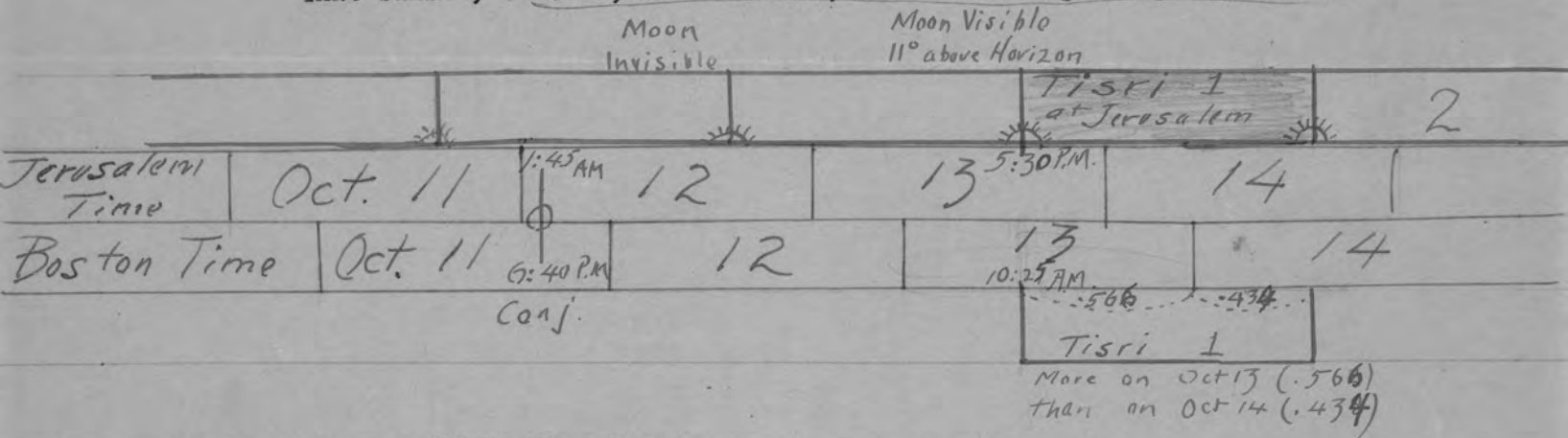


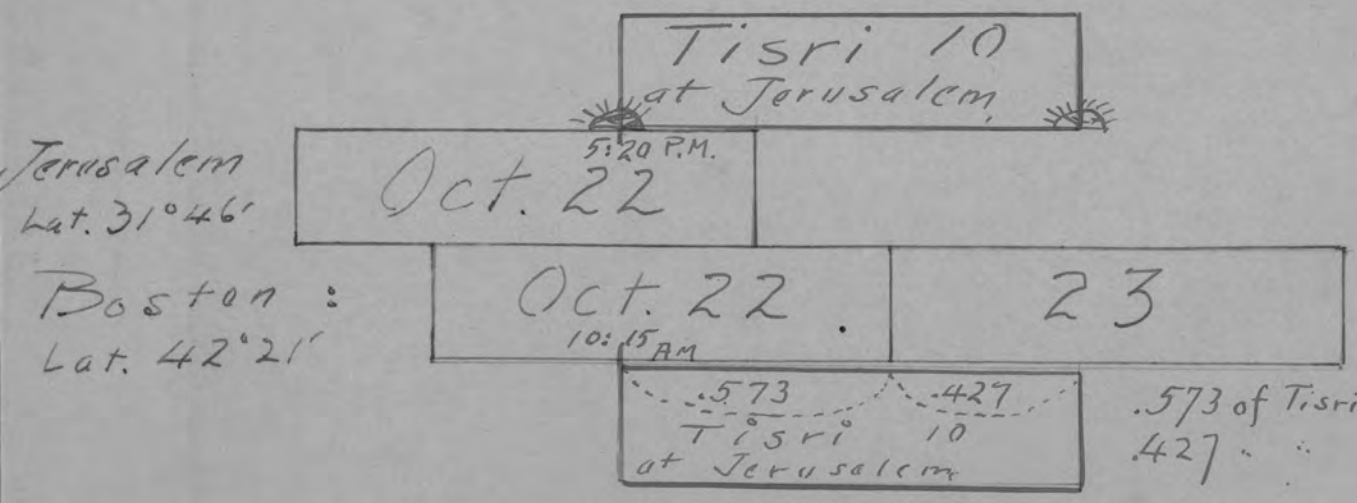
For such a sufficient argument
we do not need an extension of the Nisan 13-full moon postulate(based on Aristobulos) to apply to all months, including Tisri.

Such an extension involves occasional contradiction to nature itself (affirmation of an early phasis of the moon when it is physically impossible).

The published argument in 1844 is as sufficient today as it was then. Scholarship will accept the statement, "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," as reason for counting the month as beginning at Jerusalem at sunset, Oct. 13.

Actually 1 d 15h 45m old

We need no further argument. And we must not adopt any argument or reasoning which involves contradiction.



.573 of Tisri 10 on Oct. 22
.427 " " " " 23

N. A. Washburn

ADJUSTMENT OF THE ANCIENT HEBREW CALENDAR WITH THE NATURAL YEAR.

Length of the natural year		365.2422	days
Hebrew year, if 12 months of 30, 29 days alternately,		354	"
	short	11.2422	"
3 such years	"	33.7266	"
2 such years, and leap year with leap month of 30 d	"	3.7266	"
18 Hebrew years, with 6 leap years,	"	22.3596	"
		11.2422	
19 " " " " " "	"	33.6018	"
19 " " " 7 " "	"	3.6018	"
190 " " " 70 " "	"	36.018	"
190 " " " 71 " "	"	6.018	"
1900 " " " 710 " "	"	60.18	"
1900 " " " 712 " "	"	0.18	"

Every third year must have an extra month of 30 days, a leap year of 384 days

Once every 19 years a leap year must be added after an interval of only 1 year intervening.

After ten such 19-year periods, with 7 leap years each, another leap year, making a 19-year period with 8 leap years, two of them after only 1 year intervening between leap years.

Then after 950 years, a 19-year period with 9 leap years, 3 of them with only one year intervening ~~between~~ after the previous leap year.

No further thought about any extra leap year for 316,667 years.

In practice, the state of the barley harvest might hasten or postpone a leap year, but the average would be as above, for the harvest is controlled by the natural year.

In practice, also, if the visible new moon governed the beginning of months, the months would not invariably alternate between 30 and 29, but that would be the average. Average length of lunar month, 29.53o588 days

Prof. H.A.Washburn,
Box 57 A, R.R.1,
St. Helena, Cal.
Dear Prof. Washburn:

Since writing you last week, I have had opportunity to study further some of the material that you sent Elder Froom, although I have not yet given it all consideration. Herein is enclosed the reference from Aristobulos. It is taken from Caspari. This was the suggestion that gave me the clue to the position of the paschal moon, although Geminus also implies the same idea, when he says that the earliest full moon is on the 13th of the month. He gives the limits as from 13-17. I have not yet found any full moon so late as the 17th of the lunar month. If you have, please tell me.

I am sorry that you got the idea that I wished to place the full moon of each month on the 13th. My TABLE V states that the paschal moon on the 13th Nisan is the hypothesis of POSTULATE 1. This is the only hypothesis that works, I say in my report. If the paschal moon is placed on the 14th Nisan, the translation periods run short.

On the clock chart--Diagram E and F--you will note that the October full moon is on the 14th in Boston, although it is on the 13th in Jerusalem. This, however, is not the postulate, which only refers to the Nisan moon, which after all, sets the Jewish year.

You mention the date line as being transferred from the Pacific to the Atlantic ocean. Enclosed are a few paragraphs on the date line question. If you have time to send me a criticism on this, I would very much appreciate the favor, and will send you back a finished copy after the committee gets through with the subject if you care for it. It is slow work with the committee, for these men have so much to do, and after all, the arguments are difficult. Personally I appreciate sincerely the interest which you have taken. You have done a lot of fine detailed work. The first papers which came from you just happened to be left on my desk for an hour or two. I copied every word for careful study. At that time I had just come to Washington, and had not yet solved the problem concerning the first century moons.

This dating of the festival days in Jerusalem and New England--the fact that in this instance of 1844 they are on different days--has set minds thinking. I am enclosing an answer to the assertion that Tisri 10 must be on the same day in Jerusalem as in Boston--October 13. Please criticise the answer, especially the second page, where the three conjunctions are compared. I took all the data from the British Ephemeris.

David Sidersky's Chronology of the Jews has been of great help to us. It was a French article, 93 pages long. We had it translated into English. The Jewish calendar is considered in detail. If you would care to have a copy, I believe that we can spare one. Kindly let me know.

Please do not feel that you have to hurry in reference to anything that I have sent you, but if you do have time to give me the criticisms, I will very much appreciate the favor. I have done all my work on this report at the Naval Observatory, and have had the continual help of the Director, the Associate Astronomers, and the Time Service Department. The lieutenants took keen interest in the date line question, and one of them, being a Jew, was indeed excited over his calendar.

Please let me thank you parsonally for your interest, Yours very sincerely,

Theological Seminary,
Takoma Park.
September 2, 1939.

Prof. H.A. Washburn,
Box 57 A, R.R.1
St. Helena, Cal.
My dear Prof. Washburn:

This morning Eld. Froom sent over to my room a recent letter from you in regard to the position of the moon in 1844, and also your carefully made chart built up on the basis that the full moon always occurs on the 13th of the month.

Although "Postulate I" is a different hypothesis from the one by which you have work your chart, yet your chart is most valuable for reference, inasmuch as this very plan for the Jewish year has been suggested by a criticism that was forwarded to our committee. The hypothesis of "every full moon on the 13th" thrusts too many co-ordinates into the plan of the year. We can only have one co-ordinate for the sun, and one for the moon; consequently it would be impossible to have 12 or 13 months fixed at the same point by the moon. In actual performance, when the paschal moon is placed on the 13th of Nisan--including the after-sunset conjunctions also--the other months run along, placing their full moon on the 12th to the 14th of the month. I worked out a period of seven or eight years for the time around 1844, giving the Jewish year its length as indicated from full moon to full moon, and making the Adar-Veadar period 59 days, as laid down by chronology. This Sidersky says is the true Bible year for the first century, and this we understand the Millerites tried to follow. In~~to~~ such a calendar this Polish authority on the Jewish year says that no years 385 or 353 days long appear. Accordingly I left them out, and made the years always just as the moon indicated.

My chart shows that always the paschal moon fell on Nisan 13. I am working on a four-nineteen-year cycle period of the first century, a day-by-day hook-up of Jewish time to the Julian calendar. I take the length of the Jewish year from the moon's performance. So far all the paschal moons fall on Nisan 13. My conclusion is thus far that

1. If the paschal moons were placed on the 14th Nisan, the translation periods would run short in some years.

2. If the paschal moons were placed in some years on the 13th and in some years on the 14th, then the Jewish year would be distressed in its length, and would fall out with the 19-year cycle.

For some time I have wished to write you, and have felt that after all your interesting and helpful work a letter should come from me personally. I think that your criticism of the word "phasis" in connection with the Boston translation on October 13 in 1844 is well taken. We have no record that the Millerites actually observed the moon on the evening of the 12th, but even so, though Boston was a northern most part of Adventism, yet the moon could doubtless be seen in the south and west. However, even that fact does not make so much difference, for the first day of Tisri had to start--its time had come. This is confirmed by the adjacent translations of September and November, at which time the moon could easily be seen. The perigee seems to be the one important factor accelerating the moon in each one of these months. Other factors of the three mentioned by Hevelius were negative. But in September and November the phasis occurred at the second sunset, the moon setting, in the earliest month about 34 minutes after the sun, and in November, nearly an hour after. These translations, therefore, fix immovable the one in October. In Jerusalem, all three translations occur at the second sunset. Enclosed is the rule which the Karaites follow in such a case (Kokisoff). I also enclose the calendar for 1844, made out on the basis of Postulate I, starting with the year 1838. I am interested that you also have been studying the date line. There is a lunar date line as also the solar. It is the lunar date line that the phasis of the moon marks out on the meridian of Boston. As soon as my chart is finished on this point I will send it to you. Eld. Froom is having a wedding at this time. He will soon write you I am certain. If it is convenient I shall be glad to receive further criticism. Yours very sincerely,

Route 1, St. Helena, Calif.,
Sept. 15, 1939

Dear Miss Amadon,-

I have had delight in your letters, the second of which reached me about a week after I mailed my last letter to you, but coming by air mail I do not know whether you had received my letter before writing this.

(Please exercise charity in judging the typing of this letter. My nerves are so weak that I notonly make many mistakes, but I have not the nerve energy to rewrite anything. To attenpt this means no letter at all. I also have to write on different typewriters with different shift keys, which I cannot always keep in mind.)

Inasmuch as some of my inquiries were not answered in this last letter, I have delayed writing again, supposing I might be questioning something which would be satisfactorily explained in the next letter.

Let me state again very plainly that I do not write to find fault. I have in mind all the time what our opponents may say, and with truth, in opposition to positions which might be published by our people. While being plain enough to be understood, I have tried to remember courtesy.

As I do not have time at this moment, about to go away from home for a few days, to compose the letter logically, I will write a number of somewhat unrelated paragraphs, as the matters come to my mind.

m m m

I would be very thankful if I could read Sidersky's article, as you intimated in your letter.

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While it may not have been intended, Part V certainly gives the impression, by three counts, of an extention of the "Postulate 1" to make the full moon of each month fall on the 13th day:

(a) Page 51: "One more bit of evidence." "Placing this full moon date (Oct. 26, 1844) on Tisri 13, on the basis of the same postulate as for the Nisan moon."

(b) Table IV, page 33, column 4, "Period from Conjunction to Phasis." These translation periods as given cannot be obtained by applying Postulate 1 only to Nisan, and then reckoning the other months as beginning at intervals of 30, 29, 30, 29, days from Nisan 1. If that were done, then the translation periods for Sept., Nov., 1930, and Jan. 1931, would be 2d 6h, 2d 5h, and 1d 21h, instead of 3d 6h, 3d 5h, 2d 21h, as given in column 4.

Column 4 seems to reakon from conjunction to a theoretical phasis, which works out to be from the assumption of the full moon falling on the 13th of the month.

If the time were computed from conjunction to the true phasis, first appearance, of the moon, then a rule would have to be laid down as to what altitude above the horizon the new moon must be at sunset in order to be visible. No such rule is laid down. Then the actual height would have to be computed trigonometrically for each month, taking into account the moon's varying heliocentric latitude (not declination), the changing inclination of the ecliptic (which is a problem in spherical trig. each month), and the moon's longitude from the sun.

(C) I of Diagram C, p. 31a. Translation periods for 1930-1-2-3-4. This

ragged curve is like the one I obtained from the assumption of full moon- 13th day in every month, and charted, in that it contains the error of frequent late phases near the vernal equinox, and sometimes impossible early ones near the fall equinox.

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Note 5, page 34, mentions a "curve covering 20 years, in which the Translation Cycle was figured according to Postulate 1, Table V." There was no Table V in or accompanying the MS sent to me. If there is one, it may answer some of my questions.

QUERY: Did someone go through all the long trigonometrical calculations necessary to determine the time of true phasis at Jerusalem for each month in 20 years, each time with a different inclination of the ecliptic, a different longitudinal distance from the sun, and (especially) a different heliocentric latitude of the moon? And, if this was done, WHAT ALTITUDE of the moon was assumed as the minimum for visibility at sunset? Answers to these questions will help me to understand your findings.

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- - -

T H A N K S for the Greek of Eusebius, in the citation from Aristobulus.

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The Karaite rule regarding short translations. That rule as stated in your letter is proved perhaps, as is said of rules, but its exceptions. That rule regarding 22 hours is good for Palestine, nearly all the time. But there are rare instances, at least every 9 years, when the moon would not possibly be visible in 22 hours. This would bethe case in fall months when the moon was in extreme south heliocentric latitude. The Kariaite rule would not go contrary to nature, if the Karaites were consistent with the most ancient usage, as I suppose was the case.

- - -

I wonder if anything I have written appeared as though I was arguing against the date Oct. 22. The answers look as though I had been so understood. This is not the case. I think Oct. 22 was the correct date for the Millerites to select, even if they had come to a correct conclusion by incorrect means, and we ought to to try to justify them by any incorrect reasoning.

- - -

I see no reason for any argument as to what was the 10th of Tisri in Boston.

The midst of the 70th week was on the 14th day of Nisan in Palestine. It began and ended with sunsets at Jerusalem, not at Boston.

Just so certainly, the end of the 2300 days, 1813 1/2 years later, ended on a day limited by two sunsets at Jerusalem, not at Boston. The first sunset at Jerusalem was at 10:15 A. M., Boston time. The 2300 years had not ended
Oct. 22
at sunset, Oct. 21, at Boston, as advocated in Part V, and represented on Diagram F.

Therefore the day beginning at sunset Oct. 21 at Boston and ending the next sunset cannot be called the day on which the 2300 years ended. These 2300 years ended on the day which began at 10:15 A.M. Oct. 22, at Boston. Diagrams and argument should harmonize with this fact.

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Harry A. Washburn

5/26/40

Prof. Harry Washburn,
St. Helena,
California.
Dear Brother Washburn:

Elder Froom recently showed me your card in reference to the question of short translation periods, and suggested that I write out my viewpoint in regard to this. So here it is.

We do not lack authoritative records of short translation periods of the moon on various meridians. Enclosed are a few instances -- Africa, Palestine, Odessa, Babylon, Egypt, etc. However, the ancient Jews, according to Scaliger, Gamaliel II, and others, did not employ the earliest phasis for starting their months. Jews, Samaritans, Arabs, Chaldeans, and Damascenes were in agreement concerning this chronological feature. The exact words of Scaliger are as follows:

"But the Jewish, Arabic and Samaritan new moons commonly exceed the size of the phasis, so that the civil new moons of the lunar months are of three kinds: the Attics, from the conjunction; the Calippics, from the waxing moon [that is, the earliest phasis]; and the Jews, Arabs and Samaritans, from the shape of the moon on the third day, I say" (Scaliger, "De Emendations Temporum," p. 6).

Thomas Godwyn, writing in the same century as Scaliger, further explains his statement:

"In the first, the moon was quite dark; in the second, it did open itself to receive the sunbeams; in the last. it did appear corniculata, horned" (Godwyn, Thomas, "Moses and Aaron, Rites," p. 122. Twelfth Edition, London, 1685).

The "horned" moon is also called the "second" moon, because, according to Hevelius, it does not usually appear until the second day after conjunction. (Hevelius, Johannes, "Selenographia," p. 281. Gedanum, 1647.) Here are his exact words, which you doubtless can translate:

"Corniculatam autem Lunam vocamus illam phasin, quae nonnullis Veterum est Luna secunda, eò quod die secunda, post Synodum Luminarium omnium, maturissimè conspiciatur, & primam Lunam sequatur."

In harmony with this the Millerites oft repeated the words, "usually the second evening after the change." They got this idea from Prideaux and Hales, who obtained the fact from men before their own time. However, William Hales also got it from Geminus (1st. century B.C.), whose Greek text Hales thus translated: "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" (Hales, William, "New Analysis of Chronology," p. 67. Vol. I. London, 1830.) The earliest text I have found of Geminus is in 1630, translated into Latin by Dion. Petavius.

Here is also a Jewish comment on the Gamaliel moon tablet so often referred to by writers of all schools:

"There was a large court in Jerusalem, called Beth Yangzek, where all the witnesses met, and where they were examined by the Beth Din. Their examination was conducted by inquiring of the oldest of the first pair (they were examined according to their priority) as to the form of the moon, whether her horns were turned toward the sun, or away from it? to the north, or south of it? what was her elevation in the horizon? towards which side was her declination? the width of her disk, &c" (Lyons, Jacques J., and De Sola, Abraham, "Jewish Calendar," p. 13. Montreal, 1854).

Caspari makes the following statement in regard to Würm's position:

"Würm, finally, expresses his opinion that we should not go far wrong if, in order to find the first day of the month, according to the old Jewish style, by the moon's phase, we add 24 to 48 hours to the true new moon astronomically calculated" (Caspari, Ch. Ed., "Introduction to the Life of Christ," p. 15. Tr. by Evans. Edinburgh, 1876).

We also have other vital evidence as regards the moon's translation that has been worked out in the Committee, and which will be published soon, we hope. We can show from a day by day hook-up of Jewish and civil time that in every 19-year cycle we have now and again very short and very long lunar translations that agree with the extremes noted by Geminus, Aratos, Scaliger, Hevelius, etc. -- the proverbial "one to four days." Furthermore, this calendation exactly harmonizes with the paschal postulate left on record in an old commentary on the Pentateuch in the hands of Aristobulos, and passed on by Anatolius to Eusebius, whose Greek is wrongly translated by the Church, but correctly put in the German of Caspari, and by astronomers Lilius and Nancel. We are trying to find other confirmatory records.

In a short period of time the Millerite leaders had two translations of the moon to solve: (1) Conjunction on April 17, with its consequent Nisan 1 on April 19, and (2) that of October 11, with its consequent Tisri 1 on the day October 13. We know now -- but we did not know it earlier in our work -- that the Adventist leaders first worked out the Tisri 1 civil date by adding 6 lunations, or 177 days, to the spring phasis on April 18 at sunset, the "second evening after the change." This gave them the sunset beginning of Tisri 1, the evening of October 12/13. It was worked out on the Boston meridian. The April translation, in New England, was indeed the "second evening after the change," and could not be otherwise. It was likewise the "second" in Syria. But the October translation, in New England, came on the first evening. In the west and south, however, due to an earlier occurrence of the conjunction date, the phasis took place on the "second evening," as also it was the "second" in Palestine. Thus we account for the Millerite reckoning, in accordance with their simple rule.

Let me also add that the Millerites computed the translation of the moon on the Jerusalem meridian, bringing Tisri 1 there on October 13/14, and Tisri 10 in Jerusalem on October 22/23. These dates had about seven hours in common with the dates in America. But they came so late in the movement that the computation did not arrouse much comment, if one may judge from the printed record. After the Disappointment, barley harvest at Jerusalem was freely discussed.

From the standpoint of Jewish reckoning, the Millerites were right in saying "usually the second evening after the change." Calendation shows that the sunset beginning of the Jewish new moon day often came on the second evening after conjunction. But it was not always so. Furthermore, if the phasis came the second evening, on some certain meridian, say in the east, it would not occur always on the second evening ~~for a~~ during its 24-hour stretch around the world. As the earth revolves, the conjunction date westward bound, occurs earlier and earlier until it happens 24 hours sooner than on meridians farther east. When this occurs, the moon can be first seen also about 24 hours sooner, and hence her translation on such a longitude is about that much shorter, depending upon the time of sunset. The Karaites made the limit about 22 hours.

Such was the case with the October translation on the Boston meridian. It was an unusual translation. The moon was in perigee, and her rapid motion, together with the earth's, hastened the time of her phasis, although, in places far north, she could not be seen. Nevertheless, the Polish Karaite observers (50° north latitude), who had this same northern problem of the moon to reckon with, always counted that the moon at an age of over 22 hours from conjunction could be seen when simultaneous with the sun on the horizon at sunset, as happened in Boston on the evening of October 12. Karaite reference by Kokisoff is enclosed.

Therefore, my conclusion is, Brother Washburn, that the short translation period in October, 1844, was caused by that particular revolution of the earth, in conjunction with the moon in perigee; and that though short translations were not a constant feature of ancient Jewish time, yet they had to occur from cycle to cycle, leaving their mark on certain meridians. New England, which had been the scene of the darkened sun of 1780, and of the falling stars of 1833, was a witness also to an almost forgotten feature of the moon's meridional change, which, on October 12, 1844, could only occur on the longitude of Boston or its neighboring meridians. And so, the Second Coming of Christ was heralded by Sun, Stars, and Moon. If you wish any of the sources, I shall be glad to send them. When convenient, please give me your criticism. Yours very sincerely,

May 26, 1840.
General Conference, Takoma Park, D.C.

St. Helena, Calif.,
October 4, 1940.

Dear Brother Froom,-

I received this afternoon your summation of the points involved in the 1844 Millerite time problem. This is Sabbath evening, but I think it right to use Sabbath time to hasten to you a brief reply, especially as I am so pressed with work of exhaustive nature that I can hardly command strength to write on week days.

In your first paragraph, and in paragraph 1 of the Summary, you state that in every nineteen years the moon goes around the earth 235 times, while the earth revolves around the sun "e x a c t l y 19 times, with both series of revolutions ending on precisely the same day."

This is not strictly true, for the reason that the synodical month and the anomalistic and nodical months are not commensurable, being respectively 29.530588, 27.554550, and 27.212220, and that on the long average. The incommensurability is seen in the 19-eclipse-year cycle, stated by Mitchell (1937 Smithson.Rept.,147) thus:

19 eclipse years	6,585.7806 days
223 synodic months	6,585.3211
242 nodical months	6,585.3572
239 anomalistic months	6,585.5374

Consequently, 19 natural years cannot bring these fractions into unity Glancing at some of my notes taken from Oppolzer's Canon der Finsternisse, I see many eclipses at intervals of 19 years which do not end "on precisely the same day." You will find a host of others. I give a few:

B.C. 593 (numbered by Oppolzer -592, as B.C. 1 is numbered year 0)

-592 April 27	-591 April 17	-590 April 6
-572 April 28	-572 April 16	-571 April 7
-574 May 9	-573 April 28	-556 May 19
-555 May 8	-554 April 27	-537 May 20
-554 April 27	-537 May 20	-
-535 March 28	-518 May 19	

I. Jewish Calendar Problems, par. 1: "Usually one moon too early." Better say "sometimes," for is it not only about one time out of three?

Pars. 2,3. Well stated. But be sure that you do not adopt, like the Millerites, some features of the "fixed, artificial calendar" and assign them to the Mosaic calendar. We must not only reject the beginning of Nisan before the vernal equinox, but also every fixed feature which does not agree with the moon itself. The Mosaic calendar, like that of the Mohammedans in Cairo today, was based only upon observation of the moon. I will refer you back to this paragraph later. I will add this thought, to which I shall refer again in a later letter: While the Karaites endeavored to restore the original Mosaic calendar, their rules since 1780 are sometimes in error, for they sometimes conflict with the moon itself.

Par. 6. If your statements reflect the position of the Millerites, as I believe they do, then the Millerites did not accept the Karaite calendar in full. This would necessitate beginning each month (with the possible exception of Nisan at times) at the first appearance of the new moon, not beginning the month before the moon could be seen, and not beginning it at a later day either, but at the sunset following or accompanying the phasis of the moon. This must have been the Mosaic custom also.

Sec. II, par. 5. The Millerites were inconsistent in this position, assuming that in all your discussion you simply quote them, although endorsing their position and argument. I think Scaliger must be misinformed or misunderstood regarding the Jews not usually taking the earliest appearance of the moon. How odd to speak of the Jews not taking the "first phasis," the "first first-appearance," as though there might be a second first-appearance, or even a third first-appearance. Phasis means the first appearance. I think the Karaites preserve the original Mosaic calendation when, as Kokisoff states, they "reckon the first day of every month as from the new moon which is f i r s t seen with the naked eye in the west." That is the custom of the Mohammedans in Cairo today. In your large MS you have statements to the effect that the month was reckoned from the first appearance of the moon, while in others you have a contradictory statement like this one. That "second or horned crescent" would be taken for beginning the new month only in the case of Nisan when it was necessary to reckon the day of full moon as the 13th day of the month. Sometimes this would necessitate beginning the month within less than 24 hours after conjunction, while if the moon were in apogee and in south heliocentric latitude, the second appearance of the moon would have to be awaited before beginning the count of the month in order for the full moon to fall on the 13th day.

Par. 9. The word "identical" cannot be retained here except by conforming to some features of the "fixed artificial calendar" used by the Jews since the fourth century.

Par. 11. Calls for the same comment as Par. 5 and also Par. 26.

Par. 12, note. Assuming that this means a fixed alternation of 30, 29, 30, 29, 30, 29 days between Nisan and Tisri, I will say that this conflicts with (1) the Karaite practice; (2) the Talmud, which I may not quote in this letter, but in a future one; and (3) the motions of the moon itself at times. This fixity and invariable length of the months from Nisan to Tisri is a part of the fixed artificial calendar adopted by the Jews in the fourth century.

Par. 14. There is the same confusion in this paragraph which I have seen two or three times before in the correspondence. Declination and latitude of the moon are not the same, but very different indeed. You have used the word declination here, and given its correct definition. But latitude is position with reference to the ecliptic, not to the equator. The moon can be in north latitude and south declination at the same time, and in south latitude and north declination at the same time. I could cite many instances.

Par. 15. This paragraph is not precisely correct. The moon's future timing cannot be "forecast with exactness by competent computers," although they can very nearly do it. For example, I observed the eclipse of April 28, 1930, which changed to a total eclipse for a short time along a path about a half mile wide which crossed Napa County. It was to be total for only about a second, and I sought to know beforehand what that time would be. The American Ephemeris for 1930, computed in 1927, gave the time as 19h, 26m, 56.5s G.C.T. That was the best the computers could do three years beforehand. In 1930 the time was revised, the last revision from calculations following the observation of the moon in March, 1930. James Robertson now head of the Nautical Almanac Office, sent out their final computation. But the moon's small uncertainty of motion made this final computation about a second in error, if I remember rightly. He can tell you how much. (Don't imagine that I detected the error.)

Par. 17. This statement is based wholly upon the revised Jewish calendation. It is not necessarily nor always true of the moon itself. More on this in my next letter.

Par. 19. Adjustments are indeed made as stated here, and have been so made these centuries by the Jews since revising their calendar. Originally, the month was begun when the moon was first seen, and the moon made its own adjustments.

Par. 21. This argument is just as good as the usage of the revised Jewish calendar, no better.

Par. 23. This statement is true only if the revised Jewish calendar, which is its basis, is true. There is evidence in the Talmud, in the Karaite calendar, and in the motion of the moon itself, that this is not always true. It must be checked by observation on the moon itself.

Pars. 24, 25. Argument rests upon the revised Jewish calendar, with the assumption that the months from Nisan to Tisri always have 30,29,30,29,30,29 days, which is not the case.

Par. 26. This argument of no value at all if Elul may have 30 days instead of 29, which it may. I plan to give the details on this in my next letter. So do not dismiss it because it conflicts with your settled opinion.

Par. 27. Wrong, as I shall show. See pars. 23, 12, my comment.

Par. 28. "Series of 8 unbroken synchronisms" only by resting upon the revised Jewish calendar, in some of its features, instead of taking the moon itself.

Summary, Par. 2. The 177 days. Same criticism as noted above.

Par. 3. Only partly "based upon revival of the Mosaic calendar that God gave his ancient people at the exodus."

The Millerite conclusion was correct, but their argument, as you state it, certainly IS assailable, both from Bible and nature. And if we rest upon the same argument for the day Oct. 22, the world's scholarship will prove the argument wrong, and with the argument will go the conclusion. This correct conclusion CAN be established by argument truly "unassailable," and that only must we give to the Smithsonian Institution as a formal presentation of the Seventh-day Adventist denomination.

The sentence on page 5 is not completed.
I wonder if a sheet was omitted in the copy sent me.

I shall send to you, as soon as my limited time and strength shall permit, the detailed evidence for points herein mentioned, as well as others. I have not allowed a syllable of my criticism to fall under the eye of any of your adversaries. Everything I do is with the purpose of encouraging and aiding you. I am convinced that this message needs the support which each one of us can give, and no one can safely feel independent of his brethren. But we must be careful not to settle down too solidly in our positions like some others about us and among us.

Yours sincerely,

Harry A. Washburn

St. HelenaCalif.,
Oct. 22, 1940.

Dear Miss Amadon,-

Brother Froom sent me a copy of "The Jewish Calendar in the Fifth Century, B. C.2 with the request that I give it immediate attention. I have had only six days to study this matter, and have not done very well in what I have written. I began to write as I read along, and then had to repeat and mix up things somewhat as I went on.

I did not see your name at the close until a day or two after beginning writing. Had I thought of you as the author, or co-author, or co-worker, I am sure I would have studied not to be too blunt in my criticism of the document. Will you not try to bear this in mind as you read it? I presume Brother Froom will send it to you or to Professor Wood.

I may seem a little pointed in some things I say, but it is only because I have sent in things in the past, in my first criticism of the paper on 457 BC, which were rather loftily waved aside, and a condescending note to me seemed to indicate sorrow that I was not able to see the real truth. I had to make a chart on the Canon of Ptolemy, on which the errors of the paper stood out so that they could not but be seen, before I got a hearing.

I feel very sorry to see strong, dogmatic statements, repeatedly made, which are demonstrably untrue, as is the case in this present document. And I feel that what I write may not receive very much attention if I do not make my position emphatic.

It is my belief that your part of this document is premised upon some fundamentals which have first been set forth by others of the Committee. The errors of the premise may cause some criticism to be aimed at what you may have written, based upon the premise. If so, try to tone down the sound of the language, and interpret me as feeling deep appreciation of the hard work you have done.

If I could have been in touch with this work, I think I might have saved someone a lot of labor. As it is, the document will have to be rewritten.

Brother Froom will send you the letter, 21 pages. But as there may be some delay, I will enclose a few sheets or diagrams for your study. I would like to have them returned to me when you have copied them or digested the contents.

You have helped me very much by the few pages which you sent me a year ago. I would be glad to examine other similar things from time to time.

Brother Froom once wrote me that he would send me a 19-year cycle paper, which, from this paper I judge to have been out for some time.

With highest regard, I am

Your brother in this blessed Truth,

Harry A. Washburn

My letter to Bro. Froom contains 21 pages, besides charts.
Also another letter of 3 pp.
I wish you to see them; if Bro. Froom does not hand all to you, please write me and I will loan you my carbon copy. I go into many details which you will want, also other charts I enclose.

Oct. 22, 1940

Dear Roy,-

I have given you a solid week of very hard work.

My writing has been of necessity piecemeal. Read in the order I have numbered the sheets. You will probably want to look at the charts first.

The document you sent me will have to be rewritten. Be sure to send me a copy.

Now contrast what I am sending you regarding this document, and what I wrote you regarding the Syllabus. Here I am saying A LOT. With regard to the Syllabus I said very little. There was little I could say. And what I did say was not like what I am enclosing to you.

Let the contrast emphasize my appreciation of the Syllabus. I have found no fault to enlarge upon, as in the present case. And as to the degree of praise I gave it, just re-read what I wrote, and I think it will satisfy y ou.

I only wish I had the material to work with that your Committee have in Washington. I could surely do something.

I think I could have saved someone a lot of work if I had been kept in touch with what he or she was doing in working up the present paper.

Remember to have sent to me the 19-year cycle paper.

Ask someone to give me the literal translation of Ptolemy which is represented in this paper by 29/30, 18/19, etc., in the dating.

I have other favors to ask of you sometime.

Yours in much love,

Harry A. N.

Oct. 22. 1940

" THE JEWISH CALENDAR IN THE FIFTH CENTURY B.C."

This document is plainly the result of months of study. I have been asked to give it my "immediate attention" and state my reactions.

Without a library or access to a library, I have had to study this problem without any helps except a few notes that I chanced to take many years ago, and which escaped the firerwhich destroyed my library.

I have had to work very hurriedly, and it is impossible under the circumstances to be entirely lucid or to entirely avoid mistakes.

I have had only six days to study the matter.

But to make myself more clear I have made several diagrams, which I ask you to note carefully. They settle many questions.

I am convinced that in this work we need to take much counsel. Things may appear perfectly clear to us, and yet we be in error. The first three sheets of this letter shows this.

We must not be TOO SURE. And we must not be TOO POSITIVE, too categorical.

We must listen to those who differ from us, even when we are confident that they are wrong.

If we do not do this, we shall be "DISAPPOINTED", Prov. 15:22.

H. A. Washburn,
St. Helena, Calif.,
Oct. 22, 1940.

To Correct the Egyptian New Year Table.

1. Strike out "from noon to noon, astronomical time."

2. In the footnote, make the Sothic Cycle 1321 BC to 139 AD inclusive.

3. Eliminate the reference to Feb. 27.

4. Change the statement regarding the Julian leap year.

It may not be immediately apparent, but the truth is, that the date for 1 Thoth should be placed opposite the Julian leap year in the last part of the Table, and opposite the year <u>following</u> the Julian leap year in the first part of the Table, if this date of 1 Thoth is to stand at the head or first of the quadrennium in which 1 Thoth falls on that day.

If you have not read what I have written on this, the above statement will seem so palpably false that you would not give it a moment's consideration. (I fear this has been done with some other suggestions I have sent in.)

Your reason for rejecting the above statement is, what seems to be an irrefutable reason, that you would have thereby a certain point where the date for 1 Thoth would change in three years instead of four, as required.

This reason is as clear to you as your astronomical argument for Oct. 22. You would doubtless assert its absolute irrefragability, and challenge all opposition, just as you do after your argument for Oct. 22.

And
yet
your
astronomical
argument
in
each
case
is
<u>F A L S E</u>.

The statement which I have made above, in paragraph 1, is itself irrefragable,
while to you it is not worth a secondds consideration.

To you it is palpably <u>false</u>.

And yet I say that it is true, and that you are wrong.

And I can get you to admit it.
An impossible miracle, you say.

I insert these emphatic words only for the purpose of arousing you, not to be TOO SURE, as you are in many sweeping assertions.

It is a fact that the date for 1 Thoth must change every four years, because the Egyptians had no leap years.

The Egyptian year had invariably 365 days.

The Julian year has an extra day in February once every four years, without exception.

If 1 Thoth of the Egyptian calendar fell on March 16 in the year 821 BC, which was a leap year, that Egyptian festival would fall on March 16 in the three following years, 820, 819, and 818 BC, which are not leap years in the Julian calendar.

But 817 B.C. is a leap year in the Julian calendar.

The Egyptian year having no leap day, all its festivals would in 817 fall one day earlier in the Julian calendar than they did the year before.

Thoth 1 would fall on March 15 in 817, 816, 815, and 814, just as you have them in your Table.

There would have to be a change every four years down to the end of the list.

If there were a change at some point in T H R E E years, while at all other points the change was only at intervals of four years, you would not hesitate to condemn such a Table.

And here I am, apparently unable to see the above, which is as plain as the nose on a man's face.

If , as I said, the date of 1 Thoth should be placed opposite a Julian leap year in the latter part of the Table, to indicate a change in its date at that point, to continue ,, there for the three following years,

then I ought to be able to see, if I have any intellect, that this must be true throughout the table.

I ought to be able to see that if I say that in the first part of this Table before me the 1 Thoth date should be placed opposite the year FOLLOWING the Julian leap year,

then I must pick out a place somewhere in between where I shall have to place a date for 1 Thoth opposite three years only.

You must conclude at once that I am irrational, that that it will be a waste of time to consider my reasons for such a palpable ERROR, while so unspeakably bold and blind as to assert on top of this that my position is ABSOLUTELY IRREFRAGABLE!

You must also conclude that little consideration need be given to my objections to any other position of yours which clearly to you is unassailable.

THIS IS THE WAY YOU WOULD REASON

AND IT APPEARS ABSOLUTELY UNANSWERABLE

AND YET IT CONTAINS A FALLACY

Now please look at your table on page (1) as you read this.

After we get through, you can make a few simple changes on the table, without having to recopy those thousand items.

Here are three sections of the table:

Julian	BC	821	Mar 16	Leap	BC	525	Jan 2	Years	AD	236	June 26
		820	"			524	"			237	"
		819	"			523	"			238	"
		818	"			522	"			239	"
Julian		817	Mar 15	Leap		521	Jan 1	years		240	June 25
		816	"			520	"				
		815	"			519	"				
		814	"			518	"				
		813	Mar 14	Leap		517	Dec 31	years			
			etc				etc				

There is a change in the date for 1 Thoth opposite every leap year, from first to last.

The necessary change every four years seems to have been made without error.

This looks all right, but let us

"M A K E I T P L A I N U P O N T A B L E S"

1 Thoth:

J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
Jan. 1												Jan. 1												NONE AT ALL												Dec. 31										
				519												518												517												516							
T	P	A	C	T	M	P	P	P	P	E	M	T	P	A	C	T	M	P	P	P	P	E	M													T	P	A	C	T	M	P	P	P	P	E
H												H																								H										
O												O												No New Year between												O										
T												T												Jan 1, 518 BC												T										
H												H												and Dec 31, 517!												H										

Your apparently faultless Table has omitted an entire Egyptian year!

The change in the date for 1 Thoth, in the last part of the Table, must come opposite a leap year of the Julian calendar.

But not in the first part!

Reckoning back from a fixed, known point, we will come to a Julian year in which 1 Thoth falls on Dec. 31. Likewise on Dec. 31 for the three years preceding that year. The earliest of these years will be a leap year, with 366 days. 1 Thoth will occur twice in that year, on Dec. 31, and 365 days earlier, on Jan. 1.

So, there will have to be a place in the table where a Julian year will be written twice. It will be a leap year.

What leap year will this be? 517 BC ? No.

That leap year is 521 BC, which can be proven in three different, independent ways.

It will fix Feb. 26 as 1 Thoth in 747 BC, not Feb. 27, as you have it.

In the years of the Table, before 521 BC, the date for 1 Thoth, ~~mmmmm~~ to stand at the head of a quadrennium, must stand opposite, not a leap year, but the first year after a leap year.

Hence the necessity for a change in the footnote with regard to the Julian leap year.

Now for the three proofs that 521 is the year to appear twice in the Table (and that Feb. 26 is to stand opposite 747 BC):

I.

Censorinus, whose statement you quote, places the 1 Thoth in his day, 238 AD, as occurring on June 25.

You have this correctly stated in Table III. But your Table of dates for 1 Thoth has June 26 for 238. AD

Censorinus of course knew with exactness what date in the Julian calendar coincided with 1 Thoth in the year he was writing. He is not so accurate in his statement regarding 1 Thoth a hundred years before, for it contradicts the date in his own time.

June 25 is indeed the date in the Julian calendar for 1 Thoth in 238 AD, as can be proven in two other independent ways. That was the Julian date in the quadrennium beginning with the Julian leap year 236 AD and including also 237, 238, and 239.

Counting back from this, 25 quadrenniums, in which the date is advanced 25 days from June 25 to July 20, we have :

Leap year	136	July 20	Leap year	236	June 25
	137	"		237	"
	138	"		238	"
	139	"		239	"
Leap year	140	July 19.	Leap year	240	June 24

If July 21 were the Julian date of 1 Thoth in 138 or 139, then June 25 was not the date when Censorinus was writing.

He was correct as to the usage right about him. He makes a misstatement regarding the previous century.

His own language proves that his error was with regard to 139 AD.

He says, "a hundred years ago . . this same day corresponded to the 12th of the calends of August, the ordinary epoch of the rising of the Canicular star in Egypt."

He is referring to the bright star in Canis Major, Sirius, called "Soth," in the Egyptian language, and to the Sothic Cycle.

And July 21 is not the date of the heliacal rising of Sirius in Egypt, as will appear from :

II.

Breasted, History of the Ancient Egyptians, p 35:

"Already in the 43rd century BC the men of the Delta had discovered the year of 365 days and they introduced a calendar year of this length, beginning on the day when Sirius rose at sunrise, as determined in the latitude of the southern

Delta, where these earliest astronomers lived, in 4241 BC. . . The year began on that day when Sirius first appeared on the eastern horizon at sunrise (the heliacal rising), which in our calendar was on the 19th of July (Julian)."

In 1460 years 1 Thoth would occur again on July 19, the date of the heliacal rising of "Soth," Sirius. Another Sothic Cycle would begin on July 19,1460 years later, which would be July 19, 1321 BC. 1460 years from that date another Sothic Cycle would begin, on July 19, 140 AD. The previous cycle closed with the year which began on July 20, 139 BC., as shown in the middle of the previous page of this letter.

A quadrennium beginning with July 19, the day of the heliacal rising of Sirius, in the leap year 140 AD, harmonizes with the testimony of Censorinus as to the usage in his day, and it harmonizes with:

III

THE IRREFUTABLE EVIDENCE OF THE ECLIPSES RECORDED BY PTOLEMY.

The eclipse of 721 BC, Mar. 19, 19h 4m, occurred on the 29th day of Phamenoth. That makes Feb. 20 to be 1 Thoth in 721 BC. See the large detailed diagram herewith.

The eclipse of 720 BC, March 8, 21h 30m, occurred on the 18th day of Thoth. That makes Feb. 19 to be 1 Thoth in 720 BC. See the large diagram.

In like manner, every one of the eclipses for which Ptolemy gives us the Egyptian date, proves the same thing.

\- - -
- - -

We thus obtain 521 BC as the leap year in which 1 Thoth occurred twice, on Jan. 1 and Dec. 31.

That year must appear twice in a correct table.

Before that leap year, in which the date for 1 Thoth changed from Jan. 1 to Dec. 31, the year in which the date changes is not a leap year, but the year immediately following a leap year.

Feb. 26 will be the date of 1 Thoth for the years 748, 747, 746, 745 BC.

\- - -
- ---

Now to quickly change the table so that it can be used without recopying:

1. Draw a horizontal line immediately below the leap years previous to and including 521 BC. Let this line extend beyond the year and the date of 1 Thoth following. If you then count the date for 1 Thoth as answering to the quadrennium between the horizontal lines, your chart can stand as it is down to 521 BC, except Feb. 27 at top of column 2.

2.

2. Write 521 a second time at the top of column 5, and opposite write Dec. 31 as the date of 1 Thoth in the quadrennium 521-518.

3. Draw horizontal lines immediately above the leap years from this point to the end.

4. Make 1 Thoth dates one day less.

5. Correct footnote, each of the three sentences.

I MADE YOUR MISTAKE FOR MANY YEARS, UNTIL I CHANCED TO MAKE A CHART.

7

St. Helena, Calif.,
Oct. 15, 1940.

Dear Brother Froom,-

I am giving "immediate attention", as you ask, to the document of 26 sheets on "The Jewish Calendar of the Fifth Century B.C."

You have made a large request, as on some previous occasions. This manuscript represents weeks of investigation and careful thought, with extensive library aids. I am obliged to apply myself arduously, with no library, in criticism of this work, and some one among you will know what a task it is.

I am glad to undertake this task, for I trust that what I send you may induce you to reconsider matter that I sent to you upon request over a year ago, but which you did not feel free to accept.

I refer particularly to the faulty astronomical arguments you have used to sustain the date Oct. 22, in 1844, while ignoring the irrefutable argument for the same date for the cleansing of the heavenly sanctuary.

What I sent to you was read by Dr. Hoen and others whom you asked me to consult in the consideration of the large document dealing with the various time features of the 2300 day prophecy. They endorsed what I sent you.

Last April, in your lectures at P. U. C. and Sanitarium, you used the arguments which we consider untenable, and illustrated on a large, expensive chart or charts.

A vital item in that argument was the visibility of the new moon at sunset only 18 hrs 46 min after conjunction, at Boston, on Oct. 12, 1844, marking the beginning of Tisri.

Some who had read what I wrote you noticed the errors, and you wrote me from LaSierra that Dr. Hoen had spoken to you. I know from conversation with him at the time that he was only repeating what I had written more than once to you. Your reaction to his suggestions has tended to keep me silent, inasmuch as what you said of him applied equally to me:

> "Dr. Hoen must be quite an expert to be better informed than the Naval Observatory experts. I really wish the brother would be a little more modest. I told him that a certain chart that he criticised had been both suggested and approved by the Naval Observatory experts. He said it was wrong. I confide to you that I still have a little confidence left in the Naval experts."

On the point in question, all I will say now is that I repeat everything I wrote, with the exception of some error in my first letter, which I corrected. I have the data, which I will send to you when I can command strength to write it out, and it is data that Mr. Draper and others at the Naval Observatory will accept.

The moon could not possibly be seen under the conditions of Oct. 12, 1844 at Boston, and your chart is wrong.

And your supporting evidence can be shown to be faulty. But more upon this at another time.

After waiting this length of time, I trust that I shall not be charged with immodesty, and a haste to defend my own opinions. And I hope that this letter

will contain something to revive confidence that I know what I am talking about, which will lead you to give careful consideration to the matter which I shall send you, on a matter which has already been fully settled in your minds, so that it is difficult for you to give adequate consideration to what you "know" erroneous, like my ministerial associates of other churches with reference to the Sabbath and the state of the dead. But in both instances I have perfect composure of mind, just waiting, for I also "know" something that they do not.

(In using the word "you", I do not mean "thou," but have reference to the Committee, or to those members who handle this part of the subject.)

Now for this present document:

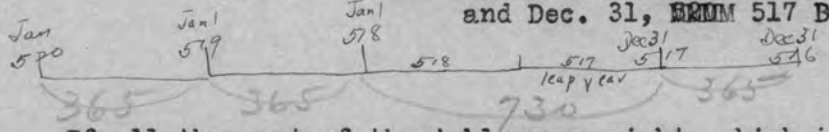
Please turn to page 1 and notice the dates given for the 1st of Thoth in the various years from 521 to 517 B. C. Here they are:

521	Jan 1	These figures look perfectly all right.
520	"	
519	"	There is a change in the date of the Egyptian new year every four years, just as in the rest of the long Table.
518	"	
517	Dec 31	
516	"	
515	"	BUT, there is a mistake here.
514	"	
513	Dec 30	

Bear in mind that the Egyptian year was always 365 days long, without exception. Exactly 365 days after the first of the month Thoth there was another 1st of Thoth.

The composer of the above table makes 730 days intervene between two new year's days. Do you see it?

How long is it between Jan 1, 521 (518) and Dec. 31, ~~521~~ 517 B.C.?



Pardon my poor, nervous, obscuring typing.

If all the rest of the table were right, which is not the case, then this portion should read thus:

520	Jan 1	
519	"	
518	"	
517	"	
"	Dec 31	
516	"	
515	"	
514	"	
513	Dec 30	with change of date every four years preceding and following.

I do not have access to a library, and my own books were burned up years ago, but as I remember it, I think your statement on page 4 is correct, where it gives June 25 for the 1st of Thoth in 238 A.D., citing Censorinus.

But your table is totally out of harmony with this. June 26 is given as 1 Thoth in 238, and this affects every other date in the entire table, for they all count back from this, the date changing every four years (~~except in 521-517 BC, when it makes the change~~ of date in five years). STET STET

I happen to have my textbook from which I taught Egytpian history for many years, and I want to quote a sentence. This is Breasted's "History of the Ancient Egyptians," page 35; after his argument for the beginning of Sothic Cycles in 4241 BC, and every 1460 years thereafter, in 2781 BC, 1321 BC, and 141 AD:

> "The year began on that day when Sirius first appeared on the eastern horizon at sunrise (the heliacal rising), which in our calendar was on the nineteenth of July."

Perhaps I should have quoted a preceding statement:

> "Already in the forty-third century BC the men of the delta had discovered the year of three hundred sixty-five days and they introduced a calendar year of this length, beginning on the day when Sirius rose at sunrise, as determined in the latitude of the southern Delta, where these earliest astronomers lived, in 4241 BC."

Breasted was the highest authority on Egypt that America has produced, master of all the hieroglyphic literature. He is not alone in assigning July 19 as the date of 1 Thoth in 141 AD. Your table has July 20. That it is in error, I shall show by the very eclipses which you handle in such a way as to make your Thoth dates correct.

You hold to Feb. 27 as the Egyptian new year in 747 BC, Era of Nabonassar. I shall show that Feb. 26 must be accepted, but will first quote a statement that was published for years in the American Ephemeris before its form was changed. In my 1916 copy is the statement that the year 1916 corresponded to "the year 2663 since the beginning of the era of Nabonassar, which has been assigned to Wednesday, the 26th of February, of the 3967th year of the Julian period: corresponding in the notation of chronologists to the 747th, and, in the notation of astronomers, to the 746th year before the birth of Christ."

Your Table should be corrected as follows for the years indicated, and all other dates will follow therefrom by changing every four years:

AD 140,	Beginning of Sothic Cycle,	July 19
141		"
142		"
143		"
144		July 18
	etc	
236	June 25	
237	"	
238	"	(This will allow your statement, June 25, 238,
239	"	to stand on page 4, Table III) Your
240	June 24	Thoth table contradicted it.

For the dates Jan 1 and Dec 31:

BC 524	Jan 1	
523	"	
522	"	
521	"	a leap year. Another Egyptian year began
"	Dec 31	on the 366th day, Dec. 31. You have
520	"	omitted this year entirely from your table.
519	"	
518	"	
517	Dec. 30	etc

From this will follow: BC 748 Feb 26
747 " Era of Nabonassar

10

BC 748 Feb 26
747 " Era of Nabonassar
746 "
745 "
744 Feb 25 etc

Before considering the above further, in connection with the eclipses, I will copy some notes which I jotted down as I read along in the MS.

Page 4, Tables I and II. The dates in columns 4 and 7 will have to be corrected to read 1 day earlier. Columns 15 and 16 are not necessarily correct in every instance, for this reason: Your time intervals for the months following Nisan, instead of being based upon the visibility of the moon, according to the Mosaic usage, are based upon the usage of the revised Jewish calendar, which is not based upon observation, and is sometimes in error, not in harmony with the phasis of the moon. The moon itself does not appear always at the invariable intervals of 30,29,30,29,30,29 days from Nisan to Tisri, which you have adopted from the approximate Jewish calendar of later times. We can have accuracy in determining the dates of phasis only as we compute the altitude of the moon at sunset on the date under consideration, and then apply a rule as to the minimum altitude of the moon above the horizon for naked-eye visibility at sunset. From all that I have seen from you, you have neglected this matter entirely. You would have done well to take a cue from the Karaite rule, as given by Kokisoff.

N.B.

The Karaites have preserved several features of the original Mosaic calendar, even since their revision of 1780. One is the barley-harvest moon for Nisan, which you have accepted. Another is the beginning of a month as soon as the new moon is seen with the naked eye, not before, not later. This feature of the Mosaic calendar you sometimes accept in your discussions, and at other times you assert a contradiction, that the Jews usually did not begin their months with the phasis of the moon (or "first phasis", I believe I once read, as though there might be a second first appearance, or even a third first appearance.

I am not talking about cloudy weather.

You did adopt one Karaite rule from the 1780 revised calendar which is at times demonstrably untrue: That the new moon can be seen at sunset if 18 hours have elapsed since conjunction. You hang everything on this in your contention for Tisri 1 at Boston beginning at sunset on Oct. 12, 1844. I will send you later specific occasions when the application of this rule would make the moon visible when it was actually several degrees below the horizon. I will send this matter with other on the 30,29 day sequence.

Page 4, column 4 of Table III. All the dates in this column, with the exception of the last, should be made one day earlier. That last date is all right, because you took it from the wrong place in your Table, as will appear when I discuss that eclipse.

And now I come to discuss each of the eclipses from which you try to force an argument for the accuracy of your 1 Thoth table, and will show that they all disprove your contention. They prove the opposite of what you tried to make them prove.

But I must first notice your contention that the Egyptian days began and ended at noon, like the usage of modern astronomers. Although you state in beginning that the Egyptian day "probably" began and ended at noon, and later admit that chronologers are not unanimous on the matter, you nevertheless soon become categorical in repeated assertion regarding the matter, and for the reason that the kind of argument you have built up seems to sustain your position.

Much can be said on this matter, but I shall not take time to discuss it very

long. The invariability of uniformity in the names of the days of the week is evidence that no people (with the exception, for scientific records, of a few astronomers) ever separated the natural day into two parts, giving different degignations to forenoon and afternoon. In fact this would not be possible, for they could not tell what day it was near noon, when some events happened. There could not be uniformity in the United States to-day, even though everyone had a watch.

In this matter, we are discussing the records of Claudius Ptolemy, and we must reckon the day as he does, which is from midnight to midnight. Nearly every one of your quotations indicate this. In his record of a lunar eclipse at night, he does not name one day, as he would if the day reached from noon to noon, but he names the two days which are divided by midnight. In speaking of the second eclipse in another place (Almagest, ch vii, quoted in Guinness, Light for Last Days, 399, which I happened to copy years ago), he says that it was "between the 18th and 19th at one-half and one-third of an equinoctial hour before midnight." This settles the question which you have been so categorical about, but in the other direction.

Now for your discussion of the eclipses. I will not try to unravel the confused reasoning on pages 14 and 15. The diagrams, and a few words here, will show that reasoning to be fallacious.

I enclose diagram for all these eclipses (Sheets 8,9,10,11) Compare them as you read each one of these comments. They bring out additional facts, or make more plain

Eclipse 1, on Thoth 29, which you make out to be 27 days after Thoth 1, by mental jugglery which I have not been able to follow. By counting these 27 days after 1 Thoth you arrive at the actual date of the eclipse, but only because you have an erroneous date for Thoth 1 for 721 BC. The true date for 1 Thoth in 721 is Feb. 20, not 21.

Eclipse 2. Thoth 18 is not 16 days after Thoth 1, but 17. Your date for 1 Thoth is Feb. 20, whereas it should be Feb. 19. But the two errors neutralize, so you get the date of the eclipse in your last column.

Instead of trying to repeat your confused reasoning on pages 14 and 15, which I cannot understand, just look at the enclosed diagrams which I have made for these two eclipses, which make all the facts as clear as day. I recommend that you make similar diagrams for all the other eclipses, being careful not to make a mistake in the interval from 1 Thoth to the day of the eclipse, counting not to the day before the eclipse, as you have done.

Eclipse 3. 15 Phamenoth is the 15th day of the seventh month, 6 x 30 days having preceded 1 Phamenoth, it is the 195th day of the Egyptian year, and 194 days after the first day of the year. Your table says it is the 193rd, and you so reckon it, but get the true date of the eclipse because you count from 1 Thoth as Feb. 20, when it was really Feb. 19.

While I think of it, just note from the diagram for eclipse 1 and 2, that you cannot move the dates Feb. 19 and Feb. 20, for 72o and 721, a single line either way. To allow the eclipses to come on the days Ptolemy says they did, you cannot allow Feb. 19 to correspond with 721, nor Feb. 20 to correspond with 720. This fixes the date to be placed after every year in the Table, regardless of what others may say. The recorded time of these two eclipses is sufficient to formulate the Table so that not a line can be changed.

Eclipse 4. Occurring after midnight, the eclipse was on 28 Athyr, the 88th day of the year, and 87 days after 1 Thoth, which was Jan. 26, in 621 BC. You call the interval 86 days, but count Jan. 27 as 1 Thoth, so that as a reult of the two netralizing errors you have the correct date of the eclipse, Apr.22.

Eclipse 7, on 3 Tybi, the 5th month, occurred on the 123rd day of the year, 122 days after Thoth, which was rightly Dec. 24. You count Dec. 25 as 1 Thoth, and then add only 121 days, getting the correct date through two errors.

Eclipse 8. Pardon me! I see that when I resumed writing after sheet 5, I skipped eclipses 5 and 6.

Eclipse 5. On 17 Phamenoth, the 7th month, occurred on the 197th day of the year, 196 days after Thoth 1, which was really Jan. 1. You have the wrong date for 1 Thoth, Jan. 2, and then you add only 195 days to get the true day of the eclipse. Two errors, neutralizing.

Eclipse 6. Epiphi 28, in the 11th month, is the 328th day of the year, and the 327th day after Thoth 1, which was Dec. 27. You have the correct date of the eclipse only because you count Dec. 28 as 1 Thoth, and then add only 326 days.

Eclipse 8. On the 24th day of the 7th month, Phamenoth, the 204th day of the year, and 203 days after 1 Thoth, which was Nov. 27 in 383 BC. You hold to Nov. 28 as 1 Thoth, and then add only 202 days instead of the 203. Two compensating errors again.

Eclipse 9. Your comment on this on page 15 is queer, confused reasoning. I wish we had the language represented by the dots in your quotation of Ptolemy on page 10. He is speaking about an eclipse which someone had said was on 5 Mesore. He does not say that it occurred on 5 Mesore, but "14¼ equinoctial hours after the noon of the 5th." Ptolemy is very clear as counting the days not from noon, but from midnight. His statement about the eclipse of Mar. 8, 720, near midnight, "between the 18th and 19th," could not be clearer. By the way, what is the Greek, or the literal rendering of the original Greek for the expressions 29/20 Thoth, 18/19 Thoth, 15/16 Phamenoth, 27/28 Athyr, 17/18 Phamenoth, 28/29 Epiphi, 3/4 Tybi, 24/25 Phamenoth, and 19/20 Pharmuthi which you give on pages 9,10?

It is plain that Ptolemy is speaking of an eclipse which occurred, as to its central time, after midnight, on the 6th of Mesore. Mesore 6, in the 12th month, is the 336th day of the year, the 335th day after 1 Thoth, which, at the beginning of this Egyptian year, in 201 BC, was Oct. 12, as it was also in 200 BC. 335 days after Oct. 12, brings us to the day of the eclipse, which was Sept. 12, 200 BC. You take Oct. 13 as 1 Thoth, and then add only 334 days instead of 335, so of course again arriving at the right date despite two errors which compensate.

By your thesis, the eclipse would have to occur on Pharmuthi 9. See Diagram on another sheet.

Eclipse 10, on 11 Pharmuthi, the 221st day of the year, 220 days after 1 Thoth, which was Sep. 24. You have Sept. 25 in your Table for 1 Thoth, and then add 219 days instead of 220. It seems queer to me that you have made this series of errors as to the interval after 1 Thoth. Did you feel so sure of the accuracy of your 1 Thoth Table that you changed the interval so as to fit Oppolzer's date of the eclipse? I think you must have been confused in your problem.

20 230th 229

Eclipse 11. On Pharmuthi 11, the 230th day of the year, 229 days after 1 Thoth 1. The eclipse was March 6, 136 AD, and the preceding 1 Thoth was in 135 AD, and fell on July 21, just 229 days before March 6, 136 AD, a leap year. The day of the eclipse was not Parmuthi 19, but 20, because it was after midnight.

Now in this single case you have the correct interval after 1 Thoth, namely 229. I wonder why? It looks as though you had taken this interval because it was what was necessary to reach from July 21, which you selected for 1 Thoth, to March 6, the day of the eclipse.

I imagine that if you had not made the mistake of taking the following instead of the preceding 1 Thoth date from your table,

which would have given you July 22 to reckon from, you would again in this instance also added only 228 days, one less than the actual interval,(to make it come out even?).

I cannot help feeling a tinge of sadness as I look again at the title of Table III: "Ptolemaic Lunar Eclipse Check on Egyptian New Year Table."

It is indeed a check, and infallible one. But I feel sad at what this check has done to your table.

You have done a lot of hard work, I can see that plainly. It must be disappointing to have to go over all the work, and rewrite the whole paper.

But these disappointments have their compensation somewhere.

Please do not take my blunt criticisms as indicative of pleasure in pointing out your errors. Few people know how difficult are the problems on which you are working, and how difficult not to make mistakes. I feel entirely sympathetic with you, and I feel very grateful for the privilege of going carefully over this work.

The quotations from Ptolemy I value highly. I have wanted them for many years, but have never had access to libraries except perhaps half a day at intervals of years. I found an old copy in Greek at Lick Observatory, but I could be there but two or three hours, so did not try to find a needle in that haystack.

I think I should send on to you what I have written, and not try to discuss the rest of this document. I have been working very hard on it, having to grasp and weigh in a half a week what has been brought together after weeks of labor. I cannot take more time just now. When the document is rewritten, send me a copy. I will be delighted to read it, for I know there will be some good things in it.

In rewriting this, I think consideration should be given to some things I wrote in a letter when I first looked at this manuscript, but delayed sending, and then started to rewrite, in the pages you have been going over. I am too weary to rewrite more, so will append to this the second half of page 2 and all of page 3, on which I had signed my name. I did not mail the letter, as I did not know what your address would be in St. Paul. I now hear that it is Hotel Lowry, so will mail this matter to you there.

I have another letter written, which did not have all in it that I wanted, so I did not send it. In my weariness, I think I had not try to finish it, but enclose it with this. Read it after you read this.

There is still another letter to be written, dealing with Oct. 22, and your fallacies in the astronomical argument on which you base the whole matter. I will write that when I can. We are having to hire men and pay them for work which I should be doing. And expense even for postage is something that we feel, with our small income.

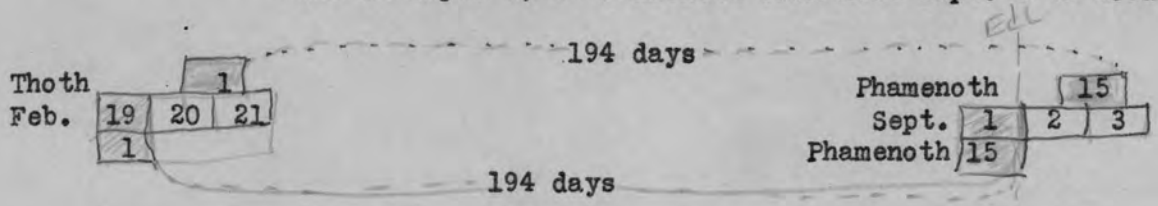
I wish I might see the "Wood 19-year Cycles" which are referred to near the top of page 18. Can you let me see a copy?

Eclipse #3, "on the 15/16 of Phamenoth . . 4 1/3 hours before midnight" at Alexandria.
Oppolzer's Greenwich time, 720 BC, Sept. 1, 17h 4m.

15 Phamenoth is the 195th day of the year, the 194th after Thoth 1.

Our authors have 1 Thoth on Feb. 20, from noon.

194 days from noon marking the end of 1 Thoth on Feb. 21 reach to noon on Sept. 3, 15 Phamenoth from noon Sept. 2 to noon Sept. 3.

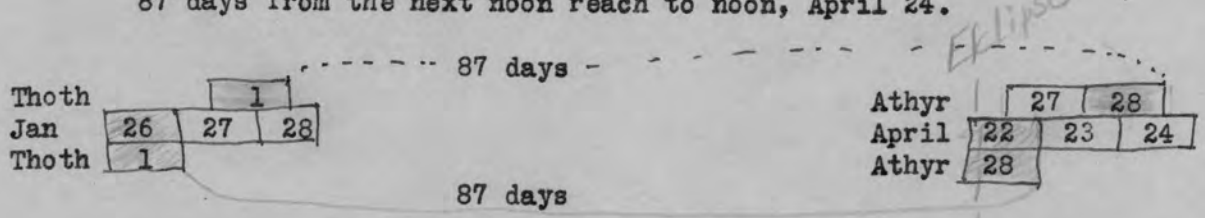


Impossible for the eclipse to occur on 15 Phamenoth by our authors' thesis.

- - - -

Eclipse #4, "on the 27/28 Egyptian Athyr . . 5 hours after midnight," in Alex.
Oppolzer's Greenwich time, 621 BC, Apr. 22, 2h 38m.

28 Athyr is the 88th day of the year, 87 days after 1 Thoth.
Our authors have 1 Thoth on Jan. 27, from noon.
87 days from the next noon reach to noon, April 24.



Impossible for the eclipse to occur on either Athyr 27 or 28
If it occurred on Athyr 27, then, by their thesis, it occurred on April 23, for 5 hours after midnight would be nearly $\frac{3}{4}$ through Athyr 27.
The conditions are fulfilled only by having 1 Thoth on Jan. 26, in 621 BC and on Feb. 26, in 747 BC.

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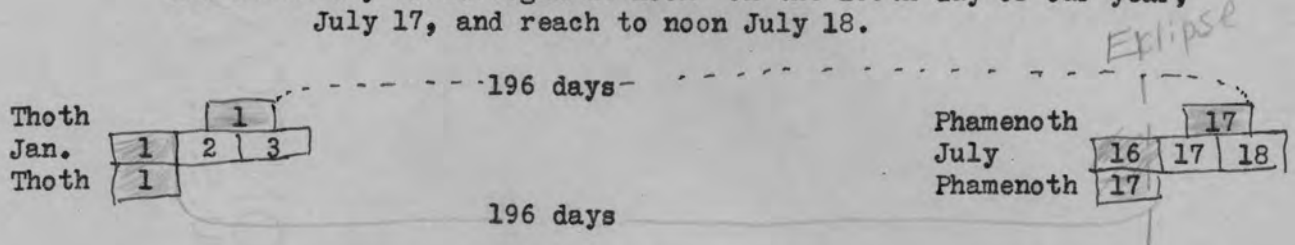
Eclipse #5. "Egyptian 17/18 Phamenoth" . . 1 5/6 hours before midnight" in Alex.
Oppolzer's Greenwich time, 523 BC, July 16, 21h 0m

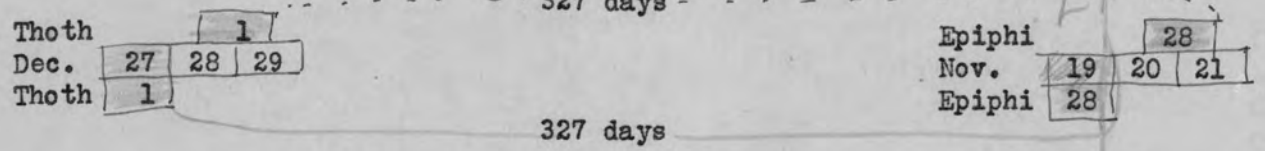
17 Phamenoth is the 197th day of the year, the 196th after 1 Thoth.
Our authors have 1 Thoth beginning at noon, Jan. 2.
The 197th day would begin at noon on the 199th day of our year, July 17, and reach to noon July 18.



Impossible for the eclipse to occur on Phamenoth 17 by the thesis.
1 Thoth must occur on Jan. 1.

Eclipse # 6, "In the 28/29 of the Egyptian Epiphi . . 1¼ equinoctial hours before midnight" in Alexandria.
Oppolzer's Greenwich time, 502 BC, Nov. 19, 21h 24m.

28 Epiphi is the 328th day of the year
Our authors have 1 Thoth begin at noon on Dec. 28.
The 328th day would begin at noon on Nov. 20, end noon Nov. 21



Impossible for the eclipse to occur on 28 Epiphi by the thesis.
1 Thoth must be on Dec. 27 in 503 (and 502 also), and thereby on Feb. 26 in 747 BC.

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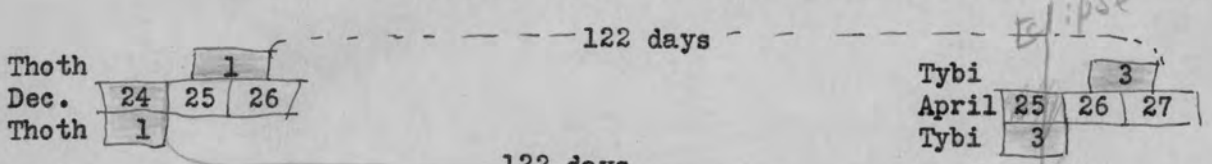
Eclipse #7, "On the 3/4 of the Egyptian Tybi ."
Oppolzer's time, 491 BC, April 25, 19h 55m

3 Tybi, the 123rd day of the year.
Our authors have 1 Thoth begin at noon Dec. 25.
The 123rd day would reach from noon April 26 to noon April 27.



Impossible for the eclipse to occur on 3 Tybi by the thesis.
1 Thoth was Dec. 24 in 492 (and also in 491), thereby Feb. 26 in 747 BC.

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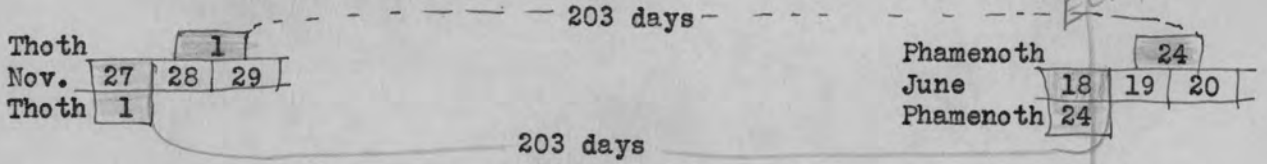
Eclipse #8. "In Alexandria . . 8¼ equinoctial hours after noon of the 24th" Phamenoth.
Oppolzer's Greenwich time, 382 B.C., June 18, 18h 31m

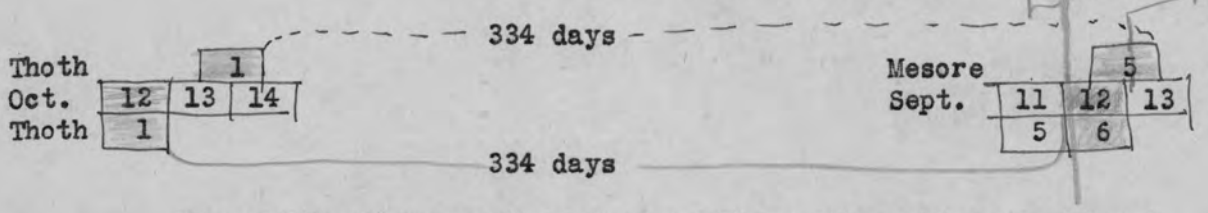
24 Phamenoth is the 204th day of the year.
Our authors have 1 Thoth begin at noon Nov. 28.
The 204th day would be from noon June 19 to noon June 20.



Impossible for eclipse to occur on Phamenoth 24 by the thesis.
1 Thoth must be Nov. 27 in 383 BC, and thereby Feb. 26 in 747 BC

Eclipse #9. "14¼ equinoctial hours after the noon of the 5th" of Mesore.
Oppolzer's Greenwich time, BC 200, Sept. 12, 0h 28m

Occurring over 2 hours after midnight, the eclipse was on Mesore 6.
But we take our authors' thesis that the day began and ended at noon,
and that "the noon" mentioned by Ptolemy was the first noon, and
that 1 Thoth began at noon on Oct. 13
Mesore 5 is the 335th day of the year, the 334th after 1 Thoth.
The 335th day would end 334 days after the end of 1 Thoth,
at noon of Sept. 13.
14¼ hours after the first noon would fall on Sept. 13. Is that
when the eclipse occurred?



Even with all our authors' assumptions, the eclipse could not
occur on Mesore 5.
The only calendar which fits has 1 Thoth on Oct. 12 in 201,
and on Feb. 26 in 747 BC.

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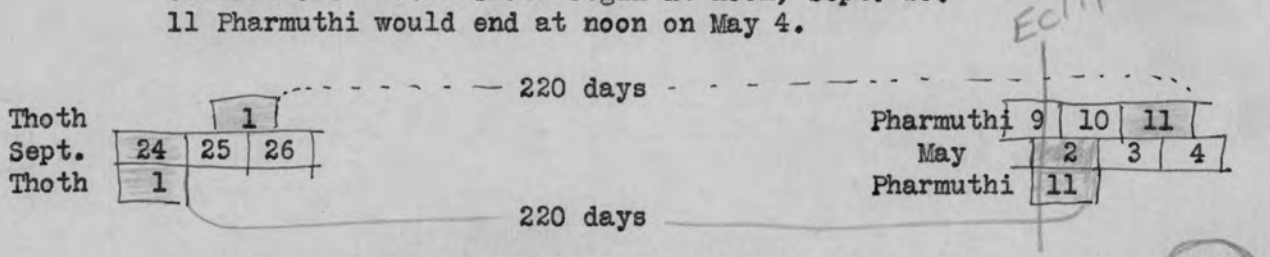
Eclipse #10. "On the 11th of the Egyptian Pharmuthi . . about 5 civil hours before
the noon of the 11th."
Oppolzer's Greenwich time, BC 128, May 2, 4h 35m
Ginzel's Alexandrian time, " 6h 43m

11 Pharmuthi is the 221st day of the Egyptian year, the 220th after 1 Thoth
Our authors have 1 Thoth begin at noon, Sept. 25.
11 Pharmuthi would end at noon on May 4.



Our authors' thesis would make the eclipse occur on Pharmuthi 9.
Therefore it is emphatically untenable.

Pharmuthi 11 being the day of the eclipse, May 2, the 1st of
Thoth fell on Sept. 24 in 129 BC. This would bring
1 Thoth on Feb. 26 in 747 BC

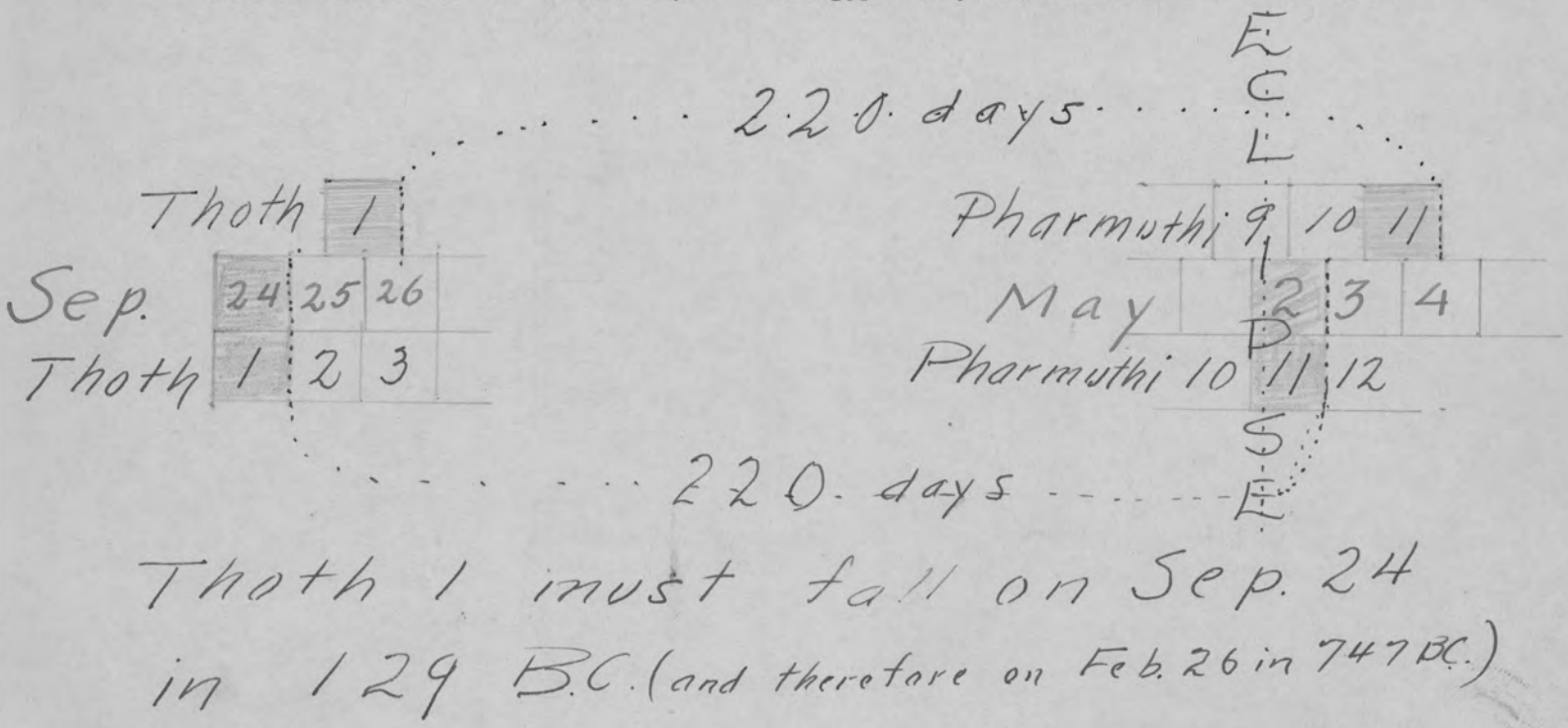
16 1/2

Eclipse #10. "on the 11th of the Egyptian Pharmuthi," "about five civil hours before the noon of the 11th."
Oppolzer computes the eclipse at 4h 35m May 2, 128 B.C., Greenwich Civ.Time
Ginzel, May 2.28 , or 6h 43m, Alexandrian Civil Time.

Our authors have 1 Thoth in this case on Sept. 25, from noon.

Question: Would it be possible for the eclipse to occur on 11 Pharmuthi, a few hours before the noon marking its close?

Pharmuthi is the 8th month, 210 days preceding 1 Pharmuthi.
11 Pharmuthi is the 221st day of the Egyptian year, the 220th after 1 Thoth



Thoth 1 must fall on Sep. 24 in 129 B.C. (and therefore on Feb. 26 in 747 BC.)

Our authors' position would make the eclipse fall on

Pharmuthi 9.

Their thesis therefore is untenable.

Eclipse #11, "On the 19/20 ofm the Egyptian Pharmuthi . . at 4 equinoctial hours after midnight."

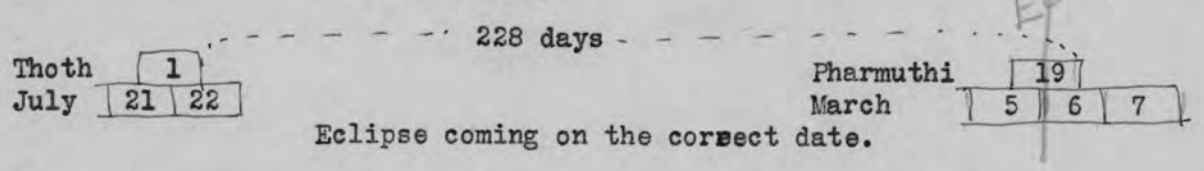
Oppolzer's Greenwich time, AD 136, March 6, 1h 43m

Occuring after midnight, the date had changed to 20 Pharmuthi; but we make diagram according to our authors' thesis, that the day reached from noon to noon, with the eclipse on 19 Pharmuthi.

They have 1 Thoth begin with noon, July 21.

19 Pharmuthi is the 229th day of the year, and begins 228 days after 1 Thoth, in this case at noon on Mar 5, there being 29 days in February of this year, and ending noon Mar. 6.

Diagram seems to prove them right:



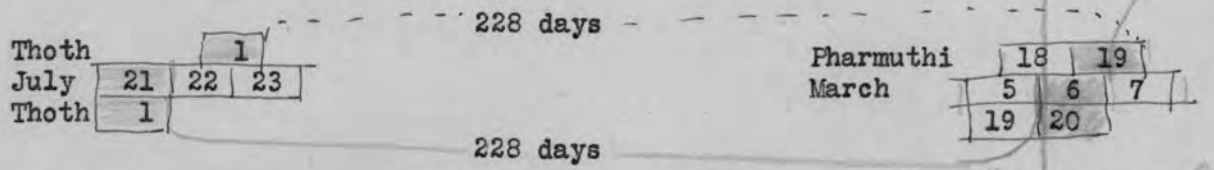
Eclipse coming on the correct date.

But note:

They did not take from their New Year Table the date of the preceding 1 Thoth, but the date of the following one, in 136 AD.

The preceding Thoth was in 135 AD, and their table gives us the date July 22 for 1 Thoth.

A new diagram is then necessary, to test the thesis:



The thesis makes the ec lipse on Pharmuthi 18, no later.

It happens that the true date for 1 Thoth in 135 AD is July 21, the date the authors used, contrary to their table.

And the eclipse occurring 4 hours after midnight, was on 20 Pharmuthi.

Placing 1 Thoth on July 21, as required by all the other eclipses, we have the eclipse of March 6 occurring also on 20 Pharmuthi.

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In Table III, we have two more items, #12 and #13, placing 1 Thoth on July 21 in 139 AD, and on June 25 in 238 AD, on the authority of Censorinus, who is quoted on page 16, as saying that 1 Thoth in the year he was writing "corresponds to the 7th calends of July," "whilst a hundred years ago . . this same day corresponded to the 12th of the calends of August, the ordinary epoch of the rising of the Canicular star in Egypt."

Now in the 50½ years which have elapsed since my last Latin lesson, without any use whatever of the language, I am unable to remember clearly the meaning of the calendric terms above, except that calends meant the first day of the month. And I have no library from which to get information.

But let us look at what Censorinus says. He ought to be correct as to 1 Thoth in his day, while he might be in error as to the day a hundred years before.

If "7th calends of July" corresponds to June 25, as you have it in Table III, and which I think I remember reading years ago, the meaning of"7th calends" would

mean the 6th day before the first day of the month, the calends itself being counted to make the 7 days. "12th of the calends of August"would then mean July 21, as you have it in Table III opposite 139.

But while you have this consistency in this table, III your New Year table, which is your rule, is not consistent. That table has, indeed, July 21 for 139 AD, but it has June 26, not June 25, for 238 AD.

And you cannot make your table consistent. For if you shift the dates so that June 25 is brought up to 238 AD, you will thereby move July 20 up to 139.

The reason for this is that Censorinus contradicts himself. Either he was right in stating that 1 Thoth occurred on July 21 in 139 AD, and wrong is stating the usage in his own day, which is unthinkable, or he was wrongly informed as to the custom in 139 AD.

We have a check from his own words. He speaks of the "epoch of the rising of the Canicular star in Egypt." The Canicular star is Sirius (Egyptian "Soth"), the bright star in Canis Major. And the date when Sirius, "Soth", rises heliacally in the Delta, which is July 19 (Breasted, Hist.Anc. Egyptians, p 35), coincides with the moveable 1 Thoth, that marks the beginning of a new Sothic Cycle.

Now all the dates I have given as the correct dates for 1 Thoth, which by the eclipses recorded by Ptolemy, c a n n o t b e p l l a c e d o t h e r w i s e by even a single year, harmonize with all that Breasted says, and with the statement of Censorinus with regard to the custom in his own day, which we must accept.

Your Item #13 in Table III is correct, while the date for 139 AD should be July 20. Item 13 wrecks your New Year Table.

Now you may ask, if we place June 25 opposite 238 AD, what three other years should stand opposite June 25?

Answer No. 1: A Sothic Cycle began on July 19, 140 AD, and 1 Thoth fell on July 19 in that year and the three following years. Then in 144 AD the date became July 18 for 4 years. By this, June 25 will be the date of 1 Thoth in the years 236-239 AD, inclusive.

Answer No. 2: Ptolemy's eclipses of 721 and 720 BC fix the table in exactly the same way, so that no year can be moved backward or forward. The eclipse of 721 makes 1 Thoth on Feb. 20. But this eclipse alone would not tell us what other years beside 721 had 1 Thoth on Feb. 20.

The second eclipse, and also the third, make Feb. 19 the 1st of Thoth in 720. But these two eclipses alone would not tell us what three other years had Feb. 19 as 1 Thoth.

The eclipses of the two years fix 721 as the last year which had 1 Thoth on Feb. 20, and 720 BC as the first year which had 1 Thoth on Feb. 19.

The reult fits perfectly with the beginning of a Sothic Cycle on the day of the heliacal rising of Sirius, and with the testimony of Censorinus with regard to the usage in his day. But if Censorinus were to state something altogether different, no matter what he should say, the eclipses themselves, as to-day computed, together with the calendar day on which Ptolemy records that the eclipses occurred, settle the question with complete finality.

This is a fine astronomical confirmation, an argument irrefragable. We should advance a similar argument for Oct. 22.

Page 18 of your document gives evidence that the Hebrews originally based their calendar solely upon the OBSERVED MOON, and did not begin their months at fixed intervals of 30, 29, 30, 29, 30, 29 days, even from Nisan to Tisri. This latter is an innovation, an approximation to the actual moon, adopted in the Jewish revised calendar. (And from them adopted by our present authors.)

Likewise, the leap years would not be inserted according to the fixed rule of the revised Jewish calendar, and adopted also by our present authors.

Don't forget your statement on this page, that the facts before you "indicate that observation was governing the passover date, rather than a fixed mnemonic." "Evidence of observation only in the papyrus period."

They were looking at the moon itself, not at any tables.

Months sometimes were 30,30 days, or 29,29 days. There was not a fixed interval of 177 days from Nisan to Tisri, from which there was no variation. Elul sometimes had 30 days, contrary to your supporting argument for Oct. 22.

And this because the moon is not regular and uniform, but varies to either side of a mean position. It is the MEAN position with which the Jews have to do in making their calendar, and you follow them in it. You will sometimes be a day in error.

THE ONLY WAY to get accurate results is (1) to ascertain by computation the angular distance of the moon from the sun at sunset on the day in question; (2) compute the height of the moon above the horizon, the altitude, from (a) the angular distance from the sun; (b) the inclination of the ecliptic at that particular point; (c) the heliocentric latitude (NOT "declination") of the moon; and (3) apply a recognized guiding rule as to what must be the minimum altitude of the moon in order to be visible with the naked eye at sunset.

INSTEAD OF THIS, from all I can see, you apply mechanical rules drawn from the usage of the revised Jewish calendar, based on calculation of the MEAN position of the moon, and obtaining only APPROXIMATE results.

In this way, months are sometimes reckoned as beginning at the time of phasis (first visibility with the naked eye), sometimes they begin a day or so after the moon is visible, with a "horned" moon. And sometimes when the moon is absolutely invisible.

But only when the month is counted as beginning at the sunset accompanying of following phasis, the first visible appearance, can one be sure that he is obtaining the Mosaic calendar date.

This is one of the Karaite rules, brought down from Moses, which you overlook. It is not one of their revised usages.

For this reason, your calendars for the first century AD or the 5th century BC may sometimes be one day in error, with the sole exception of 1 Nisan. (And even in the case of Nisan some statements in Part V, misquotations, must be cleared up.)

(Part of . first letter) 517 Dec 30
516 Dec. 30 20

143 Sub. 25
+C

Chancing to glance at page 19, I see the month Mesore of the Egyptian calendar given 35 days. That should be 30 days, like the other 11 months. There were five intercalary feast days intervening between Mesore and Thoth.

This MS demands some close study. There are some fine things in it. I am satisfied also that an erroneous theory is in it, as in other papers pertaining to Oct. 22, 1844. The theory is not needed with reference to Oct. 22, for the truth which it erroneously attempts to establish can be irrefutably established another way. You have rejected one feature of the revised Jewish calendar, with reference to the beginning of Nisan in some years, but you have retained other features, and assign them to the original Mosaic calendar.

You take from the present Jewish calendar of calculation, the fixed lengths of 30,29,30,29,30,29 days for the months from Nisan to Tisri, which does not always harmonise with the visible moon. You overlook the Karaite statement regarding this matter, and have not noticed the Talmud. The original calendar had the months (with the exception of Nisan at times, if Aristobulus be properly interpreted) begin immediately after the phasis of the moon. And phasis, some of your papers should have remembered, means the first appearance of the moon. There is no such thing as a second phasis (a second first appearance). And for this reason Elul did not always have 29 days. It would not have had 29 days in 1844 if Boston had been the meridian for the dates of the 2300 year prophecy, for the moon would have made it 30 and Tisri 29. It is the moon itself which rules the ancient Hebrew calendar, just as it does the modern Mohammedan calendar. I think that some of your other documents are inconsistent for this reason, and also because of your position regarding the "Horned moon" beginning of the month, combined with months beginning when the moon would be absolutely invisible with even a field glass.

I rather expect to run into some faults in this paper which I fear have characterized some of your other investigations. I have seen references to a Hebrew calendar for the first century, and I think possibly I may find something like it here for the fifth century. I have feared that instead of taking the moon itself for the beginning of months, you were working on a theory.

I have seen no rule laid down by you with reference to the visibility of the moon, except upon theory. I mean, that I have seen no rule as to the altitude of the moon above the horizon, in order to be visible to the naked eye. You have the Karaité rule in Kokisoff, but you have not acted upon it.

I think the task is beyond your ability. You would have to computethe altitude of the moon above the horizon for the day and hour in question, which is no mean task. Then you would have to apply a fixed rule as to the minimum altitude for the moon to be visible with the naked eye.

One reason why I think the task beyond the one who is doing this work is the fact that repeatedly I note that latitude is confused with declination. No one can make these computations who does not understand the difference between the two.

But this is enough for now. I have another letter of several pages which I wrote a week ago, but did not finish, in preparation for a more important letter to follow that.

I am sorry to have to drop bomb-shells in your direction, but I have to do it. Your findings, so I have been informed, at least with reference to the documents of over a year ago, are to be deposited, or have been deposited, with the Smithsonian Institution, and thus placed where the official Seventh-Day Adventist position can be taken by our opponents, and its errors exposed to prove (?) that Seventh-day Adventists base their conclusions on error.

I have a fear that what I have sent, and what I have to send, will not receive the attention it merits. And this because my suggestions do not harmonize with positions which have already been settled with finality. I feel that some things have been so settled in your minds that you will judge anything to the contrary before you give it thorough investigation. I heard a very devout brother and thorough scholar, whom you would not think of considering among your critics, say that he thought it useless to send in suggestions to your committee.

I certainly would not be writing this letter, or any of my letters, if it were merely to maintain my own opinion. I write only because I know the world's scholarship will scrutinize every position of truth which we hold, and severely criticise it. (This statement you well remember, in Vol. 5.) You are doing work which will of necessity be accepted by our brethren who cannot investigate as you can, and who will accept and teach your conclusions. If I see an error in you, I am under obligation to point it out, inasmuch as you have asked me to do that very thing.

I have looked at only the first 4 pages of this present document. I wonder if it will launch me into other discussions before I have time and strength to finish those already on hand. My strength is exceedingly limited, and I have heavy burdens aside from this labor. I am sometimes practically prostrated. And, I wish I had access to a library. I think I could do something.

It's late, so good night, with ever so much love, and with deep appreciation to you for all the matter which you have permitted me to read. It is a great benefit.

Sincerely yours,

Harry A. Washburn

NOV 27 1940

St. Helena, Calif.,
Nov. 22, 1940.

My dear LeRoy,-

I am sorry that I did not receive your letter regarding the tentative character of the documnet on the Jewish Calendar in the 5th Century until after I had written my criticism.

As I began to write as I read page by page, I did not for some time notice Miss Amadon's name at the end. I had supposed from previous references to the matter that several persons had been working on the material for several months.

I wrote Miss Amadon: "Had I thought of you as the author, or co-author, of co-worker, I am sure I would have studied not to be too blunt in my criticism of the document. Will you not try to bear this in mind as you read it? . . . I may seem a little pointed in some things I say, but it is only because I have sent in things in the past, in my first criticism of the paper on 457 BC, which were rather loftily waved aside, and a condescending note to me seemed to indicate sorrow that I was not able to see the real truth. I had to make a chart on the Canon of Ptolemy, on which the errors of the paper stood out so that they could not but be seen, before I got a hearing." . . . It is my belief that your part of this document is premised upon some fundamentals which have first been set forth by others. The errors of the premise may cause some criticism to be aimed at what you may have written, based upon the premise. If so, try to tone down the sound of the language, and interpret me as feeling deep appreciation of the hard work you have done."

When I pointed out the large invisible mistake in the 1 Thoth Table, I tried to emphasize the necessity of giving careful attention even to suggestions which might seem on the face to be palpably false. I hoped thereby to get a better hearing than I got a year and a half ago. I am sorry that I failed. I am sorry that I wrote as I did. But I thought I had good intentions.

It is now apparent that the invaluable Canon of Ptolemy may be invalidated by another erroneous interpretation. Were it not for this, and the fact that my aid was solicited, and the further fact that I am jealous for the reputation of our very highest School of the Prophets, I would remain silent, and use my strength for other more pleasing projects.

I enclose three sheets, in which some things are perhaps simplified. If you will take the time to think through each of the brief consecutive statements, you will see the point. Be careful in reckoning the number of days between dates, keeping track of leap days.

In one of your letters you wrote, "On Friday we placed a set with one of the leading men at the Smithsonian Institute." You were speaking of Part V. That is why I thought a copy had been deposited there.

I am about to ask the return of the 35-foot, $40 chart on Bible Chronology, which has been in your custody for over a year, but I want F. D. Nichol and M. E. Kern to look it over first. Have written them.

Yours in love,
Harry A. N—

P.S. You will note on sheet (2) enclosed another independent proof, from Ptolemy himself, that the era of Nabonassar was Feb. 26, not Feb. 27, in 747, confirming incontrovertibly the dates I gave for the 1 Thoth Table. If you do not think through the matter I am sending you herewith, no one else may do it.

Sheets (4) and (5)

I think I should enclose some additional matter, to further simplify one point.

I am anxious that we shall not unwittingly undermine the one invaluable and incontrovertible evidence that the Lord has preserved for us for establishing the date 457 BC.

A clear, accurate knowledge of the Canon of Ptolemy, and the evidence of its absolute truth, is needed by our people, and should be fully set forth in our advanced schools.

Many of our best ministers and teachers have only partial knowledge, and many hazy ideas.

With all the wealth of library resources at Washington, there ought to be prepared by this Committee a much-needed document on the Canon of Ptolemy, and the eclipse evidence of its accuracy, for the use of all our ministers and workers.

Because "Every position of truth" will be severely criticised" (5T, 717), and everything will be said, even falsely, to becloud our best evidences for truth, and our workers should be prepared.

I feel, from many years of observation and contact, that most of our ministers could be confused by a misrepresentation of Ptolemy's Canon by our enemies.

Your Committee ought to prepare a comprehensive document, and it should be made a part of the mental equipment of every student who attends the Theological Seminary, and as far as possible of all our workers.

I believe that document should be a part of the final report of the Committee.

If not, when can we ever hope to see it appear?

H.A.W.

(1)

Ⓐ = 3:53 Alex. time

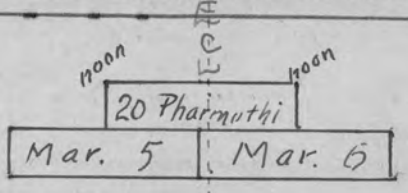
The way in which you have interpreted and handled Ptolemy's records of eclipses would prove him to be in error in the dates he has given.

It would at the same time destroy the one great evidence for the date 457 BC, viz., the Canon of Ptolemy, the dependability of which hangs upon the accuracy of Ptolemy's records of the dates of eclipses.

MS, page (2):	Page 10:	Page 11:	Page 16:
Julian dates of 1 Thoth AD 132 July 22 133 134 135 136 July 21	"The third eclipse had occurred in the 20th year of Hadrian, on the 19/20th of the Egyptian Pharmuthi. The middle, according to our reckoning, entered at 4 equinoctial hours after midnight." (Ptolemy)	Oppolzer, No. 2075, p 345, March 6, $1^h\ 43^m$, Ⓐ 136 A.D.	"The eclipse occurred on the second Egyptian date mentioned by Ptolemy, that is, 20 Pharmuthi"

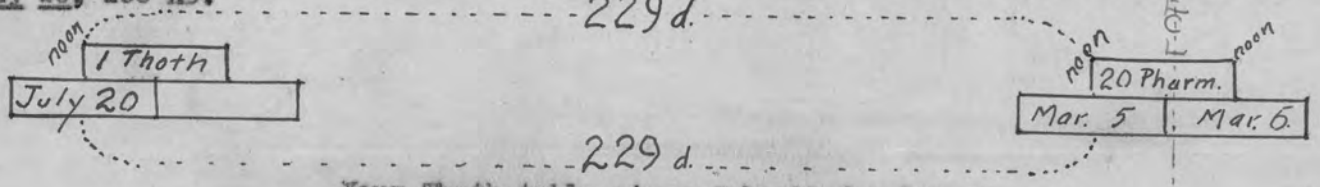
Added to this is the thesis that Ptolemy reckoned his dates from noon to noon.

Your position makes the eclipse occur thus:



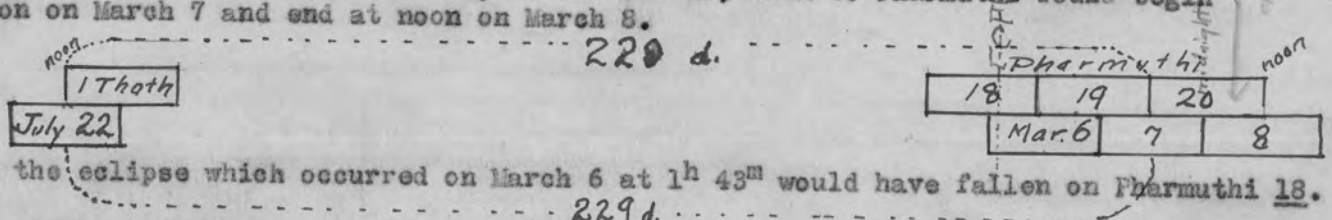
20 Pharmuthi, the 230th day of the Egyptian year, would begin at noon, Mar. 5, 136 AD.

1 Thoth would begin at noon 229 days before the noon of March 5, 136, or at noon on July 20, 135 AD.



Your Thoth table gives July 22 for 135 AD.
There is a discrepancy of two days.

If your Thoth Table is correct, July 22 for 135 AD, then 20 Pharmuthi would begin at noon on March 7 and end at noon on March 8.

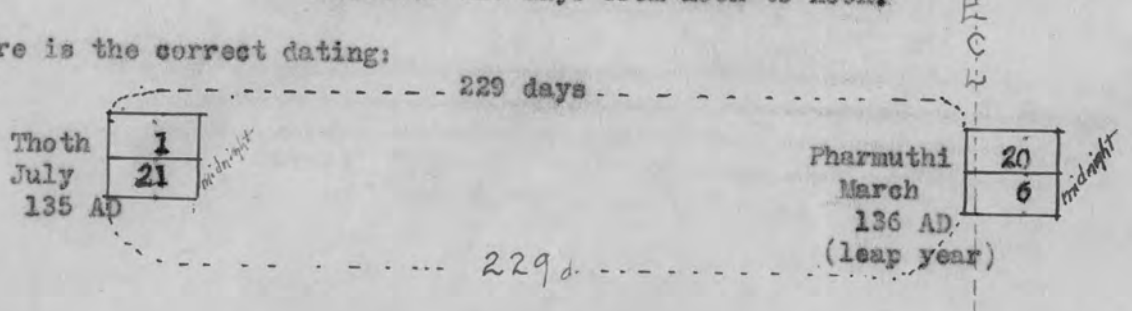


Then, the eclipse which occurred on March 6 at $1^h\ 43^m$ would have fallen on Pharmuthi 18.

Then, Ptolemy's record would be in error by two days.

The truth is: Ptolemy is correct; and,
You have made an error of one day in your Thoth Table,
and another error of one day by assuming that Ptolemy reckoned his days from noon to noon.

Here is the correct dating:



Your position would detroy the value of the Canon of Ptolemy for chronology, our great evidence for the date 457 BC.

Because the accuracy of this chronological table hangs upon Ptolemy's accuracy in his records of eclipses.

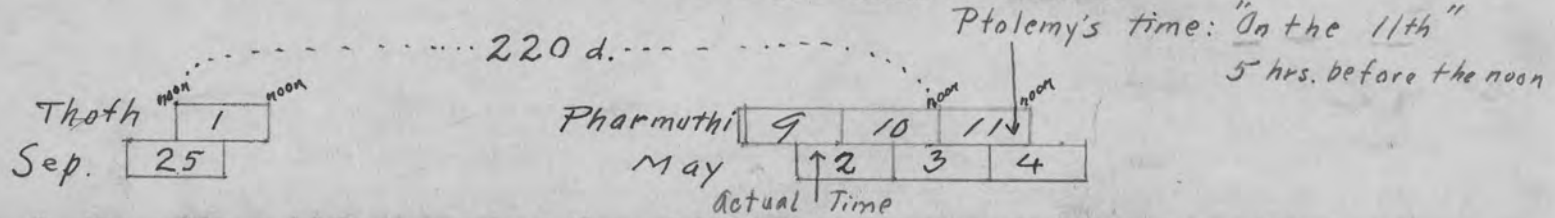
Your position makes Ptolemy in error:

The eclipse which occurred at Alexandria on May 2, 128 BC, at 6:43 AM, Ptolemy says was "On the 11th of the Egyptian Pharmuthi, . . about 5 civil hours before the noon of the 11th."

You have the preceding New Year, 1 Thoth, beginning at noon, Sep.25, 129 BC.

By this, 11 Pharmuthi, the 221st day of the year, would begin at noon, May 3, and end at noon on May 4, 128 BC.

Your interpretation would make Ptolemy record the eclipse as occurring on May 4.
" " " " the eclipse occur on 9 Pharmuthi.
" " " " Ptolemy in error by two days:

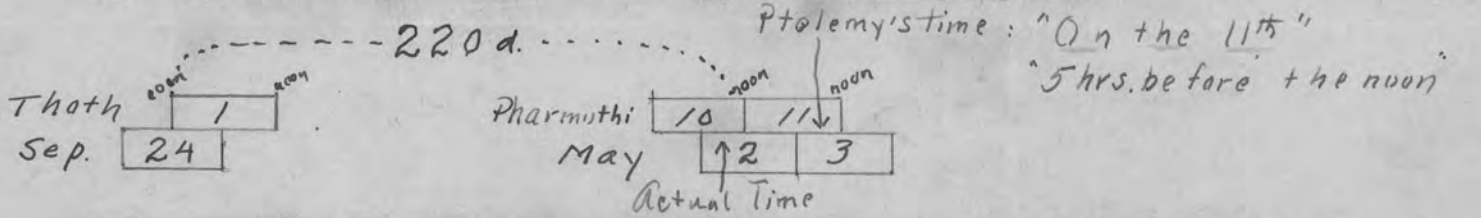


See 3 additional proofs in previous letter

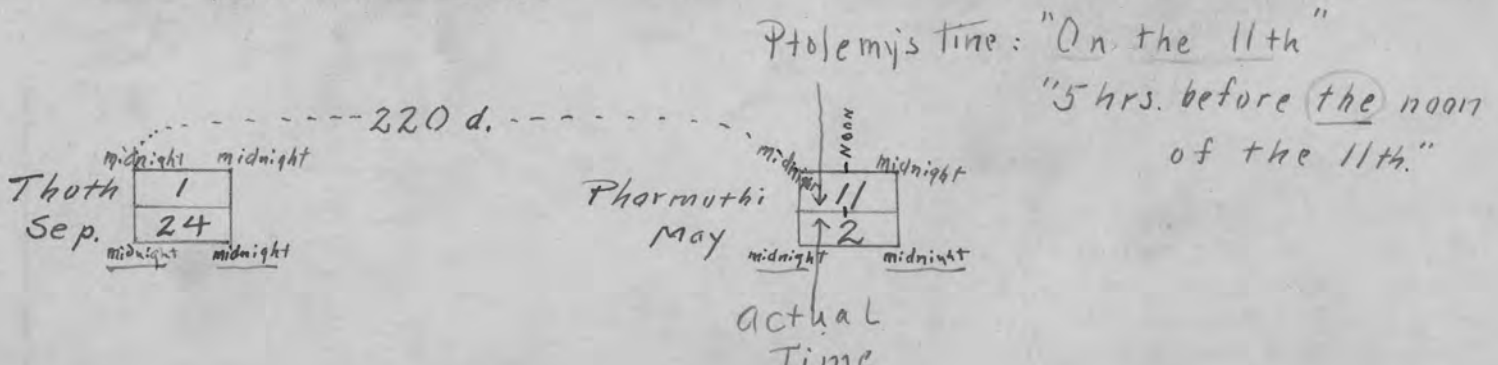
The eclipse which occurred at Alexandria at 2:38 AM on Sept. 12, 200 BC Ptolemy says (p 15, your MS) was 547 Egyptian years, 334 days, and 14½ hours after his "epoch" from which he measured his exact time intervals. This gives noon, Feb. 26, 747 BC, for the epoch, or Era of Nabonassar, which is accepted by the American Ephemeris. You have noon, Feb 27, thus making your succeeding 1 Thoth dates 1 day too late.

While Ptolemy counts time intervals from his epoch as from noon on Feb. 26, his calendar dates are from midnight to midnight, as can be shown in many ways.

Your assumption that Ptolemy reckoned his calendar dates as beginning at noon, would still make him in error by one day in his record of the above eclipse, even though you corrected your Thoth table, and used the correct date, Sept. 24:



But astronomers all say that Ptolemy was correct. They do not agree with your interpretation. His calendar dates are reckoned as beginning and ending at midnight, in harmony with common usage.



Ptolemy must not be made to contradict himself in his records of other eclipses, by the interpretation you give to the eclipse which occurred on Sep. 12, 200 BC, at 2:38 AM.

Ptolemy does not himself say that the eclipse occurred on Mesore 5. He says that someone else had said so: "They say that the third eclipse occurred . . on the 5th Egyptian Mesore."

He himself says that the eclipse "was 14½ equinoctial hours after the noon of the 5th," which would be on Mesore 6, not Mesore 5.

If you hold to your assertion that this eclipse was on the 5th, that Ptolemy himself says it was on the 5th, thereby proving to your satisfaction that the date began and ended at noon, then you make Ptolemy's records of several other eclipses to be in error, and thereby destroy the chronological value of the inestimable Canon of Ptolemy, the one irrefragable witness for the date 457 BC.

Note the comment on the eclipse of May 2, 128 BC, on the 11th Pharmuthi, where the diagrams prove that Ptolemy's calendar dates begin and end at midnight.

And remember that he said that the eclipse of March 8, 720 BC, which was "at the middle of the night" at Babylon and 5/6 hour before midnight, Alexandrian time, was "between the 18th and 19th" of Thoth.

If he reckoned calendar dates from noon to noon, he would never need to use two dates, as he does, for eclipses occurring in the night.

If he reckoned the calendar dates from noon to noon, he would be ambiguous in speaking of "THE" noon of various dates, as he does.

(4)

MG

How you made a mistake (p 15)

in your conclusions from the eclipse of Sep. 12, 200 BC.

You rightly give weight to Ptolemy's statement regarding the epoch he used. He used the term epoch, as astronomers do today, to designate a fixed moment of time from which to calculate, or to which to refer, positions of heavenly bodies at other times.

Ptolemy's epoch, the so-called "Era of Nabonassar," was 547 years (Egyptian), 334 days, and 14½ hours before the above eclipse, which was on Sept. 12, 200 BC, at 2:38 AM by modern computation, but placed at 2:15 AM by Ptolemy, as best he could determine.

14½ hours before that eclipse was noon on Sept. 11. You seem inadvertently to have substituted Sep. 12, the day of the eclipse.

That noon of Sept. 11 was, as Ptolemy says, " the noon of the 5th"Mesore.

The 334 days reach back from 5 Mesore to 1 Thoth, from "the noon of the 5th" Mesore to the noon of 1 Thoth.

And 334 days back from noon Sept 11 reaches to noon, Oct. 12, 201 BC. Your mistake above results in an error here, where you have Oct. 13 for 1 Thoth. This proves at once that all your dates in the Thoth Table are one day too late.

Then from noon of Oct. 12, 201 BC, 547 Egyptian years (137 days shorter than the Julian years which had 137 leap years in the interval) reach back to noon, Feb. 26, 747 BC, and not Feb. 27, as you have it.

Ptolemy's "epoch", then, was noon, Feb. 26, 747 BC. This accords with the statemet in the American Ephemeris for 1916, p xvii: "The Era of Nabonassar , . Wednesday, the 26th of February, of the 3967th year of the Julian Period; corresponding in the notation of Chronologists, to the 747th, and, in the notation of astronomers, to the 746th year before the birth of Christ."

According to Ptolemy, the noon of Feb. 26, 747 BC, was of necessity "the noon of" 1 Thoth, just as the noon of Sep. 11, 200 BC, was "the noon of the 5th" Mesore.

Now then: If Ptolemy had himself said that the eclipse of 2:38 AM, Sept. 12, 200 BC was on 5 Mesore, as you state, it would be a fair conclusion that he reckoned his calendar days as beginning at noon, and, from this, the noon of Feb. 26, 747 BC, would mark the beginning of 1 Thoth.

But Ptolemy's record is, that some one else had said that the eclipse was on 5 Mesore: "They say that the third eclipse occurred . . on the 5th Egyptian Mesore."

His own statement is that the middle of the eclipse "was 14½ equinoctial hours after the noon of the 5th," which, by his records of the other eclipses, was on 6 Mesore.

If Ptolemy reckoned his calendar days as beginning and ending at noon, each day would have two noons, and he would be ambiguous in speaking, as he repeatedly does of "the noon" of a day. No one could tell which one it was.

Ptolemy says that an eclipse in the "middle of the night" was "between the 18th and 19th."

If Ptolemy reckoned calendar days as beginning at noon and ending at noon,

he would properly use only one date for an eclipse occurring in the night. But in such case he uses two dates, which would be meaningless if the date began at noon, but which would be very proper, in order to avoid ambiguity, when the calendar date changed in the night.

Furthermore, the accuracy of every one of Ptolemy's records of eclipses, as all astronomers admit, is absolute proof that he did not reckon his calendar days from noon to noon.

Take, for example, the eclipse which occurred at Alexandria on May 2, 128 BC, at 6:43 AM, which Ptolemy says was "On the 11th of the Egyptian Pharmuthi, . . about 5 civil hours before the noon of the 11th."

> By no possible means can Ptolemy's universally admitted accuracy in the record of this eclipse be shown, except by recognizing that his calendar dates began and ended in the night, and not at noon.
>
> You can easily convince yourself of this fact by going over the statements about this eclipse, with the diagrams, in this paper.

Ptolemy reckons from noon when giving the time interval of an astronomical event from his "epoch", which was noon, Feb. 26, 747 BC.

> If we insist that he reckoned his calendar dates from noon to noon, we shall thereby make many of his records to be in error.
>
> In so doing, we undermine the one foundation which makes the Canon of Ptolemy an irrefragable witness to the accuracy of the date 457 BC.

Dec. 1 '40

Prof. H.A. Washburn,
Route 1, Box 57-A.
St. Helena, Calif.
Dear Professor:

Brother Froom did not tell me that he was sending you my discussion of the papyrus problem, although it is all right. You should have had Dr. Wood's part also, in order to understand the approach from different angles. The subject will not be discussed in the Committee until after the New Year, and both Dr. Wood and myself are doing all that we can to root out all error, which is prone to creep into the first draft of any research. We are pretty much in agreement as regards the Aramaic dates, and this phase of the problem is that which is of most importance with reference to our whole subject of prophetic chronology.

Whether the synchronization of the Aramaic dates with the Egyptian is a zero or plus one difference is no matter, for that which counts is a constant difference, which supports the form of Jewish reckoning upon which it is based, namely, the alternate 30 and 29 day sequence of the Jewish feast period. This feature of calendation was not taken from the modern Jewish calendar. I will send you the early sources on this point as soon as they can be assembled and copied.

In the mean time, if you are disposed to do further reading, the accompanying article on the "Wednesday Crucifixion" contains important references on the subject of early Jewish calendation. These citations may be helpful. I have carefully reviewed all your critical notes, and I see now from what standpoint you have kept writing Elder Froom that the 1844 time argument is wrong. I believe that when you get all the evidence, both from the Millerite literature, and from astronomy, you will be delighted with the argument as written into Elder Froom's Syllabus.

As soon as we can get the astronomical sources together and copied, a copy will be sent you, and you shall have a brief statement as to what the 1844 time solution is, and an explanation why an altitude table for the visibility of the moon on the horizon, or nearly so, at sunset cannot solve the problem. We have this method by different authorities in French, German and Latin; Fotheringham also worked out an altitude table from Oppolzer's Syzygien-taleln, and Schoch as well. Fotheringham's work comes the nearest to suiting the problem. But not one of them comes any where near the crucifixion date.

The members of our Committee are grand people. It is thrilling to see them tackle these technical questions -- always in an atmosphere of humor, courtesy and kindness. Elder Froom is an excellent chairman. If antagonism should enter, I think the work would stop. But we have kept together for two years now, and progress has been made. In the effort to safeguard all the points at issue, the final reports have been thus long delayed. Consequently, your criticisms are greatly appreciated, and so far as my own work is concerned, I shall endeavor to answer every point you raise.

With regard to the Egyptian tables, how can you account for the exact length of Ptolemy's intervals, each one of which reaches to the very eclipse, and begin with midnight? In a number of places, he emphasizes his "noon" beginning, and I will send these statements to you. The Tables I will discuss in another letter, but in the mean time, Elder Froom has sent you a table that works out the Assuan dates without the use of an Egyptian table. Thanking you for your helpful letter,

Dec. 1, 1940

18 εἰς τὴν 19
18 to 19, makes SENSE. "The" noon makes sense.

Route 1, Box 57 A.,
St. Helena, California,
December 5, 1940.

Dear Miss Amadon,-

I very much appreciated your letter, which came night before last. I enjoy the diagrams. You have surely done a lot of very hard work.

My strength is so limited that I cannot write all that I would like, but will do what I can.

You evidently have not gotten my point about Ptolemy's not reckoning from noon. There can be no question at all about Ptolemy's having placed the precise moment of his "epoch" at noon, on Feb. 26, 747 BC, and in giving the interval of any event from his epoch, the years, days, and hours are counted from that noon.

What I urge is, that it be recognized that he counted his calendar dates, not from noon to noon, but from midnight.

"Please give me Ptolemy's interval from his epoch" you omitted this on your table of 19 eclipses

I sent a page to Brother Froom regarding the eclipse on 11 Pharmuthi, May 2, 128 BC. You cannot possibly show Ptolemy to be correct in his record of that eclipse, if you hold that his calendar dates are reckoned from noon. But all astronomers and chronologers admit that Ptolemy was correct in every case.

Do all of these have εἰς, "to"?

When Ptolemy gives two dates for eclipses in the night, how meaningless this is, if we assume that his calendar dates began at noon. And equally ambiguous would be his repeated statements about "the" noon of a calendar date. And how could he say that the eclipse of Mar. 8, 720, near midnight, was "between the 18th and 19th" of Thoth? or on the 18th to 19th, 18 εἰς τὴν 19, 18 ἐν 19

The Greek cannot have the / mark, could it, without explanation?

I asked Brother Froom six weeks ago to kindly let me have the original Greek or literal translation of Ptolemy's double datings, represented by 28/29 Thoth, 18/19 Thoth, 15/16 Phamenoth, 27/28 Athyr, 17/18 Phamenoth, 28/29 Epiphi, 3/4 Tybi, 24/25 Phamenoth, 19/20 Pharmuthi. He has probably overlooked the matter, but would probably have to refer the matter to you. I am sure he would not refuse this, inasmuch as, in response to his request that I give the matter "immediate attention," I gave a solid week of work at a time when we had to employ men to do the work which I had to leave in order to accommodate him.

Please send me this

I have gone over the Aramaic datings, with their Egyptian equivalents, and see that these Jews evidently celebrated the Passover, 14 Nisan, on the day of the full moon, not the day after the full moon.

Perhaps I should give the details:

I pass over "400", 523 BC, as your table does not give me the dates of new and full moon for that year. Wish I had them, to see if that document checks with the others, in having 14 Nisan on day of full moon.

"A", 471 BC. 18 Elul, 166th day of ordinary Hebrew year, falls in with 28 Pachons, the 268th day of Egyptian year. 1 Nisan would fall in with the 103rd day,

new moon Mar 30.98

if the new moons appeared in their average order of 29½ days apart. 1 Thoth falling on Dec. 19 previous, the 103rd day fell in with March 31. 14 Nisan would be 13 days later, or April 13. This would be the day before full moon, which your table gives as April 14.52. However, as the moon varies constantly in the interval from new moon to new moon, the new moon will be sometimes seen a day earlier or a day later than a date arrived at by reckoning that all new moons between Nisan and Tisri are invariably spaced 30, 29, 30, 29, 30, 29 days. We have evidence in the Talmud that in this period there were sometimes two 29 day months in succession. This record of itself alone proves that the Jews took the first appearance of the new moon for beginning their months (with the exception of Nisan, when ever the full moon occurred more than 14 days after new moon as in 3 A.D.) They sometimes had two 30 day months in succession. This would have to be so, if the actual moon was observed, as we must believe it was.

If Ab happened to have 29 days in that year, 14 Nisan would have fallen (in the calendation of these Jews) on April 14, the day of full moon.

I think I should here quote the Talmud on this point, as it bears on the astronomical argument that has been put forth to establish the beginning of Tisri 1 at sunset on Oct. 12, 1844. The argument was used that the invariable succession of 30, 29, day months from Nisan to Tisri fixed 1 Tisri at that point. But the fact is, that the ancient Jews, going by the moon itself, (which was absolutely invisible at Boston on Oct. 12, 1844), sometimes had a day less or a day more than 177 days from 1 Nisan to 1 Tisri. Your Committee has overlooked this point.

Prove it!

In Rodkinson's translation of the Talmud (N Y, 1896) vol 4, p 33:

"Perhaps Abh and Elul have each only twenty-nine days . ((The Rabbi was speaking That two consecutive months should each have twenty- of a certain instance)) nine days is a matter that every one would know."

Everyone who has observed the moon closely will know this, just as the Rabbi said. The Jews knew it well. They also knew that sometimes two consecutive months would have thirty days each. This would have been the case with the month Elul in 1844, if the longitude of Boston had been the longitude for reckoning the dates which began and ended the 2300 years, and the middle of the 70th week.

"B" 464 BC. 18 Kisleu, 254th day of ordinary Hebrew year, fell in with 17 Thoth. 1 Thoth was Dec. 17, 465 BC. 17 Thoth and 18 Kisleu fell on Jan. 2 , 464 and 1 Nisan was then on Apr. 24, 465, and 14 Nisan on May 7. And May 7 was the day of the full moon.

Interval of 255 days reaches back to day before full moon if 18 Kisleu is identical with 17 Thoth.

But lunar year 465-464 was a 355-day year as given in table 3 year length is gotten by counting from date for 1 or 14 Nisan to 1 or 14 Nisan again

((Aside: I am disturbed a little by this dating, on Jan. 2, 464 BC, and the statement you quote: "The beginning of the reign when Artaxerxes sat on his throne." By this, his decree would fall in 458 BC, not 457. You will clear this up, surely, before you leave the matter. I would like to know your conclusions. The next document similarly.

"D"

Big "if"

21 Heswan, 228th day of any ordinary Hebrew year falls in with 1 Mesore, the 331st day of the Egyptian year. 1 Thoth was on Dec. 16. 1 Nisan falls in with the 104th day, which was March 29. 14 Nisan would fall on April 11, the day before the full moon. But if in this year the new moon appeared on Tisri 29, making two 29-day months in succession, these Jews would have celebrated 14 Nisan on the day of full moon.

((If Nov. 12, 460, BC, the date of this document, was in the 6th year of Artaxerxes I, then his decree could not have been issued in 457. May this have been another Artaxerxes?

451-450 = Inner year 355

"30", 451 BC. 7 Kisleu was 4 Thoth. 4 Kisleu was 1 Thoth, which was Dec. 14, the 348th day of the Julian year. 4 Kisleu, the 240th day of the ordinary Hebrew year, being the 348th day of the Julian year, 1 Nisan was the 109th day of the Julian year, or April 19, and 14 Nisan was May 2, which was the day of full moon.

"E", 446 BC, "year 19 of Artaxerxes the king." 3 Kisleu, 239th day of ordinary Hebrew year was 10 Mesore, the 340th day of the Egyptian year. 1 Nisan would be the 102nd day of the Egyptian year. 1 Thoth was Dec. 13, and the 102nd day was March 24. Nisan 1 was March 24, the day of new moon (March 24.59). 14 Nisan would be April 6, which is two days before the full moon (April 8.89).

The same result is obtained, if 2 Kisleu be substituted for 3 Kisleu, and a 355 day Hebrew year be adopted, as per your Cycle table.

It seems that those Jews in this case began Nisan on the day of new moon, for 14 Nisan comes 2 days before the full moon.

((I am glad that this document so dates the years of Artaxerxes that the year of his decree falls in 457 BC))

"F", 25th year of Artaxerxes, 440 BC. 14 Ab, the 132nd day of the ordinary Hebrew year, was 19 Pachons, 259th day of the Egyptian year. I Nisan was the 128th day of the Egyptian year, which began Dec. 11, 441 BC. 1 Nisan would be April 17 and 14 Nisan April 30. Full moon was May 1.28, which would be 15 Nisan. If Tammus had 29 days in that year, the 14th Nisan would have been the day of full moon.

"G". I do not see that any reliable conclusions may be gotten from this defective document.

"H". Similar.

"J" 3 Kisleu was 12 Thoth in 416 BC. 1 thoth was Dec.5, and 12 Thoth Dec.16. 3 Kisleu is 239th day of ordinary Hebrew year, and 1 Nisan would be 238 days before Dec. 16, or April 22. 14 Nisan would be May 5, which was the day of full moon (May 5.49).

"K". [illegible]

24 Shebat was 9 Athyr, 69th day of the Egyptian year beginning Dec. 4. Document therefore dated Feb. 10, 410 BC. 24 Shebat being the 319th day of the Hebrew year, I Nisan was 318 days before Feb. 10, or March 29, 411 BC. 14 Nisan was April 11, which was the day of full moon (April 11.68).

It would appear that these Jews made the full moon their 14 Nisan, and [illegible] not 13 Nisan. You seem to have a problem in these documents to harmonize them with the statement attributed to Aristobulus. It is true they prove that the Nisan new moon did not occur before the vernal equinox, and supports the barley-harvest Passover. It appears as though these papyrus datings introduce some new difficulties. I cannot write more on this now.

It may be that you will not feel like following closely all these details until you are convinced that Ptolemy's calendar dates, and the calendar dates of these papyri, did not begin at noon, but I hope you will not for that reason lay them aside.

I hate to send you this letter, as I have written when very weary- Ask Bro. Fuller to show you a much better letter I am sending him.

Yours sincerely, W. A. Wallace

THE PAPYRUS DATINGS IN THE FIFTH CENTURY B.C.

Papyrus Year BC	Hebrew date	Day of ord. Hebr year	Egyptian day of Document	Year	1 Nisan preceding	Julian date of 1 Thoth preceding	1 Nisan	14 Nisan	Full moon
"B" 464 BC	.18 Kisleu.	255 of 353 day yr ~~254~~	17 Thoth	17	129	Dec 17	Apr 24	May 6 ~~7~~	May 7.63
"D" 460 BC	21 "Heswan"	228	1 Mesore	331	104	Dec 16	Mar 29	Apr 11*	Apr 12.24
"30" 451 BC	7 Kisleu	243	4 Thoth	4	127	Dec 14	Apr 19	May 2	May 2.14
"E" 446 BC	Same result if 2 Hisleu be taken, and year of 355 d. as per your chart. 3 Kisleu	239	10 Mesore	340	102	Dec 13	Mar 24	Apr 6*	Apr 8.89
"F" 440 BC	14 Abh	132	19 Pachons	259	128	Dec 11	Apr 17	Apr 30*	May 1.28
"J" 416 BC	3 Kisleu	240* of a 355-day year ~~239~~	12 Thoth	12	139	Dec 5	Apr 22	May 4 ~~5~~	May 5.49
"K" 410 BC	24 Shebat	319	9 Athyr	69	116	Dec 4	Mar 29	Apr 11	Apr 11.68
"A" 471 BC	18 Elul	166	28 Pachons	268	103	Dec 19	Mar 31	Apr 13*	Apr 14.52

"G" and "H" too uncertain to use.

As these documents are synchronized, they do not permit Nisan 13 to be the day of full moon. They do show that Nisan began with the new moon of the barley harvest.

In four instances,* they make even Nisan 14 to occur before the full moon.

In three of these 4 instances, like all the others but "A", Nisan 14 would fall on the day of full moon, if the following possible conditions existed:

Two successive 29-day months between Nisan and Tisri. as Abh and Elul

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This is of course contrary to the rule you have laid down, that there must be an invariable interval of 177 days from 1 Nisan to 1 Tisri, as in the modern Jewish calendar, and that the lengths of the intervening months must always alternate between 29 and 30 days, as in the modern Jewish calendar.

But this rule, like the modern Jewish calendar, fits only the average , and, indeed, the usual, lengths of these months when ~~determined~~ begun immediately after the visible new moon. (I will not here stop to discuss whether or not the ancient Jews began their months immediately after the first visibility of the new moon. Your [plural] statements in various papers I have seen are not consistent or harmonious on this point. If some of

these statements are true, others cannot be; they destroy each other.)

The period from one new moon to the next is constantly varying, and while it averages a little over 29½ days (29.530588), the variation is sufficient to make the new moon visible sometimes at successive intervals of 29 days, and again there may be two successive intervals of 30 days each.

With the exception of Nisan in certain years, as in 31 A.D., the Jews began their months when they first saw the new moon (as many times stated in ducuments which you cite as authority on other points). This of necessity resulted sometimes in there being two 29-day, or two 30-day months in succession.

In the Talmud, in the first chapter on Rosh Hashana, (v 4, p 33, of Rodkinson's translation, NY, 1896) we have the following:

"R. Zera says in the name of R. Na'hman, in every case of doubt about the holidays, we postdate but never antedate. Does this mean to say that (in case of doubts concerning the exact day on which Tabernacles begins) we observe the fifteenth and sixteenth but not the fourteenth; let us keep the fourteenth also; perhaps Abh and Elul have each only twenty-nine days? That two consecutive months should each have twenty-nine days is a matter that every one would know."

It is important that WE should know this, if we would be accurate in our conclusions regarding the beginnings of Hebrew months.

We can be reasonably sure only as we ascertain the actual position of the moon itself, and decide upon its visibility with the naked eye.

I think I should here quote Kokisoff, whom you accept as authoritative regarding Karaite practice:

"According to circumstances, sometimes two or three months of 29 or 30 days follow each other."

"The Karaites reckon the first day of every month as from the new moon which is first seen with the naked eye."

This feature of Karaite practice is the undoubted continuation of the original Mosaic custom, and not merely a part of their revised practice since 1780, for it is based wholly on observation alone, and conforms to the actual moon, not the average or mean moon.

I feel like going on from this to point out in a new way the error in the astronomical argument for Oct. 22, 1844. But my strength for writing is exceedingly limited, and, besides, I do not want to go into that laborious presentation until I know that it will be given full consideration, that I may not have to write it out a second time.

I will say this much: (1) If Boston had been the meridian for the dates of the beginning, the intermediate portion, and the end of the 2300 years, then Elul, by the moon, would have had 30 days, and Tisri 29; and, (2) the rule of the revised, computed Karaite calendar, not based on observation, that when the age of the moon is over 22 hours, it is visible on the following evening at sunset, is demonstrably untrue on certain occasions. I have plenty of figures.

(moon below the horizon)

Dec 10, '40

Professor H.A. Washburn,
St. Helena, Calif.
Dear Professor:

The pages which came yesterday I already have a copy of, as Elder Froom gave me the same when he returned from his western trip. In this acknowledgment of your interest in this subject of chronology -- an interest we greatly appreciate -- let me briefly mention two phases: (1) the Ptolemaic beginning of the Egyptian day, and (2) the Egyptian tables.

The first, as you yourself know, has been under discussion for a long time by various scholars. It is possible that your own conclusions may change after a review of further evidence. Am enclosing the original text in Greek of your reference to the translated quotation in "Light for the Last Days." This quotation is one of the best, but it does not as yet tell me what it tells you. Enclosed is also the same in German. Ptolemy says plainly that he wants to reduce the epochs under consideration to a noon beginning. And he dies that, as his dated eclipses show; for the "hour" item of each interval always extends from the middle of each eclipse back to noon of the last day of each interval. These last days of the intervals are only partial days, and hence they do not come into the number of days included in the intervals.

As soon as I can get the photostats made, I will send you what we have on the meaning of Ptolemy's double dates. Ginzel and Lepsius discuss this. Am not sure that they are right in their decisions. Both Dr. Wood and myself are working on this, but for my own part, have not come to final conclusions. Personally, am very glad indeed to have you join in this research. We have found very few in the east who are intelligently interested in this technical phase of prophetic chronology. Your idea that Ptolemy was quoting from ancient records which double-dated the events in question is new to me. I had not thought of this, but the Greek "they say" is well worth comparing with all the other expressions.

As to the Egyptian tables, you differ a little from Ginzel and Neugebauer, both of whom place the changes of Thoth on the leap day previous to 521 B.C., and after the leap day from that date on. If you care to have Ginzel's Egyptian table, can send you a copy. Neugebauer is about the same, only differently arranged. Wood and myself seem to be in agreement now with reference to the Aramaic dates and the Egyptian tables with which they are associated. At least, for my own part, I am letting the Tables rest until we hear from Dr. O. Neugebauer (Brown University). At present he is dating the five major planets in ancient Egyptian time -- a problem which he has worked from cuneiform stones of Babylon and Egypt. His book will be out soon now. He told me last summer that our present Egyptian tables make the celestial positions too early.

Last summer Dr. Wood introduced the Aramaic papyri to the Committee, but the problem was ~~solved~~ presented on the basis of the Julian day numbers, which could not be quickly checked. He proposed a zero-coincidence between the Aramaic and Egyptian dates, and his diagram had several zeros, all of which seemed convincing. But the method was complicated, and I went to work, if possible, to find a simpler solution, because of the importance

of the papyri in relation to early Jewish calendation. As the research thus far stands, we can say that with a February-26 beginning of the Nabonassar era, there is a plus-one difference between the Aramaic and Egyptian dates of the papyri in the fifth century B.C. This difference may have been due to Grecian influence. The Athenians began their months with the conjunction, and the Calippics with the earliest appearance of the new moon -- but I should not be giving reasons as yet. I will shortly send you all the references we have on the phasis. They have not yet been copied. Have much to do like everybody else.

What I have written shows the unfinished state of all the problems under consideration. These are hard subjects, but the Committee makes everyone play safe, and not jump to conclusions. The various workers have much else to do besides ~~besides~~ this work of research, and the advance is slow. I hope that you will have time to write again after you have the citations on the phasis and the Jewish new year, which seem to be closely related to the 1844 chronology.

Yours very sincerely,

December 10, 1940,
General Conference,
Takoma Park,
D.C.

Dec. 14.

Dear Miss Amadon,-

I have just gotten out of a bed of sickness, and will type a note and mail your letter. I have some other things which I shall send to Brother Froom.

I want to thank you for the photostats. I prize them. I thank you also for the revised charts bearing dates of Oct 5, 23, Nov 5.

Did you find that your dates for new and full moon as given in your discussion for the year 411 B.C. were wrong? If so, what are the correct times, according to your authoritative astronomical documents? OR, did you conclude that the astronomical dates for new and full moon in that year were wrong, FOR THE REASON THAT THEY DID NOT FIT A THEORY YOU HAD? It would appear that the translation period based upon authoritative moon tables for that year did not harmonize with a curve of translation periods which you had made; and then, upon the supposition that your theory was correct you rejected the moon tables. Is that putting it too strong? The very fact that the moon itself in that year did not fit your translation period curve, is an evidence of what I say in my letter, that the moon does not always fit the average position, etc. ~~calendar of 30, 29, 30, 29, in unbroken sequence from Nisan to Tisri.~~

I hope you will study what I have written until you have my thought. I have been sorry that some of my letters to Brother Froom and others were not carefully thought through.

Now as to your last valued letter, of Dec. 10. You write that my view regarding the Ptolemaic beginning of the Egyptian day "may change after a review of further evidence." I shall be glad to see this evidence, for I do not believe in suppressing anything that seems to be opposite to the truth. We are on dangerous ground if we do not weigh the arguments of our opponents. And in submitting evidence to the Committee, that which is against what is thought to be true should be mentioned as well as the rest. For instance, the eclipse "on 11 Pharmuthi", 128 B.C., should not be omitted from the chart of Oct. 23. That eclipse alone proves that Ptolemy's calendar dates do not begin at noon.

The Committee should hear my suggestions even though you do not accept them.

And the evidence you give me in this letter confirms me the more. Guinness proves to have given a good free translation, not literal, but true to the thought, of Ptolemy's time of the eclipse in 720 BC. The original Greek, 18 eis ten 19, is 18 to 19. So is the French translation in the adjoining column, 18 au 19, 18 to 19. And the German, "am 18/19 ägyptischen Thoth" plainly means the same. It might be written 18-19. That expression would be senseless of an eclipse in the night, if the calendar date feached from noon to noon.

In your discussion, you seem to convey the idea that the double dating was for the purpose of giving the different dates for Babylon and Alexandria. But this could not be. A lunar eclipse is visible at the same instant to everyone on that half of the earth which is turned toward the moon, and the date would be the same in Babylon as in Alexandria. The only difference would be that a clock in Babylon would be about 5o minutes faster than the clock in Alexandria.

I wonder from your letter if you still think that I deny that Ptolemy reckoned from noon, when giving the interval from this epoch to an astronomical event. That is perfectly plain, but the question is with reference to his calendar dates beginning at noon.

I did not wish to convey the idea that Ptolemy quoted ancient records "which double-dated" events. They did not necessarily double date. Of the eclipse in question "they" had said that it was on 5 Mesore, but evidently were a little inaccurate as to the middle of the eclipse, which Ptolemy found at Alexandria to be a little after midnight, 14¼ hours after "THE" noon of the 5th.

Yes, I would be glad to have you send me a copy of Ginzel's Egyptian table. I wonder if you said just what you intended to say with reference to Ginzel and Neugebauer, "both of whom place the changes of Thoth on the leap day (year?)
previous to 52[illegible] B.C., and after the leap day (year?)
from that date on."
Did you not mean to say "before the leap year from that date on"? The first of these statements is bad enough, regarding one who is supposed to be authority, but the second is unthinkable.

From a scrutiny of Ginzel's Thoth dates for the Canon of Ptolemy, I find him strangely contradictory.

1st year : Feb. 26, 747, to and including Feb. 25, 746
2nd " : Feb. 26, 746 (L.Y.) " " " 25, 745
3rd " : Feb. 26, 745 " " " 24, 744 because an extra day, Feb 29.
4th " : Feb. 25, 744 " " " 743

The change of Thoth date MUST come on the year following a leap year, down to 521 B.C

In his dates for the kings of the Canon, it is evident that Ginzel did make the change of date of 1 Thoth in the leap years 733, 721, 709, 693, 625, 561, and 529 BC. But this would be impossible, in this period. For instance, 745 BC was a leap year, with a Feb. 29. The first 365 day year from the era would end on Feb. 25, 746. The second year of the era would begin on Feb. 26, 746 and end on Feb. 25, 745. ~~The leap year.~~ 1 Thoth would fall on Feb. 26 again in 745 ~~year~~, it could not change to Feb. 25 in that leap year, for there would then have been only 364 days in the year preceding. There would also be 366 days from Feb. 25, 745 to Feb. 24, inclusive 744, whereas the Egyptian year had only 365 days always. Ginzel would have these two impossibilities every four years, and Neugebauer also if he is correctly quoted. We must always check on our authorities whenever possible. Great men make mistakes just as we do.

Ginzel says that the era of Nabonassar was 747 B.C. Feb. 27. But you will note that this day he calls Feb. 27 is the same one that we call Feb. 26, for he says, "Der Kanon beginnt . . mit 27 Februar 747 v. Chr. (astronomisch vom Mittag des 26 Febr. ab)."

But Ginzel repeatedly abandons this Feb. 27 date. You will notice that all his dates for 1 Thoth in the years of these kings are exactly as those I gave, with the sole exception of Feb. 27, 747, and the misprint of Aug. 11 in 54 A.D.

In the following thirteen instances before 521 BC his date for 1 Thoth is one day earlier than it must necessarily be if the epoch was on Feb. 27: 731, 726, 704, 702, 699. 692, 688, 680, 667, 647, 559, 555, 538 B. C.

From Dec. 31, 518 to Dec 31, 517, he would have 366 days and from Dec. 31, 517 to Dec. 30, 516, he would have 364 days and same 2 more every four years thereafter

I do not make comparisons on this point after 521 BC. You say that after that year he changes the date of 1 Thoth on the years after leap years. This would give Jan 1 for the leap year 521, and also Dec. 31 in the same year, if we recognize the invariable 365-day year. If he has Jan 1 for 521, and Dec. 31 for 520, 519, 518, 517 BC, with a change from Dec. 31 to 30 in the year 516, a year following a leap year, then this great man has made the same mistake that many other lesser ones have, overlooked that between Jan. 1, 521, and Dec. 31, 520, there is not one Egyptian year merely, but two. I do not have your discussion with me, but it seems to me that your Thoth table read thus. I wonder if Neugebauer makes the same mistake, not giving two Thoth dates to 521 BC.

What I have written regarding Ginzel's dates will be very apparent if you do as I have done, set down the years from 747 BC to 240 AD, and opposite each four columns: (1) The date for 1 Thoth if it were Feb. 27 in 747, and changed ON the leap year before 521; (2) The date for 1 Thoth if it were Feb. 27 in 747, and changed always (as is actually necessary before 521) in the year following a leap year; (3) The date for 1 Thoth if it were Feb. 26 in 747, and changed, as it indeed must, in years following leap years; (4) the date Ginzel gives for each of the years he has in the Canon of Ptolemy. Ginzel, like others, did not stop to think things through. and we must think things through before we follow implicitly, 5,29's most readers don't

By the way, the dates for 1 Thoth, in the years which the Canon starts the kings, which I have given, and which I believe Guinness gives, and which every other writer I happend to read gives, (until what you cite) is what as a denomination we already have in print. The Spurce Book has this. And I judged from your new diagram that you had fully adopted Feb. 26, ~~for~~ upon the absolute evidence from the eclipses. Dont go back on it, against those infallible eclipse dates.

If Ginzel did change the date of 1 Thoth in years following a leap year after 521 BC, then he has contradicted himself in giving the same Julian date, July 30, both for the leap year 96 AD and the following year, 97 AD. But I would like to see his complete Thoth table before taking more time on this.

I hope you see clearly why the change in 1 Thoth date before 521 BC must be on the year following a leap year, and after that on the leap year itself, 521 having two dates. And I hope you see clearly that Ptolemy's eclipse intervals from his epoch place that epoch at noon of Feb. 26, and that it cannot be moved by a single hour, much less a day. Remember also that the Ephemeris recognizes this.

I am sending, soon, to Brother Froom, something that touches upon your "plus-one difference between the Aramaic and Egyptian dates." There could be no such difference in all the papyri, written in different years, by different persons. You may be disappointed in what I send, but dont forget that we must look at ALL facts.

Yours sincerely,

F. Washburn

St. Helena, Calif.,
Jan. 7, 1941.

Dear Brother Froom,-

Thank you for your kind wishes for the New Year, all of wh I very heartily reciprocate.

I thank you for the enclosed Thoth Tables of Ginzel, to which Miss Amadon referred. I see that this is from a book published in 1911, whereas the matter previously sent me was published in 1906. I see that all the mistakes which I pointed out in my letter of Dec. 14 to Miss Amadon, have all been corrected in this edition of Ginzel. This list is all right. It is precisely, in every detail, what I have written from the first. This list of 1 Thoth dates may be used with confidence, for it can be proven correct from several viewpoints.

In this table, Ginzel abandons his Feb. 27 date for 747, as he in effect does several times in his dates connected with the Canon of Ptolemy.

I notice that Ginzel does not give any 1 Thoth dates previous to 747 B.C. I wonder if in some previous work he gave dates for previous years, in which he assigned Feb. 29 as the Julian date for 1 Thoth in four consecutive years, as Miss Amadon did for years 757, 756, 755, 754 B.C. Of course, there could be only one year with 1 Thoth on Feb. 29, for there are never four consecutive leap years in any calendar. Feb. 29 occurs only every fourth year.

I think I shall enclose a sheet on these Thoth dates, which I wrote out about a month ago.

In the photostats which you enclose, there are numbers inserted with a pen every four years, beginning with 744, and a note, "Leap year numbers are not in the original text." These numbers then, seem to be inserted to mark leap years. But 744 was not a leap year, nor are any years BC which are divible by 4. The years divible by 4 are all years <u>following</u> a leap year. Year 4 AD was a leap year, and the next previous leap year, four years before, was 1 BC, and others 5BC, 9 BC, 13 BC, 17 BC, etc.

T think this mistake in marking leap years is the reason for Miss Amadon's

statement in her last letter to me, under date of Dec. 10: "Ginzel and Neugebauer place the changes of Thoth on the leap year previous to 521 B.C." If she had these sheets before her eye when she wrote that statement, she must have taken the numbers in pen as indicating leap years, without noticing that these pen-written figures do NOT mark leap years from 744, 740, 736, etc.

The one who placed those pen-written figures opposite the supposed leap years, evidently thought that every fourth Egyptian year would be a leap year. Leap years (true leap years) are marked in the latter part of the list, and back to 517 BC, which is marked #58. Opposite 521 BC there is no pen-written number, but opposite 524 BC is written #56. There were 8 Egyptian New Year's Days in that period, two in the year 521, but there were only 7 Julian New Year's Days. There was a change in the Julian date of 1 Thoth in 524, but, like all other years between 757 BC and 524 BC, the change occurs in a year following a Julian leap year.

I feel encouraged by your letter to go on and finish some matter that I have had in mind, and send it to you as soon as my strength permits me to write it out, with the illustrative charts.

My dear Roy, I know exactly why ~~I have~~ I have made my criticisms of your astronomical argument for Oct. 1844. And you will yet acknowledge me to be right, and that you have been in error.

Just one word in reference to your previous letter: I certainly would not vidlate a principle of Christian ethics in writing about a matter placed with me in confidence to one to whom the matter had not been presented. I had had previous correspondence with Professor Kern, and I alluded to the matter of the Jewish Calendar in the Fifth Century BC because you definitely wrote me that the matter had been before the Committee. I meant no wrong. Forgive me.

Yours sincerely,

Harry A. Washburn

(See other side)

Julian Dates for the Egyptian 1 Thoth.

(Especially for table previous to 747 BC)

1460 Julian years equal 1461 Egyptian years.

In each 1460 year period,--

(a) 1 Thoth moves round the entire Julian year.
(b) 1 Thoth occurs on Feb. 29 only once, as in 2217 and 757 B.C. (Impossible to fall on Feb. 29 four years in succession, as per faulty tables)
(c) 1 Thoth occurs on each of the other days for 4 consecutive years.
(d) 1 Thoth occurs twice (on Jan 1 and Dec 31) in one year of the 1460, as in 3441, 1981, 521 B. C.(and 940 A.D. had there been no reform in the calendar in Egypt)

The Change in Julian Date of 1 Thoth

occurs of necessity only

(a) In leap years when 1 Thoth falls on dates between Feb. 29 and Dec. 31, as in BC 3441 to 2217 inclusive, 1981 to 757 inclusive, and BC 521 to (704 AD had there been no reform in the calendar).
(b) Following leap years when 1 Thoth falls on dates between Jan. 1 and Feb. 28, as from BC 2216 to 1982, and 756 to 521.

Portions of a correct 1 Thoth Table

BC	761	March 1	BC	524	Jan. 1	AD	236	June 25
	760	"		523	"		237	"
	759	"		522	"		238	"
	758	"		521	"		239	"
	757	Feb. 29.		"	Dec. 31		240	June 24
	756	Feb. 28.		520	"			
	755	"		519	"			
	754	"		518	"			
	753	"		517	Dec. 30			
	752	Feb. 27						
	751	"	AD	140	July 19			
	750	"		141	"			
	749	"		142	"			
	748	Feb. 26		143	"			
	747	"		144	July 18			
	746	"						
	745	"						
	744	Feb. 25						

The above dates are fixed independently by each of Ptolemy's Egyptian-dated eclipses, and also by the testimony of Censorinus. All are in harmony, without exception. (Censorinus regarding the date when he was writing, 239 AD)

The Roman date, 7 Kalends July, of Censorinus did not begin at noon. 1 Thoth coincided with it, and did not overlap two Roman dates, as would be necessary if it began at noon.

Did any nation ever reckon their civil dates as changing at noon, e.g., the forenoon Sunday and the afternoon Monday?

JAN 19 1941

St. Helena, Calif.,
January 9, 1941.

Dear Miss Amadon,-

Two days ago I received a note from Brother Froom, enclosing a photostat of Ginzels table of Thoth dates.

This table, published 1911, is in every respect in harmony with what I have s aid from the first, it is exactly correct.

He must have discovered the mistakes in his work of 1906, connected with the Canon of Ptolemy, concerning which I wrote you. Too bad you did not have this when you made out your table.

I note the numbers 1-212, written with pen opposite 744 BC and every fourth year until 524, all of them years following a leap year, and beginning with 517 the numbers are opposite leap years. These are all years on which Ginzel changes his date for 1 Thoth.

The note you have inserted reads "Leap year numbers are not in the original list." I do not see why these numbers, 1-56, could be called "leap year numbers" when they are not placed opposite leap years, but on years following leap years, till 524 They could properly be called"leap year numbers" from 517 on, Numbers 58 - 212.

Brother Froom said he was sending the pages from Ginzel which I "so greatly desired." I was indeed interested in them, after what you wrote, stating that if I cared to have a copy you could send it.

But what I actually and decidedly "greatly desired" I have not received.

I have received nothing on the original Greek of the expressions in the German translation represented by the double dates separated by a / .

You sent a page which gave the original Greek with reference to the 18/19 Thoth, 18 eis ten 19, ιη εἰς τὴν ιθ, with the parallel French "du 18 au 19" (which, by the way, a scientific scholar, fluent in scientific French, translated upon sight precisely as Guiness did, "between the 18th and the 19th", a free translation. He also said it might read."from the 18th to the 19th." Greek scholars to whom I submitted the original rendered it just as I wrote to you.

I suppose that all the double dates in Ptolemy are just like this one, a date followed by eis ten , εἰς τὴν, then the other date. They would all be translated as the case mentioned above, and indicate dates which changed in the night.

I hope it is not because it is feared I might build an argument upon them that they have been withheld.

It distresses me to see suppression of evidence, wherever it occurs. I was sorry to see in the list of NINETEEN LUNAR ECLIPSES QUOTED BY ~~XXXXXX~~ CLAUDIUS PTOLEMAUS that the eclipse of May 2, 128 BC, on the 11 Pharmuthi, was omitted, together with its interval from Ptolemy's epoch, the noon of 1 Thoth in 747 BC. I believe I asked for the interval of this eclipse from the epoch. If I omitted to ask for this before, I ask for it now. I expect it to be 619y, 219d, 19h

The first thing that I asked for in my letter of Dec. 14 was the authoritative

dates for new and full moon in 411 B.C. In your table on page (3) of your general presentation you gave the dates as March 27.24 J.C.T. and April 11.09 G.M.T. From this you had for Nisan 13, April 11.68 J.C.T., for Nisan 14 you had April 12, for Nisan 1 you had March 30, and the translation period 2.50 days.

Then on your chart of Oct. 5, 1940, ANALOGUE OF ANCIENT EGYPTIAN, JEWISH, AND MACEDONIAN DATES, you changed the date of 14 Nisan from April 12 to April 13, and 1 Nisan from March 30 to March 31, and on your chart of Nov. 5, CONSTRUCTION OF ARAMAIC CALENDAR IN THE TIME OF EZRA AND NEHEMIAH, you changed the translation period to 3.52 days and modified the graph accordingly.

You did not indicate that the dates for new or full moon had been incorrectly recorded in your first presentation.

On your Oct. 5 chart, "ANALOGUE, etc"., you place ** after March 31, the date of 1 Nisan, and state ina note:

> "The translation period demands Mar 31 for 1 Nisan,
> of which date the Ginzel table runs a little short."

The only apparent reason for the change was not a more correct moon table which you had found, which proved Ginzel to be in error, but it appears as though you thought Ginzel to be in error because his moon table gave results at this point which did not fit a theory you had. It looks as though you had concluded that you had discovered a cycle, with a graph which a correct translation period would harmonize. The translation period from the authoritative moon tables did not give a translation period which fitted your graph. It then appears as though you substituted other dates on your later charts, contrary to the actual tables of the moon.

Our enemies, if they saw such a presentation, published by the denomination, say, would at once declare this to be a falsification of evidence, not mere suppression.

I fear that you have formulated a theory here to which you have attempted to make the actual moon conform, a theory which is erroneous because it does not harmonize with the real moon. It is similar to your phasis curve in Part V in which (page 35) "we see the combined result of A L L the causes which conspire to hasten or retard the visibility of the nascent moon." On that page you proceed correctly to name the three causes, but you (I mean this pronoun in the plural) did not perceive that only one of them, Anomaly, is represented in your curve, Diagram C. (I propose to send something on this soon.)

In looking back over my correspondence with reference to Part V, it is clear that what I have submitted has not been thought through. And the reason, I have decided, is because a number of things in the presentation in Part V were not thought through, so that a real comprehension was not obtained of what was being discussed, and of the meaning of the quotations from Hevelius and Fotheringham. I will soon send some charts which will make this clear. The statements of Part V itself will prove, will decide, the question that has been at issue.

You must I hope you will see the note I typed on the back of the last sheet of my letter to Brother Froom, referring to the $100 I am willing to forfeit, and what I wrote to Mr. Draper

Yours sincerely,

Harry A. Washburn.

Excerpt from my letter of Dec. 5, 1940:

"I asked Brother Froom six weeks ago to kindly let me have the original Greek of Ptolemy's double datings, represented by 28/29 Thoth, 18/19 Thoth, 15/16 Phamenoth. 27/28 Athyr, 17/18 Phamenoth, 28/29 Epiphi, 3/4 Tybi, 24/25 Phamenoth, 19/20 Pharmuthi. He has probably overlooked the matter, and would probably have to refer the matter to you. I am sure he would not refuse this, inasmuch as, in response to his request that I give the matter "immediate attention", I gave a solid week of work at a time when we had to employ men to do the work which I had to leave in order to accommodate him."

In the margin opposite this paragraph I wrote; according to my copy, in pencil, "Please give me this."

- - - - - - - - - - - -

Excerpt from your letter of Dec. 1:

"Your criticisms are greatly appreciated, and so far as my own work is concerned, I shall endeavor to answer every point you raise.

. . . . In a number of places, he [Ptolemy] emphasizes his "noon" beginning, and I will send these statements to you."

- - - - - - - - - - - - - -

I understand perfectly that Ptolemy counts his time intervals from his epoch as from the hour of noon, on Feb. 26, 747 BC.

But he does not say that 1 Thoth, or any other calendar day <u>began</u> at noon.

The only time interval which I desire is that which Ptolemy gives for the eclipse of May 2, 128 BC, "<u>on</u> the 11th" Pharmuthi, "about 5 civil hours before <u>the</u> noon of the 11th."

- - - - - - - - - - -

When Brother Froom sent me Ginzel's Thoth table, which he thought I "so greatly desired," he must have forgotten the request for something much more desired, which I sent him over three months ago, and which I repeated on Dec. 5, five weeks ago.

St. Helena, Calif.,
January 12, 1941.

Dear Brother Froom,-

I have written a letter to Miss Amadon, and wanted to write some the same matter to you, but have not the time now. I accordingly enclose her letter, which you may read and hand to her.

I enclose 2 or 3 sheets which I wrote some time ago. I have other matter, but I fear you are not prepared for it.

I have concluded that I must greatly simplify some things which I have alluded to several times, and also simplify some things which you have in Part V of your general presentation which you evidently did not get an understanding of yourselves.

There are some astronomical facts which are there presented, and correctly, but thereafter they were either forgotten or were not clearly understood when first written. They will show, without the use of the abundant other matter which I have, that you have drawn conclusions, unwarranted, from some things you have stated, which you did not understand.

I have indeed made strong statements of fact, and I stand by every one of them still, for I know whereof I speak.

I have not considered you "obstinate," to quote the word from your last letter. I consider you honest, but ill-informed, and therefore very positive.

And please look over my letters, if you wish, and note that I have not anywhere attributed anything wrong or unworthy, or unchristian, or unethical, to you in any of them. I have only condemned certain statements and opinions as erroneous. I think I have written nothing that could be called censure or reproof, or an imputation of pride of opinion, or a setting-up of yourself as an authority.

And I humbly feel that I have not merited anything of this sort myself.

I repeat the statement in my last letter, which contains in it the evidence of my confidence in your honesty and integrity: You will yet acknowledge me to be right in the question that has been up, and that you have been in error, or I will pay to you one hundred dollars out of my meagre savings, to be devoted as a gift to our foreign mission program.

This is confidence that you will yet do what I think you have not yet done, -- t h i n k t h r o u g h what I shall send you. I shall try to make it more simple and easy this time, with the customary HAW diagram and chart method.

When your own previous statements convince you, then it will probably not be necessary for me to write out the mass of matter which I have on the matter.

Good night (11:30 PM) and God bless you.

Yours sincerely,
H. A. Washburn

1 LEF

"NINETEEN LUNAR ECLIPSES QUOTED BY CLAUDIUS PTOLEMAUS"

Title of an excellent diagram bearing date of Oct. 23, 1940.

These eclipses all demonstrate that 1 Thoth fell on Feb. 26 in 747 B.C.

They make equally clear, as always admitted, that Ptolemy, in giving the interval of an astronomical event from his epoch on Feb. 26, chose the moment of noon from which to count the number of years, days, and hours.

They do N O T prove that Ptolemy counted the calendar dates as beginning and ending at noon.

There was O M I T T E D from this list the eclipse numbered 10 on pages 4 and 10 of the original presentation.

This omitted eclipse proves the same thing as the rest of the eclipses, but it proves something else as well.

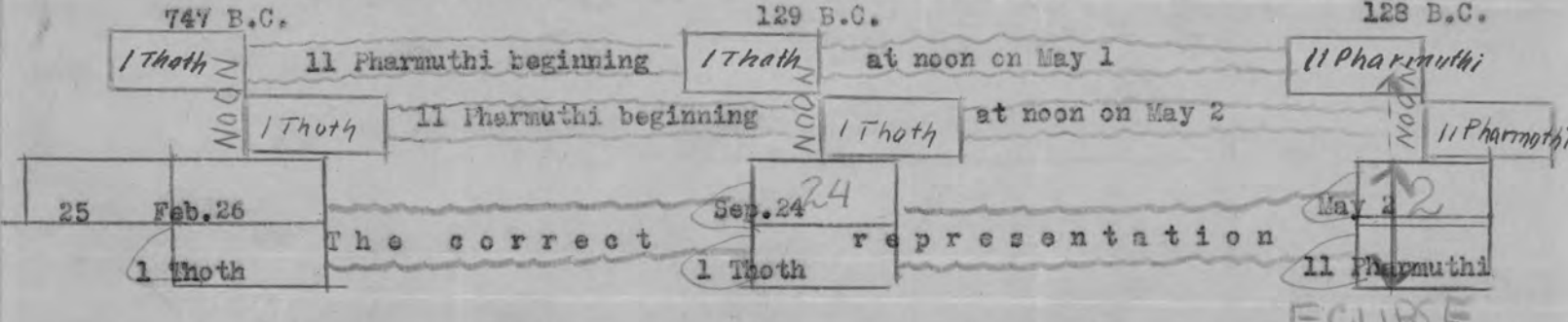
It proves that Ptolemy's calendar dates did NOT begin at noon, but in the night, as do other of his records.

The eclipse occurred on May 2, 128 B.C., at 6:45 A.M., Alex.Civil Time.

Ptolemy records it as "on the 11th" Pharmuthi, "about 5 civil hours before the noon of the 11th."

5 hours before noon on 11 Pharmuthi coincides with 6:45 AM, May 2, 128 BC

In order to support the contention that Ptolemy reckoned his calendar dates from noon to noon, one must place 11 Pharmuthi and 1 Thoth on the accompanying diagram either as indicated by the green or by the red.



In the one case, 11 Pharmuthi beginning at noon on May 2, the eclipse of 6:45 AM could not occur on 11 Pharmuthi, as Ptolemy records.

In the other case, 11 Pharmuthi beginning on May 1, at noon, the eclipse could indeed occur on 11 Pharmuthi, 5 hours before its second noon.

B U T , this would make 1 Thoth in 129 B.C. to begin at noon on Sept. 23, and in 747 B.C. at noon on Feb. 25, CONTRARY TO EVERY ONE OF THE NINETEEN ECLIPSES .

The O N L Y way in which all the records of eclipses harmonize is by allowing that Ptolemy's calendar dates changed in the night.

This alone saves many of Ptolemy's statements from being meaningless and ambiguous, as well as incorrect.

This alone enables the CANON OF PTOLEMY to be supported by the records of all his eclipses. Any other position weakens the authenticity of that invaluable chronological document.

The Eclipse on 11 Pharmuthi, May 2, 128 B.C., is not the only proof that Ptolemy reckoned his calendar ddtes as changing in the night, not at noon.

Ptolemy gives two dates for eclipses in the night, as shown many times in matter presented to the Committee.

With reference to the eclipse of March 8, 720 B.C., the original Greek is:

κατ' Αἰγυπτίους Θὼθ ιη εἰς τὴν ιθ

" on the Egyptian Thoth 18 to the 19"

A parallel French version reads: "du 18 au 19 du egyptien mois Tho
"from the 18th to the 19th ofuthe Egyptian month Th

The German: "am 18/19 agyptische Thoth"
"on the 18-19 Egyptian Thoth"

Guinness English: "between the 18th and the 19th of the Egyptian month Thoth," and this is the precise way that a teacher fluent in scientific French read it off to me, then giving it more literally, "from the 18th to the 19th."

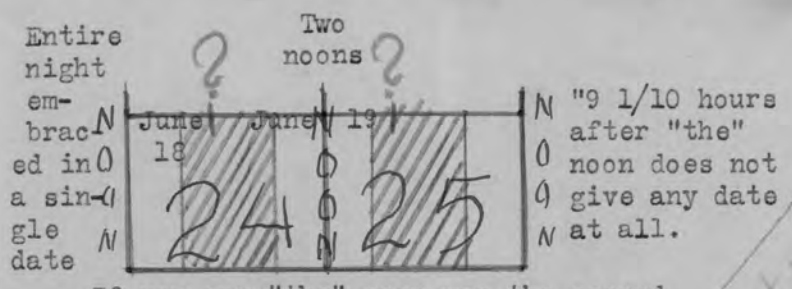
Every college teacher of languages to whom I have shown these versions agree that the idea is clear that the eclipse occurred in a night during which the calendar date changed from the 18th to the 19th.

If Ptolemy's calendar dates began and ended at noon, each night would be completely embraced in a single date, and the naming of the following date would not make sense.

Similarly, Ptolemy would be utterly ambiguous in speaking of "the" noon of a date, as he repeatedly does. If the date began and ended at noon, there would be two noons associated with each date, and no one could tell on which date the eclipse occurred. Ptolemy's indefinite record would then have no scientific value.

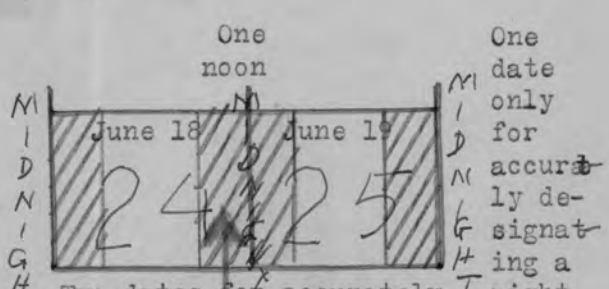
The eclipse of June 18, 382 B.C., 8:53 P.M., Ptolemy says was "on the 24th to 25th Egyptian Phamenoth," beginning "7 3/5 equinoctial hours after the noon of the 24th," with the middle "9 1/10 equinoctial hours after the noon."

If Ptolemy counted the calendar dates as beginning and ending at noon, he has not told here on what day the eclipse occurred; he is utterly ambiguous, and is the same in the other instances. If he began his calendar dates with midnight, as proven by the eclipse of May 2, 128 B.C., then all his datings are clear and definite, and his reference to "the" noon entirely appropriate.



If you say "the" noon was the second one, you will make the record of every eclipse in error by one day where Ptolemy mentions "the" noon.

Two dates for designating the night in this case produces ambiguity.



Two dates for accurately designating a night MAKES S E N S E.

contrast These

(here)

ECLIPSE definite

THE PAPYRUS DATINGS IN THE FIFTH CENTURY BC

First, it should be made clear, in the handling of Papyri "B" and "D", how their references to the year of Artaxerxes can permit his seventh year to reach over from 458 to 457 BC.

A document dated in January, 464, as in the reign of Artaxerxes, "the beginning of the reign when Artaxerxes sat on his throne," would not permit, so far as appears on the surface, his giving his decree in 457 BC.

Document "D", dated November, 460 BC, "the sixth year of Artaxerxes," would also seem to militate against the date 457.

I hope you will be able to clear up this question.

While the datingsof these papyri clearly show that Nisan began with the new moon after the vernal equinox, they conflict with the postulate that Nisan 13 was the day of full moon. Their datings show that they placed the 13th of Nisan one or two days before the full moon. It would appear, from certain considerations, that Nisan 14 was placed by them on the day of the full moon.

I tabulate the documents which are clear and definite, ~~from~~ in nine years for which your table gives the times of conjunction and full moon.

From the known times when 1 Thoth occurred in each year, the synchronisms enable us to locate the Julian date for 1 Nisan, as used by these writers. The ordinary 354 day year is used here. This permits the location of their 1 Nisan as close as possible to 1 Nisan of the Postulate. Any changes will place the Passover, 14 Nisan still earlier than the full moon.

Papyrus	Hebrew date	Day of ord. Heb. year	Egyptian day of: Document	Year	Preceding 1 Nisan	Julian day of: Preceding 1 Thoth	Preceding 1 Nisan	14 Nisan	Full moon
"B" 464 BC	18 Kisleu	~~254~~ 255 d day of 355-day year	~~17~~ Thoth	17	129	Dec 17	Apr 24	~~May 7~~ May 6	May 7.63
"D" 460	21 "Heswan"	228	1 Mesore	331	104	Dec 16	Mar 29	Apr 11*	Apr 12.24
"30" 451	7 Kisleu	243	4 Thoth	4	127	Dec 14	Apr 19	May 2	May ~~2.73~~ 2.71
"E" 446	Same result is obtained if 2 Kisleu be accepted, and 355 day year 3 Kisleu	239	10 Mesore	340	102	Dec 13	Mar 24	Apr 6*	Apr 8.89
"F" 440	14 Abh	132	19 Pachons	259	128	Dec 11	Apr 17	Apr 30*	May 1.28
"J" 416	3 Kisleu	~~239~~ 240 d day of 355-day year	12 Thoth	12	139	Dec 5	Apr 22	~~May 5~~ May 4.	May 5.49
"K" 410	24 Shebat	319	9 Athyr	69	116	Dec 4	Mar 29	Apr 11	Apr. 12 in second chart. Apr 11.68
"A" 471	18 Elul	166	28 Pachons	268	103	Dec 19	Mar 31	Apr 13*	Apr 14.52

The last three columns are significant. They show the calendar usage of these writers. It looks disturbing to the Postulate, that 13 Nisan fall on day of full moon, and Nisan 14 on the day after the full moon.

The divergency cannot all be errors, in these legal documents, drawn up at different times, and by different persons.

This presents a new "calendar problem."

In three of the instances where 14 Nisan occurred before full moon, there ~~are~~

1/14/41

Professor Harry Washburn,
St. Helena, Calif.
Dear Professor:

If you will review the sources given in the "Wednesday Crucifixion," you will find some of the important statements that pertain to the location of the ancient Jewish 14 Nisan. I really have not had time as yet to assemble all these excerpts, and translate them. Now with reference to some of your criticisms -- please allow me to select those that are of most importance to the problems in hand. I will mention three:

1. The challenge that the Aramaeans "kept the passover" on the day of full moon.
2. The refusal of the right to compute 1 Tisri as a constant period from 1 Nisan.
3. Your several times repeated statement that our Millerite reckoning is wrong -- that is, the method of computation.

For neither Nos. 1 and 2 have you as yet offered any acceptable authority or argument. The Aramaeans kept no passover at all until 419 B.C., when an order from Darius II over-ruled Egyptian prejudice for a short time. And if the 14 Nisan of the Aramaic dates were always made to coincide with the full moon date, no regular synchronism with the Egyptian dates results. And as for the day previous to full moon, Sidersky declares plainly that this dating is out. Your own argument is useless, for it is based on "if" this and that. Ginzel, Shürer, Fotheringham, Knobel, Cowley and others, all tried 14 Nisan on the day of full moon, and their results came wide of a constant synchronism with the Egyptian dates. Sprengling makes the Aramaic date identical with the Egyptian date, the same as your own reckoning. The others also make this correspondence. It means this -- take Papyrus B, for example, where 18 Kisleu you make identical with 17 Thoth on Jan. 2. Hence, the first day of Kisleu would equal Dec. 16 and the previous conjunction was Dec. 15.04 (J.C.T.). Translation period would then be only 16 hrs., and this at the height of the translation wave, which is always over 2 days in the fall of the year!

Now try out Papyrus E in 446 B.C. If 2 Kisleu equals 10 Mesore on Nov. 18, then 1 Kisleu equals Nov. 17. But the previous conjunction was Nov. 16.25 (J.C.T.). Translation period would then be .46 day, or 11 hours, and this again at the very height of the translation wave, where the periods in the fall should be over 2 days long. If in this same papyrus, we take 1 Kisleu = Nov. 16, as the record might imply, then the phasis would come before the conjunction. In brief, it can be concluded that by this rule of correspondence, the translation periods do not fit the dates! And therefore, neither does your argument. With regard to No. 2, I have some material about ready that will answer this challenge, and if you will be good and not send your criticism to everyone else but me, I will send you the pages when they are ready.

No. 3, of course, is of vital importance to every one on the Committee. But you will have to show me that you really have some-

Postscripts to Washburn's correspondence

Problem: When, where, and on what basis could luni-solar calendation be established in 1844?

Argument --.

(1) If October 12 sunset on the Boston meridian be selected for observation, then Tisri new year is not allowed to begin, that evening because the new moon could not be seen in Boston that evening! Same rule would also fit Greenwich, Jerusalem and Leningrad, extremes of latitude in the east; but in the west, and on the gulf states a longer translation period allowed the moon to be seen at sunset of October 12.

(2) If April 18 sunset on the Jerusalem meridian be selected, then it is allowed by some that the Nisan new year can begin, because it is reported that the new moon can certainly be seen in the "piercingly clear" atmosphere of Jerusalem, when on the horizon for an hour after sunset -- 54 minutes in this instance. But if this date be taken for the Nisan new year in Jerusalem, then each phasis for Sivan, Ab, and Tisri would have occurred on the very day of conjunction -- an impossibility because the translation periods would have been altogether too short. Hence April 19 sunset has to be taken for the beginning of the Nisan new year in Jerusalem.

(3) But in Boston, on April 18 sunset, the moon surely could be seen, because on the horizon 86 minutes after the sun went down, and at the end of $30^h\ 49^m$, which had lapsed since conjunction, the moon had moved at least 15 degrees east of the sun. On this date she was 19 degrees north of the celestial equator, and 2 or 3 degrees north of the sun. Therefore, the moon could easily be seen on the Boston meridian at sunset of April 18. But if Tisri new year cannot begin at October 12 sunset, because moon could not then be seen in Boston, then more than 177 days lapsed between Nisan and Tisri new years in America, while in Jerusalem, the interval between April 19 sunset and October 13 sunset -- both dates imperative because of the position of the Sivan, Ab, and Tisri phasis -- was exactly 177 days. But the Nisan-Tisri limits must be identical on all meridians.

This paradox demonstrates that luni-solar time cannot be regulated by the moon's visibility alone, especially in the extremes of latitude in the fall of the year. On the contrary, the spring moon anywhere can be used as a guide to lunar calendation. The error in the foregoing argument (1, 2, 3) consists in the place and time of observation, when the Tisri new moon is frequently not seen at all, especially in south latitude, as was the case on October 12, 1844. The moon was also far south of the equator on this date, and the observer far north! Of course the moon could not be seen under these extreme conditions. Nevertheless, the calendar had to advance a day because of the demand of the Nisan date for new year both in America and in Jerusalem. Your application of the Hevelius rules selected, entirely omits the position of the observer, and the time best suited for calendar adjustment. Furthermore, if a table for the Boston latitude had been presented, showing the definite sequence of visible and invisible new moons at the time of Tisri new year, different conclusions would have been drawn.

The only redeeming feature about Tisri observation consists in the fact that the moon's phasis usually hugs the second day after conjunction, a fact that the Millerites caught, and one that helped them in their problem. But, on the other hand, the Tisri translation period does not make a cycle performance, like that of Nisan. At Tisri new year, the moon is always in south declination, the setting angle of the ecliptic is low, the translation periods are shorter than those of Nisan, and the new moon is never so large on the second day after conjunction in Tisri as in Nisan.× Consequently it is more difficult to find the moon's phasis, because it slips below the horizon so quickly.×× And when the moon is in perigee, the problem of visibility in the autumn is even more complex.

× Hevelius. ×× Ferguson.

thing worth while with the phasis at sunset of Oct. 12, 1844, 4.56 days off from perigee! This is your own position of the moon at this time, and it is quite different from that of the almanac. You say that you have the figures that will prove our computation to be in error. I have been wondering if there may not be error in other figures.

You see, Brother Washburn, you know a great deal more than I do, and yet, you make mistakes. After all, it is not the mistake that counts; the important feature is that we correct the mistakes. Over three months ago I sent you the revised and remodeled tables pertaining to the Ptolemaic eclipses and Assuan dates, and plainly demnostrated that I was basing no argument upon the tables which you criticised. With regard to the 521 B.C. period, what difference does it make whether there are two changes of 1 Thoth in 7 years instead of the customary 8 years? That is, what difference does it make to the Egyptian reckoning? It does not alter the 1 Thoth changes that are involved in any of the specific periods in hand, and upon the number of these changes the reckoning is based.

With reference to the beginning of the Egyptian day, the Censorine date, and the beginning of the Nabonassar era, the argument will have to rest awhile so far as I am concerned. I have a few pages from Ginzel on the Egyptian civil day and its beginning, which will doubtless interest you. These I have given Elder Froom to send on to you. Ginzel's argument differs from yours, but it may be helpful. If you have not the references he cites, we can send them on.

You ask me why I did not include the 11 Pharmuthi date in the table of the Ptolemaic eclipses. This is not an eclipse date -- it is an observation only, and consequently does not appear in Oppolzer's Canon. This I did not discover until I drew up the eclipse table.

Thanking you again for your helpful interest in our work,

I am yours very sincerely,

January 14, 1941.
220 Park Ave.,
Takoma Park, Md.

For purposes of calendation, the Nisan moon is the one to observe, just as Moses directed. This can be done on any meridian, for the Nisan translation periods form a 62-year cycle with waves, which keep precise step with the moon's velocity cycle of 62 years. At Nisan new year, the moon is always at her best for observation and is always north of the equator. In the midst of each wave, the translation periods usually go into the third day after conjunction, but in 800 years of calendar observation, the phasis of the Nisan new year was not once found on the day of conjunction. These facts are of prime importance in laying down a luni-solar calendar, and they forestall the continual trend to advance or retard the sacred new year because a young moon could or could not be seen in Tisri -- a month not prescribed by Mosaic law for calendar adjustment. This is, I believe, an important reason why scholarship has not come to agreement with reference to the crucifixion date. Chrysostom sharply reprimands the Jews for changing Mosaic calendation:

> "Among the things to be looked into are the customs of the times, and the nature of the laws; and first of all, the perfidy of the Jews, who always stood out boldly against God and Moses, who, exercising an edict of perversity or pride, name the month of September as the new year itself, in which also they appoint magistrates for themselves, whom they call Archons, although they received from God through Moses, the month of March as the beginning of the year." -- Chrysostom, "Opera," vol. ii. ed. Paris, 1687.

The Mosaic calendar, upon which the important Jewish feast period was dependent, was governed by specific rules of observation and calculation. Moses pointed out the very moon to be observed -- Abib; and calendar calculation, as in a case like Pentecost, had to be made from a specific day in Abib, and not from any other point of time!

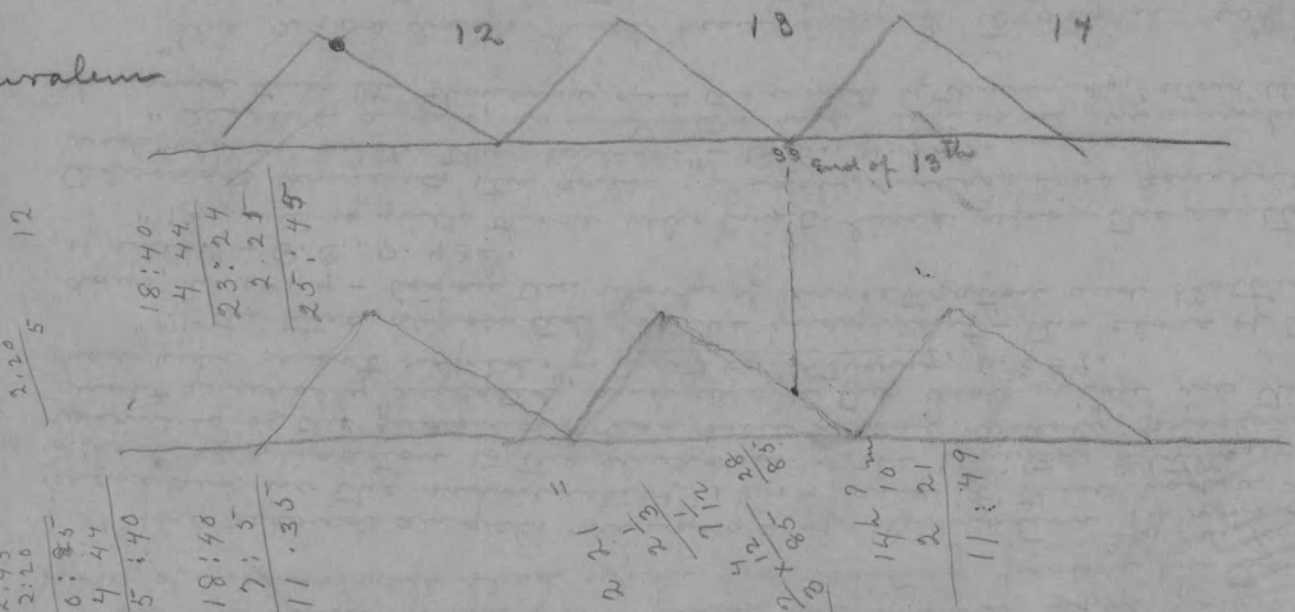
Consequently (with some,) Tisri observation has become a substitute for the original Mosaic principle of calendar reckoning.

G. Amadon

Prof. Washburn's letter to the Committee with reference to the 1844 Chronology was received the first week in February. The letter was sent to Miss Amadon, who turned the pages referring to Committee for presentation over to the Chairman. The phases of the problem that have been observed by him in our 2-years' correspondence are as follows:—

1. Question of moon's visibility at sunset of October 12 in Boston.

2. Because moon could not be seen in Boston at sunset of October 12, and possibly at no other place in America, Washburn wishes to begin the last day of the prophecy at 10:15 A.M. on October 13 in Boston, a point of time which coincided with sunset of October 13 in Jerusalem, and marked the beginning of October 14 by lunar calendar civil reckoning.



Postmarked Feb. 4 '41 -2-

The 2300 prophetic days of Dan. 8:14

ended, as we must all agree, on the tenth day of the seventh month in 1844.

An argument is advanced that this tenth day of the seventh month began at sunset, Oct. 21, in America, and the statement is made,

"The tenth day in Boston was Oct. 21/22,
and in Jerusalem it was October 22/23."

A valid argument, which can bear all criticism, can be made for Oct. 22/23 in Jerusalem. Although in Jerusalem Tisri 10 was mostly on the calendar date Oct. 23, the same period of time fell mostly on Oct. 22 in America. Had only 7 hours in common.

When that 10th day began at Jerusalem, at sunset, the clocks in Boston registered 10:15 A. M. on Oct. 22; in Cincinnati the time was 9:22, and in Chicago, 9:08 A.M. It was then time to look for the event expected to occur at the end of the 2300 years.

What was the event?

That is reason enough to justify the Adventists' looking for the expected event on Oct. 22. They could not consistently do otherwise. We really need no further argument for the date Oct. 22. The argument which is advanced can, if published, be used by enemies to belittle and cast discredit upon our valid arguments.

The 2300-year period began with an event in Palestine, on a day bounded by two sunsets there, not by two sunsets in America. The midst of the 70th week, when sacrifice and oblation was made to cease, was a day which accordingly began with a sunset at Jerusalem, not a sunset in unknown Boston. Likewise, the end of the 2300 years was necessarily on a day beginning with a sunset at Jerusalem. It could not end before that sunset, or 10:15 A.M. at Boston on Oct. 22.

"upon thy people"

The quotation at the top of this page makes the prophetic period end in Boston 17 hours and 6 minutes before it did in the land where it began. Keen enemies will not fail to make use of such statements, and argue that we make the period to begin 17 hours earlier in the wilderness of America than it did in Palestine, that we count the decree of Artaxerxes as going into effect in the unknown western continent, where he had no jurisdiction, before it did in the Persian empire itself.

In addition, the astronomical argument in support of this embarrassing conclusion can be shown to be scientifically erroneous. We must carefully exclude all untenable statements which we can discover.

The argument is made that the Mosaic month Tisri began at sunset at Boston, on October 12. And as it is abundantly proved in the Report that the Mosaic months began at sunset after the new moon became visible, it was naturally stated that --

> "In Boston, the new moon of October, 1844, . . could be visible on October 12, right after sunset." (p 47)
> "The position of the moon was unusual in that her phasis in Boston occurred within 24 hours after conjunction." (p 50)

It was overlooked that some things previously presented completely nullified these statements.

Inasmuch as sunset at Boston on Oct. 12 was only 22 hours 46 minutes after conjunction, it is stated:

> "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." (p 47)

This statement was made with the eye upon Fotheringham's mention of just one

-3-

cause which produces a tendency toward early phasis, but which has to be accompanied by two others to make the new moon visible in 24 hours. Because that one condition was present (proximity to perigee), the conclusion was jumped to that all the conditions were present. The statements of Hevelius, which had been quoted on pages 35, 36, were forgotten (or have they not been understood?), although an accompanying statement of his, with the original Latin, is immediately quoted: "For within a period of nine years these three requisite causes with difficulty coincide."

Because, upon theory, the month of Tisri had to begin at that time, statements were made without inquiring into astronomy to see if they could be true.

The three conditions which must all be present at the same time for a phasis in 24 hours had been given on pages 35, 36:

> "The three requisite causes (for a quick phasis), . .
> commonly very rarely occur, so that the moon is
> 1) in the signs of long settings [as in Aries],
> 2) in perigee, and
> 3) in the northern border, plainly
> in the time of conjunction or phasis."
>
> "If . even one is lacking, then on the next day . .
> 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."

It was to these three essential conditions that I called attention in the very first lines of my original comment, as not being met on Oct. 12.

While the above, as is shown in succeeding pages, completely nullifies all arguments for a phasis beginning of a month on Oct. 12, it is argued in addition that 1 Tisri must coincide with Oct. 12/13, because the number of days from 1 Nisan to 1 Tisri was "invariably" 177 days, with the months always having 30,29,30,29,30,29,30 days. It was not discerned that facts and statements which had been presented in preceding pages contradicted this in three or four places.

A further argument, which in the light of the above must be faulty, is based upon a rule of the modern, revised Karaite practice, that if the moon's age is over 22 hours, "it can be seen even simultaneously with the sun on the horizon at sunset on the first evening."

While it is true that the moon can sometimes be seen when its age is only 22 hours, it cannot always be then seen, in the latitude of Boston, and in the latitude of Odessa, where the Karaite rule was published. It is easily demonstrated that this rule would make the moon visible when it was already below the horizon, at times. For example, the new moon of Sept 27, 1935, would be visible at sunset the next day. At Odessa itself, the moon was $2^{\circ}55'$ below the horizon! To Karaite Jews in Petrograd it was nearly 5° below the horizon. The moon was below the horizon even at Boston, although the moon's age had increased to 29 Hours, 4 minutes. AT Greenwich, though the age had increased to 24 hours, 18 minutes, the moon was over 3° below the horizon at sunset on Sept. 28.

The rule is only generally true, and never so in the fall, in northern latitudes. It is not based upon the original Mosaic rule of a visible moon before the beginning of a month, nor even upon the present Karaite rule that "the first day of the month" begins after "the new moon which is first seen with the naked eye in the west." Present Karaite practice is to be followed only as it accords with the original Mosaic custom.

You have true, authoritative statements in Part V which nullify every argument which can be presented for a phasis of the moon on Oct. 12, 1844.

Likewise, they can be nullified by other scientific evidence, which is not here adduced.

Part V also contains abundant evidence that no Mosaic month can begin before the new moon can be visible, under good weather conditions.

Therefore the seventh month, according to the original Mosaic usage, could not begin on Oct. 12.

Therefore, we need not embarrass the cause of God by publishing an argument which the enemies of His cause will not fail to use, in those days when they will "misrepresent" and give a "false coloring" to even the true statements we make.

With respect to the visibility of the moon when so near the horizon as in October, 1844, I have not referred to my own experience in my own observatory, nor have I quoted authorities outside your own report. It may be proper, however, to mention that veteran astronomers, heads of observatories, of greater experience in practical observations of the moon and sun at times of conjunction than any other living astronomers in the United States, have recently written me that

> "The crescent moon most certainly could not be seen from Boston under the conditions,"

and that

> "Observations of the lunar crescent ~~under this lunar crescent~~ under the conditions would be an impossibility, and certainly so on the Atlantic seaboard."

Instead of giving facts and figures, and quoting authorities, I would rather you would form your conclusions from facts which you have already accepted and incorporated in your preliminary Report.

All the quotations which follow are taken from Part V of your Report.

The error in this argument consists in the fact that ~~a~~ luni-solar time cannot be regulated from so southern a latitude as Boston, Greenwich or the north pole, and especially if the Tsar's moon be made the January new year.

His argument is that because the moon could not be seen in Boston on evening of October 12, therefore the seventh month could not begin.

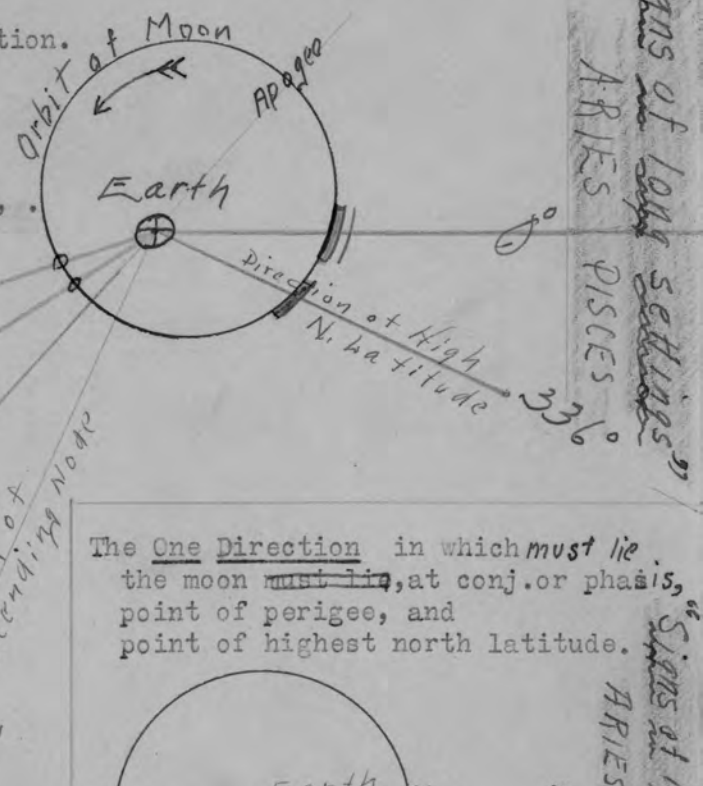
He also argues that the three conditions of Hevelius were not present on October 12 for a quick phasis, and yet we have a quick phasis.

postmarked Feb. 4, 41

Three Conditions must be present
at the same time
for moon to be visible 24 hours after conjunction.

"If even one is lacking,
then on the next day . .
this first phasis . . appears;
but with two requisite causes absent, .
the first phasis of the moon . .
on the third day."

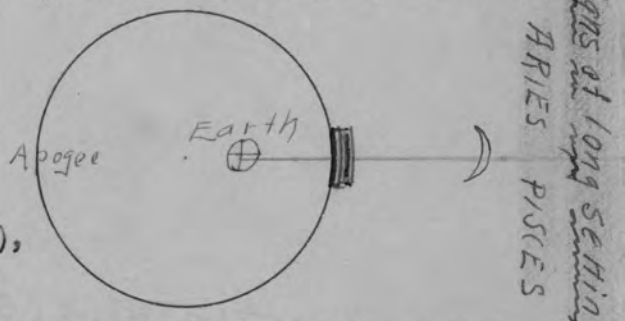
(Page 36)



"The three requisite causes
commonly [together, jointly, coincidently]
very rarely appear, so that the moon is
1) in the signs of long settings (as in Aries),
2) in perigee, and
3) in the northern border [of the zodiac]
plainly in the time of conjunction or
phasis."

(page 36)

The One Direction in which must lie
the moon ~~must lie~~, at conj. or phasis,
point of perigee, and
point of highest north latitude.



"Within a period of nine years
these three requisite causes
with difficulty coincide."

(page 47)

TWO of the essential
concomitant conditions
were totally lacking
October 12, 1844.

1. The sun and moon must be in the general direction of Longitude 0°, toward Aries or Pisces, "signs of long settings," indicated by the red band. The new moon is in this direction ONLY IN THE SPRING.

2. In addition, the moon must be near perigee.

3. At the same time, the moon must be in high northern latitude, about 90° past the ascending node. This point, in October, 1844, was at longitude 336°, indicated by the green band. The moon was far from that requisite position.

(See Details on the following diagrams)

There could be no phasis
to mark a beginning of Tisri 1 at Boston
on October 12, 1844.

The quotations are in Part V of the Report,
and are from Hevelius, "Selenographia,"
pp 274-276.

H. A. Washburn.

The First of the Three Conditions
which must be present, all at the same time,
for the moon to be visible in 24 hours after conjunction.

The new moon must be in the right longitude,
which is ONLY IN THE SPRING.

"Fotheringham names three causes as affecting the first appearance of the new moon: (1) Longitude; (2) Latitude; (3) Anomaly." (p. 35)

Hevelius: "The three requisite causes [for a quick phasis], as now told, commonly very rarely appear, so that the moon is (36)

1) in the signs of long settings,
2) in perigee, and
3) in the northern border, plainly
in the time of conjunction or phasis."

"He names Pisces, Aries, and Taurus as being signs of long settings, and Virgo, Libra, and Scorpio as signs of short settings." (36)

((The moon was in Libra at conjunction, Oct. 11, 1844.
and in Scorpio at sunset, October 12.))

"The ecliptic sets slowest in Aries, and fastest in Libra." (36) [next sheet]

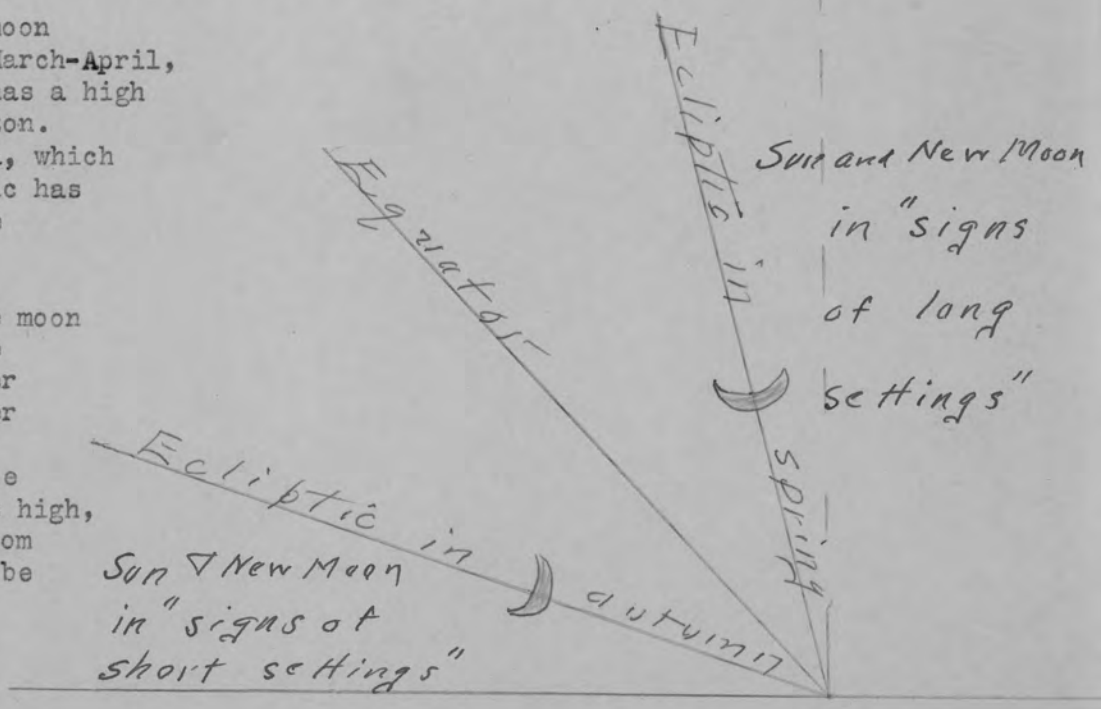
In illustration of above facts, I copy Diagram D, page 46a:

When the sun and new moon are in Aries, which is March-April, the ecliptic at sunset has a high inclination to the horizon.

When they are in Libra, which is Sept-Oct, the ecliptic has a low inclination to the horizon.

In the first case, the moon is much higher above the horizon in 24 hours after conjunction and is longer in setting.

In the second case, the moon is less than 1/3 as high, for the same distance from the sun, and too low to be visible in 24 hours.



Due to precession of the equinoxes, the zodiacal signs are now about 30° west of the constellations of the same name.

All in quotation marks is from Part V, Section E, 35,36, Section F, 46.

The New Moon is always in the direction of the Sun, in the same sign of the zodiac.

The New Moon cannot be in Aries, or in any other of the "signs of long settings," in the fall of the year. At conjunction, Oct. 11, 1844, the moon was in Libra, Long. 198°34'48" At sunset, Oct. 12, it was in Scorpio, Long. 212°50'.

"The three requisite causes . . [for a phasis in 24 hours] the moon is in the signs of long settings, in perigee, and in the northern border, plainly in the time of conjunction or phasis."

(p. 31)

"If even one is lacking, then on the next day . . this first phasis . . appears; but with two requisite causes absent, . . the first phasis of the moon . . on the third day."

TWO of the essential concomitant conditions were totally lacking.

The Third Essential Condition
which must be present
for the moon to be visible in 24 hours after conjunction.

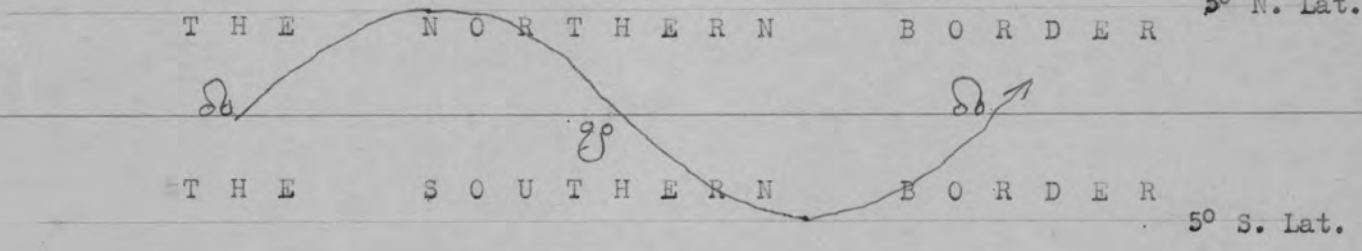
L A T I T U D E.

p.36:

"Conjunction . . near the northern part of the zodiac." (page 36)

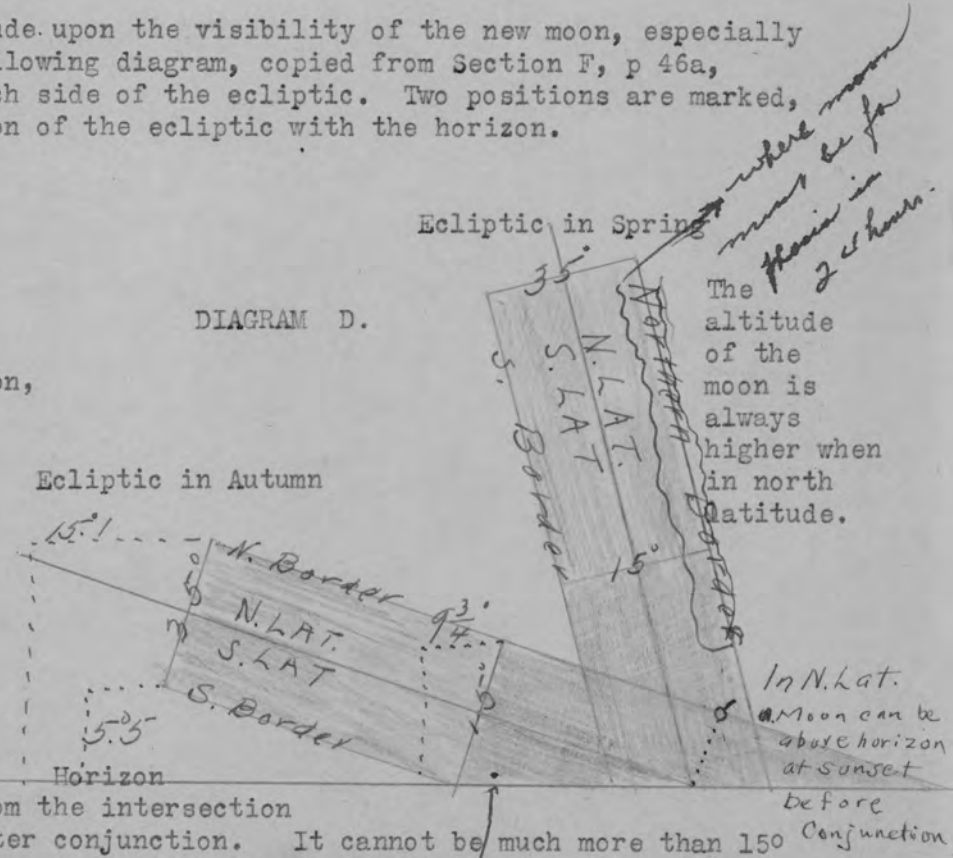
"The three requisite causes . .
so that the moon is
1) in the signs of long settings ,
2) in perigee, and
3) in the northern border of the zodiac plainly
in the time of conjunction or phasis."

The moon is in the northern border of the zodiac when it has moved 90° past its ascending node, ☊, and is then about 5° north of the ecliptic. At 90° past the descending node, ☋, the latitude of the moon is about 5° south.



The large effect of latitude upon the visibility of the new moon, especially in the fall, is shown by the following diagram, copied from Section F, p 46a, with the zodiac added, 5° on each side of the ecliptic. Two positions are marked, 35° and 15° from the intersection of the ecliptic with the horizon.

DIAGRAM D.



At the autumn equinox:
If 35° from horizon intersection,
in the N. border, the moon
would be 15.1° high,
in the S. border,
only 5.5° high.

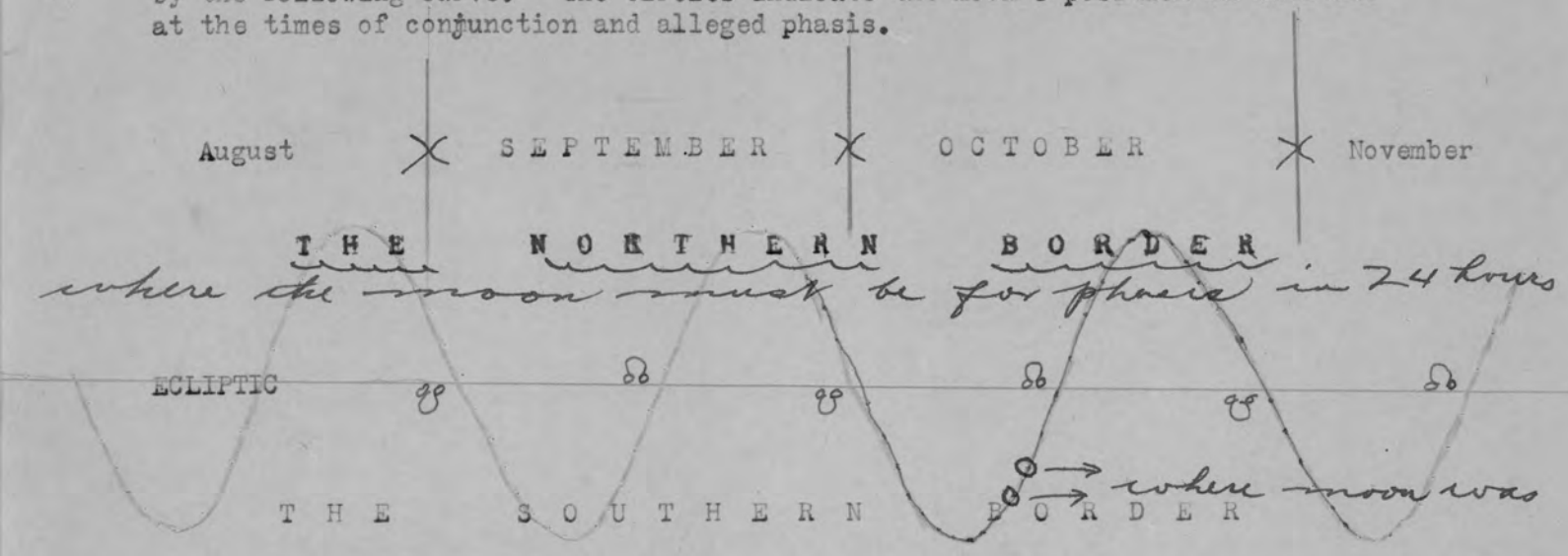
If 15° from the intersection,
in the N. border it
would be 9¾° high,
in the S. border, down
to the horizon.

The altitude of the moon is always higher when in north latitude.

The new moon is never as far from the intersection at sunset as 15° in 24 hours after conjunction. It cannot be much more than 15° from the sun itself, which at sunset is 50' below the horizon, its upper limb touching the horizon, by reason of refraction.

where moon was Oct. 12, 1944

The varying latitude of the moon in the fall of 1844 is represented by the following curve. The circles indicate the moon's position in latitude at the times of conjunction and alleged phasis.



The Latitude of the moon as given in the Berliner Astronom. Jahrbuch, the official German ephemeris was as follows (Berlin Mean Time):

October	11d	12h	3°	46'	32.5" South Lat.
	12	0	3	17	51 "
	12	12	2	45	40.1 "
	13	0	2	10	34 "

Time of conjunction, 11d 12h 17.4m --- Latitude, 3° 45' 52" South Lat.
At moonset, Boston, October 12, --- 2 47 52 South Lat.

The longitude of the ascending node was 246°, and the point of highest northern latitude was at longitude 336°. The moon was far from that point, at longitude 198° 34' 48"

Three conditions must be present
at the same time
for the moon to be visible in 24 hours after conjunction.

"The three requisite causes
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."

The moon was NOT "in the northern border plainly" at either conjunction or alleged phasis.

"If even one is lacking
then on the next day . .
this first phasis . . appears;
but with two requisite causes absent, . .
the first phasis of the moon . .
on the third day."

TWO of the essential concomitant conditions were totally lacking.

There could be no phasis to mark a beginning of Tisri at Boston on Oct. 12, 1844.

(All quotations are from Part V, Section E, p 36, E, 46.)

"Three requisite causes .
Moon in the signs of long settings,
in perigee, and
in the northern border plainly
in the time of conjunction or phasis.
(page 36)

"Conjunction . . near the northern part of the zodiac." (Id.)

The varying latitude of the moon in the fall of 1844.

September October 1844

THE NORTHERN BORDER
Where the moon must be for phasis in 24 hours

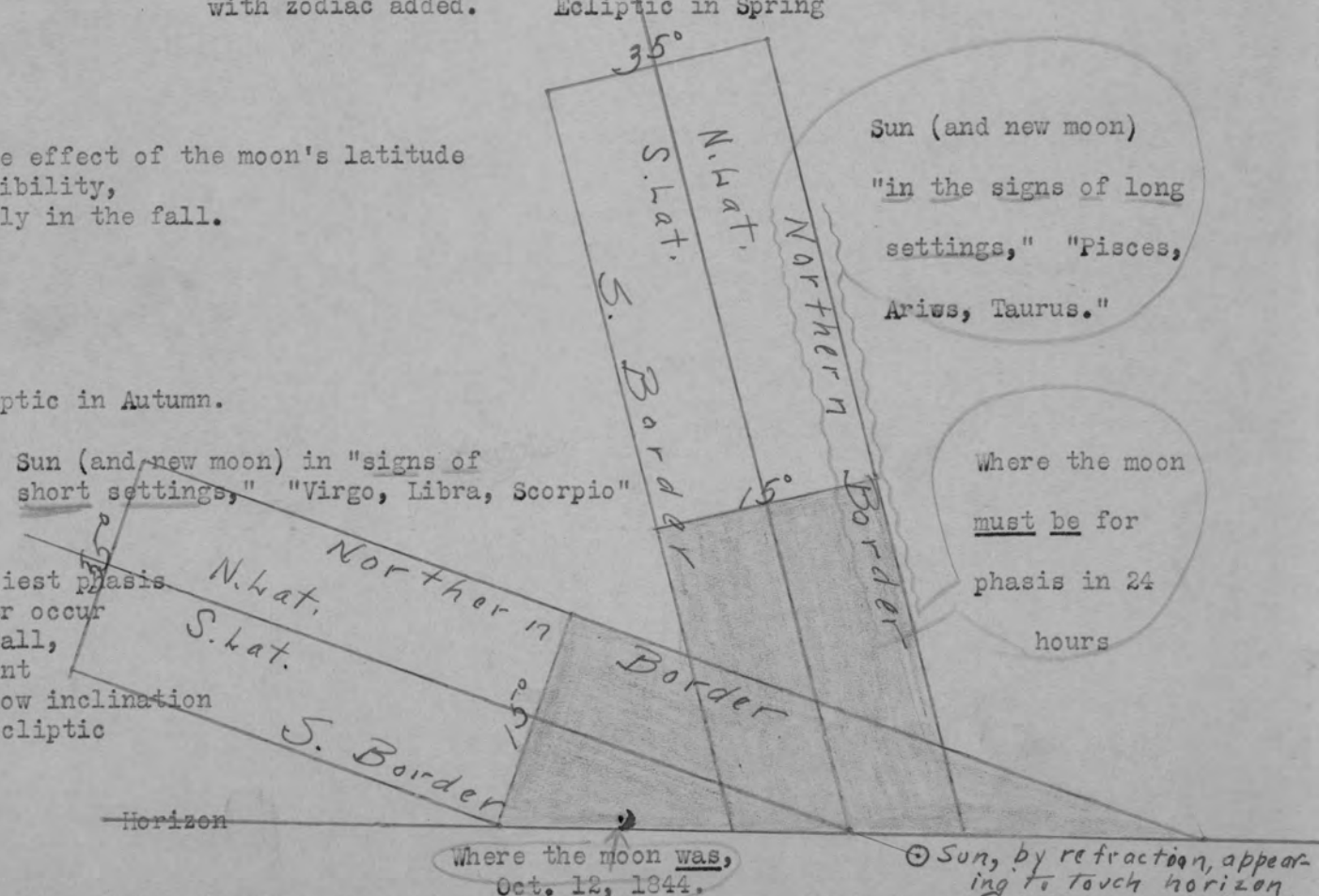
Latitude at conjunction,
Oct. 11, was 3° 45' 52" South
At moonset, Oct. 12,
Boston, 2° 47' 52" South

Oct. 12 → ☽ Where the moon
Oct. 11 → ☽ WAS

THE SOUTHERN BORDER

Diagram D, page 46a,

with zodiac added.



The large effect of the moon's latitude upon visibility, especially in the fall.

Sun (and new moon) "in the signs of long settings," "Pisces, Aries, Taurus."

Where the moon must be for phasis in 24 hours

The earliest phasis can never occur in the fall, on account of the low inclination of the ecliptic

The moon was neither "in the signs of long settings," nor "in the northern border."

"With two requisite causes absent first phasis . on 3rd day."

C O P Y
Answer to personal
letter to G. Amadon

February 9, 1941

Elder H. A. Washburn,
St. Helena,
California.

Dear Elder Washburn:

There are at least four points in your recent letters that have vital relation to the features of chronology upon which the Committee has been working for the past year:

1. The Aramaic dates concerning which now you have "different conclusions" from those first submitted to me.
2. The beginning and ending of the 2300-year prophecy.
3. Rule of correspondence between the Aramaic and Egyptian day.
4. Criticism of Part V with reference to the Tisri "phasis," and the rules pertaining to a short translation period.

1. The Aramaic dates are a check on 5th century calendation among the Jews. When you wrote me that you could show that there could not be a plus-one coincidence between the double dates of the papyri, I was at once interested. But when you proposed a passover on the civil date of full moon, or even before, your argument, whatever it was, lost face. In order to make clear that such a feature in Jewish reckoning would distort the relation between passover and the moon's first appearance, I am enclosing a photostat of Sprengling's series of 30 Nisan dates, which are worked on this very basis. He built up his table upon some previous work of Shurer's, and his passover dates, as you may observe, frequently makes the moon's phasis come before conjunction! This, you must know, is an impossible arrangement.

The position of the passover, as of 14 Nisan, is vital to primitive luni-solar time, and it is essential that we all agree on this point, if possible. Student theses, that have been coming to us in the past two years, have slipped on this important issue. Almost no one -- including chronologers and astronomers -- seems to know where to place 14 Nisan with reference to the full moon. And when, not so long ago, you offered a different interpretation of the Aristobulus citation than has been explained by Anatolius, Lilius, Nancel, Petavius, Eusebius and others, I felt as if our correspondence was not bearing fruit, for it certainly is clear that this excerpt refers to the full moon -- not to the new moon, as you insist. In your letter of the 3rd instamt, just received, you have spent a lot of time and good energy in criticising the use of the words "phasis" and "visibility" in Part V, a first presentation which is now over two years old. But if you are not clear on the relation of the paschal full moon to the passover itself, and do not agree with us -- I mean the Committee -- on this point, then our first effort should be, if possible, to get together. For this point is vital.

Another feature of the Aramaic dates that is important to prophetic reckoning and its correlation with Jewish time is the fact that the late-Tisri and after-Tisri dates produce the same relation to the Egyptian calendar as

those dated before Tisri. If a variation on the 1st of Tisri occurred in any of those 5th century years, so that, as you claim, Elul sometimes had 30 days, this calendar event would at once change the rule of correspondence between the Aramaic and Egyptian time. However, with the exception of Papyrus "K," we get a constant relation between the double dates of the perfect, or unmutilated, Assuan texts, and this fact significantly favors the passover computation used. With regard to Papyrus "K," inasmuch as the passover full moon of that year was April 11.68 (J.C.T.) -- nearly after sunset -- and the new moon was near apogee, and in south latitude, it is probably that April 13 was taken as the passover day. This would place the 1st day of Nisan on March 31, the same as in the previous 19-year cycle, in year 430 B.C. By this correction, Papyrus "K" also gets a constant difference.

We have more material on early computation among the Jews, but it is not ready yet for criticism. After you have thought it through, we shall be interested to know if you are in agreement over the position of the passover.

2. With reference to the second point, the Committee has already given much thought and discussion. However, please allow me to speak for myself:

The 2300-year prophecy relates directly to the atonement, which, during 486 1/2 years, or thereabouts, was performed in an earthly temple; but during the major portion of this prophetic period -- 1813 years and over -- this atonement service was enacted in the heavenly sanctuary. At the end, a change was to come, but that change was in heaven, not in Jerusalem, nor on any other earthly meridian. As an accompaniment to this event, the world-wide first angel's message was foretold, which was to go to every "nation, and kindred, and tongue, and people." It was to compass sea and earth (Rev. 10:2), embracing every meridian. But it had to start somewhere. It did not start at Jerusalem, among Mohammedan antagonists to vicarious atonement. Fanaticism cut short a movement in Europe. But America responded to the prophecy, and here the message of fulfillment to Daniel 8:14 was staged. Consequently, to the meridians of America the prophecy had to be immediately related. Luni-solar time had to be established on the ground where the message was preached.

In the mid-summer of 1844, such men as Bates, Snow, and the devout adventists of the Exeter meeting accepted the reckoning which pointed to October 22 as the 10th day of the Jewish seventh month, and as the last day of the 2300-year prophecy. How did they compute this date? From the Nisan phasis. Bates was both navigator and astronomer. Although he was not first in presenting this time message, yet, as an expert on moon reckoning, he could pass on Snow's problem in luni-solar time. He accepted April 19, 1844, as 1 Nisan ("Way Marks and High Heaps," p. 30), although he does not give his reasons. But astronomy gives the reasons, and shows (1) that the moon could not be seen in Boston the first sunset after conjunction, as of approximate noon, April 17, because the intervening time was altogether too short; and (2) that the moon could be seen the second sunset after the change, on April 18, because she was above the horizon for nearly 1 1/2 hours after the sun set in Boston. Plainly then, the sunset beginning of April 19 in luni-solar time was the first day of Nisan. In this manner, on the very ground, where the second angel's message was being preached, the Nisan new year was established by simple rules and reasons that any school boy could understand. And that date, April 19, as 1 Nisan, cannot be moved forward or backward. Not backward, else the new moon could not be seen, and not forward, for the previous year was already 384 days long, and luni-solar time does not

(by the Karaites, or

provide any longer year except by the use of postponements, which all chronologers agree were not employed in primitive calendation. My conclusion is, therefore, why complicate this simple calculation with a Jerusalem hypothesis that could only result in an argument?

To April 19, the Millerites added six lunar months and got October 13. You question the right to do this. But your Talmudic quotation is not proof of your claim. The irregularities that crept into Jewish reckoning came after the destruction of Jerusalem, and during the persecution of the Jews under Victor. They were then living in caves and desolate places, and were not allowed to announce their feast dates. They went through iron and fire. This continued through the time of Constantine and on. Antagonism between Passover and Easter resulted in wrong dating for both Christians and Jews. You can read it all in Graetz' History of the Jews, Sidersky's "Chronologie juive," which I sent you, Hastings' Encyclopedia of Religion and Ethics, art. "Jewish Calendar," etc. Other references you will find in Part V.

The Millerites got their reason from the Bible for adding six lunar months to April 19 to get the first day of Tisri. They argued from Daniel 9 that if the sacrifices were cut off in the midst of the "week," or middle of a prophetic year, which was in the spring, then the end of the week, and hence the end of the prophetic year, and also of the whole prophecy, would come six moons later in the autumn.

This Millerite chronology as given here, is all written in Elder Froom's Syllabus, concerning which you wrote your special appreciation. Also in recent letters different features of the argument have been repeated as we have now come to tell the story, after more than two years of further study. Perhaps it has not registered with you, and hence this repetition. At the time Part V was written, we were not as well acquainted with the 1844 literature as now. I first thought that the Tisri date was the one primarily computed by the Millerites. Since the presentation, the members of the Committee have studied in detail the Millerits periodicals. We have made photostats of every page giving chronological statements, and classified all the references, making charts to demonstrate the progress of the "seventh month movement." You say, why did you not do this before writing the report? A series of circumstances not necessary to explain is the answer. I came here for five weeks! Now, for over two years, a group of us have been at work on this research, trying to eliminate every objectionable feature. We appreciate your painstaking criticism, but it does not point out error in the chronological argument as now told and stressed, and which has been fully outlined in recent correspondence with you. The question of the moon's visibility in Tisri on the Boston meridian in 1844, the Committee disposed of over a year ago.

But to return to Point 2 and the 177 days. I have just finished graphs of the moon's velocity for the Nisan and Tisri translation periods from the year 1767 to 1941 -- all the years, in fact, for which we have available almanac figures. These velocity graphs run in 62-year cycles, the same as the Nisan translation period on any meridian. If the moon on 1 Tisri had a delayed phasis of a day, the graph in that year would be distorted and irregular. But in Tisri we get just as smooth a curve as in Nisan. Furthermore, it is helpful to know that the interval in days between the Nisan conjunction and the Tisri conjunction runs in a 9-year cycle that consists of four successive years of 177 days each (and their fractions), and then of five successive years of 176 days each (and their fractions) -- nine in each series. The Tisri new year, therefore, seems to be well under control of the moon's motion.

The Bible appears to confirm regularity with respect to the important first days of each month. Read Jeremiah 33:20. The Lord Himself is speaking, and He challenges Israel to break His covenant with day and night that they should not occur in their season. What season? The Sabbath, for one thing, perhaps -- a solar event. But there are "seasons" over which the moon was appointed (Ps. 104:19). These cannot but refer to the moon's lunations, the only seasonal periods the moon affects. The challenge is, both from God and man, can the moon's seasons be disarranged so that the new moons and new moon days do not come in their season? The answer has to be "No," for they are as sure as the Davidic covenant. That is pretty sure, Elder Washburn! This is one of my "strong reasons" for concluding that 177 days can be added to 1 Nisan to get 1 Tisri.

3. As to Point 3, I am enclosing a translation from Ginzel on the "morning" beginning of the Egyptian day. We are not ready to discuss yet the civil day of the Egyptians, but if we use the Assuan papyri as sources, this will have to be thought through. As to the 11 Pharmuthi "observation," I first took it to be an eclipse because Oppolzer had an eclipse dated so near the year of Alexander mentioned by Ptolemy. But I think that this is wrong. Guinness lists 19 lunar eclipses only. I found one solar eclipse, and that would make the twenty often cited.

4. I have read over carefully page 47 of Part V. Our Committee is in full agreement that the Tisri new moon could not be seen in Boston in 1844, but only in the West and South. And there were many Millerites in these parts. I am enclosing a little table of new moons and their moonsets, together with the corresponding sunsets that demonstrates this fact. I made this outline chart over a year ago for committee presentation, but have not had opportunity to present it as yet. Elder Froom thought it too technical. However, not only was it impossible to actually see the moon's phasis in the ten minutes she was on the Boston horizon after sunset of October 12, but at 10° further north, she even set before the sun! Wherever the word "phasis" is used in Part V, the word "crescent" would be less misunderstood. The paragraph to which you object was carefully discussed by Elder Froom and myself with the head of the Almanac Office at the Naval Observatory. The expression "the conditions all conspired" were Mr. Draper's own words, and they refer to the conditions mentioned in the previous sentence: (1) The fast moon, as described in the preceding paragraph; (2) her perigee position; and (3) the early evening conjunction. I wanted to mention also the low angle of the setting ecliptic, for this factor was stressed in the Millerite papers, but the Committee deleted further technicalities. However, this expression has no reference to the rules of Hevelius, except the one statement that it is rare for all requisites favorable to visibility to coincide. His rules are different from Fotheringham's, with the exception of the perigee and apogee influence. At the time of the Nisan new year, the moon is always north of the equator, and the setting sign makes a large angle with the horizon. On the contrary, at the time of the Tisri new year, the moon is south of the equator, and the setting angle of the ecliptic is low. Consequently, perigee or apogee becomes a principal Hevelius variant for causing a long or short translation. For this reason, Part V stressed perigee as the chief cause of the short translation in 1844 Tisri new year, and it was likewise emphasized in Millerite articles. However, there are other causes.

I am passing over your letter and enclosures to the chairman. Thank you for your interest. I hope that we can come to ultimate agreement with

respect to --

1. Passover calendation,
2. Aramaic papyri,
3. Egyptian civil day.

Yours very sincerely,

Grace E. Amadon.

POSTSCRIPT -- I have missed out some details. There would be no objection to a line of coincidence around the world, to mark the sunset beginning of the 1st day of Tisri in Jerusalem, providing it is remembered that every point of time on such a line belongs to some specific day on each meridian, and not in particular to the day in Jerusalem, such as the modern Jews observe with reference to the Sabbath. However, the First Angel's Message emphasizes that the judgment would be marked by a certain "hour," and inasmuch as we do not know the exact instant when the 2300 days began, why should so much emphasis be called for with reference to a point of time in Jerusalem?

Have reread your last letter. Will summarize the problem as it appears to me:

PROBLEM: When, where, and on what basis could luni-solar calendation be established in 1844?

Argument --

(1) If October 12 sunset on the Boston meridian be selected for observation, then you do not allow Tisri new year to begin that evening because the new moon could not be seen in Boston. Same rule would also fit Greenwich, Jerusalem, and Leningrad, extremes of latitude in the east; but in the west, and on the Gulf of Mexico, a longer translation period allowed the moon to be seen at sunset of October 12. What latitude do you think should govern the calendar? What meridian and what moon?

(2) If April 18 sunset on the Jerusalem meridian be selected, then it is allowed by some that the Nisan new year can begin, because it is reported that the new moon can certainly be seen in the "piercingly clear" atmosphere of Jerusalem, when on the horizon for an hour after sunset -- 54 minutes in this instance. But if this date be taken for the Nisan new year in Jerusalem, then each phasis for Sivan, Ab, and Tisri would have had to occur on the very day of conjunction -- an impossibility because the translation periods belonging to those months would have been altogether too short. Hence April 19 sunset has to be taken for the beginning of the Nisan new year in Jerusalem, whose civil date would be April 19/20.

(3) But in Boston, on April 18 sunset, the moon surely could be seen, because on the horizon 86 minutes after the sun went down; and at the end of $30^h\ 49^m$, which had elapsed since conjunction, the moon had moved at least 15 degrees east of the sun. On this date she was 19 degrees north of the celestial equator, and 2 or 3 degrees north of the sun. Therefore, the moon could easily be seen on the Boston meridian at sunset of April 18, 1844. But if the Tisri new year is not allowed to begin at October 12 sunset, because the moon could not then be seen in Boston, then more than 177 days lapsed between Nisan and Tisri new years in America, while in Jerusalem, the interval between April 19 sunset and October 13 sunset -- both dates imperative because of the position

of the Sivan, Ab, and Tisri phasis -- was exactly 177 days. But Nisan-Tisri interval should be identical on all meridians.

This paradox demonstrates that luni-solar time cannot be regulated by the moon's visibility alone, especially in the extremes of latitude in the fall of the year. On the contrary, the spring moon anywhere can be used as a guide to calendation, although it has to harmonize with the other summer months. The error in the foregoing argument (1, 2, and 3) consists in the place and time of observation, when the Tisri new moon is frequently not seen at all, especially when the moon is in south declination, as was the case on October 12, 1844. The moon was far south of the equator on this date, and the observer far north! Of course the moon could not be seen under these extreme conditions. Nevertheless, the calendar had to advance a day, because of the demands of the Nisan new year both in America and Jerusalem. Your argument from the Hevelius rules entirely omits the position of the observer, and the time best suited for calendar adjustment. Furthermore, if a table for the Boston latitude had been presented, showing the definite sequence of visible and invisible new moons at the time of the Tisri new year, different conclusions would have been drawn.

A significant redeeming feature about Tisri observation consists in the fact that the moon's phasis usually hugs the second day after conjunction, a fact that the Millerites caught, and one that helped them in their problem. But on the other hand, the Tisri translation period does not make a cycle performance, like the Nisan. At Tisri new year, the moon is always in south declination, the setting angle of the ecliptic is low, the translation periods are comparatively shorter than those of Nisan, and the Tisri new moon is never so large on the second day after conjunction as the Nisan. Consequently, it is more difficult to find the moon's phasis in Tisri, because it slips below the horizon so quickly. And when the moon is in perigee, the problem of visibility in the autumn is even more complex.

For purposes of calendation, the Nisan moon is the one to observe, just as Moses directed. This can be done on any meridian, for the Nisan translation periods form a 62-year cycle with waves, which keep precise step with the moon's velocity cycle of 62 years. At Nisan new year, the moon is always at her best for observation for she is always north of the equator. In the midst of each wave, the translation periods usually go to the third day after conjunction, but in 800 years of calendar observation, the phasis of the Nisan new year was not once found on the day of conjunction. These facts are of prime importance in laying down a luni-solar calendar, and they forestall the continual trend to advance or retard the sacred new year, because a young moon could or could not be seen in Tisri somewhere, or in other months not prescribed by the Mosaic law for calendar adjustment. This is, I believe, an important reason why scholarship has not come to agreement with reference to the crucifixion date. Any young moon, on any meridian, has been taken to regulate the calendar.

Consequently, Tisri observation, that seems to have become a substitute for the original Mosaic principle, is unreliable, if not checked with the Nisan moon, and all the other moons of the Jewish feast period.

G.A.

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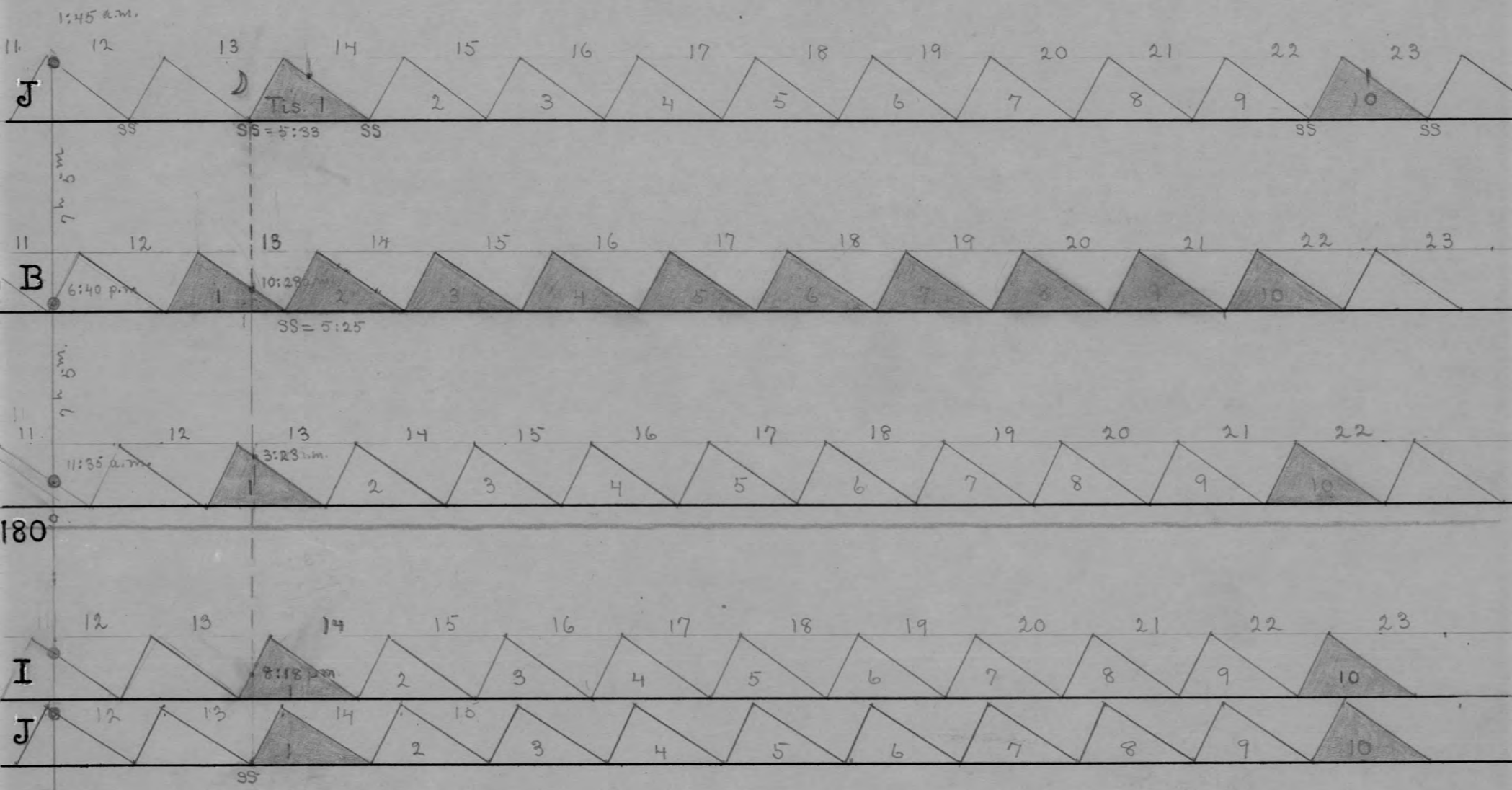
Mar 8, 1941



Elder H. Washburn,
St. Helena, Calif.
Dear Elder Washburn:

Your recent letter to Elder Froom has been read and considered. I was disappointed that you did not definitely discuss the three points mentioned in my last letter. The 1500 perturbations of the moon are taken care of -- that is, within half an hour -- in our standard tables, such as Schram, Ginzel, or Neugebauer. The Full Moon date in 411 B.C., which you criticise, was Friday, Apr. 11.68, about 4:30 p.m., earlier or later. Inasmuch as the Jews demanded from Caesar that 3:00 p.m. be the dead line on the preparation days (Josephus, bk. XVI, ch. VII, sec. 2), and for the reason that the translation cycle trend demands March 31, it seems reasonable to accept the latter date for 1 Nisan. We have worked through the 62-year cycle for over 800 years, and there are certain precise trends to the translation waves, which surely have some bearing on the problem.

However, as matters now stand between us, you have not made clear how you compute Jewish time, not only in early centuries, but in a century like the 19th, where an early reconstruction of early Jewish time has to be made. In your 1939 criticism (citations enclosed), you place the passover on the day of full moon in Jerusalem. In your recent argument for 1844, you place the passover on the day after the day of full moon in Jerusalem, making 14 Nisan coincide with May 3. You have to do this in order to have the Tisri new moon phasis occur at sunset of October 13, a point of time which you seem to accept. You give no sources at all, except the one Talmud citation, which the Jewish chronologers themselves have tried strenuously to explain and abolish. See Schürer, "Jewish Calendar."

Enclosed is Chart J and its foundation figures demonstrating the passover reckoning for Jerusalem in 1844. The sources for this computation you will find in the "Wednesday Crucifixion," which was sent you some time ago. The passover argument passed our Committee early in 1939, and it still holds. The translation cycle is the same as was worked out then. It shows that in the Holy Land the Nisan moon always fulled on the 13th of the Jewish month. This can be shown for centuries both B.C. and A.D.

But, now here comes the crux of the argument -- how shall the paschal date as applied to Jerusalem, and all the resultant feast dates, be carried from meridian to meridian, as has to be done in 1844 if the problem starts at Jerusalem? You insist on following the sun's path, dropping out the moon's office for all meridians except Jerusalem, and the sunset beginning of the day of atonement for the rest of the world. Certainly, neither the Bible nor astronomy supports an arrangement of the luni-solar calendar that permits the moon to point out her new year in Jerusalem only. On this, Ecclesiasticus 44:6, 7:

> "He made the moon also to serve in her season for a declaration of times and a sign of the world." [Italics mine.]
> "From the moon is the sign of feasts," etc.

If it is reasonable for the inhabitants of earth to demand a solar meridian (or sector) in order to keep the clocks correct in countries east and west, then it is also equally imperative that the moon's new year -- a day designated by the moon only, and not by the sun -- should have a starting meridian. The 1844 chronology definitely demonstrates that such a meridian is movable, in contrast to the solar date line, which is fixed. This movable lunar meridian provides the exact time required by the prophetic dates. In lieu of it, a 19-year cycle moon has to be employed (as in the Catholic church calendar and the rabbinical reckoning), and this fictitious moon is always from two to three days off from the true astronomical moon.

Conseauently, neither the Church calendars, nor the modern Jewish, can point out the crucifixion date or any other prophetic dates.

I won't discuss further the lunar meridian now. Enclosed is a little diagram showing how the feast day can be trailed around the circle of the earth. I am sure that you will find your observatory friends clear on this point. Astronomers welcomed the Besselian year, which is based upon a movable meridian, and, if precision is demanded, the same thing has to be featured in luni-solar time. Such a meridian is based upon the moon's translation periods and the length of the lunar year. By these means, any Jewish new year date can be traced on the earth's circle as the earth revolves. By following the ecliptic only, you wander far from the Bible demand that the day of atonement begin on the evening of the ninth of Tisri, not at 11 a.m. on the morning of the tenth on the 70th meridian, nor at 5 a.m. in Honolulu! We do not take the seventh-day Sabbath with us, when we travel, do we? We keep it where we find it. Just so with the Jewish new year!

Of importance to the problem is to learn whether you at this time are in harmony with the passover reckoning. From your criticism in 1939, I would understand that you were then following the rabbinical computation, in placing 14 Nisan on or before full moon. This of course leads to distorted translation periods. Elder Froom will doubtless further explain to you the question raised over two years ago with reference to short translation periods. Immediately after the presentation of the report, it was demonstrated in the Committee that the Tisri new moon could not be seen in Boston. When your first draft on this point came, we knew that you were wrong, for we had already diagrammed the perigee moon on the evening of October 12. However, it is no matter, seeing that we all agree on this point now. I think that you are correct in your argument that the Tisri moon could not be seen elsewhere in America in 1844.

Please note my criticism of your "Kisleu proof" of the first year of Artaxerxes. You apparently have just one rule for the phasis -- the next day after conjunction. This certainly does not agree with the ancients, nor with Scaliger, Hevelius and Fotheringham, all of whom recognize the "one to four days" for the moon's translation. If you will look on the Assuan papyri chart, it can be observed that the years 465 and 464 B.C. come at the peak of the translation wave. Hence their translation periods must be longer than one day only. Your March 25 for 1 Nisan cannot hold, for it would bring the new year before the equinox in 465, which was then March 26-27. If the spring in 465 was not embolismic, then 1 Nisan was on March 27, and to the succeeding 1 Nisan on April 15, we should have 384 days. Kisleu would then be dated Nov. 18 to Dec 17, inclusive. But if we follow the computation of Papyrus "B," then 1 Nisan in the spring of 465 was on April 25, and to the succeeding April 15 we have 355 days, making both Hesvan and Kisleu 30 days each. Kisleu then equals Dec. 18 to Jan 16. Hence the "Kisleu proof" does not pan out. Furthermore, a March 25 for 1 Nisan would make the year 386 days long from 465 to 464, and only 353 days long from 466 to 465.

I also enclose chart C on the crucifixion date. I would appreciate a personal reply for your criticism, and include postage for the return of the charts. Am sorry that they can be loaned only. Please return them before the season is over.

Thanking you again for your interest,
I am yours very sincerely,

Grace Amadon

4 Crescent Place,
Takoma Park, Md.
May 8, 1941.

P.S. You refer to S.R. Driver as supporting a chronology different from Dr. Wood's. I have just checked through Driver's data in his comments on Ezekiel, and find them in exact agreement with Wood's exposition. Years, which begin in the spring, like the Babylonian, while the corresponding regnal years of Tashlich begin in Tisri. G.E.A.

Copy from Dr. Wood's
answer to Washburn

Washburn Citations:-

1. "A faulty argument based upon Neh. 1:1; 2:1; Ezra 7:7-9. These scriptures merely prove that in the years of the reign of Artaxerxes alone there was no break in the count of the year between the first day of the month and first some unknown day in the month Kisleu, that when he came to the throne the date was somewhere between the first day of Chisleu and the first day of Nisan, the first month. And this is the meaning our people have always held.

2. "Our publications, such as those of Elder Spicer, make very clear, with diagrams, etc., that Artaxerxes began to reign somewhere between the first of Nisan and the last of Chisleu. The Canon of Ptolemy shows that he began to reign at some date between Dec. 17, 465 B.C. and Dec. 17, 464 B.C. If his reign began between Dec. 17 and Jan. 1, then he began to reign in 465 B.C. To establish that his reign began between Jan. 1 and Dec. 17, or in 464 B.C., is our problem. In other words, we must prove that he did not come to the throne between Dec. 17 and Jan. 1.

Wrong! and Spicer; "Certainties of Advent Movement." p. 140: "somewhere between August and the last of November."

3. "The month, Chisleu, sometimes reaches beyond Dec. 17. Did it in 465 B.C.? If it can be proven that in 465 B.C. the month, Chisleu, did not reach to Dec. 17, the last gap is closed in defense of the date 457 B.C.

But in 465, Papyrus "B" shows Kisleu reached a month beyond Dec. 17!! (a.m. G.E.A.)

4. "There were solar eclipses, marking times of astronomical new moons in 465 B.C. on June 20, 7:16, a.m., Greenwich Civil Time
Nov.15, 10:19, p.m. Oppolzer, Canon
Dec.14, 10:40, p.m., der Finsternisse, p. 72.
The visible new moon following the last eclipse marked the beginning of the month Tebet, and the month, Chisleu, was entirely in the past."

Papyrus "B" says Kislev

See below.

The papyri prove that the system of counting Chisleu before Nisan does not apply to Artaxerxes' reign alone, but is a general custom applying to any king's reign. In the 21st year of Xerxes, Papyrus "B" states that the 18th of Chisleu synchronizes with the 17th of Thoth in the 1st year of Artaxerxes, and as proven by the computation, this was Jan. 2, 464 B.C. As the synchronism is exact, it proves Brother Washburn's contention faulty all the way through. (Dr. Wood)

465-464 B.C., if embolismic (384 days), then 1 Nisan = Mar. 27
465 (Mar. 27 to Apr. 15) 464
Therefore Kisleu (30 days) = Nov. 18 to Dec. 17 inclusive.

Note: 1 Nisan could not equal Mar. 25, as Bro. Washburn computes, for it would not only make the year 386 days long, but it would bring the Nisan new year before the equinox, which, at that time, was March 26 or 27.

465-464 B.C., if common, then year = 355 days (Apr. 25 to Apr. 15)
Papyrus "B" calls for Apr. 25 as 1 Nisan in spring of 465.
Then Both Hesvan and Kisleu = 30 days each, and Kisleu = Dec. 18 to Jan. 16.
Consequently, "Kisleu proof" does not pan out. We must therefore look for another argument for 1st of Artaxerxes. G. Amadon.

5/13/41

Elder L.E. Froom,
Sanitarium,
Loma Linda, Calif.
Dear Elder Froom:

The enclosed tables and citations represent an attempt to outline some of the Washburn digressions, and to give an answer to them. His main criticism of Dr. Wood's chronology seems to fall down. I cannot understand why these criticisms have not been ironed out in the Committee -- why Dr. Wood does not seem sufficiently interested to press his defence. After all, it is not his argument, it is the defence of a primary prophetic date.

One of Elder Washburn's main difficulties is the fact that he thus far has had no proved method for Jewish reckoning in the early centuries. Therefore his chronological argument flounders around, interspersed with logarithms, sines and co-sines, which do not mean a thing to the academic thinker. In fact, the trigonometrical formulas cover up his mistakes, and tend to give credence to false reasoning. For this reason, as you will see by examining the material enclosed, one more attempt is here made to try to get Washburn to consent to the validity of the passover calculation. His letter and tables like these enclosed to you, have already been sent on to him, and when you see him, he should have had time to argue them through. He himself is always hard on the other fellow, but when the tables are turned, he does not like the feeling. As the situation now stands, for over two years his criticism of Wood's Part IV has held up the presentation of the 457 date in public. I believe, that so far as the 5th century B.C. dates are concerned (I do not know anything about the Exodus dates) Washburn's criticism is false alarm.

The Aramaic papyri plainly show that the Jewish count of the regnal years lagged behind the Persian count, which, in turn, lags /of behind Ptolemy's Canon. Hence the Jewish accession year of the kings of Judah, which the Bible seems to endorse, and the accession year which tablet and stone offer for Babylonian reckoning, are all to the good, and even up the gaps in these various forms of computation. Without the accession year, Nebuchadnezzar's reign would fall two years short of that of Evil-Merodach (Jer. 52:31).

Am working on the revision of Part V. Trying to make it simple. Enclosed is another historical check on the passover reckoning. Have worked out the dates in Ezekiel. All but two occur on the Sabbath day, that is, the visions. S.R. Driver endorses the same chronology for Ezekiel as presented in Part IV. Of course, it is as reasonable for Ezekiel's prophecy to have been given on the Sabbath day, covering a period of about 25 years, as for the Revelation to have been given on one Sabbath only. I hoped to find a synchronism in Ezekiel, but did not find it.

Hope that you are better, and that the whole party has had a pleasant trip. If you have time to write, please let me know if you have changed Elder Washburn's mind.

Yours very sincerely,

May 13, 1941.
Takoma Park, Md.
4 Crescent Place.

April 25, 1941.

Dear Brethren of the Committee,-

After some incapacitation by reason of ill health, I continue my communication to you, relative to some statements in Part V of your Report which call for change in order to bear close examination.

Since sending that communication, I have received, for the first time, an acknowledgment of the error as to the visibility of the moon on Oct. 12, 1844, at Boston. But the error I was pointing out is really not abandoned in this last letter, for the argument for the beginning of the 7th month at sunset on October 12 remains the same, with this difference, that instead of a visible moon at Boston, it was visible "in the mid-West and in the South."

Presumably, it is thought that the moon was visible "in the mid-West" because the time of its setting there was an hour after the moon had set at Boston. But they forget that sunset there was also an hour after the sunset at Boston, so that the altitude of the moon above the horizon was little different than it was at Boston. (Time between sunset & moonset)

This new position is untenable for precisely the same reasons as the former was.

The statements on the diagrams which I sent you can stand just as they are, substituting the word Chicago for the word Boston. (New Orleans)

The statements of Hevelius, quoted in your Report, as to the three conditions which must be present for the earliest phasis of the moon, are accurate and exact. He does not contradict Fotheringham, as has since been intimated, for according to page 35 of your Report, Fotheringham names the same "three causes", as do all astronomers.

In Chicago, as in Boston, the season was not spring, but fall, and the moon was still in south latitude, and not "in the northern border." The "three requisite causes" for a phasis in 24 hours were as much lacking in Chicago as in Boston.

I enclose the mathematical computation by spherical trigonometry, which shows that the altitude of the moon at sunset at Chicago on Oct. 12, 1844, was only $1^{o}9'$ above the horizon, far below the limits of visibility.

Abundant evidence in the publications of astronomers show that the moon at this low altitude at sunset is absolutely invisible. I have statements written me by the most eminent American astronomers to this effect, and also from an astronomer of the U. S. Naval Observatory who has been connected with the Nautical Almanac Office for much more than twice as long as Mr. Draper.

(Mathematical computation on next sheet)

Diagram C in Part V of your Report, p 31a, but evidently intended to follow p 34, has a symbol at the bottom which I have seen affixed to copyrighted representations, which indicates, I suppose, that this diagram has been copyrighted by the General Conference Corporation of Seventh-day Adventists. As there would be no purpose in copyrighting this diagram if it were not intended for publication in the name of the denomination, I wish to call to your attention serious reason why this should not be done.

The "Translation Cycle," taken with its accompanying statements, does not represent scientific accuracy, but serious error. This is the more serious from the emphatic statements in Part VI, pp 4,5, regarding the "scientific accuracy" of the astronomical argument, "profound and scientific," from the logic of which there is "no escape", which "tests of scientific investigation only substantiate and fortify," because of "adherence to the known laws of astronomy," etc.

Not only will antagonistic scholarship "severely criticise" every position of truth

1½

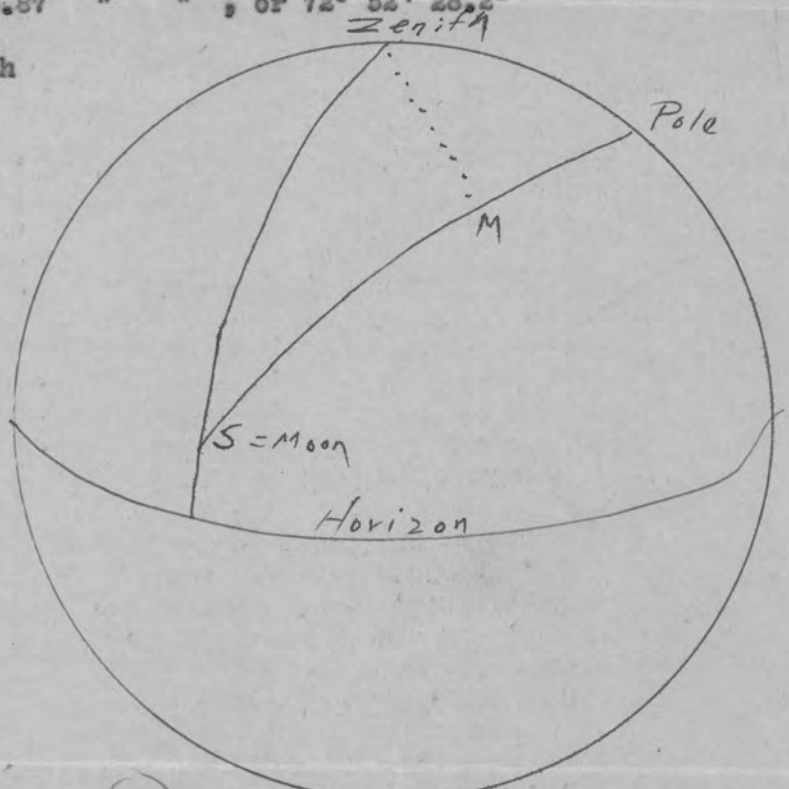
Altitude of the Moon

at Chicago, Ills., at sunset on Oct. 12, 1844.

Latitude, (Yerkes Observatory) 42° 34' 12" Co-latitude, 47° 25' 48"
Longitude west of Berlin, 6h 47m 40.69s

Time of sunset			5h 26m	Chicago Mean Time
			12 13 40.69	Berlin Mean Time
			2 00.52	Reduction to Sidereal Time
Sid. Time, 0 hrs., Berlin			13 24 29.01	
Berlin Sid. Time			25 40 10.22	at sunset, Chicago
Chicago West of Berlin			6. 47 40.69	
Chicago Sid. Time			18 52 29.53	at sunset, Chicago
Moon's R. A.			14 00 59.66	" "
Moon's hour angle, Chicago			4 51 29.87	" " , or 72° 52' 28.2"

Moon's declination 15° 15' 45" South
" polar distance 105° 15' 45"



In the Figure,
PZ equals co-latitude, 47° 25' 48"
ZPS, moon's hour angle 72 52 28
PS, polar distance, 105 15 45
ZM, a perpendicular to PS

sin ZM equals sin PZ sin ZPS
log sin 47°25'48" is 9.8671472
" " 72 52 28 9.9803042
" " 44 43 59 9.8474515

sin PM equals tan ZM cot ZPS
log tan 44 43 59 is 9.9959531
" cot 72 52 28 9.4887313
" sin 17 46 28 9.4846844

MS equals 105°15'45" - PM, or 87°29'17"

cos ZS equals cos MS cos ZM
log cos 87 29 17 is 8.6417483
" " 44 43 59 9.8514990
" " 88 13 8.4932473

(**)

Geocentric altitude of moon, 90°-ZS, or	1° 47'
Parallax	1 01
True altitude	0° 46'
Refraction	0 23
Apparent altitude	1° 09'

1° 09' is far below the minimum altitude for visibility of the moon at sunset.
See the numerous published reports of astronomers.

The moon's age at sunset, Chicago, 23h 56m Distance from Sun in longitude, 13° 43'
Crescent a very thin line, at widest part only 0.4' thick, or 1/70 moon's diameter.
In a dazzling, glaring sunset sky, far below limits of visibility.

(**) The position of a heavenly body, as given in the Ephemeris, is geocentric, and is true only for a place on earth where the heavenly body is in the zenith. Corrections for parallax always have to be made, otherwise.

which we hold, as stated in Vol. 5, but we read in R & H, 12-18-1888, that "The severest criticism" will come upon "every position that has been taken for the truth." Any position or argument in behalf of the truth which is inaccurate will surely be noted, and "the wisdom of the world's wise men will be too much for us."

The "Translation Cycle," called also on page 35 the "Phasis Curve," corresponds in part to column 4 of the Table on page 33, "Period from Conjunction to Phasis." This translation period is based upon a postulate that the day of full moon in each month is the 13th day of the month. This is an addition to the postulate that Nisan 13 was the day of full moon in that month. It has been denied that this translation period was thus obtained. There are, however, four different proofs in the document that it was thus obtained. It would still be faulty, however, if after the Nisan phasis the succeeding phases were considered to follow always at alternate intervals of 30 and 29 days, and the following criticism would still apply.

It is asserted on page 34 that the Translation Cycle "represents the actual time in days, hours, and minutes it takes the moon to go from conjunction, when she cannot be seen, to her phasis, or first appearance." This statement is, in frequent instances, untrue.

On page 35, to follow Diagram C, is the statment, "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." This statement is not true.

The phasis curve, in Diagram C, is derived solely from the interval from conjunct ion to full moon, shown by the sine curve at the bottom of the diagram. And this varying interval from conjunction to full moon, is dependent solely upon the new Moon's position with reference to perigee. It pertains only to the speed of the moon forward in its orbit, without regard to its sidewise swing in latitude, which in the fall of the year has a greater influence to retard the visibility of the new moon than perigee has to hasten it, if the moon at that time is in the southern part of the zodiac. That is why Hevelius, quoted in your Report, says that one of the three concurrent essential conditions for early phasis is that the moon be "in the northern border" of the zodiac.

This phasis curve also has no relation to the time of the year, the longitude or sign of the zodiac in which the moon is, the inclination of the ecliptic to the western horizon. This is ~~also~~ a factor which, in the spring, overbalances both the others in hastening the visibility of the new moon. That is why Hevelius states that the moon must be"in the signs of long settings" for early phasis.

Fotheringham agrees with Hevelius, as all astronomers must indeed do, in giving three conditions which must all be present for the earliest phasis, in 24 hours. Evidence of this appears on page 35 of your Report.

I ask you to look at the large 10-foot chart which I sent for the inspection of the Committee, and observe thereon how this theory repeatedly calls for a very early phasis in the fall, when this is actually impossible. It also calls for a late phasis in the spring, when the phasis is actually early.

Every astronomer will tell you that the phasis of the moon depends upon its altitude above the horizon at sunset, and that this altitude is affected by all three of Hevelius' factors. While it may be known that the moon would certainly be seen at a certain altitude, it is impossible to know whether the moon would have that altitude by merely considering the moon's position relative to perigee. The astronomer will always want to know whether the moon is in north or south latitude, especially in the fall; and he will always want to know the time of year, whether the ecliptic makes a high or low angle with the horizon in the west.

Diagram C and its discussion overlooks completely two of the three factors involved.

To men who really know "all the causes which conspire to hasten or retard the visibility of the nascent moon" this diagram will, if published, appear naive.

It will appear somewhat like copyrightin g as a discovery a representation of a cube [illegible] by only 4 straight lines, without showing the third dimension.

Great sport could be made of a denomination [illegible] claiming such a discovery. As far as possible, we should avoid putting into the hands of the enemies of God's truth anything upon which their ridicule can be turned against against God's people, and which their enmity will use against the truth itself.

I have repeatedly noticed, in matter sent to me on this subject, a failure to recognize the complexity of the moon's motion. The moon's average motion, with lunar months invariably at intervals of 30 and 29 days, etc., is adopted, without taking into account factors which take the moon away from its average position.

The motion of the moon is too complex to permit of its being accurately represented by some of the graphs which have been prepared.

The symmetry of the "62-year curve" on the Table dated Nov. 5, 1940, "Construction of Aramaic Calendar in Time of Ezra and Nehemiah," was preserved only by an arbitrary change in the date of the full moon in 411 B.C. Instead of allowing the true date of the full moon to correct the adopted theory, the date of full moon was changed to fit a theoretical translation period. The change of the true date was [illegible] made to fit a theory which "demanded" something contrary to the fact of nature. This change was excused by the statement that

> "inasmuch as the passover full moon was April 11.68-- nearly after sunset-- it is probable that April 13 was taken as the passover day."

Inasmuch as the moon fulled at 4:19 P. M. on April 11, and sunset was not until 6:25 P. M., a good deal of violence is done to the factual evidence to sustain a theory.

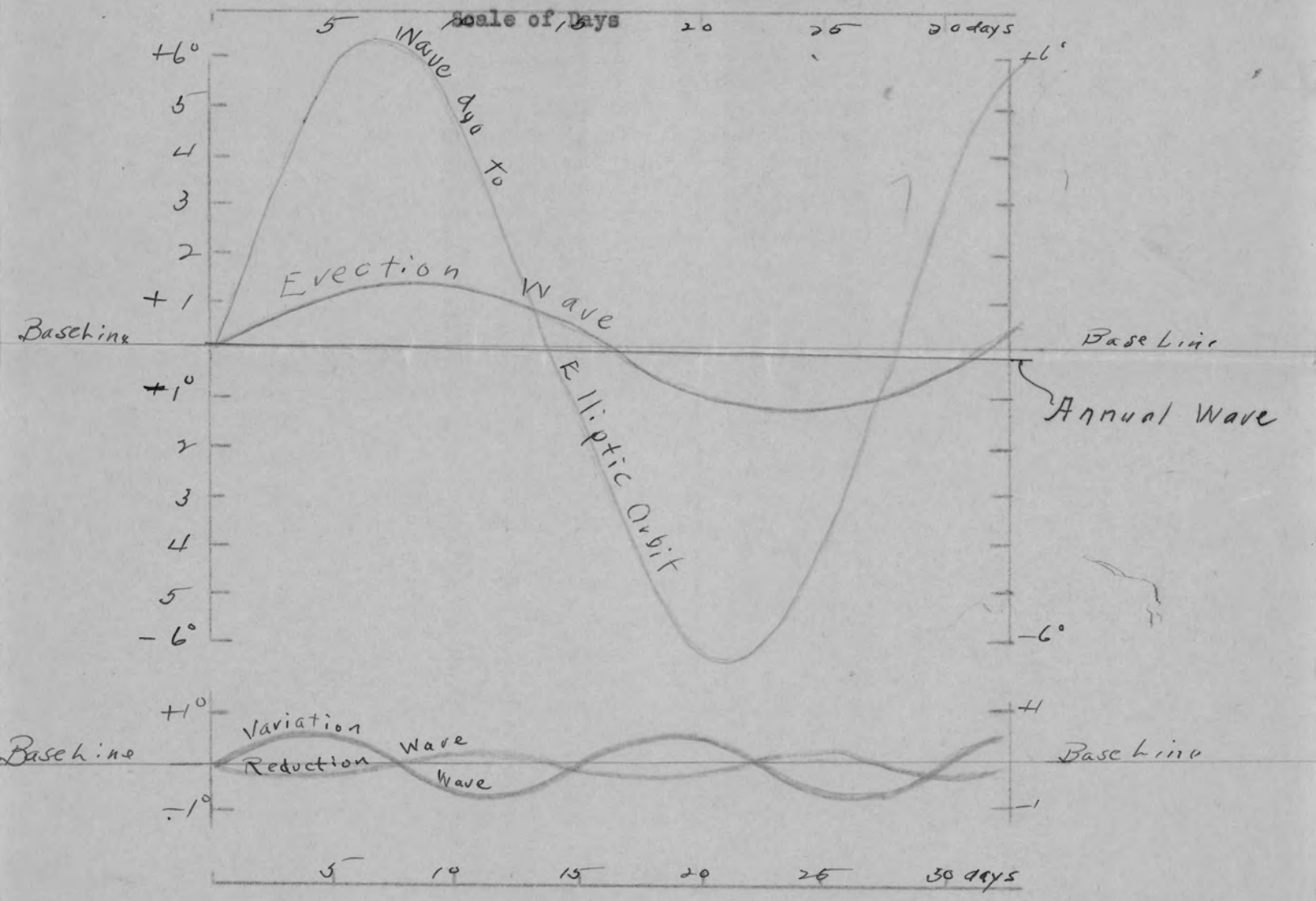
Our enemies would make great capital of such changing of facts. The symmetry of the curve before 411 illustrates an average position of the moon, while the lack of symmetry at 411, if the true date were preserved, illustrates the fact that the moon's motion is not so simple as the theory supposed.

To determine the position of the moon at a given time, about 1500 terms have to be taken into account, in the latest work by E. W. Brown.

I append three sheets of diagrams which illustrate some of the irregularities of the moon's motion, which take it sometimes far away from its average position.

Unequal Motion of the Moon in its Orbit

Base Line represents the Mean Position, from which the moon is constantly varying.



The moon's place is calculated by first taking its motion as uniform, and superposing on the resultthe heights of a great number of waves, of which five are shown above. Each wave repeats itself indefinitely. Since their periods are different, each month has a different combination of readings. Many hundreds of waves are included in Brown's Tables of the Moon. It is merely for convenience that the above waves are all represented as starting at the same point; actually this seldom or never happens.

This is the reason of the great complexity in the moon's motion.
"Practically, it never repeats itself exactly."
(A. C. D. Crommelin,
Greenwich Obs.)

Constantly Varying Factors.

The moon's elliptical orbit about the earth may be thought of as the long circumference of an egg lying upon a flat surface, along which circumference the moon moves at constantly changing speeds as it approaches or recedes from perigee.

The plane of motion in the shell is constantly changing.

The egg itself turning around, its end pointing constantly in a different direction.

This direction jerking back and forth in unequal amounts.

The egg with a soft shell, constantly lengthening and shortening.

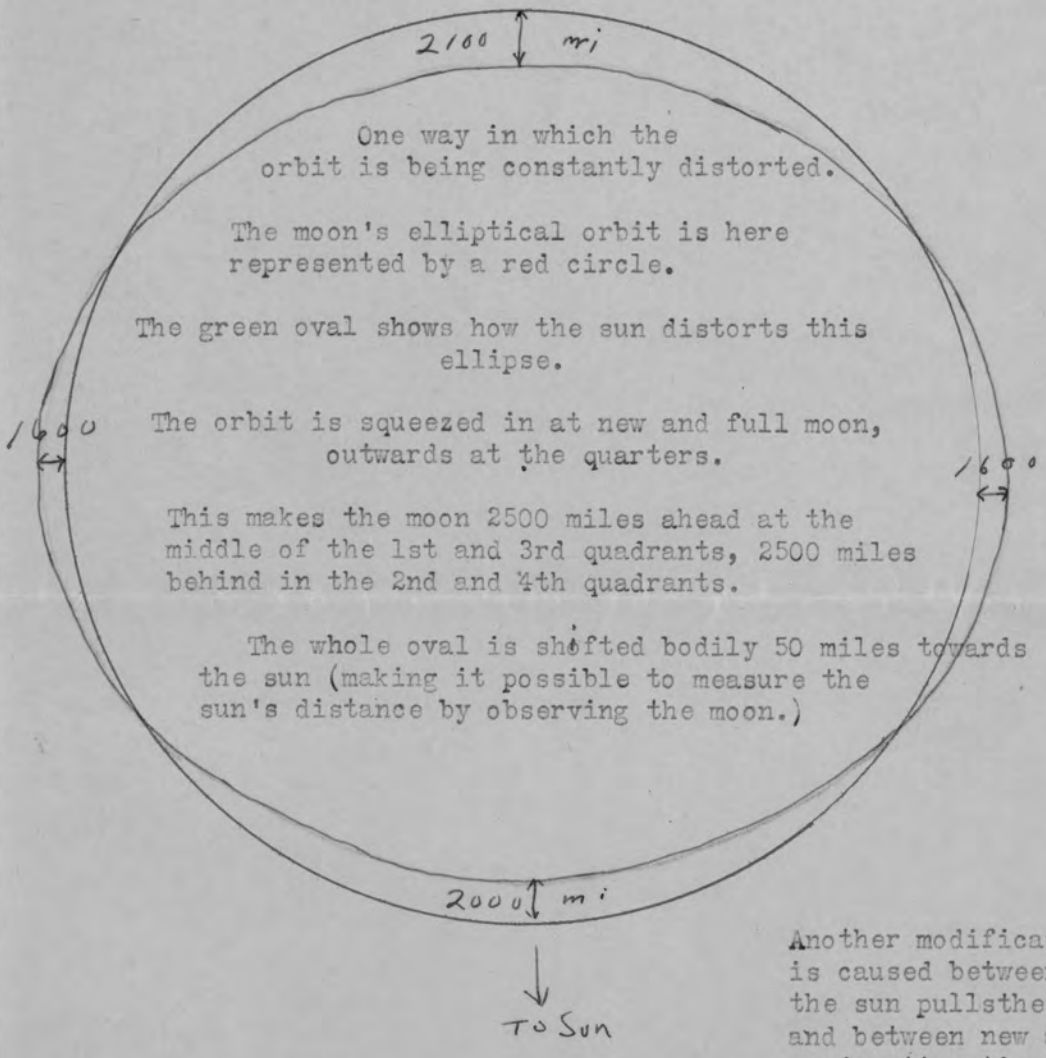
A Point in the yolk, off center, representing the earth, is changing its position.

The egg moving in a large path, elliptical in shape, at varying speeds.

The size of this path constantly changing, affecting the speed.

The ellipticity of the path constantly changing, affecting the speed.

And other changes taking place, all affecting the spped and position of the moon.



One way in which the orbit is being constantly distorted.

The moon's elliptical orbit is here represented by a red circle.

The green oval shows how the sun distorts this ellipse.

The orbit is squeezed in at new and full moon, outwards at the quarters.

This makes the moon 2500 miles ahead at the middle of the 1st and 3rd quadrants, 2500 miles behind in the 2nd and 4th quadrants.

The whole oval is shifted bodily 50 miles towards the sun (making it possible to measure the sun's distance by observing the moon.)

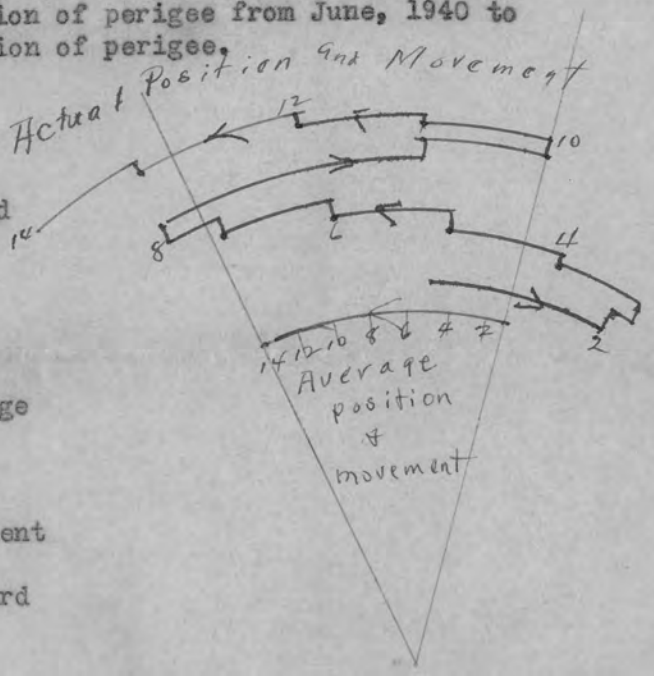
The moon being already ahead of or behind its mean place because of its elliptic orbit, its motion is further complicated by changes in the orbit itself.

Another modification of the moon's motion is caused between full and new moon, when the sun pullsthe moon forward in its orbit; and between new and full moon, when the sun's attraction retards it.

Irregular Changes in the Direction of the Axis of the Moon's Orbit, constantly moving the moon away from its mean place.

The sun's attraction changes the direction of the axis, making the longitude of perigee move forward and backward irregularly, but in the long run making a forward move ment of about 3° per anomalistic month, completing a revolution in 8.853 years, on the average. The diagram shows the mean position of perigee from June, 1940 to June, 1941, and the widely contrasting actual position of perigee.

	Date of perigee	Mean position	Actual position	Actual movement	
(1)	June 12	180°	193°		
(2)	July 9	183	165	Backward 28°	Instead
(3)	Aug 6	186	163	" 2	
(4)	Sep 3	189	175	Forward 12	of
(5)	Oct 1	193	190	" 15	
(6)	Oct 30	196	205	" 15	the
(7)	Nov 27	199	219	" 14	
(8)	Dec 25	202	225	" 6	average
(9)	Jan 19	205	194	Backward 31	
(10)	Feb 15	208	180	" 14	3°
(11)	Mar 14	211	194	Forward 14	
(12)	Apr 12	214	207	" 13	movement
(13)	May 10	217	224	" 17	
(14)	June 8	220	236	" 12	forward



The length of the lunar month constantly varies, and is never the same in two consecutive months. In 1939 the lunar months varied from 29d 6h 50m to 29d 19h 01m. In the long run the length is 29.530588 days. Exact accuracy is not obtained by always counting the lunar month as 29½ days.

And the Mosaic months, always beginning with the first appearance of the new moon, vary still more in length. They do not conform always and invariably with alternate periods of 30 and 29 days. While the modern Jewish calendar, based upon the average position of the moon, has, for example, 30 days for Sivan and Ab, and 29 days for Tammuz and Elul, the visible new moon would sometimes make Sivan or Ab 29 days, and Tammuz or Elul 30 days, or sometimes have two consecutive months of 29 or 30 days. This is plainly stated in the Talmud, and also by the Karaites.

For this reason. we cannot always obtain conclusions of assured accuracy by reckoning the Mosaic months from Nisan to Tisri as invariably 30,29,30,29,30,29,30 days.

N. A. Washburn

Please give to Committee

JUN 23 1941

St. Helena, Calif.,
June 20, 1941.

Dear Brethren of the Committee,-

I have written two letters to you, sending them to the chairman, under dates of Jan. 30 and April 25, 1941. I sent these because I had been engaged in a long and laborious correspondence which I felt I could continue indefinitely, in which I had presented facts which I thought should receive the attention of the committee, but which I thought had not come to your attention.

There is another important matter upon which I wrote six months ago, but have not felt free hitherto to send to any of the Committee, because in correspondence I had been asked not to take issue with a certain position which was considered as settled. To question this at that time I feared might lead to personal feelings which should be avoided.

Before taking up this topic, I wish to state that some diagrams and written matter which came to me just before the General Conference, and which I saw in some of your hands at the Conference, misrepresent me.

When I was first solicited to comment upon the report of your Committee, I was obliged several times to write in great haste, on three occasions on Friday afternoon, not very long before sunset. Under these circumstances I made some erroneous statements, which I thereafter corrected.

Notwithstanding my corrections, some of these errors continued to be held against me for more than 1½ years, and cited as evidence of my untrustworthiness.

This last communication has something which is marked "Citations from Elder Washburn's criticism sent in 1939." That was not a criticism. It was sent in January, 1939, months before there was a report to criticise. In 1934 Brother Froom had seen a diagram and accompanying statement of mine which he asked that I send to him. The first part of the statement, the essential part, was something I wrote 26 years ago.

With the matter sent me is a sheet numbered "-8-", on the corner of which is written, "Copy from Dr. Wood's answer to Washburn." You probably have it also.

This is my first knowledge of such an answer.

At Bro. Froom's request I sent him a hurriedly written comment on Part IV by Bro. Wood, which he turned over to Bro. Wood. In my haste I made an inverted statement which I corrected in my next letter. My true position could be seen, even without my correction, by noting the statement I had sent in several months before relative to the reign of Artaxerxes.

Bro. Wood wrote me on July 26, 1939, "I will not go into the answer of your questions, but hope after the beginning of September when the summer session has closed, to be given time to go into this matter more fully. Before anything is published we will send the matter to you with careful replies to all your criticisms." I have heard nothing since.

Miss Amadon now quotes from "Dr. Wood's answer to Washburn," in which I am not rightly represented, for quotation is made from my letter in which I made the hurried mistake, and which I corrected, in June, 1939.

I might say that on my statement of 26 years ago, and repeated in my 1939 correspondence, there was a point which seemed to be proven by the data to which I then had access. This referred to whether Kisleu reached beyond Dec. 17 in 465 B.C. I have better information now, and do not hold to that particular point. And I have never held that point to be absolutely vital. Our published arguments, as by Bro. Spicer, contain everything that is necessary.

You have seen on the reproduction of one of my charts three questions, all of which can be answered except the third: "Why cite modern Jewish calendar for the first century? I admit that I was as much in error then as is Miss Amadon in her retaining in her arguments such features of the modern Jewish calendar as invariable lengths of months, and embolismic years by fixed rule. Months determined by observation of the moon begin after the moon is first seen, whether the interval since the last new moon be either 29 or 30 days. Miss Amadon has abandoned this features of the Mosaic calendar, and without knowing what the agricultural season was in any given year, withoutknowing whether the barley harvest was early or late, inserts embolismic years by rule. These last charts have embolismic years where it would be impossible, and vice versa.

Much of Miss Amadon's argument hangs exclusively on these features borrowed from the Jewish calendar of computation, which gives only the average position of the moon, from which the real moon may vary greatly, according to authorities she has quoted in her discussions.

Several months ago I was asked not to take issue with Postulate 1, that the full moon of Nisan always fell on Nisan 13. I now feel that I should fulfil my promise to give my comment on this and the deductions which have been made from the datings in the papyri of the 5th century B.C.

The sheets which follow contain the essentials of this matter. The full moon dates have been taken from Miss Amadon's paper. The Julian dates for 1 Thoth have been demonstrated by the highest authorities, accepted by Bro. Wood, and admitted by Miss Amadon since her paper was written.

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I did not inject myself into the discussion of these matters. I have been repeatedly solicited to send my suggestions and criticisms, and requested to "give immediate attention," to "work rapidly when materials are placed in your hands," to make "speedy responses," etc.

In return I have been caught up on isolated statements made in this hurried work, and the errors have been held against me, after I had corrected them. Repeatedly I have been reminded of Gal. 4:16.

We will all admit that one is subject to erroneous arguments and conclusions if we do not have a sincere desire for truth.

> "Those who sincerely desire truth will not be reluctant to lay open their positions for investigation and criticism, and will not be annoyed if their opinions and ideas are crossed."
>
> R & H, 7-26-92

I want to say that I appreciate the amount of hard work which has been put into this investigation, for I have spent many weeks in going into the details of everything that has been sent me. I hope no person will feel that I have had any other object in my criticism than to respectfully present facts for the purpose of aiding the Committee in publishing only that which will stand the searching scrutiny which an antagonistic scholarly world is certain to give.

Yours sincerely,

H. A. Washburn.

CALENDAR USAGE OF THE ARAMAIC PAPYRI OF THE 5th CENTURY B.C.

In no case do the datings of these documents permit Nisan 13 to be the day of full moon.

They are, in every case, evidence against the Postulate upon which so much argument has been built.

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Papyrus "A", 471 B. C. "On the 18th of Elul, that is the 28th day of Pachons."

This was Sept.12, Julian calendar. (Agreed to by L.H.Wood)

The preceding 1 Thoth was on Dec. 19, 472.
28 Pachons, the 268th day of the Egyptian year, was 267 days after Dec. 19, or Sep. 12.

18 Elul is the 166th day of the Hebrew calendar, as used by Miss Amadon.
1 Nisan was 165 days before Sept. 12, or March 31, and 13 Nisan was April 12.

The full moon did not occurr on this day, April 12, but on April 14.52 J.C.T.
Therefore the calendar used in 471 B.C. had the full moon on Nisan 15, and not Nisan 13.

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Papyrus "B" proves the same, but I leave its discussion to the last, as the way it is used in Miss Amadon's paper would make seven years of Artaxerxes' reign end before 457 B.C.

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Papyrus "D", 460 B.C. Miss Amadon presents the evidence that this document was drawn up on 21 Heswan, "that is the 1st day of Mesore."
This was Nov. 11, 460 B.C.

The preceding 1 Thoth was Dec. 16, 461 B.C.
1 Mesore, the 331st day of the Egyp. calendar, was 330 days later, or Nov. 11, 460.

21 Heswan is the 228th day of the Hebrew calendar used.
1 Nisan was 227 days before Nov. 11, or Mar. 29, and 13 Nisan was April 10.

The full moon did not occur on April 10, but on April 12.34, which was Nisan 15.

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Papyrus "30", 451 B.C. "On the 7th of Kisleu, that is the 4th day of the month Thoth."

1 Thoth was Dec. 14. 4 Thoth was Dec. 17.

7 Kisleu is the 243rd day of the Hebrew calendar used.
1 Nisan was 242 days before Dec. 17, or Apr. 19, and 13 Nisan was May 1.

The full moon did not occur on May 1, but on May 2.73, which was just before the sunset close of Nisan 14, and might be supposed to be on the 15th.

For the year 411 B.C., when the moon was full on April 11.68, which was 4:19 P. M., and sunset was at 6:25, Miss Amadon holds that on account of this proximity of full moon and sunset, "it is probable that April 13 was taken as the passover day." She does this in order to maintain the correctness of a theoretical graph. If she were justified in that, then certainly the full moon was on Nisan 15 in 451 B.C.

Papyrus "F", 440 B.C. "On the 14th day of Ab, that is the 19th day of Pachons."
August 26.

1 Thoth was Dec. 11. 19 Pachons, the 259th day, was 258 days later, or Aug. 26.

14 Ab is the 132nd day of the Hebrew calendar used.
1 Nisan was 131 days earlier than August 26, or April 17, and 13 Nisan was was April 29.

The full moon did not occur on April 29, but on May 1.28, which was Nisan 15.

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Papyrus "J", 416 B.C. "On the 3rd of Kisleu, . . the 12th day of Thoth."

1 Thoth was Dec. 5, and 12 Thoth was Dec. 16.

3 Kisleu is the 240th day of a 355-day year.
1 Nisan was 239 days earlier than Dec. 16, or April 21, and 13 Nisan was May 3.

The full moon did not occur on May 3, but on May 5.49, which was Nisan 15.

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Papyrus "K", 410 B. C. "On the 24th of Shebat, . . . the 9th day of Athyr."

1 Thoth was Dec. 4. 9 Athyr, the 69th day of the year, was 68 days after, or Feb. 10.

24 Shebat is the 319th day of the year.
1 Nisan was 318 days before Feb. 10, or March 29, and 13 Nisan was April 10.

The full moon occurred on April 11.68 in the first document of Miss Amadon's, which would be Nisan 14. As she contends for a recognition of the full moon on April 12, in order to maintain the correctness of her theoretical graph of translation periods, the full moon would fall on Nisan 15.

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Papyrus "E", 446 B.C. "On the 3rd of Kisleu, that is the 10th day of the month Mesore."

1 Thoth was on Dec. 13. 10 Mesore, 339 days later, was Nov. 17.

3 Kisleu is the 239th day of the 383-day year.
I Nisan was 238 days before Nov. 17, or March 24. Miss Amadon will object to this date, on the ground that it was before the vernal equinox. But dating of the document shows that Mar. 24 was Nisan 1, the men of 446 B.C. not being governed by a rule that some lays down at this late date.
13 Nisan would be April 5.

The full moon did not occur on April 5, but on April 8.89, long after sunset, so that the full moon date would be April 9, Nisan 17.

All this is on Miss Amadon's assumption that the Hebrew months anciently from Nisan to Tisri were invariably as they are in the present Hebrew calendar, 30,29,30,29,30,29 days without variation, a calendar of calculation, not of observation. Our best evidence is that the Mosaic calendar was based upon actual observation of the moon, just as the Mohammedan calendar at Cairo today, and as stated by the Karaites. Both the Talmud and the Karaite statement show that actual observation of the moon itself sometimes made a month, as Elul, ordinarily 29 days, to be 30 days, and 30 day months to sometimes be 29

Even if we presume that the scribe made a mistake of 3 Kisleu for 2 Kisleu, the moon would be full on Nisan 16.

Papyrus "B", 464 B.C. "On the 18th of Chisleu, that is the 7th day of Thoth."

I think we shall make a great mistake if we substitute 17 Thoth for 7 Thoth as Cowley translates it. The authors who are followed in making this change evidently made the change so as to harmonise with the common assumption that Artaxerxes began to reign in 465 B.C.

In adopting this change, we obtain Jan. 2, 464, as a time when Artaxerxes was already sitting on the throne. Seven years of his reign could not reach past Jan. 1, 457, at the latest, making the decree of Ezra 7 in 458 B.C.

But even assuming the document should be read 17 Thoth, it is against the Postulate.

1 Thoth was Dec. 17, and 17 Thoth would be Jan. 2.

18 Kisleu was the 255th day of a 355-day year.
1 Nisan would be 254 days before Jan. 2, or April 23, and 13 Nisan would be May 5, 465.

The full moon did not occur on May 5, but on May 7.63, which would be Nisan 15.

But let us take the date without changing it,
as we surely ought to do,
Thoth 7, which would be Dec. 23.

18 Kisleu was the 255th day of a 355-day year.
1 Nisan would be 254 days before Dec. 23, or April 13, and 13 Nisan would be April 25.

In 464 the full moon of Nisan was on April 27.11, which would be Nisan 15.

The document was drawn up in the latter part of 464, and its date permits the 7th year of Artaxerxes reign to reach well over in 457 B.C.

This papyrus dating, taken just as it stands, and given by Cowley, is important contemporary evidence supporting our denominational position as to the beginning of Artaxerxes' reign in 464 and not in 465 B. C.

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Papyrus "H". Nothing can be proven from this document, for the day of the month is not given. If Elul coincided with Payni, it is more likely that 1 Elul fell in with 1 Payni than that 29 Elul fell in with 30 Payni.

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As the Jewish day begins at sunset, it overlaps 2 Egyptian days. The night part of the Jewish day corresponds to an earlier Egyptian day than does the day part. But as men transact business as a rule in the day, and not in the night, the synchronism of a Jewish date would be with the second Egyptian date.

If it were pleaded that all these transactions of the 5th century B.C. were in the night, and none of them in the daytime, even then the full moon could be moved back only to Nisan 14, never to Nisan 13, except in one case (Papyrus "30", 451 B.C.), when it would occur near sunset at the close of Nisan 13.

The result would be the same if the transaction were in the daytime, but with the Jewish date synchronized with the Egyptian date on which it began, with a 1-day difference on the Julian calendar between the Hebrew and Egyptian dates, the Hebrew date of the document being 1 day later in the Julian calendar than the Egyptian date in the document. This last assumption has the advantage of making the 5th century 1 Nisan dates all begin after conjunction.

THE POSTULATE APPARENTLY CANNOT STAND ON THE STATEMENT OF ARISTOBULUS AS GIVEN IN EUSEBIUS.

I hailed with delight the first presentation which seemed to show that Nisan 13 was the day of full moon in the ancient Jewish calendar. But when I came to examine Cruse's translation of Eusebius, cited in the Report, I found that it did not read as it had been quoted . The reading could not be made to mean that the full moon fell on Nisan 13. I then concluded that the quotation was a translation of a translation by Caspari, and probably did not accurately reflect the original Greek. When I had opportunity, I examined all the Greek texts of the original, and the translations, in the large library of the University of California.

I give in parallel the translations of the Loeb Classical Library, of A. C. McGiffert endorsed by Philip Schaff, of Cruse, and the translations of Nancel's translation and of Cadpari's German translation, used by Miss Amadon.

"And as the fourteenth of the month, at evening, is assigned as the day of the passover,
"And as the day of the passover was appointed on the 14th of the month, beginning with the evening,
"And since the day of the passover is given on the 14th of the month at evening,
"And since the passover was appointed on the 14th day of the first month, after the evening
"That the day of the paschal festival began on the 14th of Nisan after the evening,

"the moon will have its place in the station that is diametrically opposed to the sun,
"the moon will hold a position diametrically opposite the sun,
"the moon will stand diametrically opposite to the sun,
"when the moon is caught in the region opposite to the sun,
"when the moon stands diametrically opposed to the sun,

"as may be seen in full moons."
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"as even the eyes may see."
"as anyone can see at the time of full moon."

The Greek texts have a comma after the word hesperan, "evening."

Aristobulus uses the language of Scripture, and his meaning must be the meaning of the Scripture.

"On the fourteenth day of the month at even, ye shall eat unleavened bread." Ex 12:18

"In the fourteenth day of the first month at even is the Lord's passover. And on the fifteenth day of the same month is the feast of unleavened bread." Lev. 23:5,6.

The Scripture means that at the sunset close of the fourteenth day the passover festival began, that it was in the night of Nisan 15 that the lamb was eaten and the firstborn slain, and in the morning of Nisan 15 Israel left Egypt. Ex. 12:6,8,18,29; Lev. 23: 5,6; Num. 33:3.

The Scripture says nothing about the full moon. Aristobulus's language indicates that the moon was to be full on Nisan 14, after its sunset close, when the passover festival began, on the 15th of Nisan, the first day of unleavened bread.

The men of the 5th century B.C. in Egypt appear to have taken the day of full moon to be Nisan 15. They assuredly did so, if they reckoned their months as does Miss Amadon, with invariably 177 days from Nisan to Tisri.

P.S. If it be allowed that the papyri synchronize the Hebrew date with the Egyptian date on which it began at sunset, making the Julian date one day later for the Hebrew date than for the Egyptian, then the evidence points to full moon on Nisan 14. I now prefer this view.

Not so long ago, you wrote me an enthusiastic response and acceptance of the Syllabus. Inasmuch as this outline contains the summary of the argument, I concluded that you were in harmony with what is there presented. Now, you keep repeating that Part V is at fault, and seem anxious to demonstrate its errors. Part V, ~~dear Professor,~~ represents our first approach to this important phase of prophetic chronology. After two years of earnest study, the whole presentation has become much simplified. ~~And you should go along!~~

The very fact that the Tisri phasis could not be seen in the autumn of 1844, in Boston, the very center of the movement, plainly indicates that the Tisri new year was not the important moon to observe! The movement was in America, and on this ground the problem had to be solved. But, if the leaders had delayed until the October conjunction for a confirmation of the prophetic date, there would have been no seventh month movement! For it was the certainty of the dates, as based upon the Nisan new year, that so aroused the people at the Exeter meeting. But New England -- not Jerusalem -- was the ground, and April was the time that marked the beginning of the last stretch of the prophecy of Dan. 8:14.

The April conjunction was at noon of the 17th. The moon could not be seen on that date, for the time was too short between conjunction and sunset -- only six hours. On the evening of the 18th, the young moon lingered an hour and a half in the sky before she set. This means that she was high on the horizon, after sunset, about 20 degrees, perhaps. Certainly she could be seen. Consequently, April 18, after sunset, was the right point of time for the moon's phasis, and no other! April 19 was therefore Nisan 1, and 177 days added to this date, made Tisri 1, or October 13.

According to your recent letters, you object to the 177-day blanket reckoning. You argue that there were sometimes two consecutive 29-day months, or two consecutive 30-day months in the Jewish feast period from Passover to Tabernacles. You have not given sufficient authority for this statement. The Aramaic dates are against you. Several of these papyri dates came after Tisri, in the autumn, and all figure straight back, without any irregularity, to a Nisan 1 date that is based upon the passover principle of reckoning. This is an important contribution to early Jewish calendation, and this passover principle is the first to bring harmony and coincidence between these Aramaic and Egyptian dates of the now famous papyrus rolls.

You argue that early Jewish reckoning was all observation -- no computation. The Committee has never taken such a position. Part V represents computation as being introduced in the second century B.C., according to the authority of Albiruni and Sidersky. But the Bible itself seems to indicate that the Jews were computing during the time of the first temple. David said with finality to Jonathan: "Tomorrow is the new moon." A little later, we find Saul keeping a new year feast on the very evening of the phasis, apparently. The Scriptures read: "And when the new moon was come, the king sat him down to eat meat" (1 Sam. 20:24).

Your discussion of the Egyptian calendar, while interesting, is irrelevant to our problems just now. Last October, Miss Amadon sent you her original table of the papyri dates. In this chart, the Egyptian dates were computed according to the number of Egyptian new year changes occurring in each particular interval, thus doing away with the necessity of using the calendar tables at all. In order to be in harmony with Dr. Wood, she adopted the 26th of February for the beginning of the Nabonassar era. When your criticism came along, she already had the charts ready, and sent them to you.

Your challenge of the true position of Nisan 14 is disturbing. Your method surely upsets the harmony in the papyri calendation.

If you have anything to offer on the Millerite chronology, send it along. We shall all be interested.

"Make it plain upon Tables"

Ptolemy's Eclipse 1, on 29 Thoth, Mar. 19d, 19h, 4m, 721 B.C.

By your position, the eclipse could not occur on 29 Thoth

EGYPT

If 1 Thoth on Feb. 21, from noon

Thoth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
(Leap year) Feb.	20	21	22	23	24	25	26	27	28	29	March 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Thoth	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

Only correct position: 1 Thoth = Feb. 20 in 721 B.C. and therefore = Feb. 26, in 747 BC.

Eclipse 2, 18 Thoth, Mar. 8d, 21h, 30m, 720 B.C.

By your position, the eclipse could not occur on 18 Thoth

EGYPT

If Thoth 1 on Feb. 20, from noon

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

Only correct position: 1 Thoth = Feb. 19 in 720 B.C. and Feb. 26, 747 BC.

Ptolemy states elsewhere (Almagest, ch. VII, Guinness, Light for L.D., 399) that this eclipse was on the night "between the 18th and 19th" proving again that 1 Thoth did not begin at noon.

Similar diagrams for all the other eclipses give identical results. All agree in making Feb. 26 to be 1 Thoth in 747 BC.

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The position of 1 Thoth, thus FIXED by the eclipses, also fits precisely the Sothic Cycles otherwise determined.

We obtain July 19 for 1 Thoth in 140 AD, the first year of a Sothic Cycle, when 1 Thoth occurs on the day of the heliacal rising of Sirius ("Soth") in Egypt, which is July 19. Breasted, Hist. Egypt, 2nd Ed. p. 35 136 Am.

And we obtain July 20 for 1 Thoth in 139 AD, the last year of a Cycle.

See Breasted's argument for the beginning of a Sothic Cycle and introduction of a calendar on July 19, 4241 BC, with subsequent Cycles beginning on July 19 every 1460 years, in 2781 BC, 1321 BC, and 140 AD.

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In your computation from these eclipses, you have made at least one error in every case. In most cases you have made two errors which cancel, so that you have a correct result in the last column of Table III.

But in these instances, just as in your astronomical argument for Oct. 22, in 1844, your untrue reasoning would invalidate your conclusion.

Truth will be rejected and condemned by the world if they see it based upon erroneous argument. There is always an irrefutable argument. I am sorry to read your fallacious astronomical argument for Oct. 22, and then conclude with the most sweeping declaration of its absolute irrefragability. The world's scholarship will find your error when they unite in scrutiny and "severely criticize" every position (5 T, p 717).

There is an incontrovertible argument for Oct. 22, which you ignore. I trust that you will now be disposed to give consideration to what you have treated as a closed question.

"Without counsel purposes are disappointed; but in the multitude of counsellors they are established."

Ptolemy's Eclipse 1, on 29 Thoth, March 19, 721 B.C., at 19h.4m.

Eclipse

By your position, the eclipse could not occur on 29 Thoth:

1 Thoth on Feb. 21, from noon

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

Only correct position: 1 Thoth = Feb. 20, in 721 B.C.

Ptolemy's Eclipse 2, on 18 Thoth, March 8, 720 B.C., at 21h.30m.

By your position, the eclipse could not occur on 18 Thoth:

1 Thoth on Feb. 20, from noon

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

Eclipse

H. A. Washburn

Only correct position: 1 Thoth = Feb. 19, in 720 B.C.

Ptolemy states elsewhere, Almagest ch. vii (Guinness, Light for Last Days, 399), that eclipse 2 was in the night **"between the 18th and 19th"**, proving again that 1 Thoth did not begin and end at noon.

Similar diagrams for all the other eclipses give identical results.

The position of 1 Thoth is F I X E D by these eclipses, so that it cannot be moved either way. This evidence is FINAL, whatever different position some writers may take.

All the other eclipses dated in terms of the Egyptian calendar give identical results.

This gives precise agreement with the beginning of a Sothic Cycle on July 19, 140 AD, when 1 Thoth fell on the day of the heliacal rising of Sirius in Egypt, (See quotation from Breasted in letter).

This gives precise agreement with the statement of Censorinus as to the date, June 25, when on which 1 Thoth occurred in the year he was writing, 238 AD.

All concur in placing 1 Thoth on Feb. 26, in 747 BC.

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In your handling of these eclipses of Ptolemy, you have made two mistakes in each case but one. In the one case, the eclipse of 128 BC, instead of taking the date for 1 Thoth preceding the eclipse, you took the date in your table following the eclipse. It chanced that your date for the following New Year was the correct date for the preceding year, so that thereby you got a correct result in your last column of Table III.

In all the other instances, there are two errors, one in each direction, so that they cancel each other, giving in that way the correct result. You have an incorrect date for 1 Thoth, 1 day later than the true date. Then you make an error in each case in the length of time from 1 Thoth to the Egyptian date of the eclipse, making the interval one day too short.

Your correct result does not validate your argument.

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Similarly, in your astronomical argument for the date Oct. 22, in 1844, you use an untrue argument to establish this true date of the ending of the 2300 years. Your argument there can be used to prove your conclusion wrong.

Truth will be rejected and condemned by the world's scholarship if they see erroneous argument used to support it. There is always an irrefutable argument for truth. I am sorry to read your fallacious argument for [redacted] Oct. 22, concluding with the most sweeping declaration of its absolute irrefragability. When the world's scholarship shall "severely criticize every position of truth" (5T,717), they will find that your arguments and charts are against your conclusion.

There is an incontrovertible argument for Oct. 22 which you have ignored. It will give you standing on solid rock.

"WITHOUT COUNSEL PURPOSES ARE DISAPPOINTED: but in the multitude of counsellors they are ESTABLISHED." Prov. 15:22.

H. A. Washburn