U. S. Naval Observatory
May 5, 1938

Grace Amador
Box 45-K, RR 2
Saint Joseph, Michigan.

your letter with theory has been received. It is difficult for me to comment on it because it is entirely wrong; you do not understand all of the principles involved. For instance, Full Moon occurred April 25.84 G.C.T. in the year 31 A.D.

May I suggest that you read the article "Chronology" in the 11th edition of the Encyclopedia Britannica, also the article "Bible" subdivision "New Testament Chronology," and also the article on the "Calendar".

Sorry I cannot be of more assistance to you.

Sincerely yours
Glen H. Draper

Copy of letter sent to L. E. Froom

The astronomical data contained in the Report on the Date of the Crucifixion, by Miss Grace Amadon has been checked and is in agreement with the best sources of authority. The research that Miss Amadon has made into the motions of the moon is special good and deserving of praise from all astronomers.

As for the conclusion that April 27, 31 A.D. is the date of crucifixion, I must recall Simon Newcomb's admonition to scientists in general, "In a case where our ignorance is complete, all hypotheses which do not violate known facts are admissable."

The hypotheses used in Miss Amadon's work violate fewer known facts than those required in fixing any other date of the crucifixion. The validity of the date April 27, 31 A.D. now rests primarily upon the hypothesis of the barley-harvest fixing the passover month.

Yours sincerely,

Albert H. Draper

U. S. Naval Obs.
July 15, 1938

Grace Amadon
Box 45-K, R.R.2
St Joseph, Mich

Dear Mrs. Amadon

As you must appreciate I must look over your communications on my own time and therefore unless you are willing to make it worth my while I cannot spare the time.

Here are the dates of new moon Jerusalem civil time for the years 27 A.D. to 34 A.D. that followed the time of the vernal equinox.

27 A.D.	March	26^{d}	19^{h}	41^{m}
28 "	April	13	16	51
29 "	"	2	21	15
30 "	"	21	13	41
31 "	"	10	14	51
32 "	March	29	21	58
33 "	April	17	20	20
34 "	April	7	12	22

Following are the times of the eclipsed full moon near the equinox

31 A.D.	April	25^{d}	21^{h}	7^{m}
32 "	"	14	11	4
33 "	"	3	18	4

Hoping these data will assist you, I remain sincerely yours

Glen H. Draper

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In a study of chronology relating to calendars A & B differences may arise from one or more of the following causes,—

1. The rule used to determine new year's day on calendar A.

2. The rule used to determine new year's day on calendar B.

3. The instant of time used to fix corresponding day on the two calendars.

4. The rule of placing within the year extra days or dropping out superfluous days.

5. Confusion of calendars A or B with another calendar C, which have some names of months identical with A or B.

6. Error of scribe in dating an event.

7. Error in translation.

The calendar difference (column 8) in the study of the papyri dates is due to one or more of the following reasons,—

1. The instant of time used to fix correspondence by the scribe is not equivalent to present day custom. i.e. on the postulate that the Egyptian day was the interval from noon to noon and the Jewish day was the interval from sunset to sunset, any instant in the 18 hour interval from sunset to noon may have been chosen to fix correspondence which would cause a constant one day difference as found.

2. Thoth 1 is fixed one day in time too early or Nisan 1 is one day too late.

3. Both Thoth 1 and Nisan one are in error relative to the Julian calendar such that the rule fixing Thoth 1 places it "d" days too early, and the rule fixing Nisan 1 places it $(1-d)$ days too late.

4. Date "E", serial number 6, leaves all possible explanations open.

The records of an independent scribe are needed to determine the probable explanation. The Eclipse records [illegible] the Julian Calendar

and therefore should give an excellent criterion.

The records of the events in Egyptian chronology show somewhat the confusion experienced by the esoteric before 1925 AD in western civilization. Society as a whole used the interval from midnight to midnight as marking the day, which time reckoning is called civil time; the astronomers used the interval from noon to noon as marking the day, which time reckoning is called astronomical time.

The evidence of the records show a confused picture making possible the postulate that the three intervals noon to noon, sunrise to sunrise, and midnight to midnight may have been used by different classes in Egypt as the day. The postulate which seems to have been used in precise work then as now is the noon to noon interval as marking the day.

This introduces another cause of difference in correlating dates of different calendars, —

(8) Did the astronomical date of Egypt, that started at noon, take the designation of the vulgar daly already in progress as the western civilization astronomical date does, or did it take the designation first.

Double dating in Ptolemy's canon can be explained in this way and therefore if either date can be shown to follow a consistent rule of coincidence with the eclipse the other date may be omitted.

U. S. Naval Observatory
July 22, 1938

Grace Amadon
St. Joseph, Mich.
Box 45 - R. R. 2.

Dear Miss Amadon

As you must already know the Roman world was using the Julian Calendar at the time of Christ and that the Gregorian calendar was first adopted in the year 1582 A.D. Hence, the dates of the months for any time prior to 1582 refers to the Julian calendar. It would be excellent if we could impose upon the past all our wishes, but they are the privileged ones and therefore April 6, year 31 A.D. cannot be changed to some other date in April. The confusion in dates is bad enough already, and to avoid this confusion the astronomers have given a number to each day beginning in the fifth millennium before christ. These numbers

Julian Cal.	J.D.+ G.C.T. of Full ☾	corr. to reduce to mean	Nisan
9 Apr. 27 A.D.	1731018.67	+.26	
29 Mar. 28	1731373.14	+.16	
18 Mar. 29	1731727.81	−.14	
17 Apr. 29	1731757.12	+.08	
6 Apr. 30	1732111.84	−.27	
26 Mar. 31	1732466.47	−.53	
14 Apr. 32	1732850.38	−.54	
3 Apr. 33	1733204.62	−.41	
23 Mar. 34	1733558.63	−.06	

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N 20
11 27

Greg. Cal.

17 Apr. 1927	2424988.14	−.32	15, 5687
5 Apr. 1928	2425342.15	+.04	15, 5688
25 Mar. 1929	2425696.34	+.22	14, 5689
13 Apr. 1930	2426080.25	+.21	15, 5690
2 Apr. 1931	2426434.84	−.02	15, 5691
20 Apr. 1932	2426818.89	−.17	14, 5692
10 Apr. 1933	2427173.57	−.48	14, 5693
31 Mar. 1934	2427528.03	−.58	15, 5694

Greg. Cal.

						d
1927 Apr 17.		2416733.42	4	275		-.32
2424988	3	35 8239.03	3	223		
16733		21.6 15.35 -15				
8255		.34 -17	7	98		
		2424988.14				
1928 Apr. 5.		38				
2425342	3	36.0 8593.40	347	211		+.04
16733		14.98 +22	351	86		
		.35 -18				
		2425342.15				
1929 Mar. 25						
2425696	7	46 8947.77	292	199		
16733	8	9.6 14.80 +40	296	74		+.22
		.35 -18				
		2425696.34				
1930 Apr 13						
2426080	5	48 9331.67	265	219		
16733	6	0.0 14.81 +39	269	94		+.21
		.35 -18				
		2426080.25				
1931 Apr. 2.						
2426434	20	5.5 9686.03	209	207		-.02
16733	20	9.6 15.04 +16	213	82		
		.35 -18				
		2426434.84				
1932 Apr. 20						
2426818	21	27.1 10069.93	182	228		-.17
16733	21	21.6 15.20 0	186	103		
		.34 -17				
		2426818.89				
1933 Apr 10	13	37.6				
2427173	13	40.8 10424.30	126	216		-.48
16733		15.50 -30	130	91		
		.35 -18				
		2427173.57				
1934 Mar. 31,		2427305.37	273	252		
2427528	0	43.2 206.71	201	226		-.58
305	1	14.5 15.60 -40	74	78		
		.35 -18				
		2427528.03				

midnight to midnight G.C.T. to obtain mean

J.C.						
Apr. 9, 27 A.D.	1731018 21760 9258	1721760.49 9243.07 14.80 +40 .31 −14 1731018.67	125 179 304	2 122 124	Apr 9.67	+.26
Mar 29, 28	1731363 9603	9597.44 14.88 +32 .33 −16 1731373.14	123 248	110 112	Mar 29.14	+.16
Mar 18, 29	1731727 9967	9951.81 15.17 +3 .34 −17 1731727.81	67 192	98 100	Mar. 18.81	−.14
Apr 17, 29	1731757 9997	9981.34 15.00 +20 .29 −12 1731757.12	96 221	131 133	Apr 17.12	+.08
Apr. 6, 30	1732111 10351	10335.71 15.32 −12 .32 −15 1732111.84	40 165	119 121	Apr 6.84	−.27
Mar 26, 31	1732465 133	1732332.45 118.12 15.57 −37 .33 −16 1732466.47	394 115 109	379 129 108	Mar 27.47	−.53
Apr 14, 32	1732850 518	502.02 15.61 −41 .30 −13 1732850.38	88 82	150 129	Apr 14.38	−.54
Apr 3, 33	1733204 872	856.39 15.46 −26 .32 −15 1733204.62	32 26	138 117	Apr. 3.62	−.41
Mar 23, 34	1733558 1226	1210.75 15.09 +11 .34 −17 1733558.69	376 370	126 105	Mar. 23.63	−.06

1688
33
93
1614

Julian Cal.

apr 0	27	1731009	apr -6	.56	14.80	.31 9.67
"	28	1731375	apr -18	.93	14.88	.33 m 29.14
Mar	29	1731709	Mar 3.	30	15.17	.34 18.81
ap	30	1732105	apr -9	.20	15.32	.31 6.83
"	31	1732470	apr 10.	10	15.46	.28 25.84
"	32	1732836	apr -2	.47	15.61	.30 14.38
"	33	1733201	apr -13.	84	15.46	.32 3.62
Mar	34	1733535	Mar 8.	20	15.09	.34 23.63

1721	760.49	125	2
9	243.07	179	122
31	003.56	304	124
9	597.44	123	110
31	357.93	248	112
9	951.81	67	98
31	712.30	192	100
10	335.71	40	19
32	096.20	165	121

27.47
29.53
5700
31
26

1732	332.45	394	379
	147.65	143	162
2	480.10	137	141
	502.02	88	156
2	834.47	82	129
	856.39	32	138
3	188.84	26	117
	1210.75	376	126
3	543.20	370	105

$\frac{dL}{dt}$ = 13.176 39673, 0245 6 + 10.86 × 10^{-8} T + 1.55 / 100

$\frac{dL}{dt}$ .9856 4733, 5387 1.66 × 10^{-8} T

12.1907 4939 4 86 9.20 × 10^{-8} T + 1.55 × 10^{-8}

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12.1907 4770 20 8.91

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(a) Z3500 = 6939688.70405 d

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Jer. C.T.
Mid. Night t=.00

Nisan 0

1927,	2424988.24	2424973	15	,5687
28	5342.25	5327	15	,5688
29	5696.44	5712	14	,5689
30	6080.35	6065	15	,5690
31	6434.94	6419	15	,5691
32	6818.99	6804	14	,5692
33	7173.67	7159	14	,5693
34	2427528.13	7513	15	,5694

1927	apr 17	✓	nisan 15		
8	apr 5	✓	15		
9	Mar 25		14		
30	apr 13	✓	15		
1	Apr ✓	✓	15		
2	Apr 20	21	14	15	
3	apr 10	11	14	15	
4	Mar 31	✓	15		

see Vol 4, 1000 a note rule P 142 in C
Vol 3, 890 b
6, 314 b

U.S. Naval Obs.
August 3, 1938

Grace Amadon,
St. Joseph, Mich.
Box 45 – K, R.R. 2
Dear Miss Amadon

If you can read German I would advise you to obtain from G.E. Stechert, Inc. 31 East 10th St. New York City "Kalendariographische und Chronologische Tafeln, von Dr. Robert Schram, Leipzig, 1908. The price is about $4.50 or £5. This book gives tables giveng moon phases, seasons, as well as a comparison of the different calendars that have been in use. The moon phase tables are built in the manner you propose, with auxiliary tables for the major variations.

The ephemeris of the moon is obtained in the National Almanac Offices of the world from Brown's Tables of the Moon, three Volumes, Yale University Press 1919 these tables are of no value to the layman.

Sincerely yours
Elan H. Draper

Glenn H. Draper,
Naval Observatory,
Washington, D.C.
Dear Mr. Draper:

Thank you for the reference. I have sent for the book, although I am a slow translator in German. In the mean time will you please confirm for me these eclipses?

Moon -- Mar. 13, 4 B.C.
" Sept. 27, 14 A.D.
" Oct. 18, 69 "
" Jan. 14, 1302 A.D.

One more question--if the lunar eclipse of April 25, A.D. 31 was at almost the end of the day, why wouldn't the previous full moon be on Mar. 27?

Thanking you for your very prompt answers,
I am yours sincerely,

Aug. 9, 1938,
Box 45-K, R.R. 2,
St. Joseph, Mich.

U. S. Naval Observatory
August 11, 1938

Dear Grace Amadon:-

The data on the lunar eclipses are as follows:-

Date	Julian day	G.C.T.	Magnitude	The moon in zenith: Longitude, latitude
		Jev C.T.		
13 III 4 B.C.	1720034	$0^h\ 58^m$	Partial 4.4	−12° +4°
		3 19		
27 IX 14 A.D.	1726441	4 32	Total 20.2	−71° 0°
		6 53		
18 X 69 A.D.	1746551	21 4	Partial 11.1	+39° +9°
		23 25		
14 I 1302 A.D.	2196627	21 24	Total 20.4	+42° +20°
		23 45		
25 IV 31 A.D.	1732495	20 24	Partial 4.4	+52° −12°
		22 45		
The preceding Full moon				
27 III 31 A.D.	1732466	11 17	———	———
		13 38		

Magnitude of 12.0 is a minimum Total eclipse, a definition.

Very truly yours

Glen H. Draper

U. S. Naval Observatory
August 25, 1938

Dear Grace Amador,

Your argument is correct as far as it goes, but it neglects the fact that the Gregorian calendar was first adopted, without all the refined calculations that you now are able to make, in the year 1582.

When you receive your copy of "Schram" you will find on page -34- that January 1, 1 A.D. is Julian day number 1721424 which divided by 7 leaves a remainder of 5 which denotes Saturday.

There are several articles which should be of interest to you in the "Journal of Calendar Reform". Published by the World Calendar Association, Inc. 485 Madison ave. N. Y. If you are not already taking this Journal by all means do so. If you are unable to obtain the back numbers I could loan you my set.

Sincerely yours

Glen H. Draper

U. S. Naval Observatory
Washington, D. C.,
Nov. 29, 1938

Dear Grace Amador.

Your letter of Nov. 27, has been received.

The time of full moon is a world instant, as it is defined as the instant that the angle at the center of the moon between the earth and the sun in geocentric longitude is zero. Hence if the phenomenon occurs at 20 hours 5.^{m}5 Greenwich time and Jerusalem is 2 hrs 20.^{m}895 East of Greenwich; the phenomenon occurs at 22 hrs 26.^{m}4 Jerusalem local civil Time.

Sincerely yours
Glen H. Draper

Compliments of the author.

UNVEILING THE UNIVERSE

WHAT IS TRUTH?

By GLEN H. DRAPER
Mathematician, Arlington, Va.

I have a theory of the universe, but until we agree upon "What is Truth?" there is no need in going into theories which are not traditional.

Many philosophers, of recent and earlier times, have constructed their systems disregarding the answer to Pilate's query found in Proverbs 4:7—"Wisdom is the principal thing; therefore get wisdom: and with all thy getting, get understanding." *Understanding* should be the basis of knowing, and mathematicians notwithstanding, there is no purely abstract knowledge, but all must ultimately rest upon experience.

The criterion for knowing truth, which must be accepted before a general theory of the universe can be acceptable, demands that the word structure rest upon the understanding of its parts in relation to the whole system—so much so that we must almost seem to have completed the entire structure before being able to lay the foundation, especially as we must use a language which is ambiguous to say the least. In other words, our philosophy should cease to use words as if they had meaning in and of themselves—pure abstractions. Words have meaning only by their relations to concetps, or other words which have meaning in concepts. I use the term "concept" to mean a definite idea as opposed to a notion or a vague idea. That is, a concept is conceivable and has been conceived or formed in the mind, notwithstanding the eminent Doctor who said "A yard stick with only one end is a perfectly good concept".

If you deny me the right to make definite the meaning of the terms that have developed into ambiguous symbols, then to read further is of no avail. I ask only that you criticise this thesis on possible inconsistencies or possible paradoxes that you may expect to remain after my limiting the meaning of words to pointers toward definite concepts.

The almost medieval dogmatism of these present times, and the tendency of unscientific minds to accept in mystified awe the authority of their leaders who are sometimes very apt at slogans and catch-word names, go along with the demand for abstraction and the neglect of understanding by many of our leaders themselves.

In 1905, the Naval Observatory received and graciously "placed on file" the theory of Einstein. This same theory after being publicized under the catch name "relativity" by Eddington is now hailed as "the supreme court of science;" yet as to understanding and wisdom, the followers of Einstein know his theory only as a method of manipulating symbols, and not as a chain of mutually related concepts each clearly understood in relation to observation or experience. In fact, it is commonly stated that "it is absurd for anyone to ask for physical definitions of the terms used". The major premise of Einstein's theory states that it is impossible within a system to determine any motion of the system. The Foucault pendulum does exist and does

determine such a motion even after Einstein said, "No amount of experimentation can prove me right, but a single observation at any time may prove me wrong". Mathematicians get out of such difficulty by asserting "Mathematical terms are purely abstract, having no relation to things of physics".

Truth can never be asserted in abstract and meaningless terms, or by definitions which are irrevocable outside of any understanderable concept, and fortunately mathematical terms do not obey the mathematicians and they do have their definitions founded in relations of experience.

A word is a symbol which must point towards some definite aspect of the universe if it is to have meaning; and the meaning of any word is determined by the position it fills in a relationship.

Socrates in trying to understand a word, to ascertain the precise meaning which he himself gave it, in using it, found that he gained more insight into his own ignorance, and at the same time that he acquired more real knowledge than by all other studies combined. That is the distinguishing characteristic of a philosopher. Aristotle repeatedly urged "Let us first understand the facts and then we may speak for their causes", but apparently did not hear himself. He made theories contrary to even elementary observations. Also Bacon, Descartes, Locke, and many other philosophers at times, disregarded meaning and believed in the fundamentally independent existence of the entities of the universe, yet they were able to do much toward finding truth, because they sought for meaning. But what of the modern mathematicians that follow the philosophy exemplified in Ptolemy, and stated in modern times in the following definition of mathematics:—"Mathematics is that subject in which we never know what we are talking about, nor whether what we are saying is true". They assert that mathematics is man-made yet they fail to realize that there is not a single instance that they can point to as an example of mathematics doing the will of the mathematician, before the mathematician first finds out what he *must* will for it to do.

Man is supreme in the art of his symbols and in the pronunciations that they may be known by, but he has no power whatever of creation. Once he has designated a pointer to a referent, he must observe to discover it meaning. Even Adam had to observe before the names he applied had significance. Nature is what it is and the most that men can do is to observe and master it by recognizing the interrelationships. "Unto every kingdom, material or spiritual, is given a law; and unto every law there are certain bounds and conditions".

The following quotation, to be found in many modern books of philosophy is illustrative of the open-mindedness of would be thinkers today. "To define truth is difficult and is really unnecessary, for in its more general sense, it is perfectly well understood. As our knowledge grows we have to revise our ideas. The truth of yesterday may be falsehood today. Ptolemaic astronomy, Aristotelian logic, scholastic metaphysics, were all expedient for centuries, but now we know these things to be only relatively true; in the "absolute" they are false. The truth of an idea is not a stagnant property inherent in it. Truth happens to an idea. It becomes true, it is made true by events".

Upon analysis the only meaning that I can obtain from that quotation is:—by "events" we are to understand publicity by catch-word names

and phrases and then by "truth" we are to understand only that which we usually refer to by the terms "fashion" or "belief". Can you find any other possible meaning in the quotation?

Truly, words receive their meanings from their relationship to other words used with them. There is no privileged origin in the infinite universe, and likewise, no privileged first word or term in the infinite possibilities of knowledge. Meaning comes as a unit concept, a definite idea, which necessarily has an infinity of interrelationships. Notwithstanding this, many philosophers maintain the mystical idea that words have meaning in and of themselves, and therefore their definitions exist independent of anything else, and that certain of them are fundamental, to be had without definition, perhaps by intuition, and to be used to define other terms. Nothing could be further from the truth. In order to define a word, it is necessary and sufficient to show by its use its need in forming a concept; nothing conceived, nothing defined, whereas, full conception gives perfect definition, Hence, to give a perfect definition of a term it must be assumed that all other terms are understood. That is to say, the use of a word in a sentence which conveys a concept defines the word by the position filled in the concept by the use of that word, and if two or more unknown terms are used in a sentence, then at most the definition of each is ambiguous. No definition of a term is stronger than the weakest part of the concept from which its definition is obtained. That explains why it is difficult to learn a new subject, or to accept a new theory. The general concept must be built one unknown at a time, and all must be founded upon some experience or observation. Concepts do not exist in the purely abstract.

Statements may be divided into three classes:—true, false, and ambiguous.

In the class "true" are those statements which contain no vague or undefined term, and in which each term is explicitly defined by description, so as to agree with the implied meaning of the entire statement. For illustration:—the sum of the squares on the two legs of a plane right angled triangle is equal to the square on the hypotenuse. Definitely true! because the dictionary defines each of the terms in agreement with the way it is used, and these individual definitions are sufficient to form a definite concept from the statement.

The second class are those statements which contain at least one term which denies possibility to a concept. These statements are false. For example:—the statement that the Newtonian inverse-square-law is the law of gravitation is definitely false. Newton himself recognized this and asserted that the statement was absurd because the phrase "inverse-square-law" implies" instantaneous-action-at-a-distance" the contradictory to the term "force" the necessary implication of the term "gravitation". The statement is an idea, but cannot be a concept, because it is self-contradictory, and hence cannot be conceived. Newton did not ask, "Does it work?" He asked himself, "Is it true?" His inverse square law worked to such a nicety that scientists of the nineteenth century came to define truth on its working power, but to Newton there was no sense in saying an absurdity is true.

If a statement is true, it will work even though no observation has ever been made, but a statement may be in agreement with observations yet not true; as an example of this we have Galileo's statement of

falling bodies. Galileo could not give a conceptional cause of a body falling and therefore his statement was neither true nor false. Newton's law and now Einstein's does give us a conceptional cause and we find that a body falls only in the presence of a second body, which mutually falls according to the sum of the masses; Aristotle's statement. Galileo's statement works to the limit of our observing ability but in obtaining the conceptional definition of "falling" we find his statement definitely false.

The third class of statements contains at least one term which remains ambiguous until more data are obtained. These statements are indefinite ideas, neither true nor false. These statements serve well the purposes of sophists, yet every advance ever made in science, in philosophy, or in knowledge generally is made as a result of someone observing and recognizing significance in some term which elevates a statement from this merely rhetorical class into that of being true.

This third class of statements can be subdivided immediately into two subclasses:—

(a) Statements which explicitly or implicitly, contain the personal element "I" which always permits free-will deception.

(b) Statements which use words that point to no definite concept and hence have no concept content, or words that are assumed to be abstract and wholly independent of at least one other word or symbol. A statement may be intrinsically true, yet in this ambiguous class because of the things man says about it. For example, verified mathematical equations are impersonal and consistent within themselves, but man in his egoism makes them mysterious by the things he says concerning them. For example, wherever the term zero is used the mathematician will not accept the definition the relationships themselves give, but he asserts that zero is abstract and absolute.

Since words and symbols must be employed to make a statement, the statement may be definite and therefore true for the man who first made the statement, but when it is repeated by another, there is a high probability that the statement is vague and indefinite, neither true nor false, merely rhetorical. For instance:—one of Euclid's axioms reads: "Things equal to the same thing are equal to each other." This is true only for those who are able to use other concept terms to say the same things, for all others it is merely a sophism. A much better way to state this axiom is: "Things which satisfy the same definition are equal;" that is to say things are made to be idectical by the mental process of concept classification. In nature no two things are identical, and hence the concept is not the external substance, if any, but is the limited, relevant relationship in the mind. Knowledge is obtainable only in a conscious mind. Knowledge without relations is nonsense. All concepts must be supported by observations, but observations are not to be confused with concepts. Observations are meaningless unless interpreted by concepts. The essence of matter apart from time is nonsense by the very nature of knowledge. Even the "infallible" relativists disregard this classification of statements, and hence they do not understand what their mathematics tell them. To understand, one must accept what he must accept, and assert his ego only when his ego agrees with concepts.

A word cannot be said to be defined if another word, usable with it, is said to be abstract and absolutely independent of it. This condition

has never been met because in the past it has been practically impossible for man to conceive a relationship between time and matter demanding the one wherever and whenever the other exists. This relationship is derived from the mathematics of Einstein interpreted into concepts and is the center of my theory of the universe. Truth is a concept and a concept is truth.

Now for a test of this philosophy. Can you arrange words together in a manner to form a definite concept, which concept agrees with the explicit statements you can make of each of the terms used, which statements are definite, and yet the arrangement is not to be called true in your own mind? Or can you give a truth in which there is used a single term which you do not understand?

I challenge you to try it!

After these percentages have been determined, create a Special Fund for each kind of Disbursement for each Industry.

Appoint Trust Companies to administer the Funds; One, or more, for each City, or Section, or Separate Trust Company for each Industry, or for each Fund. Whichever is most economical and efficient.

Have Department of Commerce appear as Arbitrators for Employes in all Collective Bargaining between Employers and Employees.

Then determine the "net worth" to the Industry of each "position" and or "job" and or "person". Fix a "YEARLY" renumeration rate for each "position" or "job".

Allot a certain percentage of all WAGES; ACCIDENTS; SALARIES; DIVIDENDS; and other such expenses connected with the Human Factor, as an Insurance Fund to be used for OLD AGE DEPENDENCY

U. S. Naval Obs.
Washington, D. C.
Feb. 6, 1939.

Grace Amadon

The lengths of the year, the month, and the day are incommensurable with each other.

The Besselian year, i.e. the astronomical year of uniform duration, is defined as commencing when the sun's mean longitude is 280°. Its duration is $365.^{days}242\,19879 - 614\,T \times 10^{-7}$. Where T is the Julian century of 36525. days and is measured from 1900.0. The daily motion of the sun in mean longitude is equal to $0.^{\circ}985\,647\,335\,387 + 1.^{\circ}6564\,T \times 10^{-8}$.

From these data, if the first century A.D. is taken as the Basic century, the corrections to the Gregorian calendar are as follows:

1501 – 1600	correction	$1.^{d}63 = 2$
1601 – 1700	"	2.40
1701 – 1800	"	2.17
1801 – 1900	"	1.94
1901 – 2000	"	1.71
2001 – 2100	"	2.48

to have the Besselian year begin on the same day of the calendar month for a corresponding year of the first century A. D. That is Gregory should have "dropped 12 days instead of 10 days. I recoginze the fact that he stated that the year of the Council of Nicea is to be taken as the fundamental basis, but there are many inconsistencies in his statements and what he did. He should have made the year 325 A.D. the year zero for his calendar and he should have "dropped" only 9 days.

Sincerely yours

Glen A. Draper

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Sincerely yours
Glen N. Draper

Old moon appears at Sunrise = last appearance

(moon " at Sunset = 1 Day old.

Full moon arises at Sunset =

and sets at Sunrise

14 day.

Oct. 9, 37 A.D. has the Julian Day Number 1734854.

Oct. 9, 1844 Gregorian Calendar has the Julian Day Number 2394849.

Oct 9, 1844 Julian Calendar has the Julian Day Number 2394861.

Glen H Draper

Astr. year	Beasleian year Commenced			corresp. date in	Sirius approx Position 1800 A.D. plus	d
− 700	Jan 8	7:19	P.M 701	B C	7.d 212 civil	+ 43.316
− 600	8	0:13	A.M. 601		6.416 Time	41.555
− 500	7	5:08	A.M. 501		5.621	39.796
− 400	6	10:03	A.M. 401		4.826	38.037
− 300	5	3:00	P.M. 301		4.032	36.279
− 200	4	7:58	P.M 201		3.239	34.522
− 100	4	12:56	A.M. 101		2.446	32.765
0	3	5:56	A.M. 1	B.C.	1.654	+ 31.008

Eq. of Center changes longitude by the following changk in M.

extreme value due to this correction $\begin{cases} \delta\lambda = \\ \pm 1^{\circ}.4 \end{cases}$

Computations by Draper for Sirius Aug. 9, 1940

eg. Jan 2, 523 B.C.

~~5.621~~

7621 1800 A.D. ⊙

~~Jan 7 about 3 P.M.~~

Jan 2 523 B.C.

6.416

Jan 8.416 1878 AD ⊙

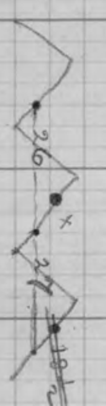
10 A.M.

Heliacal

Mahaffy, J. P.
"Flinders Petrie Papyri"
Dublin, 1891

Almost every acre of soil should hide relic of the past
Dryness of the climate protected the most delicate fabric
Natives not only forge antiquities, but divide and deface them
Lamentable vandalism is destroying precious documents which have
lasted for a 1000 years
Papyrus rolls are interesting department of Egyptian antiquities
On papyrus we have many thousand texts - p. 3. - common writing
material of ancient world - monopoly of its produce in Delta
resulted in scarcity - great manufacture now wholly extinct. Very
" plant disappeared from Egypt.
Bilingual inscriptions - Rosetta and Canopus.
Two greatest authorities on demotic writing = Brugsch and Revillout
Coffins made of layers of papyrus - 9.
Papyri show varieties of writing, existing at same moment in Greek world
in Egypt in 3rd century B.C.

Sept 24 + 256 = = 6 + 31 + 30 + 31 + 31 + 28 + 31 + 5
Paophi
239 + 17 = 256
209 + 10 = 219
Thoth 256
239
17
Sept 25 + 219 = 5 + 31 + 30 + 31 + 31 + 28 + 31 + 30 + 2 = 219
27
383
Nov. 27/28
26
239 +
Nov. 28 + 25 = 2 + 23 Dec.



April 23, 1943.

Dear Miss Amador,

your letter of 22 april has been received.

By definition the first ♈ point of Aries is the point of origin in measuring right ascensions or longitudes, of the celestial bodies. It is determined by the point of intersection of the plane of the ecliptic and the plane of the equator, and it is that intersection where the ecliptic passes to the north of the plane of the equator. The signs of the zodiac are intervals of 30° each in longitude the first of which is Aries. Therefore there is no motion of the equinox or the first ♈ point of Aries relative to the signs of the zodiac, but all the signs of the zodiac move relative to the constellations of stars with the rate of precession and fluctuate with nectation.

At the present time the first ♈ point of Aries is moving relative

to the stars at the rate of 50."266 per year, or about one degree in 71.6 years. The constellations having the names of the signs are not 30° in width or anyother uniform quantity and therefore it is impossible for me to state with certainty the time you ask for. In right ascension the first point of Aries moves relative to a star in that region at the rate of 46."097 per year or one degree in 78.1 years at the present. That is the right ascension of the stars in the region of the vernal equinox are increasing their right ascension at the rate of one degree in 78.1 years.

In the I.A.U. atlas the first point of Aries lies in the constellation Pisces about 25' of right ascension back from the constellation Aries and 18°45' to 2°30' of right ascension from the constellation Aquarius. I do not have a chart for longitude values.

Yours very truly

Glen A Draper

Dear Miss Amadon;

I am sorry that I forgot your request so long but I have been so busy that a few rough notes is all I could give to the subject. These you will find on the other side of this paper. I think you should be more clear by repeating over and over what your thesis is.

Sincerely

Glen H Draper

I

The pass over always occurred exactly on the 14th day of Nisan, which date was predetermined to fall on the day following the full moon date. Never was it permitted to occur on the date before the moon had fulled. This circumstance together with the fact that the month which preceded Nisan was fixed at 29 days is strong evidence that the ancient observations of the new light was entirely for the purpose of data for the calculation for future years. If the observations were for any other purpose adar (or veadar when present) could not have retained a fixed 29 day period.

II

and the count of the days decreased towards the ides, see Encyclopedia Britannica 11th edition Volume IV page 989.

III somewhere in your paper you should also state:—

It is not claimed by the author that the ancient Jewish calendar was calculated with the same formula which has been the thesis of the paper under consideration, but that they used a formula which gave the same answers over 90% of the time. So far 100% agreement is what the records show.

Dear Dr. Parker:

I have received your letter of 8 December. I appreciate your criticisms, however I believe you have missed the point of my thesis. Since you admit that "dates derived from Table II of Schoch's tables might be off one day" I am content not to use those tables at all. Further you state "All the dates for Nisan which are used in my criticism of your article are calculated for Jerusalem." But you did not criticize the fact that the dates calculated according to my thesis are more nearly in agreement with the records than are the date you calculate on Schoch's thesis.

As for your comments (b) it seems that they were written without analysis of the subject. The position of perigee in each of the years 28 and 29 A.D. occurred at the time of the waxing period and therefore indicate a short waxing period, and as my thesis is basically that the passover can never occur before full moon, in fact that full moon occurs on the day of the month called the 13th, it follows that the translation period is short. But as the sun and moon are never in exact phase in two different years and as the month begins at sundown which causes the 13th day to be such that the moon shall full in that 24 hour period from

2/ sundown to sundown, the difference you mention is entirely to be expected.

Apparently you question the use of a 1.95 day instead of a 0.95 day translation period in 29 A.D. It must be by jumps of 1.00 day as it is sunset and not the moon which starts the day. The use of 0.95 day would cause the year to be one day too long which I do not believe the ancient Jews would permit although to day they have accepted the extra long and extra short years. The priests observed the moon not to determine nisan 1 of the current year as is witnessed by the fact that the preceding month was of fixed number of days and therefore Nisan 1 had to follow with the sunset, without regard to the moon. The observations were to maintain the calendar for future Nisan 1's by calculation. My thesis is in agreement with this and it checks the recorded dates more often than does any other thesis I have seen. Of course, it is different

Dec 8, 1943.

from the thesis you have adopted
but unless you can criticise it
relevant to the recorded facts then
of course "further remarks will have
no force." You must admit that
there are those places in your
adopted thesis which leave great
question as the its accuracy, I
dont have to point them out
to you as you know them only too
well. I claim only to have
proposed a thesis which will
agree with the ancient records
and therefore claim that it
synchronizes with the Jewish
law which Moses held sacred.

Signed