REPRINT FROM
JOURNAL OF BIBLICAL LITERATURE
VOLUME LXIII, PART II, 1944.

ANCIENT JEWISH CALENDATION: A CRITICISM

RICHARD A. PARKER

UNIVERSITY OF CHICAGO

IN AN article in this JOURNAL (61 [1942] 227–80) Miss Grace Amadon has presented a theory of ancient Jewish calendation strikingly at variance with the commonly accepted idea that observation of the crescent was the controlling factor in beginning the Jewish months and year. It is the purpose of the writer to bring forward certain objections to this new theory.

Since Miss Amadon is primarily interested in the crucifixion period let us first of all tabulate the data which determine the 1st of Nisan for the years A. D. 28 to 34 from the standpoint of the first possible visibility of the crescent at Jerusalem.

Year	Conjunction	Hours that must elapse before crescent can be visible	Nisan 1[1]	Latitude of moon at conjunction
28	Apr. 13, 4:40 P. M.	21.6	Apr. 15	−4°92
29	Apr. 2, 8:01 P. M.	23.6	Apr. 5	−4°74
30	Mar. 22, 8:13 P. M.	23.6	Mar. 25	−4°49
31	Apr. 10, 2:00 P. M.	22.5	Apr. 12	−2°13
32	Mar. 29, 10:27 P. M.	19.9	Apr. 1	−1°46
33	Apr. 17, 9:38 P. M.	18.5	Apr. 19	+1°82
34	Apr. 7, 2:07 P. M.	17.1	Apr. 9	+2°48

This tabulation has been made by the use of the new moon tables of Carl Schoch in *The Venus Tablets of Ammizaduga* (Oxford, 1928). While these tables are particularly for Babylon they may also be used for Jerusalem because of the very slight difference in latitude (Babylon, 32°5; Jerusalem, 31°8).[2] Cor-

[1] In each case Nisan 1 actually begins with sunset of the day before, but this is the conventional way of dating according to the Julian calendar.

[2] Cf. Schoch, *Ammizaduga*, 94.

rection for the difference in longitude requires that 37 minutes be subtracted from the time of conjunction at Babylon to give the correct time of conjunction at Jerusalem. Schoch's tables G and H permit the calculation of the hours that must elapse between the conjunction and the visibility of the new crescent on the following day. Thus in A. D. 28 the period from conjunction to 6:00 P. M. of the next day is 25 hours, 20 minutes. Since only 21.6 hours are necessary, the crescent will surely be visible on the evening of April 14, weather permitting, and April 15 will be Nisan 1.

The dates for Nisan 1 tabulated above are the same as those on which the Passover Graph II (p. 267) is based. This is the graph labelled *False* by Miss Amadon and she further states (p. 268): "And neither is the conclusion valid that Graph II represents an 'observed' new moon in ancient times." But that is exactly what Graph II does represent unless Miss Amadon is able to demonstrate that Schoch's new moon tables have been incorrectly compiled and give inaccurate results. If that is her opinion it is certainly not shared by other astronomers and chronologers.[3]

Miss Amadon's conclusion derives from her belief (p. 253) that the most important factor bearing on the length of time from conjunction to visibility (her "translation period") is the moon's anomaly as revealed in its waxing period (the time from conjunction to full moon). Let us assume, for the moment, that she is correct and that an increase in the waxing period should be reflected in a corresponding increase in the translation period. Her Table I gives the following figures:

Year	Translation Period (Days)	Waxing Period (Days)
28	1.09	13.94
29	1.95	14.39
30	2.92	15.09
31	3.19	15.36

As the moon's anomaly increases, it apparently slows down and takes longer to reach full moon. Thus in A. D. 31 it requires 1.42

[3] Cf. Fotheringham, *Ammizaduga*, passim; P. V. Neugebauer, *Astronomische Chronologie* (Berlin, 1929), I, 34.

more days to become full than in A. D. 28, an increase of 10.1%. The translation period for the same years, however, has increased by 2.10 days or 192.6%. Clearly the only *necessary* increase would be 10.1% of 1.09, giving a translation period for A. D. 31 of 1.20 days, which would place Nisan 1 on April 12, in agreement with our table and two days in advance of Miss Amadon's date.

It will be noted that our table of required hours does not increase by 10.1% between A. D. 28 and 31. That is because (*contra* Miss Amadon) there is another element in the moon's movement, its latitude, which is of equal importance with its anomaly. Schoch states (*Ammizaduga*, 97): "In spring the mean anomaly of the moon is of the same importance as her latitude, but in autumn her latitude is far more important." Thus in our table the lengthening waxing period of the moon may be reflected in an increase in the number of hours necessary for visibility, or in a movement of the latitude of the moon from south toward north of the ecliptic, or in a function of the two. In A. D. 28, for example, the hours for visibility are 21.6 and the latitude of the moon is $-4^{\circ}92$. In A. D. 31, the hours required are 22.5 but the latitude has decreased to $-2^{\circ}13$.

If we now compare the dates for Nisan 1 which depend on first visibility of the crescent and the dates which Miss Amadon proposes we have the following interesting table:

Year	Nisan 1 (First Visibility)	Nisan 1 (Miss Amadon)	Difference
28	Apr. 15	Apr. 15	0
29	Apr. 5	Apr. 5	0
30	Mar. 25	Mar. 26	1
31	Apr. 12	Apr. 14	2
32	Apr. 1	Apr. 2	1
33	Apr. 19	Apr. 21	2
34	Apr. 9	Apr. 10	1

In two years out of seven, Miss Amadon finds it necessary to place Nisan 1 on the third day of lunar visibility. It is inconceivable to the writer that any ancient people using a lunar calendar should follow such a practice.

Miss Amadon is forced to this treatment of lunar visibility by her theory that the 14th of Nisan must follow the astronomical

full moon; but all that her quotations from Jewish and Christian sources really indicate is that the full moon normally occurred sometime on the 14th. It hardly seems necessary to go deeply into this theory as it is sufficient to point out that *nowhere in Jewish law is there set forth any statement of a necessary relationship between the feast of Passover and the full moon.*[4]

Moreover, Miss Amadon has made the error (diagram B, p. 245) of placing the slaying of the paschal lamb on the eve between the 13th and the 14th of Nisan and the Passover supper on the night of the 14th. This results no doubt from her belief that the Last Supper and the Passover supper were one and the same meal (p. 247). But Dr. Feigin has shown that this was not the case;[5] and we must assume that in the crucifixion year the normal order of events obtained, that the lamb was slain in the late afternoon of the 14th and the Passover supper was eaten that evening, on the 15th.

This, together with the other inconsistencies brought out above, seem to the writer to constitute insuperable objections to the acceptance of Miss Amadon's theory.

[4] My authority for this statement is Dr. Samuel I. Feigin of the Oriental Institute.

[5] Samuel I. Feigin, "The Date of the Last Supper" (*Anglican Theological Review*, 25 [1943] 212–17).

THE CRUCIFIXION CALENDAR

GRACE AMADON

WASHINGTON, D. C.

THE criticism by Dr. R. A. Parker with reference to the lunar argument published in the December number of *JBL* (1942) is a contribution inviting consideration from those who are interested in biblical chronology. With regard to the computation of OT and NT dates, scholarship has commonly employed only a "rough rule," and hitherto little progress has been made in producing a Jewish calendar table that both harmonizes with the motion of sun and moon, and at the same time is in agreement with the ancient historical synchronisms, of which the Bible has even a larger number than the Babylonian and Assyrian monuments.

About the turn of the present century, simultaneous study of the problem was renewed in various universities and other centers of research. Inscriptional chronology was perhaps the moving impulse that promoted investigation on the part of universities and museums, while the leading observatories, which constantly receive inquiries concerning the crucifixion date, have been necessarily interested in the Jewish phase of this calendarial argument. Standard almanac computers know that the modern rabbinical institutions are not the exact counterpart of the ancient Jewish feast dates. It is further admitted by Jewish writers that their forefathers — in the words of Piniles — "die 34 Jahre nach dem Nicäer Concil den Kalender geregelt, darauf Bedacht genommen, dass kein Fremder und Unbefugter in seine Principien eingeweiht werde."[1]

This procedure has been in direct contrast to that of the Babylonians, who have left their chronological imprints on tablet and stone. It has not been difficult therefore for Christian

[1] Adolf Schwarz, *Der Jüdische Kalender*, Breslau, 1872, 42.

scholarship to postulate that the Jews, upon the return from Babylon, continued to use the same calendar as they adopted during captivity. And especially has this assumption had appeal because Judaism, from the time of Ezra and Nehemiah, has retained the Babylonian names of the months. But in addition, a second hypothesis now claims, inasmuch as the Schoch tables[2] appear to satisfy the Babylonian observations of the moon, that by these same tables the biblical dates can be computed. From the time of Ezra, Jewish chronologers have challenged this first assumption,[3] and this short study again calls in question the second. The principal features of Dr. Parker's criticism we shall discuss in the same order as submitted.

1. *The Application of Schoch's Tables to Biblical Dates.*

The following statement testifies to the degree of accuracy of Schoch's *Neulicht* dates for the meridian of Babylon:

> "Schoch claimed for his Table M an accuracy of about 75 per cent (*op. cit.*, p. 101) in the dating of the beginnings of months, but was less certain as to the identification of the months themselves. This figure is not borne out; for, after adjusting his Table M in accordance with the intercalations given in our Plate I, we find his dates for the beginnings of years to be but 61.5 per cent accurate."[4]

The foregoing degree of accuracy was ultimately raised to 70 per cent by careful checking and calculation, that is, for the meridian of Babylon; but for the meridian of Jerusalem, the percentage is said to be a little lower. The conclusion is then drawn that for historical purposes this uncertainty is not important, even though 30 per cent of the dates may be off by one day! It is this latter hurdle that makes these tables of so little value for the meridian of Jerusalem. For thereby it would not only be impossible to tie a particular event on a definite Julian date to celestial motion, thus identifying the corresponding year, but the same handicap would also make impossible the solution of

[2] Richard A. Parker and Waldo H. Dubberstein, *Babylonian Chronology* (*Studies No. 24*, Oriental Institute, University of Chicago), 1942.

[3] Schwarz, *loc. cit.*, 15. According to Ezra 3 2–5 and Neh 10 29–33, the returning Jews consecrated the Mosaic new moons, not the Babylonian.

[4] *Babylonian Chronology*, p. 23.

any ancient synchronism that equates a Jewish date with a certain day of the week. Of this kind are many of the biblical date constructions, whose synchronisms hold an indispensable relation to the chronological outline of the Bible, and whose importance is unquestionable.

As regards the season of the year and the time of the festivals, the Jewish form of date is even more revealing than its Julian substitute; but, by means of the latter, the positions of the heavenly bodies can be brought into telling relation with the biblical text. Hence the futility of calendarial tables with equivocal Julian dates whose most obvious function is to tie up the chronological outline of some period of consequence.

It is not Schoch's mathematics which have thrust doubt into the validity of his *Neulicht* dates. P. V. Neugebauer acknowledges the accuracy of his calculations, but at the same time states that Schoch's exactness does not relieve an uncertainty that exists with respect to the arc of vision. These are Neugebauer's words with reference to Schoch's new values which he had corrected for refraction: "Die Resultate werden damit rechnerisch genauer; es ist jedoch zu beachten, dass die immer noch bestehende Unsicherheit im Sehungsbogen erheblich grösser ist als die Ungenauigkeit der Werte in Tafel 28."[5]

Both Fotheringham and Neugebauer protested at first against the lunar theory of Schoch; but ultimately his tables were accepted because "his astronomical formula appeared to agree with the attested Babylonian dates." But why not? Schoch deduced his empirical rule from about 400 observations of the moon in the Neo-Babylonian period plus about 100 personal observations of the moon and planets.[6] His rule necessarily would exactly conform to the kind of *Neulicht* he selected. The application of his formula precisely shows that in general he chose the youngest moons possible — those in which the *Neulicht* appeared within one day, or at the most two days — never three — after conjunction. In other words, Schoch's limits for

[5] P. V. Neugebauer, *Hilfstafeln zur Berechnung von Himmels-Erscheinungen*, Leipzig, 1925. Anhang, 1.

[6] S. Langdon and J. K. Fotheringham, *The Venus Tablets of Ammizaduga*, p. 95. London, 1928.

the *arcus visionis* are invariably minimum values. This his table definitely illustrates: its extremes are only 17 to 23 hours, as Parker states.

On the contrary astronomers, from Aratus to Fotheringham, who have left records of the moon's visibility, are in agreement that the moon takes from one to three days — and over — after conjunction, to appear.[7] Hevelius, who observed the moon in northern latitudes around Danzig, even stresses the fourth day.[8] And observers further state that the Nisan moon's early or late appearance largely depends upon her distance from the earth. There are many instances on record that confirm these facts.

There is, however, an outstanding theory that disagrees with this lunar postulate — that of Maimonides. He says — I give Mahler's German translation: "Der Mond wird verdunkelt in jedem Monate, und wird nahezu 2 Tage nicht gesehen, ungefähr 1 Tag vor der Conjunction und ungefähr 1 Tag nach der Conjuction."[9]

Maimonides found a supposed proof for his theory in the ancient astronomy of the Greeks,[10] who in turn had studied in the Chaldaean schools. And so Sidersky is probably correct in stating that the new moon limits of Maimonides agree with those of the Chaldaean priests, who wished to determine in advance the neomenies.[11] Fotheringham computed the angle of vision of Maimonides' tables, and found it to occur on the average about twenty minutes after sunset.[12] But on this basis the lunar theory of Maimonides breaks down, for the new moon must set about an hour after the sun in order to be seen at all. This fact is easily deduced from any standard almanac. Hence

[7] A few instances cited in *JBL*, December, 1942, 259–264.

[8] Johannes Hevelius, *Selenographia*, Gedani, 1647, 274.

[9] Maimonides, *Kiddusch Hachodesch*, tr. into German by Mahler, p. 2. Wien, 1889.

[10] Karl von Littrow, "Zur Kenntnis der kleinsten sichtbaren Mondphasen" (*Sitzungberichte der kaiserlichen Akademie der Wissenschaften*, Wien, 1872, p. 480).

[11] D. Sidersky, "Le Calcul Chaldéen des Néoménies" (*Revue d'Assyriologie* 16 [1919] 25, 28).

[12] J. K. Fotheringham, "Astronomical Evidence for the Date of the Crucifixion" (*Journal of Theological Studies* 12 [1910] 121).

not only are the tables of Maimonides based upon too low a limit for the arc of vision, but so also are the visibility limits of Fotheringham and Schoch, who ultimately built on the same theory.[13]

As further evidence that Schoch's values for the *arcus visionis* are altogether too low, the following instances are taken from his tables, in *Babylonian Chronology*, years 16 to 45 A. D.:

Instances of Too Short Translation Periods in Schoch's Tables
(Computed to a 6:00 p. m. sunset, Jerusalem Civ. Time)

A. D.	Date	Tr.P° (Day)	Wax. P°° (Days)	A. D.	Date	Tr. P. (Day)	Wax. P. (Days)	A. D.	Date	Tr. P. (Day)	Wax. P. (Days)
17	I 18	.81	13.98	27	IV 26	.51*	14.07	37	III 7	.83	14.30
	II 16	.27*	14.03	28	III 16	.65*	14.13		V 5	.66*	13.91
	III 18	.82	14.21		V 14	.59*	13.91	38	II 24	.83	14.97
18	I 7	.75*	14.32	29	VI 2	.76*	13.93	39	V 13	.78	14.56
	III 7	.33*	13.94	33	IV 19	.85	15.39	42	IV 10	.88	15.28
19	V 24	.54*	13.99	35	I 29	.46*	13.97	43	III 31	.52*	14.30
20	VI 11	.68*	13.91		V 27	.86	14.82	44	I 20	.61*	14.03
25	III 19	.51*	14.67	36	II 17	.60*	14.07		III 19	.51*	14.04
27	II 26	.46*	13.99	37	II 5	.56*	14.66		V 17	.84	.4.61

° Translation Period °° Waxing Period

Comments.— The foregoing table represents the extremely short translation periods found on the last page of *Babylonian Chronology*. With those marked by an asterisk, the *Neulicht* occurs on the very day itself of conjunction — an astronomical event which is commonly impossible. This fact was well known to the ancients, as pointed out by Pliny,[14] and also by Scaliger, Bucherius, and others.[15] It is easy to see that the new moon could not be visible when only 6 to 11 hours (0.^{d}27 to 0.^{d}46) east of the sun. But when the moon is far from the earth, and for that reason in slow motion, it is equally impossible that the earth's satellite can be seen within two days after conjunction, and hence the *Neulicht* is carried to the third day.[16] This condition Schoch's lunar theory fails to meet.

As early as the sixth century B. C., the Babylonians are said to have recognized the moon's anomaly.[17] Therefore their lunar observations should periodically show longer translation periods than Schoch's calculations allow. If, however, the conjunction

[13] For ascertaining the *Neulicht*, Fotheringham first followed the rules of Hevelius (JBL 61 [1942] 266), but 25 years later, changed to the theory of Maimonides. He and Schoch both were interested in a world calendar.

[14] Pliny, *Natural History*, I, tr. Bostock and Riley, p. 49. London, 1855.

[15] Bucherius, *De Doctrina Temporum*, p. 372. Antverpiae, 1634.

[16] The 1st of Nisan in the 6th of Darius I, 516 B. C. is an example of a third day *Neulicht*, Jewish reckoning (Ezra 6 15).

[17] *Venus Tablets of Ammizaduga*, p. 45, 1928.

date had been tabled with each *Neulicht*, the series would have increased in value; for thereby each date would be subject to constant checking, and the most important dates would ultimately receive correction, an extremity which Shoch himself concedes:

> "If in any particular year Nisan is known to have begun earlier or later than the date given in these tables, the whole calendar should be shifted by one or two months so as to bring it into the correct position, regard being had to the intercalation of a second Ulul where that is known to have taken place."[18]

While this method of correction is not dependable, yet it is a significant witness to the uncertainty of his dates.

2. *A "Percentage Rule" for the Neulicht.*

There never has been anything simpler than trigonometric functions by which to compute the moon's exact place in her orbit. However, the simple relationship between the translation and waxing periods, as described in the *JBL* article, has been understood for centuries. Similar analogies have been made by Pliny, Maimonides and his interpreters, Reinhold, and Kepler. The age of the crescent is to be known by its size;[19] the broader the crescent, the greater the *elongation*;[20] and from Maimonides the following:

> "Atque ex his, qui de luna nascente renunciarent, tentandae fidei causa, quaerebatur etiam & illud, luna quam altè ferebatur. Id cognoscitur ex *arcu visionis*, qui si brevior est, cursus lunae propiùs à terra volvi, si longior, luna moveri videtur altiùs. Ut enim *visionis* arcus longus est, ita lunam oculi altam à terra percipiunt."[21]

In other words, when the moon is near the earth, the arc of vision is short, and when the moon is far from the earth, the arc of vision is long. In ancient Israel, the astronomers could

[18] *Ibid.*, 100.

[19] Johannes Kepler, *Gesammelte Werke*, Band II, Astronomiae Pars Optica, p. 207. München, 1939.

[20] E. Baneth, "Maimuni's Neumondberechnung," Teil III, *Zwanzigster Bericht über die Lehranstalt für die Wissenschaft des Judenthums in Berlin*, 1902, 118.

[21] R. Mosis Majemonidae, *Sacrificiis Liber*, tr. de Compiegne de Veil, p. 424. Londini, 1683.

evaluate this lunar distance by the eastern movement of the moon among the stars, and her height above the horizon. We can get the same information by comparing the arc of vision, or its time equivalent, the translation period, with the waxing period of the moon. For the waxing period is also long or short according as the moon, in this part of her orbit, passes through perigee or apogee. Similarly, therefore, the arc of vision has an approximate relation to the length of the waxing period — when the one is long or short, so also is the other. That is simple; but the relation is merely an approach to the length of the arc, as it was represented to be in my study.

3. "*Nowhere in Jewish law is there set forth any statement of a necessary relationship between the feast of the passover and the full moon.*"

Dr. Feigin is cited as authority for the foregoing assertion. If by *Jewish law* the Talmudic teaching is referred to, then he is quite right, for nowhere, it appears, in the tractates of the Talmud is even the current calendar of Hillel II found under discussion.[22] Nevertheless, the relation of the rabbinical passover to the full moon is definitely set forth by modern Jewish chronologers as, for example, by Sidersky as follows:

> "Nous savons, en effet, que de soir de la pâque juive doit coïncider avec la pleine lune (d'après des textes cités plus haut de Josèphe et de Philon), et ne pouvait en aucun cas précéder ce phénomène physique. Il peut arriver quelquefois que, par suite de certaines circonstances la néoménie soit fixée au surlendemain de la conjonction et que la pâque soit célébrée 24 heures après la pleine lune, mais le contraire est impossible."[23]

In the Pentateuchal law, too, the case was similar, for a very precise relation necessarily existed between a *fixed* passover date on a *fixed* meridian and both new and full moon. The nations of the Near East have left significant records of the date when the Nisan moon fulled in Mediterranean countries. With the Romans, whose earliest calendar was lunar, the *ides* marked

[22] Schwarz, *loc. cit.*, 37, 38.

[23] D. Sidersky, "Etude sur l'origine astronomique de la chronologie juive," *Mémoires présentées par divers savants à l'Academie des Inscriptions et belles-lettres de l'Institut de France.* Vol. XII, part 2, 1913, 636. Paris.

the day of full moon.[24] This obviously occurred on the 13th in the time of corn harvest, for ultimately this same date became an ideograph in the Julian calendar, in whose paschal month April the *ides* were always commemorated on the celebrated "13th."[25] Similarly, in the earliest calendar of Egypt, which also was lunar, the full moon was feasted on the 13th day, and the feast was called "Feier des leuchtenden Aufgangs."[26] That this date was patterned after the spring month is indicated by the feast of the 14th, which was named "Feier der Majestät des Widders."[27]

The Arabs too, though their months were wandering through all the seasons, still had distinguishing names for certain nights of the month, and called the night following the 13th day *badr*, because in it the moon is full and her light complete.[28] So also the Babylonians had rules for the days of Nisan. On the 13th, "Sin bears a full crown!"[29] In Babylonia no month commonly had the same number of days from year to year, but always on the important *13th* of Nisan, an offering was made to Sin with his full crown of light. Such was astronomical law in the countries bordering on Jerusalem.

Consequently the fixed Pentateuchal Passover date on 14. Nisan obviously occurred on the day *after* the Jewish date of full moon, and certainly not *before*! According to this interpretation the frequently cited commentary of the Jewish philosopher Aristobulus has been understood. He dedicated his exposition of the Pentateuch to Ptolemy Philometor,[30] and his precepts regarding the ancient Passover were taught by his disciples —

[24] Martin P. Nilsson, *Primitive Time-Reckoning*, p. 167. London, 1920. "Nonnullis placet, Idus dictas vocabulo Graeco, a specie, quae apud illos vocatur, quod ea die plenam speciem luna demonstret" (Venerabilis Bedae, *Opera Omnia*, ed. Giles, Vol VI, p. 176. Londini, 1843.

[25] Cf. Webster.

[26] Heinrich Brugsch, *Astronomische und astrologische Inschriften altaegyptischer Denkmäler*, p. 50. Leipzig, 1883.

[27] *Ibid.*

[28] Albîrûnî, *Chronology of Ancient Nations*, tr. Sachau, p. 75. London, 1879.

[29] S. Langdon, *Babylonian Menologies and the Semitic Calendar*, p. 76. London, 1935.

[30] Eusebii Pamphili, *Chronici Canones*, ed. Fotheringham, p. 221. Londini, 1923.

the Agathobuli. The very same Passover (full-moon) doctrine was proclaimed in the significant Greek of Philo in the time of Christ.[31] Presently it is acknowledged by the Christian church — John, Polycrates, Anatolius, Theophilus, Ambrose. In the language of astronomy, in the Reformation of 1582, the following is what Aristobulus taught:

> "Quum duo sint aequinoctia, veris & autumni, aequis spatiis dirempta: & 14. die mensis primi sit statua solemnitas *post vesperam*, quando Luna Soli opposita è regione deprehenditur, sicut etiam oculis probare licet: invenitur utique vernalis aequinoctii partem Sol obtinens; Luna verò è contrario, autumnalis."[32]

"On the 14th day of the first month *after the evening* when the moon is caught in the region opposite to the sun, the feast is fixed!" Clearly, then, this point of time was the end of the 13th, on which day the moon must have fulled. The Church received this passover-full-moon doctrine from Jewish interpretation of Pentateuchal law, adjusted her Easter cycles in harmony with this principle,[33] and henceforth contended that "never, according to the custom of the Church, was the paschal limit on the full moon."[34]

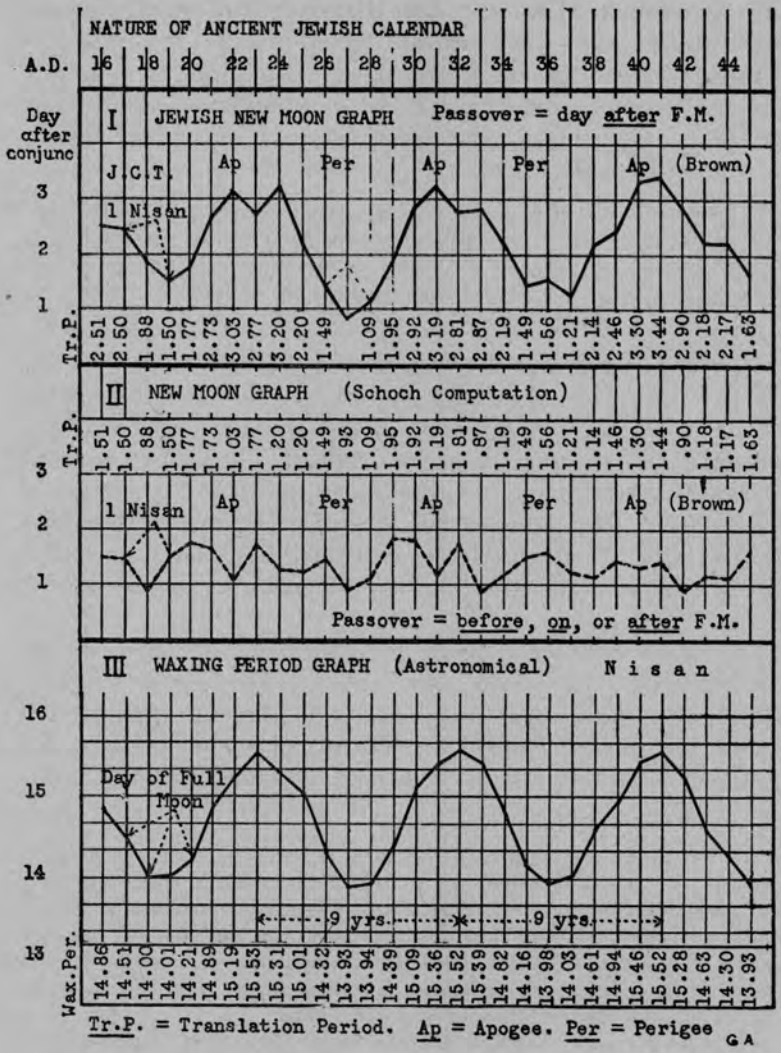
The accompanying table of graphs further demonstrates the difference between the reckoning of the Nisan new year in harmony with the ancient position of the passover *after* the full moon, and the new moon formula of Schoch, who places the passover *before*, *on*, and *after* the moon has filled her disk, as the case may be.

[31] The following excerpt from *Special Laws* II, 210 is similar to the one from Nancel: "ἵνα μὴ μεθ' ἡμέραν μόνον ἀλλὰ καὶ νύκτωρ πλήρης ὁ κόσμος ᾖ τοῦ φύσει παγκάλου φωτός, ἡλίου καὶ σελήνης κατ' ἐκείνην τὴν ἡμέραν ἀλλήλοις ἐπανατελλόντων αὐγαῖς ἀδιαστάτοις ᾗς μεθόριον οὐ διακρίνει σκότος." The double prepositioned ἐπ-ανατελλόντων is significant — ἐπί obviously referring to the setting sun, and ἀνά, to the rising full moon on "that day," the paschal 14th. (*Sp. Laws* II, 149.)

[32] Nicolai Nancelii, *Analogia Microcosmi ad Macrocosmi*, Secunda Pars, col. 1204. Paris, 1611.

[33] J. G. Hagen, *Catholic Encyclopedia*, art. *Lilius*, IX, 251. New York, 1910. Joseph Scaliger, *Thesaurus Temporum Eusebii Pamphili, Canonum Isagogicorum*, Liber Tertius, p. 183. Amstelodami, 1558.

[34] Dionysius Petavius, *Animadversiones in Epiphanii Opus*, p. 195. Coloniae, 1682.



Description. In Graph I, each 1 Nisan date is found by placing 14 Nisan on the day after the Jewish date of full moon on the Jerusalem meridian, and from thence counting back to 1 Nisan. The translation period equals the difference in time between the local conjunction and the sunset beginning of the 1st of Nisan.

In Graph II, 1 Nisan is taken from *Babylonian Chronology*. Translation periods are computed the same as for Graph I.

In Graph III, the Nisan waxing periods are obtained by subtracting the corresponding new moon dates from those of the full moon.[35] The peak of each wave answers to the longest interval, and the valley, to the shortest. Graph III is not hypothetical, for it is based upon known figures.

Comments. It is not difficult to see that Graph I more nearly conforms to the known figures of the third graph than does Graph II. This relation is a reliable check upon the lunar theory involved, for the translation period is necessarily governed by astronomical factors which advance the moon east of the sun at the time of conjunction. The most consequential factor in the paschal period is the moon's perigee or apogee, for in the spring of the year the moon's latitude is not of so great importance, a fact which Schoch has clearly stated, along with Maimonides, Sidersky, Baneth, Ferguson, Fotheringham, Draper, and many others. The following is Schoch's argument:

"Besonders bemerkenswert ist, dass im Frühling das notwendige Alter viel mehr darauf an, dass der Mond sich möglichst schnell von der Sonne entfernt, um eine bestimmte Elongation zu erreichen . . . Dagegen ist im Frühling eine grosse positive Breite weniger wichtig, da dann die Ekliptik schon so steil am Abend gegen den Horizont aufsteigt, dass die positive Breite die Höhe des Mondes über dem Horizont nur wenig vermehrt."[36]

Consequently, if it were not for the moon's perturbations and other irregularities due to the shape of her orbit, lunar motion at Passover time would be a simple problem for the mechanic. With reference to Graph II, however, it is clear that Schoch's lunar theory almost wholly annulls any anomalistic relation between his dates and the moon's true motion. In very few years does his 1 Nisan outline mesh with the moon's actual course as portrayed in Graph III.

As to the question whether Schoch's tables correspond to lunar observation in Babylonia, I will give an interesting example of his table date being too early, as is frequently the case on the meridian of Jerusalem. Let us go back to the 37th year of Nebuchadnezzar II (–567/566), as reported by Neugebauer and Weidner.[37] The computed lunar eclipse was not seen in Babylon,

[35] Ginzel's *Chronologie*.

[36] Karl Schoch, "Christi Kreuzigang am 14 Nisan" (*Biblica* 9 [1928] 50).

[37] P. V. Neugebauer and E. F. Weidner, "Ein astronomischer Beobachtungstext aus dem 37. Jahre Nebuknezars II" (*Berichte über die Verhandlungen der Königl. Sächsischen Gesellschaft der Wissenschaften zu Leipzig Philologisch-historischer Klasse.* 67 [1915] 34).

but the recorded Nisan full moon date is sufficient for our purpose: "oder 12. [Nisan] ging Jupiter scheinbar akronychisch auf. Am 14. war der Gott mit dem Gotte sichtbar; 16^{m} vergingen zwischen Sonnenaufgang und Monduntergang am nächsten Morgen. Am 15. war es bewölkt."[38]

The small interval of only 16 minutes between sunrise and moonset "on the next morning" at once identifies this morning as the first after the full moon rose at sunset, or, namely, after *Gott mit dem Gotte sichtbar war*. If it had been the second morning after, then the interval would have been over an hour long. Hence we have the equation 13 Nisan = May 6 (Schram's *Nisan date for full moon*). Reckoning back to 1 Nisan we get —

13 Nisan = May 6	9 Nisan = May 2	5 Nisan = Apr 28
12 Nisan = May 5	8 Nisan = May 1	4 Nisan = Apr 27
11 Nisan = May 4	7 Nisan = Apr 30	3 Nisan = Apr 26
10 Nisan = May 3	6 Nisan = Apr 29	2 Nisan = Apr 25

Therefore 1 Nisan = April 24 (same as passover reckoning in this instance).

In *Babylonian Chronology*, Schoch's date is April 23.

4. *Paschal Routine in the Crucifixion Year*

Dr. Parker is not convinced that the ancient passover was sacrificed at the sunset beginning of 14 Nisan, and cites Dr. Feigin's discussion of this problem.[39] It is indeed to the merit of Jewish scholarship to try to discover harmony in NT chronology; and one can hardly refrain from questioning just how real the so-called controversy over the crucifixion calendar was, seeing that within fifty days after the resurrection, we find all the disciples keeping one and the same day for the feast of the omer (Acts 2 1; Lev 23 15–21).

However, the explanation of the passover routine in Dr. Feigin's argument is not too clear. The Friday evening supper is a common meal! And he wishes to correct Lk 22 7 to agree with an assumed "first day of the festival" in the companion texts (Mt 26 17 and Mk 14 12). But on what authority should

[38] *Ibid.*

[39] Samuel I. Feigin, "The Date of the Last Supper" (*Anglican Theological Review* (25 [1943] 212–17).

Hebrew translators, as Salkinson and Delitzsch, introduce the word חג into these texts when the corresponding Greek has no word for "feast," and speaks only of the "first of the unleavened bread" — a common expression for the Jewish 14th with practically all first century writers. Furthermore, why attempt to change Luke's account of an actual passover meal (22 15) to agree with an assumed common meal, after which, nevertheless, the Hallel was sung![40] This hymn was chanted on only one night in the year. If chronology has to base its conclusions upon scribal error, or upon an isolated textual criticism, then many similar arguments follow, and in the end few are convinced.

A most important feature with reference to the crucifixion problem is the calendar and the lunar theory by which it is to be established. Dr. Feigin's critical analysis has not changed the astronomical riddle, namely, to find a year with the Jewish 14th of Nisan coinciding with a sunset to sunset sixth day of the week, which, on this occasion, he has been accustomed to call the "eve of the passover." Without this calendar, no critical theory is of much aid to chronology. Allow me to restate the problem. Modern scholarship, more commonly than in earlier centuries, consents to a Jewish date of the crucifixion as 14 Nisan. All, however, do not acquiesce as to the hour of slaying the national paschal lamb, which, clearly, the death of Christ fulfilled. But, on calendaric grounds alone, what actual difference does it make whether the sacrifice was antemeridian or postmeridian? The calendar cannot tie to a particular hour of the oriental *nychthemeron*. It can only connect with the Jewish date as a whole!

If Dr. Feigin and his colleagues see the paschal lamb slain "late on Friday afternoon," the point of time is still admitted to be the 14th of Nisan, and this is the same Jewish date proposed in my *JBL* study. The calendarial problem, therefore, has not changed.

At least four different forms of lunar calendar have hitherto been presented as the answer to the crucifixion problem: (1) with the Passover *before* full moon (Greswell); (2) with passover *on* full moon (Edersheim); (3) with passover *before*, *on*, and *after*

[40] *Pesaḥim* X 5–7; Mt 26 30; Mk 14 26.

full moon (Schoch); and (4) with passover only *after* full moon — my thesis. The first puts the *Neulicht* before or on conjunction, when the moon could not possibly be seen; the second results in the *Neulicht* occurring either on the day of conjunction, or in any event, too near the sun; the third has its *Neulicht* dates commonly too early by one and even two days for the meridian of Jerusalem; and the fourth — I am defending, and will repeat again its postulates:

1. The passover occurred on 14 Nisan on the next day after the Jewish date of the full moon of barley harvest.
2. On the longitude and latitude of Jerusalem, the barley harvest moon regularly fulled on the Jewish 13th of Nisan.
3. The astronomical rhythm of the Nisan *Neulicht* is similar to that of the full moon — when the one is early or late in its period, so also is the other early or late in its period.
4. The calendar *Neulicht*, therefore, did not precede the conjunction, or occur on the day itself of conjunction on the meridian of Jerusalem.

All of Dr. Parker's criticisms are interesting. Some are of material importance because they reflect the opinion of other scholars. It is impossible in this limited paper to give consideration to other than the most essential of his arguments.

distinction has often led to mistakes, and quite serious ones, in the case of historical records, chronicles, and genealogical tables. The inclusive reckoning must also be carefully noted in such expressions as 'ten days ago,' 'ten days later,' 'for ten days,' etc., which may mean what Occidentals would express by 'eleven days.'

There is now, of course, considerable confusion between the old and the new calendars, of which the latter is official, but the former is popular and still observed in country districts. This confusion naturally leads to some ludicrous anachronisms. For instance, the 7th day of the 1st month (O.C.) was known as *Nanakusa* ('Seven Herbs'), because the people were wont to go out into the fields and gather seven certain kinds of vegetables for use on that day; but January 7 is too cold and too early. In some cases, however, the old day is retained, no matter whether it fits the new calendar or not.

LITERATURE.—Clement, 'Japanese Calendars,' in *TASJ*, vol. xxx. pt. 1*; Bramsen and Clement, 'Jap. Chron. Tables,' *ib.* vol. xxxvii. suppl.; Rein, *Japan*, 2 vols., Leipzig, 1881–86; Chamberlain, *Things Japanese*[5], London, 1905; Inouye, *Sketches of Tokyo Life*, Tokyo, 1897; Tamura, *Japanese Bride*, New York, 1893; Griffis, *The Mikado's Empire*[3], New York, 1883, *Honda, the Samurai*, Boston, 1890; Hearn, *Glimpses of Unfamiliar Japan*, Boston, 1894, *Japanese Miscellany*, Boston, 1901, *Shadowings*, Boston, 1900; Mrs. Harris, *Log of a Japanese Journey*, Meadville, 1891, *Official History of the Empire of Japan*, Tokyo, 1893, *The Japanese Months*, Tokyo, 1898; Hachihama, *Superstitious Japan* (in Japanese), Tokyo; Clement, *Japanese Floral Calendar*, Chicago, 1905; J. Conder, *Flowers of Japan*, Tokyo, 1892, and *Floral Art of Japan*, London, 1900; Piggott, *Garden of Japan*, London, 1892; Ginzel, *Handbuch der mathematischen und technischen Chronologie*, i., Leipzig, 1906, pp. 450–498; Lanegg, *Midzuhogusa*, iii., Leipzig, 1880, pp. 269–286; Schram, *Kalendariographische und chronologische Tafeln*, Leipzig, 1908, pp. xxvi–xxx, 239–276 (conversion tables).

ERNEST W. CLEMENT.

CALENDAR (Jewish). — **1. Historical.** — The Exile in Babylon had considerable effect upon the calendar used by the Jews, as upon so many other features of their religious life. It was during the Exile that they became acquainted with the names of the months which they retain to the present day, and to which a Bab. origin is actually assigned by the Talmud (Jerus. *Rōsh Hashshānā*, I. fol. 56*d*, l. 13 from bottom). Our earliest authority for these names is now the Assuan Papyri (ed. Sayce-Cowley, London, 1906), which make mention of the following months: Ab (Pap. F), Elul (A, H), Tishri (G), Kislev (B, C, D, E, J), and Shebaṭ (K). In the later discovered papyri edited by Sachau (Berlin, 1907) we find, further, Tammūz (*Document* i. l. 4. 19) and Marcheshvan (*ib.* l. 30; *ib.* ii. l. 28). Of the former group the post-exilic books of the Bible mention Elul, Kislev, and Shebaṭ, and in addition furnish the names Nisan (Neh 2[1], Est 3[7]), Sivan (Est 8[9]), Tebeth (2[16]), and Adar (3[13] etc.). But the older practice of distinguishing the months by numbers must have remained in force alongside of the new nomenclature, and accordingly we find such expressions as 'in the first month, which is the month Nisan' (Est 3[7]), or simply 'in the first month' (3[12]). This is the case likewise in 1 Mac., where we find τοῦ μηνὸς τοῦ ἐννάτου οὗτος ὁ μὴν χασέλευ (4[52]), and also τοῦ μηνὸς τοῦ πρώτου (9[3]), etc. (cf. Schürer, *GJV*[3] i. 32). A complete list of the twelve months—Iyyar being added to the foregoing names—is given in the so-called *Megillath Ta'ānith* ('Roll of Fasts'), which probably dates from the beginning of the 1st cent. A.D. (cf. Schürer, i. 745; *JE* viii. 427). The name of the 13th, or intercalary, month is first met with in the Mishna (*Megillā*, i. 4; *Nēdārim*, viii. 5), occurring there as אדר שני ('second Adar'). In the Mishna, too, the number of days in a lunar year is fixed at 354, and in a solar year at 364 (cf. esp. *Tosefta Nazir*, i. 3, ed. Zuckermandel, Pasewalk, 1880, p. 284, l. 5); but this would, of course, apply only to common years.

As regards the intercalary month, it has been maintained, especially by Mahler (cf. Schürer, i. 748, n. 2), that, as the Babylonians had an intercalary cycle of 19 years, this may well have been adopted by the Jews. But the investigations of Oppert (*ZDMG* li. 138) and Weissbach (*ib.* lv. 195) have shown the futility of the assumption.[1] The Assuan Papyri yield ample proof of the fact that at the time after the Exile no such fixed cycle was in use among the Jews, and this would appear to be true also of the Talmudic period.[2] An eight-year cycle (*oktaeteris*) is probably referred to in the Book of Enoch (74[13–16]), and Sextus Julius Africanus (early 3rd cent.) says that both the Greeks and the Jews intercalate three extra months every eight years (cf. Poznański, *JQR* x. 156); but the statements are somewhat indefinite (Schürer, i. 751). Explicit mention of the nineteen-year cycle is first made in post-Talmudic writings (see below).

In two pseudepigrapha which date probably from Maccabæan times, viz. the Book of Enoch (*loc. cit.*) and the Book of Jubilees (ch. 6), it is assumed that the year consists of 364 days, *i.e.* 52 complete weeks.[3] In each case the reckoning is by solar years, but it is hardly likely that this method was in general use at that time. It is recorded by David b. Merwān al-Miḳmās (or al-Muḳāmmeṣ), a writer of the 9th cent., that the Sadducees observed months of 30 days, *i.e.* solar months (Poznański, *REJ*, vol. l. p. 19). This testimony, however, adds the disadvantage of obscurity to that of lateness. It finds no support in Talmudic sources.

Records dating from the closing years of the Second Temple inform us that the time of new-moon was fixed on the evidence of observers who declared that they had descried the crescent in the sky. This would imply that no one knew beforehand whether the month was to have 29 days (hence called 'defective,' חסר) or 30 days ('full,' מעובר or מלא; cf. Bornstein, *op. cit.* 26 ff.). The regulation of the month was probably at first in the hands of the priests,[4] and was afterwards committed to the Sanhedrin. Similarly, a leap-year was decided upon only when required, the main factor in the question being the state of the young crops, as it was desired that the Passover

[1] Also the hypothesis that this cycle was observed in ancient Babylonia, as held by Winckler, Jeremias, and others, must be unequivocally rejected (cf. Kugler, *Sternkunde und Sterndienst in Babel*, Münster, 1907 ff., ii. 192; Ungnad, in *OLZ*, 1910, p. 66). Moreover, to judge from the data collected by Kugler (i. 212), the regular employment of a nineteen-year cycle cannot be attributed to the Babylonians till the Seljūk era, by which time the influence of Greece may well have been making itself felt (see also Schürer, i. 748).

[2] In reference to the calendar of the Assuan Papyri, see Schürer and Ginzel in *TA* Lxxxii. (1907), nos. 1 and 3; Gutesman, *REJ* liii. (1907) 194; Bornstein, *The Chronological Data of the Assuan Papyri* [in Heb.], Warsaw, 1909; and Westberg, *Die bibl. Chronologie nach Flavius Josephus*, Leipzig, 1910, p. 103 ff. Belléli (*An independent Examination of the Assuan and Elephantine Aramaic Papyri*, London, 1909) assumes that the dates given in these papyri must in all respects harmonize with the cycle of either eight or nineteen years, and then, finding this to be so in neither case, he maintains that the papyri are spurious—a most preposterous conclusion. It is related in the Talmud (*Sanhedrin*, 12*a*) that Akiba (first half of 2nd cent. A.D.) reckoned three successive years as intercalary—a fact which proves the non-existence of any intercalary cycle at that time. The same thing took place among the Karaites, who relinquished the method of computing the calendar for that of observing the moon (see below), as is attested by Levi b. Yefeth (beginning of 11th cent.; cited in Pinsker, *Likkute Kadmoniot*, Vienna, 1860, ii. 90).

[3] According to Epstein (*REJ* xxii. 11; *Eldad ha-Dani*, 1892, p. 156 ff.), the Book of Jubilees has a twofold determination of the year: the civil, with 12 months, eight of which had each 30 days, and four 31 days; and the religious, with 13 months of 28 days. But the theory has not yet been finally confirmed.

[4] See Zuckermann, *Materialien zur Entwick. der altjüd. Zeitrechnung im Talmud* (Breslau, 1882), p. 7. This work contains a careful and exhaustive compilation of the data supplied by the Talmudic literature with reference to the method of determining both the ordinary and the intercalary month.

* From which some of the material here used is taken by permission.

d quite
records,
nclusive
in such
later,'
at Occi-

nfusion
f which
ılar and
nfusion
onisms.
th (O.C.)
because
elds and
r use on
o early.
etained,
ndar or

ASJ, vol.
Tables,' *ib.*
, 1881–86;
Inouye,
ese Bride,
New York,
Glimpses of
y, Boston,
Log of a
he Empire
tyo, 1898;
), Tokyo;
J. Conder,
of Japan,
lon, 1892;
echnischen
, Mizuho-
alendario-
1908, pp.

MENT.
al. — The
upon the
ny other

features of their religious life. It was during the Exile that they became acquainted with the names of the months which they retain to the present day, and to which a Bab. origin is actually assigned by the Talmud (Jerus. *Rōsh Hashshānā*, I. fol. 56*d*, l. 13 from bottom). Our earliest authority for these names is now the Assuan Papyri (ed. Sayce-Cowley, London, 1906), which make mention of the following months: Ab (Pap. F), Elul (A, H), Tishri (G), Kislev (B, C, D, E, J), and Shebaṭ (K). In the later discovered papyri edited by Sachau (Berlin, 1907) we find, further, Tammūz (*Document* i. 1. 4. 19) and Marcheshvan (*ib.* 1. 30; *ib.* ii. 1. 28). Of the former group the post-exilic books of the Bible mention Elul, Kislev, and Shebaṭ, and in addition furnish the names Nisan (Neh 2^1, Est 3^7), Sivan (Est 8^9), Ṭebeth (2^{16}), and Adar (3^{13} etc.). But the older practice of distinguishing the months by numbers must have remained in force alongside of the new nomenclature, and accordingly we find such expressions as 'in the first month, which is the month Nisan' (Est 3^7), or simply 'in the first month' (3^{12}). This is the case likewise in 1 Mac., where we find τοῦ μηνὸς τοῦ ἐνάτου οὗτος ὁ μὴν χασέλευ (4^{52}), and also τοῦ μηνὸς τοῦ πρώτου (9^3), etc. (cf. Schürer, *GJV*[3] i. 32). A complete list of the twelve months—Iyyar being added to the foregoing names—is given in the so-called *Megillath Ta'ănith* ('Roll of Fasts'), which probably dates from the beginning of the 1st cent. A.D. (cf. Schürer, i. 745; *JE* viii. 427). The name of the 13th, or intercalary, month is first met with in the Mishna (*Megillā*, i. 4; *Nĕdārim*, viii. 5), occurring there as אדר שני ('second Adar'). In the Mishna, too, the number of days in a lunar year is fixed at 354, and in a solar year at 364 (cf. esp. *Tosefta Nazir*, i. 3, ed. Zuckermandel, Pasewalk, 1880, p. 284, l. 5); but this would, of course, apply only to common years.

As regards the intercalary month, it has been maintained, especially by Mahler (cf. Schürer, i. 748, n. 2), that, as the Babylonians had an intercalary cycle of 19 years, this may well have been adopted by the Jews. But the investigations of Oppert (*ZDMG* li. 138) and Weissbach (*ib.* lv. 195) have shown the futility of the assumption.[1] The Assuan Papyri yield ample proof of the fact that at the time after the Exile no such fixed cycle was in use among the Jews, and this would appear to be true also of the Talmudic period.[2] An eight-year cycle (*oktaeteris*) is probably referred to in the Book of Enoch (74^{13-16}), and Sextus Julius Africanus (early 3rd cent.) says that both the Greeks and the Jews intercalate three extra months every eight years (cf. Poznański, *JQR* x. 156); but the statements are somewhat indefinite (Schürer, i. 751). Explicit mention of the nineteen-year cycle is first made in post-Talmudic writings (see below).

In two pseudepigrapha which date probably from Maccabæan times, viz. the Book of Enoch (*loc. cit.*) and the Book of Jubilees (ch. 6), it is assumed that the year consists of 364 days, *i.e.* 52 complete weeks.[3] In each case the reckoning is by solar years, but it is hardly likely that this method was in general use at that time. It is recorded by David b. Merwān al-Miḳmāṣ (or al-Muḳāmmeṣ), a writer of the 9th cent., that the Sadducees observed months of 30 days, *i.e.* solar months (Poznański, *REJ*, vol. l. p. 19). This testimony, however, adds the disadvantage of obscurity to that of lateness. It finds no support in Talmudic sources.

Records dating from the closing years of the Second Temple inform us that the time of new-moon was fixed on the evidence of observers who declared that they had descried the crescent in the sky. This would imply that no one knew beforehand whether the month was to have 29 days (hence called 'defective,' חסר) or 30 days ('full,' מלא or מעובר; cf. Bornstein, *op. cit.* 26 ff.). The regulation of the month was probably at first in the hands of the priests,[4] and was afterwards committed to the Sanhedrin. Similarly, a leap-year was decided upon only when required, the main factor in the question being the state of the young crops, as it was desired that the Passover

[1] Also the hypothesis that this cycle was observed in ancient Babylonia, as held by Winckler, Jeremias, and others, must be unequivocally rejected (cf. Kugler, *Sternkunde und Sterndienst in Babel*, Münster, 1907 ff., ii. 192; Ungnad, in *OLZ*, 1910, p. 66). Moreover, to judge from the data collected by Kugler (i. 212), the regular employment of a nineteen-year cycle cannot be attributed to the Babylonians till the Seljūk era, by which time the influence of Greece may well have been making itself felt (see also Schürer, i. 748).

[2] In reference to the calendar of the Assuan Papyri, see Schürer and Ginzel in *Th Lxxxii.* (1907), nos. 1 and 3; Gutesman, *REJ* liii. (1907) 194; Bornstein, *The Chronological Data of the Assuan Papyri* [in Heb.], Warsaw, 1909; and Westberg, *Die bibl. Chronologie nach Flavius Josephus*, Leipzig, 1910, p. 103 ff. Belléli (*An independent Examination of the Assuan and Elephantine Aramaic Papyri*, London, 1909) assumes that the dates given in these papyri must in all respects harmonize with the cycle of either eight or nineteen years, and then, finding this to be so in neither case, he maintains that the papyri are spurious—a most preposterous conclusion. It is related in the Talmud (*Sanhedrin*, 12*a*) that Akiba (first half of 2nd cent. A.D.) reckoned three successive years as intercalary—a fact which proves the non-existence of any intercalary cycle at that time. The same thing took place among the Karaites, who relinquished the method of computing the calendar for that of observing the moon (see below), as is attested by Levi b. Yefeth (beginning of 11th cent.; cited in Pinsker, *Likkute Kadmoniot*, Vienna, 1860, ii. 90).

[3] According to Epstein (*REJ* xxii. 11; *Eldad ha-Dani*, 1892, p. 156 ff.), the Book of Jubilees has a twofold determination of the year: the civil, with 12 months, eight of which had each 30 days, and four 31 days; and the religious, with 13 months of 28 days. But the theory has not yet been finally confirmed.

[4] See Zuckermann, *Materialien zur Entwick. der altjüd. Zeitrechnung im Talmud* (Breslau, 1882), p. 7. This work contains a careful and exhaustive compilation of the data supplied by the Talmudic literature with reference to the method of determining both the ordinary and the intercalary month.

* From which some of the material here used is taken by permission.

should coincide with the earing of the corn (אביב); [1] the intercalary month was therefore always an Adar. It was not till a later day that the position of the sun was also taken into account (תקופה, *tequfa*; cf. *Tosefta Sanh.* ii. 7). This procedure was continued after the destruction of the Temple, though we are informed that the Patriarch Gamaliel II. (*c.* 100 A.D.), when examining the first observers of the crescent moon, made use of drawings of the lunar phases (*Rōsh Hash-shānā*, ii. 8). He is also said to have fixed the duration of the month at 29½ days, ⅔ of an hour, and 73 parts of an hour, but the last two terms are undoubtedly a late interpolation (cf. Schwarz, *Der jüd. Kalender*, Breslau, 1872, p. 20; Slonimski, *Yesōde ha-'Ibbūr*[2], p. 34). In course of time less and less attention was paid to the evidence of observers, and various devices of computation were increasingly resorted to, though the Patriarch and his council still continued to fix the time of new moon in the traditional way. This constituted, in fact, one of the strongest elements of cohesion amongst the Jews of the Dispersion, and, as a special prerogative of Palestine, it was most jealously guarded. An attempt made by the Babylonian Jews to free themselves in this regard from the domination of Palestine proved altogether abortive (cf. the story about Ḥananya the nephew of Joshua b. Ḥananya [1st half of 2nd cent.] in the Jerus. *Nĕdārim*, viii. 13 fol. 40 *a*, l. 30, etc.; also Bacher, *Die Agada der Tannaiten*, i.[2] [Strassburg, 1903], 385).

At first the beginning of the month was announced to the various communities by fire-signals, but, as the Samaritans and Boethusæans would sometimes deceive the watchers by false signs, the tidings were afterwards conveyed by special messengers (*Rōsh Hashshānā*, ii. 2). As the messengers, however, could not always reach the communities outside Palestine in time to announce whether new moon would fall on the 30th or the 31st of the old, these outlying groups of Jews kept on the safe side by observing their festivals both on the day appointed by the Scriptures and on the following day, the latter thereby acquiring the name יום טוב שני של גליות ('Second feast-day of the Diaspora'). The Day of Atonement, however, was celebrated on the 10th of Tishri only, and thus formed an exception to the rule (but cf. Jerus. *Ḥallā*, i. 1, fol. 57*c*, l. 14).

In the period of the Amoraim, of whom some were resident in Palestine, and others in Babylonia (3rd–5th cent.), we hear with increasing frequency of calculations and regulations for the calendar. One of the most eminent workers in this field was Samuel, 'the astronomer' (first half of the 3rd cent.), who taught in Babylonia, and who, it appears, sought to systematize the calendar, but was unable to carry out his design (Schwarz, *op. cit.* p. 32, n. 1). He is said to have drawn up a calendar available for 60 years (*Ḥullin*, 95*a*), and was the first of his nation to maintain that the year consists of 365¼ days (*'Ĕrūbin*, 56*a*), though he was still unaware of other essential principles of the calendar (*Rōsh Hashshānā*, 20*b*). One by one, however, these principles were adopted, though the general practice remained somewhat capricious in its adhesion thereto (see, *e.g.*, Zuckermann, *op. cit.* 46). One of the Palestinian Amoraim, Simon by name (*c.* 300 A.D.), speaks of 'caleulators of the calendar' (אילין דמחשבין; Jerus. *Sukkā*, iv. 1, fol. 54*b*, l. 17; cf. Zuckermann, p. 61); while another, Huna b. Abin (middle of 4th cent.), enjoined that, in deciding upon an intercalary month, regard should be had exclusively to the position of the sun (*tequfa*; *Rōsh Hashshānā*, 21*a*), etc. Political occurrences and the constantly increasing despotism of Rome simply forced the Jews to devise a means of determining the times of new moons and feasts independently of eye-witnesses. It is even recorded that during the campaign of Gallus (from A.D. 351 onwards), who dealt very harshly with the communities in Palestine, an intercalary month was inserted after Ab instead of Adar (*Sanhedrin*, 12*a*; cf. Graetz, *Gesch. d. Juden*, 1868–78, iv. note 31). It is also stated by Jose, an Amora who lived about this time, that the Feast of Purim (celebrated on 14th Adar) must never fall upon a Sabbath or a Monday, as in that case the Day of Atonement would fall upon a Friday or a Sunday—a contingency which on many grounds was forbidden (Jerus. *Mĕgillā*, i. 2, fol. 70*b*, l. 23). By that time, therefore, the sequence of months from Adar to Tishri must have been precisely laid down. Jose is also reported to have sent a fixed order of festivals to the communities of the Diaspora (Jerus. *'Ĕrūbin*, iii. end fol. 24*c*, l. 24). These various items, however, form but the rudiments of a continuous calendar.

Such a continuous calendar, according to a tradition that goes back to Hai Gaon († 1038), was constructed by the Patriarch Hillel II. in A.D. 359 (or, according to another version, 500, though by this time the day of Patriarchs was past). But the tradition, which stands quite alone, is confronted with grave objections. Of these the following two are of special weight: (1) The supposed calendar is never referred to in the Talmud, which received its final redaction at the end of the 5th cent. A.D. Nothing whatever is said there about the length of the month or the nineteen-year cycle, or anything else of the kind. (2) It is psychologically improbable that the Patriarch would of his own initiative divest himself of his highest privilege, and likewise of his most powerful means of influence amongst the Jewish communities both in Palestine and beyond it. Moreover, from the early post-Talmudic age we have dates which cannot be reconciled with the regular calendar in use to-day.[1] In point of fact, everything goes to indicate that the calendar, like all other productions of the kind, passed through a developing series of forms, and that it assumed its final shape in the schools of the official representatives of Judaism (called Geonim) in Babylonia.[2] To the period of the Geonim, say the 7th and 8th cents., likewise belong two tractates relevant to the subject. One of these is entitled *Pirḳe de Rabbi Eliezer*, and contains almost all the elements of the modern calendar (caps. 6–8), but it shows so many instances of self-contradiction that we must assume the presence of various interpolations (cf. also Zunz, *Gottesdienstliche Vorträge*[2], 1892, p. 287 ff.). The other, *Baraitha de Samuel* (*ed. princeps*, Salonica, 1861), is wholly engaged with astronomy, and yields a single date, 776 (beginning of cap. v.; cf. below, and *JE* ii. 520), but says nothing at all about regulations for the calendar.

In the 7th and 8th cents., again, Judaism in the East was disturbed by the rise of various sects, many of which refused to recognize the existing calendar. One of its outstanding assailants was Anan b. David, the founder of Karaism (2nd half of 8th cent.), who abandoned the method of computation, as being repugnant to Scripture, and reinstated that of lunar observation (see art.

[1] Cf. the story told of Gamaliel I. (at a time, therefore, when the Temple was still in existence) in *Tosefta Sanhedrin*, ii. 6 (p. 417 f.).

[1] One such date is the year 506, and another the year 776; cf. Bornstein, מחלקת רב סעדיה גאון ובן מאיר (Warsaw, 1904), p. 18.

[2] The first to indicate Babylon as the birthplace of the Jewish calendar was Th. Reinach (*REJ* xviii. 90 ff.), but the grounds on which he builds are false. Conclusive proof of the view that the continuous calendar had its origin in Babylonia during the post-Talmudic period is furnished at the earliest by the proceedings of Ben Meir (see below), the inferences therefrom having been drawn by the present writer (*JQR* x. 152 ff.), and then elaborated by Bornstein in the treatise just cited.

KARAISM). It is said, however, that in taking this step 'Anân simply wished to make a concession to the predominant power of Islâm, and thus ingratiate himself with the Khalîf (cf. Poznański, *REJ* xliv. 167). He is also said to have maintained that the intercalary month might be inserted as legitimately after Shebat as after Adar (Kirkisâni, *Kitâb al-'anwâr*, ed. Harkavy, p. 313, l. 7; al-Birûni, *Chronology of Ancient Nations*, ed. Sachau, Leipzig, 1876–78, p. 59 [Arab. text] = p. 69 [Eng. tr.]). One of 'Anân's successors, Benjamin al-Nahawendi (9th cent.), states that there are two kinds of months: religious or lunar months of 29 or 30 days, which serve to fix the dates of feasts and fasts, and civil or solar months of 30 days. In order to allow for the residual five days (he ignores the odd hours altogether), he proposes that a month be intercalated every six years, so that after a cycle of 42 years (7 × 6) the months will again begin on the same day (cf. Poznański, *REJ* l. 19). That the 1st of the month, or the feast-day, should always coincide with the same day of the week—as would be possible only if the year contained an integral number of weeks, or 364 days—was a desideratum also of the sect of Maghâriya ('cave-dwellers'), whose period remains unascertained, and the Okbarites, whose founder, Meswi al-Okbari, lived in the latter part of the 9th cent. (*REJ*, *loc. cit.*). Jehuda the Persian, another heretic of that age, affirms that the Jews had always reckoned by solar months (*ib.*). The importance attached to the recognition or repudiation of the then existing calendar may be gauged by the fact that the official circles of Judaism were free to intermarry with the Isawites,[1] who actually recognized Jesus and Muhammad as prophets, but not with the Karaites, the ground of distinction being simply that the former received the calendar while the latter did not (*JQR* x. 159).

Against all these sectaries and heretics a stand was made by the Gaon Saadya b. Joseph al-Fayyûmi (892–942). In order to safeguard the existing system of calendar, he broached the remarkable theory that it was of immemorial antiquity, and that months and festivals had always been determined by calculation. He maintained that observation of the moon was introduced only in the time of Antigonus of Socho (3rd cent. B.C.), as heretics had arisen who questioned the accuracy of the calculations, and that this step was taken simply to show that calculation and observation were in perfect accord (see *REJ* xliv. 176).[2] It was an easy matter for the Karaites to quash this theory by means of data from the Talmud (cf. Poznański, *JQR* x. 271; also *The Karaite Literary Opponents of Saadiah Gaon*, London, 1908, *passim*), and the majority of Rabbinical authorities had likewise to admit that Saadya's contentions were absurd.

The last great controversy regarding the validity of the now universally recognized calendar broke out in 921. In that year, Ben Meir, a character otherwise unknown, made his appearance in Palestine, claiming to be a descendant of the Patriarchs. He sought to restore the prerogative of the Holy Land in the fixing of new moons and festivals, the means to be employed, however, being no longer observation but calculation. He proceeded to modify one of the most important regulations of the calendar. It had been laid down that, if the conjunction of sun and moon which marks the beginning of Tishri took place after noon on a particular day, the statutory beginning of that month should be transferred to the day following, and that, if the latter happened to be Sunday, Wednesday, or Friday, on none of which Tishri could legally begin (see below), a delay of two days should be made. Now, Ben Meir professed to have a tradition to the effect that the month of Tishri is to begin on the day of conjunction, save only in the case where that event takes place 642 parts of an hour after midday—the hour comprising 1080 parts (see below). On this principle the variation in fixing the months and festivals might amount to one or even two days. A case in point occurred in the years 921–923, and a cleavage between the Palestinian and the Babylonian Jews was the result. This dispute is referred to by the Karaite Sahl b. Maṣliaḥ (end of 10th cent.; see Pinsker, *Likkuṭe Ḳadmoniot*, ii. 36) and the Syrian Elia of Nisibis (*Frag. syr. u. arab. Historiker*, ed. Baethgen, Leipzig, 1884, p. 84), neither of whom, however, mentions Ben Meir by name. The Jewish exilarch of the day invoked the aid of the young but erudite Saadya al-Fayyûmi, who disputed the position of the innovator with complete success. The definite interval selected by Ben Meir, viz. 642 parts of an hour, is, no doubt, traceable to the fact that, while the Jewish calendar was based upon the meridian of Babylonia, Ben Meir and his predecessors reckoned from that of Palestine. Now, in Palestine the year began with Nisan; in Babylonia, with Tishri. But the particular new moon of Nisan which formed the starting-point of the Palestinian reckoning fell on a Wednesday at nine hours of the day and 642 parts of an hour. When this number was transferred to Babylonia the fractional part was dropped, and hence the variation introduced by Ben Meir.[1] In any case, the controversy shows that the Jewish calendar had its origin in Babylonia during the period of the Gaons; and this conclusion is abundantly confirmed by other facts, which will be further discussed below, in the systematic part. But even Ben Meir never ventured to propose a return to the method of lunar observation.

The sole adherents of the latter were the Karaites, who had reverted in all respects to the ancient practice of determining the time of new moon by observation, and intercalating a thirteenth month when required by the state of the crops, i.e. the ripening ears (*'Abib*). One of the earliest of that sect, Daniel al-Ḳumisi, held, indeed, that all recourse to astronomical calculation was mere cloud-peering and star-gazing, quoting against it Dt 18[10] (Harkavy, *Studien u. Mitteilungen*, VIII. i. 189), and his example was followed by nearly all the Karaites. Only if the atmospherical conditions rendered observation impossible was it allowable to resort to approximative calculations (Heb. מקרבה, cf. Bornstein, *Chronological Data*, p. 38). Not till the 14th cent. did they accept the nineteen-year cycle, and even then only for regions far away from Palestine, such as Byzantium, the Crimea, Poland, etc. In Egypt, for instance, as late as the 17th cent., we still find the practice of intercalating a supplementary month as necessity required (cf. Gurland, *Ginze Israel*, Lyck, 1865, i. 5). But the Karaites, scattered as they were in various countries, fell into confusion in the matter, and celebrated the same festival on different days. They were thus compelled gradually to fall back upon the expedient of calculation, and to construct astronomical tables for the purpose. One of the first to draw up such tables was Elia Bashiatchi of Constantinople

[1] The founder of this sect, 'Abu 'Isâ al-Isfahâni, arose *c.* 700 A.D., and adherents were still to be found in the 10th cent. (cf. Poznański, *JQR* xvi. 770).

[2] A second theory was advanced by Maimonides († 1204), viz. that the method of calculation was always known, but could be legally resorted to only if the method of observation were abandoned, i.e. if there should no longer be a Sanhedrin in Palestine (see Bornstein, *op. cit.* 151).

[1] The first to call attention to this matter was Bornstein in the monograph already cited. The strictures of Epstein (*Haggôren*, v., 1906, 118–142) are incompetent. Cf. also Joffe in the Heb. Encyc. *Osar Israel*, *s.v.* 'Ben Meir' (iii., New York, 1909, p. 100 ff.).

(† 1490), whose book was called *Adderet Eliyahu* (*ed. princeps*, Constantinople, 1531). A thoroughgoing reformer appeared in Isaac b. Salomo of Chufut-Kale, in the Crimea (1755–1826), who, in his *Or ha-Lebāna* (Zitomir, 1872), maintained that perpetually repeated observations were unnecessary. He takes as his starting-point the new moon of Tishri 1779, when the so-called limits of visibility, *i.e.* the sum of the elongation and the arc of vision (*arcus visionis*), amounted to 13° 7′, and makes this the minimal limit, so that the day for which that particular result is given by calculation is thereby constituted the beginning of the month. He lays it down as a necessary condition that the moon shall not set before the sun. His followers, however, have discarded even the latter provision, and, in fact, take into account only the elongation, whose minimal limit is fixed at a little over 4° (cf. Jehuda Kokizov,[1] *Binā la-Ittim*, ii., Odessa, 1879, p. 2 ff.). Among the Karaites of the present day, accordingly, the determination of new moons and festivals depends wholly on the interval between conjunction and sunset, thus approximating—in theory—very closely to the method of the Rabbanites. In practice, however, the difference in the dating of festivals may amount to one or even two days. Nor do the modern Karaites recognize the so-called *deḥiyoth*, 'displacements' (see below).

2. System and principles.—The Jewish calendar now in use is based upon a luni-solar system. The months are lunar, but provision is made for a periodic adjustment with the solar year. This is effected by the device of intercalating a month seven times in a cycle of 19 years, viz. in the 3rd, 6th, 8th, 11th, 14th, 17th, and 19th years (see below). As in all calendars of this type, the day commences with sunset, but the calendar day is reckoned from 6 p.m., and comprises 24 successive hours. The hour is divided into 1080 *ḥalaqim*, 'parts,' the *ḥeleq* being thus equal to 3⅓ seconds. This division is presupposed in works referring to the above-mentioned controversy between Ben Meir and Saadya (A.D. 921), but its origin is assigned to the sons of Issachar, who are said to have pursued the study of astronomy.[2] The number 1080 was fixed upon probably because it has many different sets of factors (Schwarz, *op. cit.* p. 48). Now, as the days of the week are distinguished in Hebrew not by names but by ordinal numbers, any definite point of time is commonly indicated by three numbers, specifying day, hour, and *heleq* respectively. Thus, *e.g.*, 3 d. 17 h. 480 p. (Heb. ג׳ י״ז ת״פ) signifies Tuesday, 11 h. 26′ 40″ a.m. In one particular instance, viz. the so-called *tequfa* of R. Adda—to be mentioned later—the *ḥeleq* itself was divided into 76 *rega'im*.

The duration of the synodical month, *i.e.* the interval between one conjunction (*molad*) and the next, is 29 d. 12 h. 793 p. (כ״ט י״ב תשצ״ג) = 29d. 12 h. 44′ 3″ 20‴. But, as the calendar month must have an integral number of days, it has either 30 days (never 31), and is then called 'full' (מלא or מעובר), or 29 (never 28), in which case it is called 'defective' (חסר). In the calendar now in use the months Nisan, Sivan, Ab, Tishri, and Shebaṭ are always full, while Iyyar, Tammūz, Elul, Ṭebeth, and Adar are always defective. Marcheshvan and Kislev may be both full or both defective; or, again, Marcheshvan may be full and Kislev defective.[3]

In order to ascertain the exact time at which a year begins, it is necessary first of all to fix the conjunction which ushers in its first month, Tishri. This again involves the selection of a definite point from which the reckoning shall proceed. Now, as the world, according to a Talmudic tradition (*Rōsh Hashshānā*, 11*a*), was created in the month of Nisan, and as the recognized era is reckoned from that event, an attempt was made to calculate the date of the conjunction which began the first Nisan of history, the result thus arrived at being 4 d. 9 h. 642 p., *i.e.* Wednesday, 3 h. 35′ 40″ after midnight. The conjunction fixing the first Tishri could then be determined in two ways. One was to calculate half a year backwards from Nisan, giving the result 2 d. 5 h. 204 p. (ב׳ ה׳ ר״ד); such was the practice in Palestine, and the formula thus found is that in general use. The other method was to calculate the date of the conjunction beginning the following Tishri, with the result 6 d. 14 h. (ו׳ י״ר)—the formula used in the Bab. schools (Bornstein, *Maḥloḳet*, p. 112). The imaginary conjunction is called 'the *molad* of nothing' (*molad tohu*). Accordingly, if the conjunction of any particular month has been ascertained, it is an easy matter to fix that of the month following, as the date already known needs but to be supplemented by 29 d. 12 h. 793 p., or, as the four complete weeks may be eliminated without affecting the result, 1 d. 12 h. 793 p. (א׳ י״ב תשצ״ג), which gives what is called the 'character' of the month.

Now the year comprises 12 × 29 d. 12 h. 793 p., or 354 d. 8 h. 876 p., and a leap-year 13 × 29 d. 12 h. 793 p., or 383 d. 21 h. 589 p. But as the year, like the month, must have an integral number of days, an ordinary year has either 354 or 355 (but sometimes, as we shall see below, 353), and a leap-year 383 or 384 (sometimes also 385).[1] Hence, if the date of the conjunction of Tishri in any given year is known, we have simply to eliminate the complete weeks, *i.e.* 350—or 378—days, and then add, for a common year, 4 d. 8 h. 876 p. (ד׳ ח׳ תתע״ו), and, for a leap-year, 5 d. 21 h. 589 p. (ה׳ כ״א תקפ״ט). These two sets of numbers are called 'remainders' (יתרונות), and each forms the 'character' of its kind of year.

In order to fix the beginning of the year, *i.e.* the 1st of Tishri, the date of its conjunction must be calculated. But four possible cases may thus occur, the New Year being delayed by one or even two days. These four contingent delays (*deḥiyoth*) are as follows:

1. The New Year cannot begin on a Sunday, or a Wednesday, or a Friday (לא אד״ו ראש). The last two days were excluded because otherwise the Day of Atonement (the 10th of Tishri) would fall on a Friday or a Sunday. As early as the Talmudic period, however, the Day of Atonement, for various ceremonial reasons, was not observed on the day immediately before or after the Sabbath (*Rōsh Hashshānā*, 20*a*). The Sunday, again, was excluded because otherwise the so-called Palm-day (*Hoshāna Rabba*, the 22nd of Tishri) would also fall upon a Sunday—a concurrence likewise prohibited on ritual grounds (*Sukkā*, 43*b*).[2] In such contingencies, therefore, the New Year is transferred to the following day.

2. Similarly, the New Year must begin a day later when the conjunction takes place after 12 o'clock noon, *i.e.* after 18 hours of the calendar day, the reason being that the crescent of the new moon is not visible on that evening. A conjunction of this character is called 'old *molad*,' and the rule bearing upon it is already given in the Talmud (*Rōsh Hashshānā*, 20*a*). But, if

[1] A Karaite, still [1910] living (see Poznański, *Die karäische Literatur der letzten 50 Jahre*, Frankfort, 1910, p. 10).

[2] Cf., *e.g.*, the passage from the *Sefer 'Ibrōnot* given in Schwarz, p. 21, n. 2. The tradition regarding the astronomical knowledge of the sons of Issachar was derived from 1 Ch 12[32]. Saadya Gaon appealed to the same verse as an evidence of the high antiquity of the continuous Jewish calendar, and was on this account assailed by the whole Karaite school (cf. Poznański, *The Karaite Literary Opponents of Saadiah Gaon*, p. 39).

[3] We cannot well say why these two months in particular should vary in this way. It may have seemed desirable, however, to regulate exactly the months from Nisan to Tishri inclusive, so that the dates of the festivals might be easily ascertained; the irregularities could then be confined to the two months which follow immediately after Tishri.

[1] The reason for placing the limit lower in the case of the common year, and higher in that of the leap-year, was probably that the numbers 353 and 385 respectively approximate more nearly to the actual duration than do the numbers 356 and 382.

[2] The reasons for which the variation was made were thus of a ritual character in every case, as Geiger (*Jüd. Ztschr.* vi. 141 ff.) has rightly recognized. The attempts that have been made (so already Maimonides; cf. Schwarz, p. 54 ff.) to give an astronomical explanation of the variation must be regarded as too artificial.

the following day be a Sunday, a Wednesday, or a Friday, the New Year is delayed by two days.

3. If in any year following upon a common year the conjunction of Tishri takes place at or after 3 d. 9 h. 204 p. (ג׳ ט׳ ר״ר), the New Year cannot begin on that day or on the following day —Wednesday (by 1)—and in that case is delayed till Thursday. For, if 3 d. 9 h. 204 p. be added to the 'remainder' of a common year, *i.e.* 4 d. 8 h. 876 p., the result is 7 d. 18 h. As the Tishri of the following year, however, must not begin on Saturday (by 2) or Sunday (by 1), it would have to be delayed till Monday. But in that case the current year would have 356 days, which exceeds the statutory limit.

4. If the conjunction of Tishri in any year following upon a leap-year takes place at or after 2 d. 15 h. 589 p. (ב׳ ט״ו תקפ״ט), the New Year must be transferred to the Tuesday. For, if from these figures, or rather from 7 d. + 2 d. 15 h. 589 p., *i.e.* 9 d. 15 h. 589 p., the 'character' of a leap-year, viz. 5 d. 21 h. 589 p., be subtracted, the result is 3 d. 18 h. The Tishri of the previous year must, therefore, have begun on a Thursday, as Tuesday is excluded by (2), and Wednesday by (1). But if the current year were made to begin on Monday, the previous (embolismic) year would have only 382 days, which falls short of the lower statutory limit.

The duration of any particular year, *i.e.* the number of days in it, may accordingly be determined as follows: Calculate the date of the conjunction of Tishri, and also of the Tishri in the year following, allow for the 4 *dehiyoth*, and observe whether the year—if an ordinary year—has 353, 354, or 355 days, or, again—if a leap-year—whether it has 383, 384, or 385 days. If the number be 353 (or 383), the months of Marcheshvan and Kislev are both defective, and the year itself is in that case also called a 'defective' one (חסרה, abbreviated ח). If it has 354 (or 384) days, Marcheshvan is defective and Kislev full, the year being then designated as 'regular' (כסדרה, abbr. כ). Finally, if the number be 355 (or 385), Marcheshvan and Kislev are both full, and such a year is called 'complete' (שלמה, abbr. ש). Hence, as the first days of all the other months are determined on antecedent grounds, the complete sequence of festivals and seasons is now known. It is also usual to specify the day of the week on which the Passover begins, and the symbol employed is combined with symbols for New Year's Day and the length of the year in order to indicate the *qebia'* of the year. Thus, for example, the *qebia'* בחג signifies that New Year begins on Monday (ב = 2nd day of week), that the year is defective (ח = חסרה, *i.e.* Marcheshvan and Kislev with 29 days each), and that the Passover begins on Tuesday (ג = 3rd day of week). It may be shown without difficulty that there can be only 14 types of yearly calendars, 7 for common years, and 7 for leap-years.[1]

For common years: בחג, וחא, נבה, הכז, בשה, השא, ושג.

For leap-years: בחה, החא, וחג, נכז, בשז, השז, ושה.

But the *qebia'* of a year can also be determined without calculating when the ensuing Tishri shall begin. All that is necessary is to take cognizance of the extreme 'limits' (גבולים) within which the conjunction of Tishri must fall. It must then be noted whether the year is a leap-year (Group I.) or a common year; and if the latter, whether it immediately precedes (Group II.) or immediately follows (Group III.) a leap-year, or, finally, occurs between two leap-years.[1] The various items have been set forth in a table, as given below.

The use of this table may be explained by an example. The *qebia'* בח denotes a year which begins on a Monday (ב) and has 353 days (ח = חסרה, 'defective'). The earlier limit is 7 d. 18 h., for, if the conjunction takes place after 12 o'clock noon on Saturday, the New Year cannot begin on Saturday (*dehiya* 2) or Sunday (*dehiya* 1), but must be delayed till Monday. If the year under consideration be a common year, as, *e.g.*, in Groups II.–IV., the following year will begin after 353 days, *i.e.* on a Thursday. But this, again, is permissible only if the conjunction of the corresponding Tishri takes place at or before 5 d. 17 h. 1079 p. Now, if we subtract from this formula the 'remainder' of a common year, or 4 d. 8 h. 876 p., the result is 1 d. 9 h. 203 p. But if this 'limit' be exceeded, *i.e.* if the difference amount to 1 d. 9 h. 204 p. or more, the conjunction of the following Tishri will take place at 5 d. 18 h. In that case, however, the following year will not begin before Saturday (by *dehiyoth* 1 and 2), *i.e.* after 355 days, and the year under consideration would then be 'complete' (ש). Its *qebia'* would thus be no longer בח, but בש. Hence the 'limits' for בח in a common year are, on one side, 7 d. 18 h., and, on the other, 1 d. 9 h. 204 p.

The term *tequfa* ('course of the sun') signifies the moment at which the sun arrives at the equinoctial or solstitial point, or, in other words, the mean beginning of one of the four seasons. Thus we have *tequfat Nisan* (beginning of spring), *tequfat Tammūz* (beginning of summer), *tequfat Tishri* (beginning of autumn), and *tequfat Tebeth* (beginning of winter). The interval between two *tequfoth* was fixed in the 3rd cent. A.D. by the Amora Samuel (see above) at 91 d. 7½ h., the starting-point of the enumeration being made to coincide with the beginning of Nisan, and the first *tequfa* of the series fixed exactly at 4 d. 0 h. (Tuesday, 6 o'clock p.m.), 7 d. 9 h. 642 p. (ג׳ ט״ו תרס״ב) before the conjunction of the new moon of Nisan. This interval is precisely one quarter of the Julian year. The first *tequfa*, however, moves forward every successive year by 7½ h. × 4 = 1 d. 6 h., which in 28 years amounts to 1 d. 6 h. × 28 = 5 weeks, so that, after a period of 28 years, the first *tequfa* falls on the same day of the week and at the same instant of time as before. This period was therefore called the 'solar cycle' (*maḥzōr ḥamma*) or the 'great cycle' (*maḥzōr gādōl*). Now, according to Samuel, the length of the solar year is 4 × 91 d. 7½ h., or 365¼ days. But it was observed that this did not quite agree with the astronomical facts, and accordingly we find still another *tequfa*, named after Rabbi Adda, which gives 365 d. 5 h. 997 p. 48 rg. (*ḥeleq* = 76 *rega'im*), or 365 d. 5 h. 55′ 25·44″, as the length of the year, and places the first *tequfat Nisan* only 9 h. 642 p. (ט׳ תרס״ב) before the conjunction. This corresponds very closely with the Ptolemaic year, in which the odd seconds are given sometimes as 10, sometimes as 12. But although the figures of the Rabbi Adda are nearer to the facts than those of Samuel, yet they too

QEBI'OTH.

Group.	Year of Cycle.	בח	בש	נב	תכ	תש	וח	וש
I.	3. 6. 8. 11. 14. 17. 19	7 d. 18 h.	1 d. 20 h. 491 p.	2 d. 18 h.	3 d. 18 h.	4 d. 11 h. 695 p.	5 d. 18 h.	6 d. 20 h. 491 p.
II.	2. 5. 10. 13. 16	7 d. 18 h.	1 d. 9 h. 204 p.	2 d. 18 h.	3 d. 9 h. 204 p.	5 d. 9 h. 204 p.	5 d. 18 h.	6 d. 9 h. 204 p.
III.	1. 4. 9. 12. 15	7 d. 18 h.	1 d. 9 h. 204 p.	2 d. 15 h. 589 p.	3 d. 9 h. 204 p.	5 d. 9 h. 204 p.	5 d. 18 h.	6 d. 0 h. 408 p.
IV.	7. 18	7 d. 18 h.	1 d. 9 h. 204 p.	2 d. 15 h. 589 p.	3 d. 9 h. 204 p.	5 d. 9 h. 204 p.	5 d. 18 h.	6 d. 9 h. 204 p.

[1] See the detailed proof in Schwarz, p. 62 ff.

[1] These limits were at a very early date grouped in the so-called 'four gates' (*'Arba'ah She'arim*), corresponding to the four days of the week—Monday, Tuesday, Thursday, and Saturday—on which alone the New Year could begin. So far as we know, the earliest writer to apply the method was Saadya Gaon; cf. Poznański, *REJ* xl. 87, and Bornstein, *Maḥlokel*, p. 99.

show an error, as the precise length of the year is only 365 d. 5 h. 48′ 48″.

The earliest known reference to the '*tequfa* of R. Adda' under that designation is made by Isaac b. Baruch Albalia of Cordova (A.D. 1035–1094; cf. Abraham b. Ḥiya's *Sefer ha-'Ibbûr*, iii. 4), but the period it indicates is already referred to by al-Bîrûnî (Arab. text, p. 183 = Eng. tr. p. 163). He states that, when the Jews wish to determine the year *precisely* (اذا دققوا), they reckon its length as 365 d. 5¼ h., which corresponds exactly with the *tequfa* of R. Adda. But this *tequfa* must go still further back, as it agrees with a date (776) mentioned in the *Baraitha* of Samuel (see above).[1] Moreover, the intercalary system in common use among the Jews, of which we shall treat presently, could never have been framed except on the basis of R. Adda's—not Samuel's—*tequfa*.[2] In all probability, therefore, its duration was calculated about the 8th cent. A.D., *i.e.* at the period in which the Jews in the East began to study astronomy, and became acquainted with the Almagest.[3]

As already indicated, the Jewish year is a composite arrangement. Its months are lunar, but from time to time an extra month is intercalated in order to effect an adjustment with the solar year. This was done even before the establishment of the continuous calendar. It was regarded as a matter of special importance that the month of Nisan should not begin before its *tequfa* (beginning of spring), and a second Adar was intercalated as required; but at that time nothing was as yet known of a regular and periodic intercalation, recurring according to definite rules. Such an arrangement was in all probability first introduced along with the continuous calendar itself, when the Metonic cycle was adopted. It had been observed that 235 lunar months are equal to 19 solar years. But, as 235 ÷ 19 gives the quotient 12, with 7 as remainder, an additional month, a second Adar, was intercalated 7 times in the period of 19 years, which was called the 'little cycle' (*maḥzōr qāṭān*). But while, according to the majority of scholars, the leap-years of both the Metonic and the Callippic system are the 2nd, 5th, 8th, 10th, 13th, 16th, and 18th years of the cycle (cf. *JQR* x. 161), in the Jewish calendar they are the 3rd, 6th, 8th, 11th, 14th, 17th, and 19th (as in the Heb. formula גו"ח אדו"ם). The most probable explanation of the Jewish order is that the position of the heavenly bodies at the time when the intercalary system was instituted did not require the supplementary month till the 3rd year of the cycle, then the 6th, 8th, etc.; and, as has been said, exact astronomical calculations show that this sequence is in harmony with the *tequfa* of R. Adda. We have also information to the effect that there were other intercalary systems in operation, viz. בה"ו יגי"ח (2. 5. 7. 10. 13. 16. 18), אדו"ם בה"ו (1. 4. 6. 9. 12. 15. 17), and גה"ח אדו"ם (3. 5. 8. 11. 14. 16. 19). But all these are in reality forms of the normal sequence, the variation depending simply on the particular year of the cycle with which the intercalation begins. Thus, if the figures of the first formula be increased by 1, those of the second by 2, and those of the third by 3, the result in each case is the ordinary formula.[1] Hence we ought to speak, not of different intercalary series, but of different mnemonic formulæ.

The length of the year as fixed by the *tequfa* of Samuel (= the Julian year of 365¼ days) is not an exact measure of the 19-year cycle, as in that period it shows an aggregate excess of 1 h. 485 p. But even the *tequfa* of R. Adda, which was adapted to this cycle, does not fully agree with the facts, as the exact duration of the year is 365 d. 5 h. 48′ 48″, not 365 d. 5 h. 55′ 25·44″. Thus, while 235 lunar months are equivalent to 235 × 29 d. 12 h. 793 p. = 6939 d. 16 h. 595 p. = 6939 d. 16 h. 33′ 3⅓″, 19 (true) solar years amount only to 6939 d. 14 h. 27′ 12″, the former quantity being in excess by 2 h. 5′ 5⅓″. In 1000 years the cumulative error is 4·6 days, and in 2000 more than 9 days. But this discrepancy was simply left out of account.

The 'remainder' of a common year, as already stated, is 4 d. 8 h. 876 p., and that of a leap-year 5 d. 21 h. 589 p. But in the cycle of 19 years (12 common and 7 leap-years) the conjunction of the *molad* of Tishri moves forward by 2 d. 16 h. 595 p. (ב' ט"ז חקצ"ה), and in 13 such cycles (13 × 2 d. 16 h. 595 p. =) 34 d. 23 h. 175 p., or by discarding the complement of full weeks, 6 d. 23 h. 175 p., which falls short of an additional week by only 905 p. Ignoring the odd parts (such fractions having in many cases no influence upon the determination of the months), we have thus a cycle of (13 × 19 =) 247 years, after which the *qebi'oth* of the years might recur. But they can never recur exactly, as it sometimes happens that even a single part (*heleq*) alters the *qebia'*; thus, *e.g.*, 17 h. 1079 p. + 1 p. is a so-called 'old *molad*.'[2] An exact repetition of *qebi'oth* would ensue, in fact, only after 36288 19-year cycles, or 689472 years—a period of no practical use. A perpetual Jewish calendar that would be serviceable in any real sense is thus out of the question.

A partial approximation to such a calendar, however, is furnished by the so-called 'Table of the 61 beginnings' (לוח בעל ס"א ראשים),[3] which exhibits the *qebi'oth* of a complete 19-year cycle. As we saw above, there are 7 varieties of *qebi'oth*, and, therefore, in a cycle (7 × 19 =) 133. But in actual practice it is found that 72 of these combinations

[1] It is here stated, at the beginning of Section V., that 'sun and moon and years of release and *tequfoth* were readjusted' in A.M. 4536, and that *tequfat Tishri* (of A.M. 4537) took place on Tuesday, towards the end of the day, and 2 hrs. before the conjunction of the month of Tishri, which occurred at the beginning of Wednesday (= Tuesday, 6 p.m.). This was the 17th of September, A.D. 776. The *tequfa* of Samuel, however, fell 6 d. 11 h. later, *i.e.* on the 24th of Sept. 3 a.m. Now, if we calculate the *tequfat Nisan* of the Creation by the measurement of R. Adda, we get 4 d. 13 h., which differs from his *tequfa* by 13 h. only. This has been duly emphasized by Bornstein (*Maḥloḳet*, p. 22).

[2] As the Feast of the Passover could not take place before the beginning of the *tequfat Nisan* (beginning of spring), *i.e.* the 26th of March, then, according to Samuel's *tequfa*, an intercalary month would already be required at the end of one year, and thereafter at successive intervals of 3, 3, 2, 3, 3, 3 years. This intercalary sequence would not be the ordinary one (גו"ח אדו"ם, see below), but בה"ו יגי"ח. A similar system is found among the Samaritans, who, in fixing the Passover, take account only of the *tequfa*, and had thus, during the 16th cent., the intercalary sequence בה"ו יגי"ח.

[3] The earliest known Jewish astronomer, Mashallah, lived in the reign of the Khalif al-Manṣûr (A.D. 754–775; cf. Steinschneider, *Die arab. Literatur d. Juden*, 1902, p. 15). Here, therefore, we find a corroboration of our theory that the constant calendar of modern Judaism is of relatively late date. The calculation of conjunctions, for instance, cannot have been finally established even as late as A.D. 776, for, according to the *Baraitha* of Samuel, the conjunction of Tishri in that year took place at 4 d. 0 h.; while, according to the modern reckoning, it did not occur till 4 d. 3 h. 363 p. This fact is of great importance in the history of the Jewish calendar (cf. Bornstein, *loc. cit.*).

[1] Such apparently dissimilar intercalary series are given by Joshua b. 'Alan (9th or 10th cent.; see the bibliography at the end), al-Bîrûnî (ed. Sachau, p. 55 [text], p. 64 [tr.]), Hai Gaon († 1038) in Abraham b. Ḥiya, p. 97, and Isaac Israeli (in an ancient *Baraitha* in *Yesôd Olâm*, iv. 2). Al-Bîrûnî says that the first two series were in use among the Jews of Palestine (اهل الشام: not of Syria, as Sachau translates), while the third was the universally received order, and emanated from the Jews of Babylonia (اهل البابل: not Babylonians, as rendered by Sachau). Cf. also *JQR* x. 197 ff.

[2] The above computation is said to have been made by the Gaon Naḥshon b. Ṣadoḳ (last quarter of 9th cent.), who, it is also stated, instituted a corresponding cycle, called '*Iggul*. This '*Iggul* is first mentioned by Abraham b. Ezra († 1067) (cf. *Shene ha-Me'oroth*, ed. Steinschneider, Berlin, 1847, p. 1), though without the name of its originator. This is given for the first time by Joseph b. Shemṭob b. Jeshu'a of Turkey, who published the '*Iggul* in his *Sheʾerith Joseph*, a work on the calendar, composed in 1489 and issued at Salonica in 1521 (cf. Steinschneider, *Bibliotheca Mathematica*, 1894, p. 102, where mention is made also of the Lat. tr. of the '*Iggul* by Seb. Münster).

[3] First mentioned by Isaac b. Joseph Israeli in his *Yesôd Olâm* (composed 1310), iv. 10.

recur, so that there remain only (133 − 72 =) 61 possible forms, which are duly calculated and set forth in tables (cf. *e.g.* Schwarz, p. 79).

There exist also formulæ and tables for synchronizing Jewish dates with the Julian and the Gregorian calendar, with which devices, however, we cannot deal here, and must simply refer to the books and tables cited at the end of this article. A formula for assimilating Jewish dates with the Muhammadan reckoning has recently been devised by A. Fränkel (*Ztschr. f. mathem. u. naturwissensch. Unterricht*, 1908, pp. 598–606; *MGWJ*, 1909, pp. 736–743).

3. Eras.—After the return from the Exile the Jews reckoned by the years of the Persian kings. This is the practice in the newly discovered papyri of Elephantine (ed. Cowley-Sayce, and also Sachau), and in the post-exilic books of the Bible (*e.g.* Hag 1^{1}, Zec $1^{1,7}$, Dn 9^{1}, Ezr 1^{1} etc.). Subsequently they made use of the era of the Seljūks, or the so-called 'contracts-era' (*minyan shetaroth*), which began in the autumn of 312 B.C., and is first cited in 1 Mac. (cf. *e.g.* 1^{10}). This era was in use among the Jews in the East till the 16th cent., and is still observed by them in Yemen (cf. Saphir's 'Travels,' *Eben Sappir*, i. 62*b*). During the period of independence under the Maccabees, dates were indicated by the year of the reigning prince, and a national epoch was found in the year when Judæa gained its freedom under Simon (1 Mac 13^{42}; cf. Schürer, i.³ 242), *i.e.* 170 ær. Sel. = 143–142 B.C. After the Jews lost their independence and their national rulers, they probably reckoned by the years of the Roman governor or consul. The Book of Jubilees fixes its dates by jubilee periods of 49 years divided into 7 year-weeks of 7 years each, but it is unlikely that this method was ever followed in practical life. The Talmud, however, may possibly allude to such an era in *Sanhedrin*, 97*b* (cf. Isr. Lévi, *REJ* i. 110).

After the destruction of the second Temple, dates were reckoned from that event (*Le-horban habayit*; cf. *Seder Olam*, cap. 30, *Abōdā Zārā*, 9–10), as also, especially in documents, by the years of the reigning Emperor, or perhaps of the eponyms (see Bornstein, *Mahloket*, p. 65); both methods were in vogue in Palestine, and the former also in Southern Italy (Ascoli, *Iscrizioni inedite*, nos. 24–33). In Babylonia, on the other hand, and generally throughout the Diaspora in the East, the Jews continued to use the era of the Seljūks, which, as said above, is still observed in some districts. In the Talmud, moreover, in the tractates just cited, the era of the Creation (*Li-bri'ath 'olām*; in a later epoch it is called *Li-yeṣira*) is mentioned, but it was not used in ancient times, except, at most, in learned works (*e.g.* the *Baraitha* of Samuel), nor do we know when it was adopted. Rühl's conjecture (in *Deutsche Ztschr. für Geschichtswissenschaft*, 1898, p. 185; referred to in *JE*, *s.v.* 'Era'), that the introduction of this era was coincident with the change from the 8-year to the 19-year cycle, which is said to have taken place between A.D. 222 and 276, conflicts with the view advanced here regarding the gradual development and relatively late establishment of the continuous calendar among the Jews, and, what is more, it is at variance with historical facts, as nothing is known of this method of dating even in Talmudic times (cf. Harkavy, *Altjüd. Denkmäler aus d. Krim*, p. 161). In Europe it is first met with in epitaphs in the catacombs of Venosa, dating from 822 and 827 (Ascoli, *op. cit.*, nos. 25, 31); thereafter we find it used by Sabbataj Donnolo, also of Southern Italy, in the year 925 (cf. his *Commento sul Libro della Creazione*, ed. Castelli, p. 3); likewise in a document, of date 1034, from Kairwan (*JQR* xvi. 576). The beginning of this era coincides with the year 3760 B.C., but its accuracy was questioned in the 16th cent. by Azaria de Rossi in his *Meor Enayim* (*ed. princ.*, Mantua, 1534). The well-known Karaite Firkowitch professes to have discovered another mundane era in epitaphs from the Crimea; this begins 151 years before the ordinary Jewish era, *i.e.* in 3911 B.C., but is undoubtedly spurious (cf. Harkavy, *op. cit.* 152). An era reckoned from the captivity of Samaria, which is assumed to have begun in 596 B.C. (*Le-galuthenu*), and found in similar epitaphs, which are said to date from the years A.D. 6, 30, 55, 89, and 369 (Firkowitch, *Abne Zikkaron*, nos. 1–4 and 25), is likewise a fabrication, as is conclusively shown by Harkavy (p. 144 ff.). In recent times the Zionists also have adopted the era of *Le-galuthenu*; but in this case the term denotes the destruction of the second Temple, which they assign to A.D. 70.

LITERATURE.—A complete catalogue of works upon the Jewish calendar will be found in the relative passages of Steinschneider, 'Die Mathematik bei d. Juden' (*Bibliotheca Mathematica*, 1893–1901; *Abhandl. zur Gesch. d. Mathematik*, ix. 473–483; *MGWJ*, 1905–1907). The oldest surviving treatise is that of Joshua b. 'Alan (9th or 10th cent.), preserved in a work (ed. Harkavy, in *Haggôren*, iv. 75–79; cf. Poznański, *Ztschr. f. hebr. Bibliog.* vii. 130–131) of Ben Mashiah, a Karaite (1st half of 10th cent.). The calendar was dealt with in Saadya Gaon's lost Arab. work, *Kitāb al-'ibbūr*; see, most recently, Poznański, *loc. cit.* xii. 122, no. 27, and Marx, *REJ* lviii. 299. The first complete and systematic account that has come down to us is that given in al-Bīrūnī's *Chronology of Ancient Nations* (ed. Sachau, Leipzig, 1878; Eng. tr., London, 1879), chs. vii. xiv. The earliest Jewish writer on the subject in Europe was Ḥasan ha-Dayyan of Cordova (fl. 972); three works on the calendar are attributed to him, but survive only in a few quotations. The treatise of Isaac b. Baruch ibn Albalia of Cordova (1035–1094) is also lost, but fairly large quotations therefrom are found in the work of Abraham b. Ḥiya of Barcelona (beginning of 12th cent.), whose *Sefer ha-'Ibbūr* (ed. Filipowski, London, 1851) is one of the most important on the subject. A short treatise bearing the same name was composed by Abraham ibn Ezra (1092–1167; ed. Halberstam, Lyck, 1874); Moses Maimonides (1135–1204), at the age of 23, wrote a small monograph entitled *Ma'amar ha-'Ibbūr* (*ed. princ.* 1489; Germ. by Dünner, *Die älteste astronom. Schrift d. Maimonides*, Würzburg, 1902), which, however, is of little value; but the relative section of his *Religious Code* (*Hilchoth Qiddush ha-Ḥodesh*; Germ. trs. and edd. by Hildesheimer [1881], Mahler [1889], Baneth [1898–1903]) is of eminent value. A work dealing with principles, *Yesōd Olām*, was written in 1310 by Isaac b. Joseph Israeli in Toledo (*ed. princ.*, Berlin, 1777; critical ed., Berlin, 1846–48; the section dealing with the literary history [apart], ed. Weikert, Rome, 1901). The *Shetrith Josef* (Salonica, 1521, 1568) of Joseph b. Shemṭob b. Jeshu'a, written in 1489, has already been mentioned. The following also deserve notice: Seb. Münster, *Kalendarium Heb.* (Basel, 1537), which contains an anonymous Heb. work upon the calendar with Münster's Lat. tr.; Issachar ibn Sausan, *Tikkun Issachar* (*ed. princ.*, Constantinople, 1564); Eliezer b. Jacob Belin, *'Ibronoth* (Lublin, 1614–15), and Scaliger, *de Emendatione Temporum* (3rd [best] ed. 1629).

The following works, from the 19th cent. and later, are worthy of note: Ideler, *Handb. d. math. u. techn. Chronologie*, i. (Berlin, 1825) pp. 477–583; L. M. Lewisohn, *Gesch. u. System d. jüd. Kalenderwesens* (Leipzig, 1856); Slonimski, *Yesōde ha-'Ibbūr* (*ed. princ.*, Warsaw, 1853, 3rd [last] ed., Warsaw, 1889); A. Schwarz, *Der jüd. Kalender historisch u. astronomisch untersucht* (Breslau, 1872); J. Lurie, *Matematitcheskaja teorja jevrejskaho kalendarja* ('Mathematical Theory of the Jewish Calendar,' in Russian, Mohilev, 1887; cf. Bornstein in the *Hakkerem*, i. 317–336); S. B. Burnaby, *Elements of the Jewish and the Muhammadan Calendars* (London, 1901), pp. 1–364; Schürer, *GJV* i.³ (Leipzig, 1901) 745–760; C. Adler and M. Friedländer, art. 'Calendar,' in *JE* (iii. [1902] pp. 498–508); A. Kistner, *Der Kalender d. Juden* (Carlsruhe, 1905).

Tables for synchronizing Jewish dates with the Christian era, and for other purposes, as also calendars for prolonged periods, have been framed by the following: Isidore Loeb, *Tables du Calendrier juif depuis l'ère chrétienne jusqu' au xxxe siècle* (Paris, 1886), which likewise gives the older literature; Sossnitz, *'Itān Olamim* (Warsaw, 1888); E. Mahler, *Chronol. Vergleichungstabellen*, etc., Heft ii. (Vienna, 1889) pp. 69–140; M. Simon, *200-jähriger Kalender zur Umwandlung des jüd. Datums*, etc. (for A.D. 1781–2000, Berlin, 1889), and *1200-jähriger Parallel-Kalender d. jüd. u. christl. Zeitrechnung* (for 800–1996, Berlin, 1895); B. Zuckermann, *Anleitung u. Tabellen z. Vergleichung jüd. u. christl. Zeitangaben* (Breslau, 1893); E. Jusué, *Tablas de reduccion del computo hebraico al christiano y vice-versa* (Madrid, 1904); Schram, *Kalendariographische u. chronologische Tafeln* (Leipzig, 1908), etc.

Special questions relating to the calendar and its history are dealt with by the following (names in alphabetical order): Azaria de Rossi (†1584) in *Maṣref la-Keseṭ* (ed. Filipowski, London, 1854); L. Bendavid, *Zur Berechnung u. Gesch. d. jüd. Kalenders* (Berlin, 1817), refutation by M. Kornick, *Dabar be-'itto* (Breslau, 1817); A. Epstein, *Mikadmoniyoth ha-Yehudim* (i. [Vienna, 1887] 1–22, cf. Bornstein in *Hakkerem*, i. 290–317); A. Geiger in *Jüd. Ztschr.* vi. 141–161; B. Goldberg, *Note sur*

le calendrier juif (Paris, 1883); D. Oppenheim, in *MGWJ* v. 412-419; H. M. Pineles, *Darka shel Tora* (Vienna, 1861, pp. 211-262); Th. Reinach, in *REJ* xviii. 90-94; A. Schwarz, in *MGWJ* xxxii. 375-383; M. Steinschneider, in *Hayyona* (ed. S. Sachs, i. [Berlin, 1851] pp. 17-35), and in Brann's *Jüd. Volkskalender* (1895-96); B. Zuckermann in *MGWJ* v. 182-186, etc.

SAMUEL POZNAŃSKI.

CALENDAR (Mexican and Mayan).—The ancient Mexicans and Mayas, as well as the Zapotecs, who inhabited the tract of country lying between these peoples, represented the same general type of civilization, and used a calendar essentially the same in character. We are more conversant with this calendar than with any other of their institutions; and, especially in regard to the Mexican and Mayan hieroglyphics, where it plays a commanding part as a medium of divination, it forms in reality the basis of all our knowledge. For its reconstruction we are indebted mainly to the researches of E. Seler and E. Förstemann, but we possess as yet no conclusive answers to the following vital questions: (1) To what shall we trace the *tonalamatl* (Mex. 'book of days') of 260 days, which, in conjunction with the solar year of 365 days, forms the foundation of the calendar? (2) Was provision made for intercalations in the solar year? (3) How are the dates of the Dresden Mayan MS[1] and the Mayan monuments to be adjusted to our own chronology?

1. **The tonalamatl**, one of the two main constituents of the calendar, consists of 260 days, reckoned by means of 20 distinct symbols of days in combination with the numbers 1 to 13. The peculiar nature of the arrangement may be learned from the accompanying table, as found in the Mexican Codex Borgia[2] and the related hieroglyphics. (For the sake of convenience the order of sequence is given here as from left to right and downwards, instead of from right to left and upwards, as in the original. The Roman numbers represent the several day-symbols.)

Mexican.		Mayan (Yucatan).	
XIII. Acatl	reed.	Been	worn out.
XIV. Ocelotl	jaguar.	Ix	?
XV. Quauhtli	eagle.	Men	maker.
XVI. Cozcaquauhtli	great hawk (sarcorhamphus papa).	Cib	perfumery.
XVII. Olin	motion.	Caban	what is exuded (?).
XVIII. Tecpatl	flint.	E'tznab (E'tz)	hard (?)
XIX. Quiauitl	rain.	Cauac	storm.
XX. Xochitl	flower.	Ahau	king, sun.

Were we to compare the names and symbols current in Mexico with those of the other Mayan dialects, the correspondence in meaning, so far recognizable from the above lists, would be rendered clearer still.

This period of 260 days is most probably to be explained as the equivalent of nine lunar revolutions, especially as the days of the *tonalamatl* are conjoined—often continuously—with representations of nine gods, the so-called 'Lords of the night,' who may thus be regarded as the original deities of the nine lunar months; nine revolutions of the moon, however, may well represent the approximate duration of pregnancy.[1] Then, as the numerical system of these peoples was based upon 20, the number of days in a *tonalamatl* may be represented as thirteen twenties. This explanation seems more probable than any other that has been advanced. (1) The factor 13 has been derived from the period during which the moon was actually observed to wax or wane; but this would not yield a continuous reckoning, as it ignores the interlude of invisibility at new moon. (2) The number 260 has been explained as indicating the period of visibility of the planet Venus as an evening star. The actual period of visibility, however, whether as a morning or as an evening star, amounts only to some 243 days. (3) The *tonalamatl* has been derived from the fifty-two-year cycle, since

TABLE I.

1	2	3	4	5	6	7	8	9	10	11	12	13
I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX
XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	I	II	III	IV	V
XIX	XX	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII

1	2	3	4	5	6	7	8	9	10	11	12	13
XIV	XV	XVI	XVII	XVIII	XIX	XX	I	II	III	IV	V	VI
XX	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII
XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	I	II	III	IV
XVIII	XIX	XX	I	II	III	IV	V	VI	VII	VIII	IX	X

1	2	3	4	5	6	7	8	9	10	11	12	13
XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	I	II	III
XVII	XVIII	XIX	XX	I	II	III	IV	V	VI	VII	VIII	IX
III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV
IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	I
XV	XVI	XVII	XVIII	XIX	XX	I	II	III	IV	V	VI	VII

1	2	3	4	5	6	7	8	9	10	11	12	13
IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI
X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	I	II
XVI	XVII	XVIII	XIX	XX	I	II	III	IV	V	VI	VII	VIII
II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX

This arrangement of five superincumbent ranks of day-symbols also preponderates in the Mayan hieroglyphics, but there the *tonalamatls* are not transcribed in full, and begin with any of the 52 columns.

The names of the day-symbols are represented in the hieroglyphics by pictures, and have come down to us in the following sequence:—

Mexican.		Mayan (Yucatan).	
I. Cipactli	crocodile (?).	Imix	female breast (?).
II. Eecatl	wind.	Ik	wind.
III. Calli	house.	Akbal	night.
IV. Cuetzpalin	lizard.	Kan	copious (?).
V. Coatl	serpent.	Chicchan	biting snake.
VI. Miquiztli	death.	Cimi	death.
VII. Maçatl	stag.	Manik	that which hurries along.
VIII. Tochtli	rabbit.	Lamat	?
IX. Atl	water.	Muluc	that which is heaped up.
X. Itzcuintli	dog.	Oc	?
XI. Oçomatli	monkey.	Chuen	monkey.
XII. Malinalli	a herb.	Eb	row of teeth.

[1] ed. Forstemann (2nd ed. 1892).
[2] ed. Duc de Loubat, fol. 1 f.

$52 \times 365 = 20 \times 13 \times 73$. But to regard it as the subdivision of a longer period fails to do justice to its primordial character, as it forms the basis of the calculation of the solar year, and must therefore have been in force before the latter.

2. **The solar year.**—There was no serial enumeration of *tonalamatl* periods, and it was impossible to distinguish one *tonalamatl* from another, as the continuous representation of dates by means of cipher and symbol resulted simply in an exact repetition after every 260th day. Nor were the solar years of 365 days (Mex. *tonalpoualli*, 'numbering of days') enumerated from any particular starting-point. Nevertheless, in a prolonged succession of *tonalamatls* it came about that, during a period of 52 solar years (Mex. *xippoualli*, 'numbering of years'), a particular day of the *tonalamatl*, discriminated by a particular combination of cipher and symbol, coincided with the beginning of the year, thus rendering it possible to distinguish one year from another. As the *tonalamatl* contained $13 \times 20 = 260$ days, and the year had $18 \times 20 + 5 = 28 \times 13 + 1 = 365$

[1] Zelia Nuttall, 'The Periodical Adjustments of the Ancient Mexican Calendar,' *American Anthropologist*, vi. 495, 500

days, any given entry in the former moved forward upon the annual reckoning by five symbols and one cipher. Only 4 of the 20 symbols, therefore, coincided with New Year's Days, while the ciphers could vary 13 times; whence it follows that the *tonalamatl* provided distinctive combinations for the first days of $4 \times 13 = 52$ successive years. But the New Year's Days fell, not, as might be expected, on the days indicated by the *tonalamatl* symbols I (Cipactli), VI (Miquiztli), XI (Ocomatli), and XVI (Cozcaquauhtli), but upon XIII (Acatl), XVIII (Tecpatl), III (Calli), and VIII (Tochtli), and thus the fifty-two-year cycle may be represented as follows:

1	XIII	XVIII	III	VIII
2	XVIII	III	VIII	XIII
3	III	VIII	XIII	XVIII
4	VIII	XIII	XVIII	III
5	XIII	XVIII	III	VIII
6	XVIII	III	VIII	XIII
7	III	VIII	XIII	XVIII
8	VIII	XIII	XVIII	III
9	XIII	XVIII	III	VIII
10	XVIII	III	VIII	XIII
11	III	VIII	XIII	XVIII
12	VIII	XIII	XVIII	III
13	XIII	XVIII	III	VIII

Similarly, in the Dresden Mayan MS and the Mayan monuments the years begin in regular order with days XIII (Been), XVIII (E'tznab), III (Akbal), and VIII (Lamat), while in historical times, according to tradition, the years were reckoned in the order: IV (Kan), IX (Muluc), XIV (Ix), and XIX (Cauac).[1]

As the *tonalamatl* datings, however, were simply repeated after 260 days, and could not therefore definitely fix a particular day even *within* the year, the system was supplemented by a division of the year into 18 twenties, with 5 residual days. We give here the usual enumeration of these periods of twenty days, but it should be stated that the Mexican and the Mayan lists did not synchronize:

Mexican.	Mayan (Yucatan).
1. Atl caualo or Quauitl eua.	1. Pop.
2. Tlacaxipeualiztli.	2. Uo.
3. Toçoztontli.	3. Zip.
4. Ueitoçoztli.	4. Zo'tz.
5. Toxcatl.	5. Tzec.
6. Etzalqualiztli.	6. Xul.
7. Tecuilhuitontli.	7. Yaxkin.
8. Ueitecuilhuitl.	8. Mol.
9. Miccailhuitontli, or Tlaxochimaco.	9. Ch'en.
10. Ueimiccailhuitl, or Xocouetzi.	10. Yax.
11. Ochpaniztli.	11. Zac.
12. Teotl eco.	12. Ceh.
13. Tepeilhuitl.	13. Mac.
14. Quecholli.	14. Kankin.
15. Panquetzaliztli.	15. Muan.
16. Atemoztli.	16. Pax.
17. Titiil.	17. Kayab.
18. Izcalli.	18. Cumku.

These 18 'months' (Mayan, *uinal*) are followed by the five residual days (Mex. *nemontemi*, 'supernumerary'; May. *xma kaba kin*, 'days without name') at the end of the year.

At the time of the conquest, according to Sahagun, the beginning of the first (Mexican) month, Atl caualo, coincided approximately with that of our February,[2] and this would harmonize with the succession of Nature-festivals assigned to the several months, and necessarily associated with the seasons of the year. The first (Mayan) month, Pop, began about the middle of our July.[3] But, as no intercalations were made—so far as known—for relatively short periods, the reckoning fell behind by one day in four years. This being duly allowed for, the statement that the Mayan year began with the 1st of Pop has been authenticated and found correct, while the earlier notices of Atl caualo as the first month of the Mexican year do not accord with our calculations. According to these, in fact, the Mexican year began with the 1st of Toxcatl,[1] *i.e.* at the beginning of May, when the sun in his northern journey passed through the zenith, and was revived by the sacrifice of his human counterpart. But if we may argue from the fact that there was among the Mayas a festival covering the five residuary days at the close of the year, that people likewise must at some earlier period have begun their year with other months, viz. Yaxkin and Pax—two dates, that is, in force at the same time, and separated from each other by 180 days.[2] Allowance having been made for the neglected intercalary days, the beginning of the Mexican year—the 1st of Toxcatl—synchronizes with our reckoning as follows:

Year 1 Acatl.....4th May 1519–1520.
Year 2 Tecpatl.....3rd May 1520–1521.
Year 3 Calli.....3rd May 1521–1522,
etc.[3]

Although, as has already been said, there is nothing to show that the calendar was adjusted by means of intercalary days, the statements of the early writers having proved to be altogether illusory, yet, as the sequence of the Nature-festivals must have corresponded with that of the months, it is absolutely certain that the discrepancy was compensated for in some way. As yet, however, the hieroglyphics have yielded no quite incontrovertible evidence to show that the Mexicans gave any theoretical recognition to the difficulty.[4] This also holds good of the *katun*-periods of the Mayas, with which we are now to deal, and in connexion with which we shall discuss the problem of synchronism in fuller detail.

3. The Katun-periods of the Mayas.—The Mexican calendar was quite inadequate for any term beyond 52 years, as after that period the characterization of dates began simply to recur, and there was no successive enumeration of the 52-year cycles. The Mayas, however, had a supplementary reckoning by means of *katun* (periods of 20×360 days), the subdivision of 360 days being called a *tun* ('stone'). These periods were designated according to the days on which they severally began, and, while this first day always coincided with the same one of the 20 day-symbols, viz. *Ahau*, its numerical coefficient increased by 11 in every successive *katun*, as $\frac{20 \times 360}{13} = 553 + 11$. It was therefore possible to discriminate 13 such periods by prefixed numerals as follows: 13 (Ahau), 11, 9, 7, 5, 3, 1, 12, 10, 8, 6, 4, and 2. Chronological references that pass beyond the resultant cycle (*c.* 13×20 years) do not merit serious regard. The calculations of Seler,[5] which are based upon the identity of 2 Ix, 1 Pop with 14th July 1543, yield the following synchronism:

Katun.	Year.	First Day of Katun.	Date of the Julian Calendar.
8 Ahau	11 Ix	7 Ch'en	29th January 1436
6 Ahau	5 Ix	7 Zo'tz	15th October 1455
4 Ahau	11 Muluc	12 Kayab	3rd July 1475
2 Ahau	5 Muluc	12 Ceh	19th March 1495
13 Ahau	12 Muluc	12 Yaxkin	5th December 1514
11 Ahau	6 Muluc	12 Uo	22nd August 1534
9 Ahau	12 Kan	17 Muan	9th May 1554
7 Ahau	6 Kan	17 Yax	24th January 1574
5 Ahau	13 Kan	17 Tzec	16th October 1593

[1] Landa, *Relacion de las cosas de Yucatan*, ed. Brasseur de Bourbourg (1864), p. 206.
[2] Sahagun, *Historia general de las cosas de Nueva España*, ed. Bustamente (Mexico, 1829), i. 50.
[3] Landa, *op. cit.* p. 276.

[1] Seler, *Gesammelte Abhandlungen*, i. 177 f. [2] *ib.* i. 703.
[3] Cf. the table given by de Jonghe, 'Der altmexicanische Kalender,' in *ZE* (1906) p. 512.
[4] Seler (iii. 199 f.) has made an attempt to prove intercalations in the hieroglyphics.
[5] *Op. cit.* i. 583 f.

From Hastings

We may add that this style of computation is based on multiples of 'nine' (1×9=9, 2×9=18, 3×9=27, 4×9=36, 5×9=45, 6×9=54), and in each case the 'tail' figure of the product was chosen as the name of the hour (9, 8, 7, 6, 5, 4).

The second plan, based upon the heavenly menagerie, was as follows:

1.	Hour of the Rat,	11 p.m.–1 a.m.
2.	" " " Ox,	1–3 a.m.
3.	" " " Tiger,	3–5 a.m.
4.	" " " Hare,	5–7 a.m.
5.	" " " Dragon,	7–9 a.m.
6.	" " " Serpent,	9–11 a.m.
7.	" " " Horse,	11 a.m.–1 p.m.
8.	" " " Goat,	1–3 p.m.
9.	" " " Monkey,	3–5 p.m.
10.	" " " Cock,	5–7 p.m.
11.	" " " Dog,	7–9 p.m.
12.	" " " Boar,	9–11 p.m.

By both of these systems, each 'hour' was 120 minutes in length; but it was also divided into *jōkoku* and *gekoku* (upper and lower *koku*), each of which was thus equivalent to 60 minutes.

There is also a division of the *night* into watches (*kō*), five in number, as follows:

Shokō, First Watch—Fifth Hour, 7–9 p.m.
Nikō, Second Watch—Fourth Hour, 9–11 p.m.
Sankō, Third Watch—Ninth Hour, 11 p.m.–1 a.m.
Shikō, Fourth Watch—Eighth Hour, 1–3 a.m.
Gokō, Fifth Watch—Seventh Hour, 3–5 a.m.

7. **Festivals and holidays** demand some attention in connexion with the calendar.

The *go-sekku*, or five festivals, were, and are, carefully observed, although their dates have been changed to fit the new solar calendar. They fell on the first[1] (or, as some say, seventh) day of the first month, the third day of the third month, the fifth day of the fifth month, the seventh day of the seventh month, and the ninth day of the ninth month. They have various names, of which the most general are those made from the names of the months, such as *Shōgatsu-no-Sekku* (First Moon's Festival), etc. But these names are not so commonly used as more specific ones, which describe more or less particularly the nature of the festival. For instance, the festival of the Third Month is well known as *Jōmi-no-Sekku* (the Girls' Festival), or *Hinamatsuri* (Dolls' Festival); that of the fifth month is the famous *Tango-no-Sekku* (the Boys' Festival), or *Nobori-no-Sekku* (Banner Festival); that of the seventh month is commonly called *Tanabata-no-Sekku* (Festival of the Star Vega); while that of the ninth month is called *Chōyō-no-Sekku* (Indian Summer Festival), or *Kiku-no-Sekku* (Chrysanthemum Festival). Moreover, the Girls' Festival is also called *Momo-no-Sekku* (Peach Festival), and the Boys' Festival is called *Shōbu-no-Sekku* (Sweet Flag Festival).[2]

The national holidays are as follows:

Shihōhai	January 1.
Genji-sai	January 3.
Kōmei Tennō Sai	January 30.
Kigen-setsu	February 11.
Shunki Kōrei Sai	(about) March 21.
Jimmu Tennō Sai	April 3.
Shūki Kōrei Sai	(about) September 24.
Kanname Sai	October 17.
Tenchō-setsu	November 3.
Niiname Sai	November 23.

Shihōhai means 'four-sides-worship,' *i.e.* from the four points of the compass, or from all sides. *Genji-sai* means 'first-beginning-festival.' *Tenchō-setsu* is the Emperor's birthday. *Kigen-setsu* was originally a festival in honour of the ascension of Jimmu, the first Emperor, to the throne, and was thus the anniversary of the establishment of the Old Empire; but it is now observed also as the celebration of the promulgation of the Constitution (Feb. 11, 1889), and is thus the anniversary of the establishment of the New Empire. The *Jimmu Tennō* Festival, on April 3, is the so-called anniversary of the death of the Emperor Jimmu. The *Kanname* Festival in October celebrates the offering of first-fruits to the ancestral deities, and the *Niiname* Festival in November celebrates the tasting of those first-fruits by the Emperor. The Spring and Autumn Festivals, in March and September, are adaptations of the Buddhist equinoctial festivals of the dead, *Higan*, and are especially observed for the worship of the Imperial ancestors. The Emperor Kōmei was the father of the present Emperor, Mutsu Hito, and reigned from 1847 to 1867. The 16th of January and July were and still are special holidays for servants and apprentices. The 17th of each month is a regular holiday for Tōkyō barbers.

Another special occasion is that known as *Setsubun*, which directly marks the end of winter and indirectly the end of the year. Theoretically, the two should correspond, but they do so only once in a few years. And yet *Setsubun* is a kind of 'New Year's Eve' and is an important festival. It is the time when beans are scattered around in every house to scare away the devils, and the following formula is also supposed to be effective:

O-ni wa soto:[1] *Fuku wa uchi,*

'Out with the devils: In with good fortune.'

This is also the occasion when 'each person present eats one more [bean] than the number of the years of his age.' The food eaten then is known as *azukimeshi*, and consists of red beans mixed with rice. This was likewise eaten in olden times on the 1st, 15th, and 28th of each month, which were the 'three days' (*sanjitsu*) then regularly observed as holidays. For a fuller description of *Setsubun*, see Hearn's *Glimpses of Unfamiliar Japan*, vol. ii. pp. 498–503; and for interesting notes on the New Year's Festival, see pp. 493–498 of the same volume.

8. A few words of explanation of the system of *nengō* may be interesting. Those eras do not regularly, but only occasionally, correspond with the reigns of the Emperors, because 'a new one was chosen whenever it was deemed necessary to commemorate an auspicious or ward off a malign event.' But hereafter the era will correspond with the reign of an Emperor. The names of some of these eras are quite famous, like the Elizabethan or the Victorian Era in English history. As the first era was a time of great reforms, it is known as the Taikwa Reformation; the Engi era, in the tenth century, is celebrated for important legislation; the Genroku era, in the seventeenth century, was 'a period of great activity in various arts'; and the Tempō era, of recent days, was 'the last brilliant period of feudalism before its fall.' This name was also given to the large 8-*rin* piece coined in that era. The Wadō era, in the fourteenth century, was so named on account of the discovery of copper; and the second era, Hakuchi, commemorates a 'white pheasant' presented to the Emperor. The present era is known as Meiji, which means 'enlightened rule.' The names of these periods are formed by the various combinations, more or less appropriate, of 68 Chinese words of good omen.

9. An explanation is necessary concerning the Japanese method of reckoning, which is 'inclusive.' Moreover, in the case of ages, the computation was made from New Year's Day, which thus became a kind of national birthday, as the birthday of the individual was not considered of sufficient importance. Thus a child born on the last day of a year would be considered two years old on the first day of the next year, because he had lived in both of these years. Therefore, in case of inquiring a person's age, it would be very important to know whether the reply gave 'Japanese years' or full years. Ignorance or forgetfulness of this

[1] Originally so established in the reign of the Emperor Uda (A.D. 888–897).

[2] See also the present writer's *Japanese Floral Calendar*, and J. Conder's elaborate paper in *TASJ*, vol. xvii. pt. ii. pp. 1–96.

[1] But in shipping and express companies it is unlucky to repeat the first stanza, because *o-ni* may mean 'honourable freight,' or 'baggage.'

VOL. XXVII, No. 3 APRIL, 1911

THE AMERICAN JOURNAL OF SEMITIC LANGUAGES AND LITERATURES

FOUNDED BY WILLIAM RAINEY HARPER

The University of Chicago Press
CHICAGO, ILLINOIS

AGENTS: LUZAC & CO., LONDON; TH. STAUFFER, LEIPZIG

Baker's Breakfast Cocoa

Has a most delicious flavor. Is pure and healthful. An ideal food beverage.

GENUINE HAS THIS TRADE MARK ON EVERY PACKAGE

WALTER BAKER & CO. LTD.
ESTABLISHED 1780
DORCHESTER, MASS.

Dust, Dirt and Germs

are best removed from floors by first sweeping with a cloth-covered broom moistened with water containing just a little

Platt's Chlorides,

The Odorless Disinfectant.

A colorless liquid; powerful, safe and economical. Instantly destroys foul odors and disease-breeding matter. Specially prepared for household use. Sold only in quart bottles, by druggists everywhere. An illustrated booklet with valuable sanitary information mailed free. Address Henry B. Platt, 42 Cliff, Street, N. Y.

Dusty or damp corners and cracks—nooks behind plumbing and all spots that can't be reached by the scrubbing brush, should be freely sprinkled with a mixture of one (1) part Platt's Chlorides and ten (10) parts of water, by means of a whisk-broom.

VOSE PIANOS

have been established over 60 YEARS. By our system of payments every family in moderate circumstances can own a VOSE piano. We take old instruments in exchange and deliver the new piano in your home free of expense. Write for Catalogue D and explanations.

VOSE & SONS PIANO CO., Boston, Mass.

THE AMERICAN JOURNAL OF SEMITIC LANGUAGES AND LITERATURES

CONTINUING HEBRAICA

Editor
ROBERT FRANCIS HARPER

Coöperating Editors
EMIL GUSTAV HIRSCH, IRA MAURICE PRICE, JAMES RICHARD JEWETT
JAMES HENRY BREASTED, JOHN MERLIN POWIS SMITH

Associate Editors
GEORGE FOOT MOORE, FRANCIS BROWN, HENRY PRESERVED SMITH
CHARLES C. TORREY, MORRIS JASTROW, JR., JOHN DYNELEY PRINCE

PUBLISHED DURING THE MONTHS OF JANUARY, APRIL, JULY, AND OCTOBER

TABLE OF CONTENTS

APRIL, 1911

The American Journal of Semitic Languages and Literatures is published quarterly. ¶ The subscription price
publishers on all orders from the
of Panama, Hawaiian Islands,
extra as follows: For Canada, 15
); for all other countries in the
ents (total $1.34). ¶ Remittances
Chicago or New York exchange,
or collection.

prices indicated:
, England. Yearly subscriptions,

, Germany. Yearly subscriptions,

he regular month of publication.
lost in transit.

Press, Chicago, Ill.

Editor, The American Journal of
l. Articles will be published in

matter, under Act of Congress,

THE AMERICAN JOURNAL
OF
SEMITIC LANGUAGES AND LITERATURES
(CONTINUING HEBRAICA)

VOLUME XXVII APRIL, 1911 NUMBER 3

TABLETS FROM THE R. CAMPBELL THOMPSON COLLECTION IN HASKELL ORIENTAL MUSEUM, THE UNIVERSITY OF CHICAGO

BY IVAN LEE HOLT
St. Louis, Mo.

The tablets here published belong to a collection presented to the University of Chicago in 1908, by Mr. R. Campbell Thompson, formerly assistant professor of the Semitic languages in the University. It is now known as the R.C.T. Collection and contains, in addition to the tablets herein published, (1) a few other badly broken contract tablets; (2) about fifty fragments of tablets, including the fragments of many astronomical texts; (3) nearly two hundred cones or fragments of cones of Gudea.

Most of the tablets are in a poor state of preservation; many crumble in the hands, while several others have been rubbed so badly that the text is scarcely legible. This has rendered work on them very difficult. Few restorations have been made; these are inclosed in brackets in the transliterations. Every trace of a sign has been indicated in the texts.

RCT, 1

TRANSLITERATION: (Obv.) [1][L A-DU] I [L]. [2][L A]-DU II [C]. [3][L] A-DU III [CL]. [4][L] A-DU IV [CC]. [5]L A-DU V CCL. [6]L A-DU VI CCC. [7]L A-DU VII CCCL. [8][L A]-DU VIII CCCC. [9][L A]-DU IX [CCCCL].

[10][L A]-DU X [D]. (Rev.) [1][L] A-DU XI [DL]. [2][L] A-DU XII [DC]. [3][L] A-DU XIII [DCL]. [4][L] A-DU XIV [DCC]. [5][L A-DU XV DCCL.] [6][L A-DU XVI DCCC.] [7][L A-DU XVII DCCCL.] [8][L A-DU XVIII CM.] [9][L A-DU XIX CML.] [10][L A-DU XX M.]

TRANSLATION: (Obv.) 50×1=50, 50×2=100, 50×3=150, 50×4=200, 50×5=250, 50×6=300, 50×7=350, 50×8=400, 50×9=450, 50×10=500. (Rev.) 50×11=550, 50×12=600, 50×13=650, 50×14=700, 50×15=750, 50×16=800, 50×17=850, 50×18=900, 50×19, =950, 50×20=1,000.

It is interesting to note the method of writing numerals in this multiplication table. ADU is the regular Sumerian equivalent for the English "times," German "Mal." Cf. Prince, *SL*, p. 19. Its use in the arithmetical formulae of the Babylonians is an indication of the persistent influence of Sumerian culture on Babylon; cf. Hilprecht, *BE*, XX, p. 23.

RCT, 2

TRANSLITERATION: (Obv.) [1]1/2 ma-na 3 šiḳlu kaspi . . . . [2]mâru ša [-m]Da-bi-bi . . . [3m]Mar-duk . . . [4]u[f] . . . . . [5m] . . . . . (Rev.) [1amêl] šangu [md]Nabû . . . [2]Bâbili[ki] [3m]Ar-ša-[ka-a šar šarrâni].

Aramaic note: שטר.

TRANSLATION: (Obv.) 1/2 mina 3 shekels of silver . . . , son of Dabibi . . . . , Marduk . . . . , and . . . . . (Rev.) The priest Nabû- . . . . Babylon . . . . Arsaces, king of kings.

Aramaic note: "Writing of . . . ."

L. 2: For Dabibi as a name element cf. Tallqvist, *Neubabylonisches Namenbuch.** See also Clay, *BE*, VIII, Part I, under the list of proper names. Rev. 1–3: For other tablets from this period cf. *ZA*, III, pp. 129 f. Aramaic note: cf. Stevenson, *Assyrian and Babylonian Contracts*, p. 144, No. 40.

RCT, 3

TRANSLITERATION: (Obv.) [1] . . . . . [d]Bêl . . . [2] . . . . . apil [md]Ea-ilûtu(-tu)-ibni [3]a-na ḫarrâni mim-ma ma-la ina eli [4]ip-pu-šu a-ḫi ina û-tur [md]Bêl-iddin [5]it-ti Ri-mut-[d]Bel ik-kal [6]a-di 4 šiḳlu kaspi pu-ut zitti [7]1/3 Ri-mut-[d]Bêl la êpuš ša eli [8]li'û kaspi ša ḫarrâni [9md]Nabû-mudammiḳ apil-šu ša [md]Nabû-târiṣ apil [md]Ea-ilûtu(-tu)-ibni [10amêl]mu-

*Hereafter, *NN*.

kin-nu [m]La-a-ba-ši-[d]-Marduk apil-šu ša [m]Kab-ti-ia apil [m]E-gi-bi. (Rev.) [1] . . . . . [[m]Ri]-mut-[d]Bêl apil-šu ša [2] . . . . . [Ea]-ilûtu(-tu)-ibni.

TRANSLATION: (Obv.) . . . . . Bêl . . . , ... son of Ea-ilûtu-ibni, for a partnership. Whatever therein they shall make, a share in this profit Bêl-iddin together with Rîmût-Bêl shall enjoy, up to 4 shekels of silver for a share. One-third (of his share) Rîmût-Bêl has not paid in, which (is specified) on the tablet of silver of partnership of Nabû-mudammiḳ, the son of Nabû-târiṣ, the son of Ea-ilûtu-ibni. Witnesses: Lâbâši-Marduk the son of Kabtiya, the son of Egibi. (Rev.) . . . . . Rîmût-Bêl, the son of . . . . . [Ea]-ilûtu-ibni.

This tablet deals with a partnership. Bêl-iddin and Rîmût-Bêl are the contracting parties; one-third of the latter's share has not been paid in; the amount of income on a share is limited. L. 3: ḫarrâni is, perhaps, "business partnership"; cf. Strassmaier, *Nb*, 199, 4, and *Nbk*, 88, 5. L. 4: ûtur is profit, surplus (יתר); cf. Strassmaier, *Nbk*, 51, 4, and *Cyr*, 148, 7. L. 5: ikkal=shall enjoy. L. 8: GIŠ-LI-ḪU-SI-UM=li'û, tablet. *Br*, 1127. Cf. Johns, *Assyrian Deeds and Documents*,* pp. 115 and 116.

RCT, 4

TRANSLITERATION: (Obv.) [1] . . . . . pi . . . [2] . . . . [md]Bêl-erba mâr . . . [3] . . . ir-iš-ti(?) ul si-ni(-iḳ)? . . . [4] . . . a [arad] Addaru lib-bu-u . . . . [5] . . . . . meš ṣir . . . .

TRANSLATION: (Obv.) . . . . . Bêl-erba, the son of . . . . . (?) not (be pressed together)(?) . . . month Addar in the midst of . . . . . .

All that can be read with certainty in this tablet is the proper name in l. 2. L. 3: siniḳ, from sanâḳu=press together, close. Reading uncertain. L. 4: libbû=ina libbi.

RCT, 5

TRANSLITERATION: [1]18 ḳa ki-me [2]a-na [iš]pidnu† [3]la mâḫir Bêl-itti-ia 12 ḳa mâḫir [4arad] Abu ûmu 9 [kan].

TRANSLATION: 18 ḳa of meal for the table Bêl-ittiya has not received; he has received 12 ḳa. Month Abu, day the ninth.

*Hereafter, *ADD*.

†Written GIŠ-DA.

Bêl-ittiya has received only a part of the meal he ordered for table use. GIŠ-DA = pidnu; cf. Strassmaier, *Nb*, 95, 5; 219, 2; 558, 11. See also II R, 46 a, b, 43, and Peiser, *Babylonische Verträge*,* p. 302. Ll. 1 and 3: For ḳa see Johns, *Babylonian and Assyrian Laws, etc.*, pp. 398 and 399, where further literature is cited.

RCT, 6

TRANSLITERATION: (Obv.) [1][Ina ḫu]-ud lib-bi-[šu . . . . . [2]. . . . ru-ba amêl mu-ban-nu . . . . [3]bît Šamaš ša Sipparaki† araḫ . . . [4]araḫ Ṭebêtu u araḫ Addaru napḫaru 4 arḫu amêl mu-[ban-nu] [5]ina E-babbara(-ra) u 4 arḫê . . . . [6]ša bît dBêlit Sipparaki ki-i pi-[i] . . . [7]. . . . . tam-mi-ḳut ûmu(-mu) ša . . . [8]amêl mu-u . . . . . [9]md . . . . . (Rev.) [1]Ina ka-[nak] . . . [2]pani mdNabû . . . . . [3]mE-sag-[gil] . . . . [4]mdŠamaš-Ea . . . . . [5]mdNabû-u . . . . . [6]mdBêl . . . . [7]apilm . . . . . .

TRANSLATION: (Obv.) Willingly . . . . . the architect . . . . . house of Šamaš of Sippar, month . . . . month Ṭebet and month Adar, total 4 months, the architect in Ebaḫbara and 4 months . . . . of the house (temple) of Bêlit in Sippar. According to the agreement . . . . . (it) fell down the day of (or, claimed the day of) . . . . . (officer) . . . . . (Rev.) By the seal of . . . . Before Nabû . . . . Esaggil- . . . . Šamaš-Ea- . . . . Nabû- . . . . Bêl- . . . . son of . . . . . .

From what we have of this tablet it seems to deal with repairs by the architect on the temples of Šamaš and Bêlit at Sippar. L. 2: mubannu = architect; cf. Strassmaier, *Nb*. 579, 6; 259, 6. For the participial formation see Tallqvist, *Sprache der Contracte Nabûnâids*, p. 7. Ll. 3 and 6: UD-KIP-NUN(KI) = Sippar. L. 4: arḫu: this should be read as plural though it is written without the plural sign. L. 7: tamiḳut(tamḳut). Prt. of maḳâtu = claim, in business documents.

RCT, 7

TRANSLITERATION: (Obv.) [1]. . . . . ḳaḳḳadu [2]fNu-ub-ta-a mârat-su [3]ša mdMarduk-šum-ibni apil mBalâṭ-su-dŠamaš [4]ina eli La-ba-ši apil-šu šam[Balâṭ-su] [5]apilmE-sag-gil-a-a . . . . . [6]ina muḫḫi I ma-ni-e . . . . [7]. . . . . [i]-rab[bi] . . . . (Rev.) [1]amêlmu-kin-nu . . . [2]apil-šu ša mLa-ba-ši . . . . [3]mdMar-duk-šum-ibni apil-šu . . . [4]. . . . mSad-din-nu(?) . . . . [5]. . . . . arabAbu ûmu 20 . . . . [6]. . . . . [mKu]-ra-šu šar . . . [7]. . . . . šar matâti.

TRANSLATION: . . . . . principal of Nûbtâ the daughter of Marduk-šum-ibni the son of Balâṭsu-Šamaš, held against Lâbâši the son of Balâṭsu the son of Esagilâ . . . . . On one mina . . . . . shall increase . . . . Witnesses . . . son of Lâbâši . . . . , Marduk-šum-ibni the son of . . . . , ... Saddinnu(?) . . . . . month Abu, day the twentieth . . . . . Cyrus, king . . . . . king of lands.

The transaction here recorded is a loan on the part of Nubtâ to Lâbâši. L. 1: ḳaḳḳadu = capital, principal. Cf. Lev. 5, 24, בראשׁו. L. 2: Nubtâ: cf. *AJSL*, XVIII, p. 253. Nubtâ (my bee) may be a term of endearment and not a survival of totemism. Ll. 6 f.: The rate of interest is unfortunately lost.

RCT, 8

TRANSLITERATION: (Obv.) [1]. . . . . tu fḪi-il-pu [2][mârat]ša mdNabû-ku-ṣur-šu [3]. . . . . si iš tum ul si . . . . . [4]. . . . 27 ḳa ŠE-BAR in-na-din

(Rev.) [1]mdBêl- . . . uṣur mdNabû-šum-uṣur

TRANSLITERATION: . . . . . Ḫilpu the daughter of Nabû-kuṣuršu . . . . . (?) . . not . . . . . 27 ḳa of grain he will pay.

(Rev.) Bêl- . . . uṣur Nabû-šum-uṣur

The name of only one party to the transaction is preserved, the lady Ḫilpu. A payment of grain is involved. L. 3: the fragmentary condition of this line does not warrant any translation of it. There are no less than six seal-impressions on this piece of a tablet. Over each one is written kunukku and under one of them is a part of a name, Bêl . . . . . .

RCT, 9

TRANSLITERATION: (Obv.) [1]mdNabû-it-tan-nu mâr mBa-la-[ṭi . . . . [2]ina ḫu-ud lib-bi-šu a-na i-ṭi-[ru . . . . . [3]na-di-e dul-lu ša nam-zi-tum a-di eli [4]ki-[it] dul-lu-šu a-na arḫi 3 šiḳlu kaspi . . . [5]. . . . . ḳa bit(?) . . . . (Rev.) [1]. . . . . [2]a-šar ša-nam-mu . . . . 1/2 ma-na kaspi i-nam-din [3]amêl(?)mu-du(?) mdBêl-uballiṭ(-iṭ) mâr mdNabû-it-tan-nu [4]mŞilli-dBêl amêlgal-la ša mU-din-na-' [5]išten(A-AN)ilḳû(-u). (Edge) mdBêl-uballiṭ(iṭ) Babiliki arabAiru ûmu 13kan ša attu 10kan mAr-[taḫ-ša-as-su šar mâtâti]. (End) . . . . dul-lu ša(?) id-di-nu dul-lu . . . . .

*Hereafter, *BV*.

†Written, UD-KIP-NUN(KI).

TRANSLATION: Nabû-ittannu the son of Balâṭi . . . . . willingly for the payment . . . . . completing of the work on the vessels; until the end of his work (at the rate of) 3 shekels of silver per month . . . . . , ... In case another . . . . he shall pay 1/2 mina of silver. The artisan(?) Bêl-uballiṭ the son Nabû-ittannu (and) Ṣilli-Bêl the slave of Udinna' have received one [copy]. Bêl-uballiṭ, Babylon, month of Ayaru, day the thirteenth, year the tenth of Artaxerxes king of lands. . . . . work of . . . . They have paid; work . . . .

Nabû-ittannu lets the contract for the making of some kind of a vessel, the workman to receive 3 shekels of silver a month. L. 3: nadie, inf. of nadû, completing, doing (lit. putting down). Dullu: cf. *BA*, I, 509. namzitum = vessel of some kind (root נמז), Mischkrug(?). Cf. Strassmaier, *Nb*, 761, 6 (namzû siparri) and Peiser, *BV*, p. 287, 1, II. (Rev.) L. 2: ašar = in case, if. L. 3: ^{amêl}mûdû(?): Is this "the one who knows," hence "expert workman," "craftsman"? L. 5: the full expression is ištên šaṭari ilkû = have taken one copy of the contract. Cf. the parallel instance in *BA*, III, p. 477, Bemerkungen. For contract work to metal workers see Luckenbill, *AJSL*, XXIII, 321 f.

RCT, 10

TRANSLITERATION: (Obv.) [1]mi-ṣir ša ^{m}Na-zi . . . . . [2]ultu muḫḫi mi-ṣir ša ^{m} . . . . . [3]ša ^{md}Bêl-a-su-u-a . . . . . [4]ultu muḫḫi mi-ṣir ša ^{m} . . . . . bu. . . . . .

TRANSLATION: Boundary of Nazi . . . . . from the boundary of . . . . . of Bêl-asûa . . . . from the boundary of . . . . . .

This tablet fixes the boundary of a piece of land extending from the property of one man to that of another. Ll. 2 and 4: the only place in these tablets where ultu is written ideographically (TA). For the phrase ultu muḫḫi miṣir cf. Strassmaier, *Nb*, 17, 2. L. 3: Bêl-asûa, Bêl is my physician. Cf. Strassmaier, *Dr*, 379, 42.

RCT, 11

TRANSLITERATION: (Obv). [1]1 1/2 ma-na 6 šiḳlu kaspi ši-mi [2]ṣi-en-nu makkûru ^{d}Nin-ib . . . . [3]ša ^{alu}Bît-za-an-ḫi mu-bi . . . . [4]ša ina ḳâtâ ^{m}Ta-nit-tum . . . . [5]. . . . . en-šu-nu zer-la- . . . [6]. . . . . tum ^{d}Bêl . . . . [7]. . . . ^{m} . . . .

TRANSLATION: 1 1/2 minas, 6 shekels of silver the price of the small cattle, the property of Nin-ib . . . . of the city Bît-zanḫi . . . which by the hands of Tanittum . . . . their(?) . . . . . Bêl . . . . . .

The purchase of small cattle(?) belonging to the temple of Ninib is here recorded. L. 2: ṣi-en-nu = ṣi-ê-nu(?). The context seems to point to such an interpretation. L. 3: Bît-zanḫi. Where? It was perhaps in a territory sacred to Ninib.

RCT, 12 (A and B)

TRANSLITERATION: (Obv.) [1]. . . . 2 1/2 ma-na . . . . . si(?) . . . [2]^{alu}Kûtu ša ^{md}Nabû-aḫê^{pl}-iddina(-na) [3]mâri-šu ša ^{m}Šu-la-a mâr ^{m}E-gi-bi [4]i-na ḳatâ ^{m}Zêri-ia mâri-šu ša ^{md}Nergal-uballiṭ(-iṭ) [5]mâr ^{m}Sag-di-di a-na ka-si-ia(?) . . . . ḳu [6]i-ša-mu-ma i-na a-di u-šu . . . . su-ma [7]. . . . . iḳ-ḳa-ba u ar-ki 1/3 ma-na kaspi [8]a-na Zêri-ia id-di-nu-ma ri-ḫi-it [9]maš-ka-nu iṣ-ba-tu a-di eli ša dup-pi [10]ša zêri ša maḫir u maš-ka-nu-u i-ḳat-tu-ma (Rev.) [1]Zêri-ia . . . . . ma [2]i-na ša-la-šu a-na kaspi ul i-na-ad-din [3]a-na ši-riḳ-ti ul i-ša-ar-ra-aḳ [4]u a-na ri-e-mu-tu ul i-ri-mu [5]. . . . . ḫu-bu-ut-ta-tum a-na muḫḫi [6]ul i-di-šu ik- . . . . . a [7]Pa-ni ^{md}Bêl-êṭir(-ir) ^{m}Kîn-zêr ^{md}Nergal-ušallim [8]^{md}Bêl-uballiṭ(-iṭ) ^{m}Kîn-zêr-aplu(?) ^{m}Ba-nu-nu ^{amêl}daianu [9]^{m}Ri-mut-Bêl(?) ^{m}Na-di-nu-u ^{md}Nabû-iddina(-na)(?) ^{md}Nabû-nâ'id(?) šar Babili^{ki} . . . . . 9^{kan}

12(B): Top edge, i-na 3-šu. Right edge, i-na 3-šu,
Bottom edge, 2 2/3 ma-na kaspi a-di kabti . . . 10 ma-na. Left edge, 2 2/3 ma-na kaspi a-di kabti 10 ma-na

TRANSLATION: . . . . 2 1/2 minas . . . . . city Kutha of Nabû-aḫê-iddina the son of Šulâ the son of Egibi through Zêriya the son of Nergal-uballiṭ the son of Sagdidi for maintenance(?) . . . . . They shall agree on until . . . . . and after 1/3 mina of silver to Zêriya they have paid and the rest of the pledge they have taken according to the tablet from the seed which has been received, then they will have completed the pledge. Zêriya . . . . . in three (payments) for the silver he shall not pay; for a gift he shall not give it, and for a favor he shall not remit it . . . . . a loan to . . . . . they shall not renew . . . . . Before Bêl-êṭir, Kîn-zêr, Nergal-ušallim, Bêl-uballiṭ, Kîn-zêr-aplu(?), Banunu, the judge, Rîmût-Bêl(?), Nadinu, Nabû-iddina(?). Nabonidus king of Babylon . . . . . the ninth.

12(B) (edges): In three payments(?). 2 2/3 minas of silver for . . . . . 10 minas.

Nabû-aḫê-iddina through his agent Zêriya has placed a loan for the purchase of food supplies(?). The loan is to be paid to Zêriya in money and kind. L. 2: Kûtu; cf. Strassmaier, *Nb*, 47, rev. 13. Nabû-aḫê-iddin a/š Šulâ a/ Egibi is well known in the reigns of Nebuchadrezzar, Evil-Merodach and Nabonidus. Cf. Tallqvist, *NN*. L. 5: ka-si-ia(?)=maintenance, root כסה. Cf. *Nb*, 269, 3, where this meaning seems to be clear. L. 6: išamuma, present tense. L. 7: iḳaba, the imperfect context renders it uncertain whether this is a complete word (ḳebû =speak), or only the last part of another word. L. 9: adi eli =according to; cf. *Nb*, 17, 3. L. 10: iḳatuma=pay up in full, completely satisfy; root קחה. (Rev.) L. 2: the debtor appears to be the subject of ináddin while the creditor is the subject of the verbs in the next two lines. The force of the lines seems to be: This is a strictly business transaction; the debtor is not to pay his debt in a succession of small amounts, nor shall the creditor cancel the obligation because of a particular friendship for the debtor. L. 5: ḫubuttatum=loan without interest; cf. Meissner, *Beiträge zum altbabylonischen Privatrecht*, 117, and *ZA*, VI, 444. L. 10: the reading of the king's name is uncertain. For the duplicate text (12, B) see the comment on RCT, 22. Ina šalašu on the edge may refer to three payments.

RCT, 13

TRANSLITERATION: (Obv.) [1]. . . . . li . . . . . [2]. . . . šîmu eḳli-šu kaspi . . . [3]. . . . gu-ub-ba-a(?) ul i-ši . . . [4]. . . meš ki-im-tum ni-su-tum u sa-la-tum . . . (Rev.) [1]. . . . . amêl a-si-i ša i-ra-ag-gu- . . . . [2]. . . ma eḳli šu-a-tim ul na-di-in . . . [3]. . . ul ma-ḫi-ir amêl pa-kir-ra-nu kaspi . . . . . ta-a-an.

TRANSLATION: . . . . . the price of his field (in) silver . . . . . (?) . . . . there is not . . . . . (they) shall not complain, whatever . . . . . family, male and female members . . . . . the physician who shall complain . . . . . "that field is not given . . . . . is not received," he is a plaintiff. The money . . . . . .

This tablet has reference to complaint proceedings against the sale of a field. L. 5: nisutum u salatum=male and female; cf. Tallqvist, *NN*. (Rev.) This is a portion of the regular formula for complaint. Cf. Tallqvist under amêlpakirrânu.

RCT, 14

TRANSLITERATION: (Obv.) [1]. . . KAK bi-ri-ḫu [2]. KAK bi-ri-ḫu [3]. . KAK bi-ri-ḫu [4]. . . KAK bi-ri-ḫu [5]. . . KAK bi-ri-ḫu [6]. . . KAK bi-ri-ḫu [7]. . . KAK bi-ri-ḫu.

The text is too fragmentary to warrant any translation.

Because of the seven repetitions of these signs one might expect this fragment to be a portion of a charm or incantation text; but it seems to be rather a portion of a syllabary. Its meaning is uncertain.

RCT, 15

TRANSLITERATION: (Obv.) [1]. . . . . kaspi[šîmi] . . . [2]amîltu gallat ša mSu- . . . . [3]mArdi-ia apil-šu ša m. . . . [4]apil mÊpeš(-eš)-ili(?) . . [5]E-sag-ila . . . . . [6]a-na makkûru [E-sag-ila] . . . (Rev.) [1]amêlmu-kin-nu . . . . . [2]apil-šu ša mdMarduk- . . . . [3]mdNabû-bu-un-šu-tur . . . . . [4]apil amêlšangu Gula mBa- . . . . [6]mṬâbi-ia apil mKa-za(?) . . . . . mIddindNabu apil-šu ša . . . . Bâbiliki arab. . . . . mdNabû-nâ'id [šar Bâbiliki]. (Side) aban kunukku mZêri-ia amêlša-tam(-mu) E-sag-ila.

TRANSLATION: . . . . . silver the price of . . . the slave of Su- . . . Ardiya the son of . . . . the son of Êpeš-ili . . . . Esagila . . . . . for the property of Esagila . . . . Witnesses: . . . . . the son of Marduk . . . . Nabu-bûn-šûtur . . . . the son of the priest of Gula, Ba . . . . . Ṭâbiya the son of Ka-za(?) . . . , Iddin-Nabû the son of . . . . . Babylon month . . . . . Nabû-nâ'id, king of Babylon. (Side) Seal of Zêriya the store-keeper of Esagila.

A slave sale or purchase is here recorded. L. 2: one would expect šalgallat (*Nb*, 253, 6); but cf. *Nb*, 682 and *KB*, IV, 244, 43, 1. Rev. l. 3: on the name Nabû-bûn-šûtur cf. Tallqvist, *NN*. Edge, amêlšatam: Tallqvist is not sure of the meaning. The šutummu was the storehouse; cf. *Nb*, 648, 12; 168, 2; 550, 3, etc. There was not only a royal storehouse but apparently a storehouse for each temple.* The amêlšatam was not a judge (*Richter;* cf. Peiser in the places cited in *KB*, in the footnote), but the keeper of the storehouse. Cf. Johns,

*For additional evidence of this fact cf. *KB*, IV, 172, No. II, 27, and 224, No. II.

ADD (local governor), and especially Godbey, *Notes on Some Officials of the Sargonid Period*, p. 33 note.

RCT, 16

TRANSLITERATION: . . . . . ga-lu-u . . . . . e(?)-kur-gal . . . . . i Ea-iddina(-na) . . . .(?) se a-zi-bi(?)-di(?)

TRANSLATION: . . .(?) . . .(?) . . Ea-iddina . . grain (?) . .(?)

L. 1: . . . galuu. Reading uncertain; the first sign may not be ga. L. 2: KUR GAL is šadû rabû; when preceded by the determinative for deity it is Bêl. It is not possible to tell what the first sign is; it may be E(bitu)—but no such temple is known.

RCT, 17

TRANSLITERATION: (Obv.) [1]. . . . šiḳlu kaspi . . . [2]. . . . i-? ?. . . . . ša [md]Šamaš-zêr-ibni . . . [3]. . . . . ku-tum . . . [4]. . . . 9 . . . . (Rev.) [1md]Nabû-kudurru-uṣur [2]šar Babili[ki].

TRANSLATION: . . . . shekels of silver . . . . ? . . . . . of Šamaš-zêr-ibni . . . . . ? . . . . . 9 . . Nebuchadrezzar, king of Babylon.

So little of the tablet remains that it is impossible to make out its contents. It is one of the collection, however, that bears the name of the king under whom it was dated, viz., Nebuchadrezzar. The name, Šamaš-zêr-ibni, is known on several contracts of the time of Nebuchadrezzar. Cf. Tallqvist, *NN*, under same.

RCT, 18

TRANSLITERATION: (Obv.) [1]2 ma-na kaspi ši-mi . . . . . [2]. . . . . bi(?) . . . . . [3]apil [m]Iddin-[d]Marduk ša, ... [[m]Iḳîša]-a apil [m]Nûr-[d]Šamaš [4]. . . . . šattu 8-[kan] [md]Nabû-nâ'id šar mâti [5]. . . . . an-nu ša eli ki-it ša [6]. . . . . tum ? ? a-na muḫḫi(?) iš-ku-nu-ma [7md]Bêl-ili-šu . . . . . e-di-ru [8]la i-ši Ku- . . . . tum a-na [m]Iddin-[d]Marduk [9]iḳ-bi um-ma kaspi a-na e-di-ri-it [10]la i-ši [m]Nûr-[d]Šamaš u [m]Zêr- . . . . . (Rev.) [1amêl]mu-kin-nu [m]Mu-ra-nu mari-šu ša [md]Marduk-šum-ibni [2]apil [m]E-gi-bi [md]Marduk-zêr(?)-ibni? mar [m]Mu-ra-nu [3]apil [m]E-gi-bi [md]Nabû-apil-iddin apil-šu ša [md]Nabû-muballiṭ(-iṭ) [4]apil [md]Bêl-e-ṭe-ru [md]Nabû-ku-ṣur-šu apil-šu ša [5m]Mu-ra-šu-u apil [m]Pap-pa-a [m]Lib-luṭ apil-šu ša [6m]Itti-[d]Marduk-balâṭu apil [m]E-gi-bi [md]Bêl-it-tan-nu [7amêl] dup-šar mâru ša [m]Iḳîša-[d]Marduk

apil [m]Kalbi-[d]Nannar [8]Babiliki arah Ulûlu ûmu 25[kan] šattu 18[kan] [9m]Da-ri-ia-muš šar Babiliki šar mâtâti.

TRANSLATION: 2 minas of silver the price . . . . . (officer) . . . . the son of Iddin-Marduk . . . . Iḳîša the son of Nûr-Šamaš . . . . . year the eighth of Nabonidus the king of the land . . . . . which at the end of . . . . . against (the same) they shall fix. Bêl-ilišu . . . . . receipt (payment) there is not. (So and so)(?) to Iddin-Marduk spoke as follows: "Money for the payment there is not. Nur-Šamaš and Zêr- . . . . . Witnesses: Mûrânu, the son of Marduk-šum-ibni, the son of Egibi, Marduk-Zêr(?)-ibni(?), the son of Mûrânu, the son of Egibi, Nabû-apil-iddin, the son of Nabû-muballiṭ, the son of Bêl-eṭêru, Nabû-kuṣuršu, the son of Murašû, the son of Pappaya, Libluṭ, the son of Itti-Marduk-balâṭu, the son of Egibi, Bêl-ittannu, the scribe, the son of Iḳîša-Marduk, the son of Kalbi-Nannar. Babylon, month Ulûlu, day the twenty-fifth, year the eighteenth of Darius, king of Babylon, king of lands.

The obverse is too badly broken to reveal the contents and the nature of the transaction. There seems to have been a sale in the time of Nabonidus and now in the reign of Darius there is some attempt at a settlement. For tablets of this period cf. Hilprecht and Clay, *BE*, series A, IX and X. (Rev.) l. 5: Pappaya; for this name cf. Tallqvist, *NN*.

RCT, 19

TRANSLITERATION: (Obv.) [1]. . . . . [2]. . . . . šarru ina eli [m]Šâpik-zêr [3][apil-šu ša [m]Du-um-mu]-ku apil [m]Zêr-ibni ina ki-it arah Du-ûzu [4]. . . . ma-na 6 1/3 šiḳlu kaspi bit-ka i-nam-din [5]. . . . Nabû-it-ti-ia amêl alu Ḫi-li-ik-ka-a [6]. . . . a-na [m]Id-din-[d]Nabû apil-šu ša [m]Bu-na-nu apil [m]Li'êa [7]. . . . . [m]Iddin-Nabû a-na [m]Šâkin-[d]Nabû i-šal-lim [8]. . . id-di-nu u [m]Šâpik-zêr apil-šu ša [m]Du-um-mu-ku [9]apil(?) [m]Zêr-ibni apil-šu ša [m]Ṣil-la-a apil amêl rab-bânî . . . . [10]tu ša [md]Nabû-it-ti-ia amêl gal-la (Rev.; badly broken) [1]. . . . . i-šal-lim [2]. . . . . i-šal-lim id-di-nu [3]. . . . . apil-šu-ša [md]Bêl-aḫêpl-id-din [4]. . . . . -mušallim apil [md]Sin-balâṭu-A-šI [5]. . . aḫêpl-mušallim . . . . . E-babbara(-ra) [6]. . . . [md]Na-na-a . . . . . [m]Iddina-[d]Bêl [7]. . . . [d]Marduk apil amêl šangû* [d]Adad [md]Šamaš-zêr-ikîša [8]. . . . . apil [md]Sin-balâṭu-A-šI [9]. . . . . ša [md]Bêl-. . . . . [10]. . . . tum . . . . .

TRANSLATION: . . . . . king(?) against Šâpik-zêr the son of Dummuku the son of Zêr-ibni. At the end of the month

*Written E-BAR.

Du'ûzu . . . . minas 6 1/3 shekels of silver, halved, he shall pay . . . . . Nabû-ittiya, the Cilician . . . . . to Iddin-Nabu, the son of Bunanu, the son of Li'êa . . . . . Iddin-Nabû to Šâkin-Nabû will make good . . . . . (they) have paid and Šâpik-zêr, the son of Dummuku, son(?) of Zêr-ibni, the son of Ṣillâ, the son of the master-builder . . . . of Nabû-ittiya the slave. (Rev.) . . . . . (he) will make good . . . . . (he) will make good (the debt) paying (it) . . . . . the son of Bêl-aḫê-iddin . . . . . -mušallim, the son of Sin-balâṭu-A-ŠI . . . . -aḫê-mušallim . . . . . Ebabbara . . . . Nanâ . . . . . Iddin-Bêl . . . . . -Marduk, the son of the priest of Adad, Šamaš-zêr-ikîša . . . . . the son of Sin-balâṭu-A-ŠI . . . of Bêl . . . . . .

Šâpik-zêr for a loan or a debt owes some silver. L. 4: bitka; cf. *BA*, I, 516, note 2, and Peiser, *BV*, 229. L 5: amêlaluḪilikaia=Cilician. For the so-called gentilic ending cf. Delitzsch, *Assyrische Grammatik*, pp. 55 f. For Ḫilakku see Delitzsch, *Wo lag das Paradies*, pp. 245, 249, 288. L. 10: amêlrab-bânî =chief architect. (Rev.) l. 2: for the writing iṭṭiru cf. *Nb*, 356, 17, and 764, 13. L. 7: E-BAR=šangu. Cf. *BA*, I, p. 279, where Jeremias reads E-MAŠ; this reading is shown to be incorrect by Scheil, *Rec. Trav.* XVIII, 33, No. XII, face ii, 3, where the word is written phonetically é-ba-ar. Ll. 4 and 8: Sin-balâṭu-A-ŠI. It is difficult to tell what the reading of A-ŠI should be.

RCT, 20(A)

TRANSLITERATION: (Obv.) 1. . . ma-na . . . šiḳlu kaspi bit-ka(?) . . . . . 2. . . nu ša mMu-še-zib-tum apil mNûru(ru)-ra-am(?) ina muḫḫi 3mŠi-iš-ku apil-šu ša mIddin-apli mâr mE-gi-bi . . . . 4fMu-še-zib-tum u fNa-ru-u amêla-(mu)-ta-ni-šu . . . . 5el(?)-tum ša fMu-še-zib-tum a-na šum mIddin-apli ad- . . . . . 6. . . . . tum u el-tum ša fNa-ru-u 7a-na šum ša mŠi-iš-ku šaṭ-ratum maš-ka-nu ša mMu-še-zib-(tum) 8i-di amêla-me-lut-tum ia-a-nu ḫubullu kaspi ia-a-nu 9amêlrâšû ša-nam-ma a-na muḫḫi i(?)-ra-gam-mu-ma 10a-na muḫḫi ša mMu-še-zib kaspa'a 2 ma-na . . . šiḳlu kaspi 11maḫ(?)-ri-tu ša . . . . . bit-ḳa ia-(?)-nu mahir(?) . . . . 12. . . . . i-tam-ḳu(?) . . . . (Rev.) 1mdMarduk-na(?)-ṣir(?) apil-šu ša mItti-dMarduk-balâṭu 2i-na ḫu-ud lib-bi-šu a-na . . . . . 3. . . . la-šu a-na la-ma-a-du amêlmu-u-tu 4mItti-ia . . . . . u 3 arḫêpl-a-na 5mGu-za-nu mâru ša mḪa-am-ba-ḳu mâr amêl . . . . . tu 6id-din amêlmu-u-tu dul-lu . . . na-šu ga . . . . 7ki-i ul-tam-mi-du-šu it-ta-ad-din . . . . . mdMarduk-(na)(?)-ṣir(?) 8a-na mGu-za-nu i-nam-din ki-i la ul-tam-mi-du 9I šattu 3 ḳa ŠE-BAR man-da-at ša

mItti-dMarduk-balâṭu 10mGu-za-nu a-na mdMarduk-na-ṣir(?) . . . . . 11mItti-dMarduk-balâṭu(?) išten(ta-a-an) ša-ṭa-ri. (Top edge) šattu Ikan, etc. (Right edge) šattu Ikan, etc. (Bottom edge) kaspa'a(?), etc. (Left edge) kaspa'a(?), etc.

TRANSLATION: . . . minas . . . shekels of silver, halved, ... of Mušêzibtum, the son of Nûruram(?) against Šišku, the son of Iddin-apli, the son of Egibi . . . . . Mušêzibtum and Narû, his female slaves . . . . The contract(?) of Mušêzibtum in the name of Iddin-apli . . . . . and the contract(?) of Narû in the name of Šišku is written, as a pledge of Mušêzibtum. A mortgage on the slaves there is not; interest on the money there shall not be. Another creditor shall make his claim therefor and because of the fact that Mušêzib the money, 2 minas . . . shekels of silver, formerly(?) . . . . . received . . (Rev.) Marduk-nâṣir(?), the son of Itti-Marduk-balâṭu, willingly to . . . . . for teaching. The servant Ittiya . . . . . and 3 months to Guzanu the son of Ḫambaḳu, the son of the . . . . . he gave; the servant the work . . . . . If he teaches him he shall pay . . . . . Marduk-nâṣir(?) to Guzanu will pay; (but) if he does not teach him for each year 3 ḳa of grain, the tribute of Itti-Marduk-balâṭu, Guzanu to Marduk-nâṣir(?) (shall pay). Itti-Marduk-balâṭu one copy (shall take). (Top edge) First year. (Right edge) First year. (Bottom edge) Silver, etc. (Left edge) Silver, etc.

This tablet deals with the sale of two female slaves, Mušêzibtum and Narû. The owner bears the name Mušêzibtum (ll. 2 and 7) and sells to Šišku. It seems that one of these slaves, Mušêzibtum, is deeded over to the father of Šišku, viz., Iddin-apli. The transaction calls for "no mortgage and no interest on the money." The reverse, however, deals with a different case. Marduk-nâṣir(?), the son of Itti-Marduk-balâṭu, is apprenticed to Guzanu to learn a trade. In case he learns the trade Guzanu will be remunerated; but if he does not learn it then Guzanu must pay the father 3 ḳa of grain a year. There is a duplicate of this tablet (20 B), whose reverse is badly broken but seems to contain the list of witnesses to the obverse, which is the same as the obverse of 20 A. For further discussion see notes on RCT, 22. L. 2: the name Nûru (-ru)-ram may not be read correctly. L. 4: amêl lamutanišu; cf. *BA*, I, 497, and especially the note on the use of the word in Tallqvist, *NN*. el-tum probably means contract; cf. Lex. L. 7: šaṭratum is pm. L. 8: idi; cf. *BA*, I, 517. amêlûtum is an abstract collective noun (*Menschheit*). (Rev.) l. 3: amêlMU-utu

denotes some kind of service; cf. *Nb.* 336, 4 and 780, 4. L. 6: cf. *BA*, I, p. 509. L. 7: ki-i = in case. ultammidu is III_2 (uštalmid = ultalmid = ultammid). Cf. Delitzsch, *AG*^{2}, 128. L. 9: ŠE-BAR; cf. *BA*, I, 515. L. 11: cf. *BA*, III, 466, No. 15; 477, No. 27; and *Nb.* 760, 25.

RCT, 21

TRANSLITERATION: (Obv.) [1]^{md}Marduk-iḳîša-an-ni ^{amêl}ša-na-nu-u ša ^{alu}Ša-ḫa-ri-nu apil-šu ša ^{m}Ardi-ia-a [2]niš ^{d}Bêl ^{d}Nabû u ^{m}Da-ri-ia-muš šarri a-na ^{md}Nabû-aḫê^{pl}-bul-liṭ [3]mari-šu ša ^{m}Itti- Marduk-balâṭu mâr ^{m}E-gi-bi it-te-me [4]a-ki-i a-di-i ûmu 26^{kan} ša ^{arah} Sîmânu ša šattu 14^{kan} ^{m}Da-ri-ia-muš [5]šar Babiliki . . . . . ri(?) . . . . tum(?) . . . ma a-na as(?) . . . . ka(?) [6]ša ^{alu} Babiliki . . . . . ûmu 13(?)^{kan} ^{arah} Nisannu ša šattu 14^{kan} [7]^{m}Da-ri-ia-muš šarri . . . . mu-ti . . . . šu e-na-nu [8]ik-ba-a um-ma . . . . . ab-ḳam-ma(?)a-na [9]^{md}Nabû-aḫê^{pl}-bul-liṭ . . . . . u ḫa(?) . . ar(?) . . . . as-su [10]. . . . . u . . ta(?)-an-na'^{amêl} ir-ru-u-tu [11]. . . . . ^{md}Nabû-aḫê^{pl}bul-liṭ . . . . . nu (Rev.)[1]. . . . ar . . . . . e-si-sib(?) . . . ma a-na ^{md}Nabû-aḫe-bul-liṭ [2]. . . . . ^{md}Marduk-iḳîša-an-ni ina Bêl šarri it-te-me [3]ki-i a-na nu . . . . kab . . . . ^{amêl} mu-kin-nu U-bar apil-šu ša [4]^{md}Marduk-êṭir mâr ^{m}. . . . . ^{m}Lib-luṭ apil-šu ša ^{m}Zêri-ia [5]apil ^{m}E-di-ru . . . . . apil-šu ša ^{md}Nabû-zêr-iddin apil ^{m}La-a-ba-ši [6]^{md}Nabû-iddin apil-šu ša ^{md}Nabû-bul-liṭ-su apil-šu ša ^{m}Iddin-^{d}Nabû [7]^{m}Di-di-ia apil-šu ša ^{m}La-a-ba-ši ^{md}Nabû . . . . ḫa . . . [8]apil-šu ša ^{md}Bêl-iddin apil ^{m}Nûr-ilâni ^{m}. . . . tum apil-šu ša ^{md}Nabû-ka-ṣir [9]apil^{m} ^{amêl} paḫḫâru ^{md}Šamaš-iddin apil-šu ša ^{m}Ki-na-a mâr ^{md}Ea-na(?)-ṣir(?) [10]^{md}Adar-iddin apil-šu ša ^{m}Kal-ba-a ^{amêl} šangu ^{d}Marduk [11]^{md}Bêl-aḫe^{pl}-iddin apil-šu ša ^{md}Nabû-KU(?)-lišir apil Mu-še-zib- ^{d}Nabû(?) [12]^{m}Iddin-^{d}Bêl apil-šu ša ^{m}Šamaš-bulliṭ-su apil ^{md}Nabû-balaṭ-su-iḳ-bi.

TRANSLATION: Marduk-iḳišânni the second officer of Šaharin, the son of Ardiya, in the name of Bêl, Nabû, and Darius, the king, unto Nabû-aḫê-bulliṭ, the son of Itti-Marduk-balâṭu, the son of Egibi, swore as follows: "To the 26th day of the month Sîmânu of the fourteenth year of Darius king of Babylon . . . . . to . . . . . of the city Babylon . . . . the thirteenth(?) day of the month Nisannu of the fourteenth year of Darius the king . . . . . his(?) . . . at that time he spoke as follows . . . . . ? . . . to Nabû-aḫê-bulliṭ . . . . (Rev.) . . . . . to Nabû-aḫê-bulliṭ . . . . . Marduk-iḳišânni by(?) Bêl (and) the king swore according to . . . . . Witnesses: Ubar, the son of Marduk-êṭir, the son of . . . . . , Libluṭ, the son of Zêriya, the son of Ediru, ... the son of Nabû-zêr-iddin, the son of Lâbâši, Nabû-iddin, the son of Nabû-bulliṭ, the son of Iddin-Nabû, Didiya, the son of Lâbâshi, Nabû- . . . ha . . . . the son of Bêl-iddin, the son of Nûr-ilâni, ... the son of Nabû-kâṣir, the son of the potter, Šamaš-iddin, the son of Kînâ, the son of Ea-nâṣir(?), Adar-iddin, the son of Kalbâ, the priest of Marduk, Bêl-aḫê-iddin, the son of Nabû-KU-lišir, the son of Mušêzib-Nabû, Iddin-Bêl, the son of Šamaš-bulliṭsu, the son of Nabû-balaṭsu-iḳbi.

Marduk-iḳîšanni takes an oath in the name of Bêl, Nabû, and the reigning king, Darius, to Nabû-aḫê-bulliṭ. The next lines are too mutilated to tell his words. L. 1: ^{amêl}šananû = the second officer (administrative). ^{alu}Šaḫarinu. Usually written Šaḫ-ri-in (Šaḫ-ri-ni, Šaḫ-ri-in-nu). L. 2: the first sign seems to be ZI; it is the same ZI that occurs so often in the incantations—ZI AN-NA ḪE-PA (in the name of heaven be thou cursed, etc.); cf. Thompson, *Devils*, *passim*. L. 8: the verb baḳâmu (pluck out) does not suit the context; abḳamma is probably the last part of an incomplete word. L. 10: ^{amêl}irrûtu. Delitzsch (*HWB*) recognizes four forms of arârû (ארר)—(1) curse, (2) bind, (3) burn, (4) tremble; from (2) there is a noun formation, irru = fetter, sling, rope. Can irrûtu be a formation from this? ^{amêl}irrûtu would then probably be a trapper, a slinger. (Cf. arru [*HWB*] = Vogelfaenger). There is no context to help determine the meaning. Rev. l. 9: ^{amêl}paḫḫâru (DUK-KA-BUR) = potter. Cf. Peiser, *BV*, p. 248 and Pinches, *PSBA*, XXIII, 204, 9–10. Aramaic, פחרא.

RCT, 21 (B, C, and D)

21, B: (upper edge) šattu 10, šattu 10, etc.; (lower edge) same as upper edge. 21, C: (upper edge) šattu 10, šattu 10, etc.; (lower edge) ^{m}Kabti-ilâni- ^{d}Bêl dup-šar. 21, D: 2 2/3 ma-na 7 šiḳlu(?) a-di kabti . . . . 10 ma-na . . . .; (right edge) i-na 3-šu, etc. 21, B: (upper and lower edges) tenth year. 21, C: (upper edge) tenth year; (lower edge) ^{m}Kabti-ilâni- ^{d}Bêl(?) scribe. 21, D: (upper edge) 2 2/3 minas 7 shekels(?) for . . . . . 10 minas . . . .; (right edge) in three payments(?).

RCT, 22 (A, B, C, D, E, F, G, H)

TRANSLITERATION: (Obv.) [1]^{f}Sik-ku-u ^{md}Nabû-it-tan-nu ^{m}Lib-lu-ṭu amêlûtum [2]ša ^{m}Itti- ^{d}Marduk-balâṭu mâru ša ^{md}Bêl-

aḫê^{pl}-iddin mâr ^{m}E-gi-bi ^{3}a-na 3 1/2 ma-na kaspi a-na šîmi gam-ru-tu ina ḳati ^{4md}Nabû-iḳîša mâri-šu ša ^{m}Še-il-li-bi mâr ^{amêl}abu bîti ^{5}u ^{md}Bêl-ki-šir mâru ša ^{m}Šu-la-a mâr ^{m}E-gi-bi ^{6amêl}rê'u(?) ša ^{md}Nabû-iḳîša i-bu-ku u i-na lib-bi iš-ṭu-ru ^{7}um-ma 2 ma-na 10 šiḳlu kaspi šîmi ^{f}Sik-ku-u u ^{m}Lib-lu-(ṭu) ^{8md}Nabû-iḳîša i-liḳ-ḳi 1 1/3 ma-na kaspi šîmi ^{md}Nabû-it-tan-nu ^{9md}Bêl-ki-šir i-liḳ-ḳi ar-ki ^{md}Bêl-ki-šir it-ti ^{10md}Nabû-iḳîša a-na eli šîmi ^{md}Nabû-it-tan-nu (Rev.) ^{1}it-ti 2 ma-na 10 šiḳlu ba-ab-ti 3 1/2 ma-na kaspi ^{2}šîmi ^{f}Sik-ku-u ^{md}Nabû-it-tan-nu u ^{m}Lib-lu-ṭu ^{3md}Nabû-iḳîša il-te-ḳi a-di-i u-il-tim ša šîmi gam-ru-tu ^{4md}Bêl-ki-šir u ^{md}Nabû-iḳîša ša pu-ut $^{UŠ-KU-TU}$ aḫu-tum ^{5}išten pu-ut šanî(-i) na-šu-u ^{amêl}mu-kin-nu ^{md}Bêl-u-dam-mi-iḳ ^{6}mâru ša ^{md}Bêl-aḫê^{pl}-iddin mâr ^{m}E-gi-bi ^{md}Bêl-ib-ni mâri-šu ša ^{7m}Iddina(-na)- ^{d}Nabû mâr ^{amêl} bâ'ru ^{md}Nabû-tab-ni-uṣur mâri-šu ša ^{8m}Ri-mu-tu mâr ^{amêl} rê'u ^{m}Ṭâbi-ia mâri-šu ša ^{9md}Šamaš-erba(-ba) mâr ^{amêl} išparu ^{d}Ea ^{md}Nabû-tab-ta-ni-uṣur ^{10amêl}šangu mâri-šu ša ^{m}Kit-ti-ia mâr ^{amêl} išparu ^{d}Ea ^{11}Babili^{ki} ara^{ḫ}Kislimu ûmu 21^{kan} šattu 5^{kan}.

(Edges): 22, A: (bottom) ^{m}Kabti-ilâni- ^{d}Bêl(?) dup-šar, ^{m}Kabti-ilâni- ^{d}Bêl(?) dup-šar. 22, C: (bottom) ^{m}Balâṭi-ilâni . . . . mi ^{m}Ba- . . . . a . . . ., i-na 3-šu i-na 3-šu i-na 3-šu, ^{m}Balâṭi-ilâni . . . . mi ^{m}Ba- . . . . a . . . .; (left) i-na 3-šu i-na 3-šu i-na 3-šu i-na 3-šu. 22, D: ^{m}Balâṭi-ilâni ^{m}Zêr-lišir, etc. 22, E: . . ? . . . na 1 nu(?), etc. 22, F: ? . na 1 nu(?), etc. 22, G: (top) ka-tim . . . na 1 nu ka-tim . . . na 1 nu; (right) ka-tim; (bottom) ka-tim ka-tim ^{m}Balâṭi-ilâni ^{m}Zêr-lišir ka-tim; (left) . . . na 1 nu. 22, H: (top) ^{m}Marduk-nâṣir apil-šu ša; (right) ka-tim; (bottom) . . . . . ; (left) . . . . .

TRANSLATION: Sikku, Nabû-ittannu and Liblûṭu, the slave property which Itti-Marduk-balâṭu, the son of Bêl-aḫê-iddin, the son of Egibi, for 3 1/2 minas of silver as a complete price, through the agency of Nabû-iḳîša, the son of Šêlibi, the son of the major domus and Bêl-kišir, the son of Šulâ, the son of Egibi, the shepherd of Nabû-ikîša, has received and written concerning as follows: "2 minas 10 shekels of silver the price of Sikku and Liblûṭu Nabû-iḳîša shall receive, 1 1/3 minas of silver the price of Nabû-ittannu Bêl-kišir shall receive. After Bêlkišir along with Nabû-iḳîša, not only the price of Nabû-ittannu but also 2 minas 10 shekels of silver the rest of the 3 1/2 minas of silver, the total price of Sikku Nabû-ittannu and Liblûṭu, that Nabû-iḳîša has received (has received)—then for a receipt of the full price Bêl-kišir and Nabû-iḳîša, acting for the priesthood(?), stand security (one for the other). Witnesses: Bêl-udammiḳ, the son of Bêl-aḫê-iddin, the son of

Egibi, Bêl-ibni, the son of Iddin-Nabû, the son of the fisher, Nabû-tabni-uṣur, the son of Rîmûtu, the son of the shepherd, Ṭâbiya, the son of Šamaš-erba, the son of the weaver of Ea, Nabû-tabtani-uṣur, the priest, the son of Kittiya the son of the weaver of Ea. Babylon month Kislimu day the twenty-first year the fifth.

(Edges): 22, A: (bottom) Kabti-ilâni-Bêl scribe, Kabti-ilâni-Bêl scribe. 22, C: (bottom) Balâṭi-ilâni . . . . . in three payments(?), etc. Balâṭi-ilâni . . . . . ; (left) in three payments(?). 22, D: Balâṭi-ilâni Zêr-lišir.

Libluṭ, Nabû-ittannu, and Sikkû, the slaves of Itti-Marduk-balâṭu, were purchased for 3½ minas of silver by Nabû-iḳîša and Bêl-kišir, acting as agents, the price of each slave and its purchaser being specified. The two purchasers stand surety for each other. L. 4: ^{amêl}abu bîti = major domus. Cf. Clay, *BE*, XIV and XV, index of officials. L. 6: ibuku is prt. from אבך = receive. (Rev.) l. 1: bâbti; cf. *BA*, I, 633. L. 4: UŠ-KU-TU; cf. *ZA*, I, 426, and Meissner, *Seltene assyrische Ideogramme*, 3456. According to Prince, *SL*, UŠ = man and KU = important; hence UŠ-KU = important official. II R, 21, 39, *c*, explains UŠ-KU as kalû EME-SAL. The kalû was a priestly functionary. In Pognon, *Bavian*, p. 60, the ^{amêl}UŠ-KU is mentioned in connection with the ^{amêl}MAŠ-MAŠ as sent to consecrate a canal—a religious function. Whatever the function of the officer, there seems to have been an association of them—UŠKUTU aḫûtum (the reading of the latter may, however, be amêlu-ut-tum instead of aḫu-tum). Ll. 9 and 10: išparu; cf. *BA*, I, 496. There are eight duplicates of this tablet; there are no differences or variations in the texts except that 22, H has an erasure of the last half of ll. 4 and 5 of the reverse; but the edges of the different tablets vary considerably—in fact no two are alike in this respect. The same head is observed as the seal-impression on all of them that have seals, but there is always a variation in the number or the position of these heads. There seem to be four possibilities of explanation in regard to these duplicates: (1) The tablets are forgeries. A careful examination of the tablets by three very competent Assyriologists and judges of tablets has convinced them that such is not the case. (2) Duplicates are due to the fact that each con-

tracting party took a copy (ištên šaṭari ilteḳi). But at least two difficulties confront this supposition in this case—(*a*) there would be no demand for so many copies and (*b*) they would not likely be found in the same place. (3) Duplicates are made to be deposited in the various archives of the administrative and judicial system—as we would send a copy of a document to the county clerk, the secretary of state of the particular state, etc. But the last argument (*b*) against (2) applies with striking force here. (4) They are practice tablets copied by apprentices in some office or school for the scribes. There must have been much training of this kind before a scribe had mastered the art of writing a faultless legal document. It is such practice in such a school that produced the duplicates we are considering. In the first place the same head is impressed on the duplicates of 12, 18, 20, 21, and 22—perhaps the seal of the scribe who was instructing. Furthermore the same inscription will be found on different tablets, e.g., ina 3-šu (12, B and 21, D) Marduk-nâṣir apil-šu ša(?) (22, H [top] and 24, edge), etc. Such marks may indicate some particular individual's work. When such a well-known document as *Nb.* 13 is found reproduced exactly (24) except that the edges differ one is apt to think of practice work. The crowning evidence is furnished by 20 (A and B); 20, B is a regular contract with the business transaction on the obverse and the list of witnesses on the reverse. But 20, A, with the same obverse has as its reverse what should be the obverse of another tablet. This is clearly practice work. That these are practice tablets is further indicated by the fact that while dated (month, day, year, etc.) no king's name appears. The number of duplicates of this tablet found furnishes the most interesting datum about the collection.

RCT, 23

TRANSLITERATION: (Obv.) [1] . . . . . bîtu . . . . . [2] . . . . . na-nu . . . . . [3]ina . . . . . [m]La-ba-ši-[d]Marduk [4]apil-šu ša [md]Bêl-ibni apil [amêl]ma-ḫi-ra-nu bîti [5] SAG-AN-TA [md]Bêl- . . . . . [amêl]ša-tam-(mu) [6] SAG-KI-TA [m]La-ba-ši-[d]Marduk apil-šu ša [7md]Bêl-ibni apil[m amêl] ma(?)-ḫi-ra-nu bîti [8]ku-um 9 . . . . ab(?) . . . tu . . . . nam . . . . ab-tum [9]ki-i

1/3 ma-na 4 šiḳlu kaspi piṣu(u) [10]nu . . . . . [m]La-ba-ši-[d] Marduk [11]. . . . . [amêl]nangaru . . . [12amêl](?) ma(?)-ḫi(?)-ra(?)-nu apil-šu ša [md]Nabû-[ukîn(-in)] [13]apil [m]Nûr-[d]Pap-sukkal ma-ḫir im-[ḫur] [14]i-še(?)-iš a-na šîmi . . . . . [15] . . . . [šiḳlu] kaspi . . . . . (Rev.) [1] . . . . . šiḳlu kaspi . . . . [2] . . . . . šîmi bîti-šu ki-bi . . . . [3]ka . . . . ib . . . . tu-tum [m]Bi-ba- . . . . [4]apil-šu ša [md]Nabû-ukîn(-in) apil [m]Nûr-[d]Pap-sukkal ina ḳâtâ [5m]La-ba-ši-[d]Marduk apil-šu ša [md]Bêl-ibni apil [amêl]nangaru [6]ma-ḫi-ir e-ṭir [7]ina ka-nak-ku šu-a-tim [8]Pani [m]U-bar apil-šu ša [md]Nabû- . . . . apil[m] . . . . ilâni [9m]Iddina(-na)-apli apil-šu ša[m] Nap-pa-ḫu apil [m]Kab-(?)-ti-ia [10m]La-a-ba-[ši] . . . . . apil [m]Iddin-[d]Pap-sukkal [11md]Bêl . . . . . -Nabû apil-šu [amêl]nangaru [12] . . . . - Nabû . . . . . apil [md]Nabû-iḳîša [13] . . . . kin . . . . . za [14] . . . . . gam . . . . .

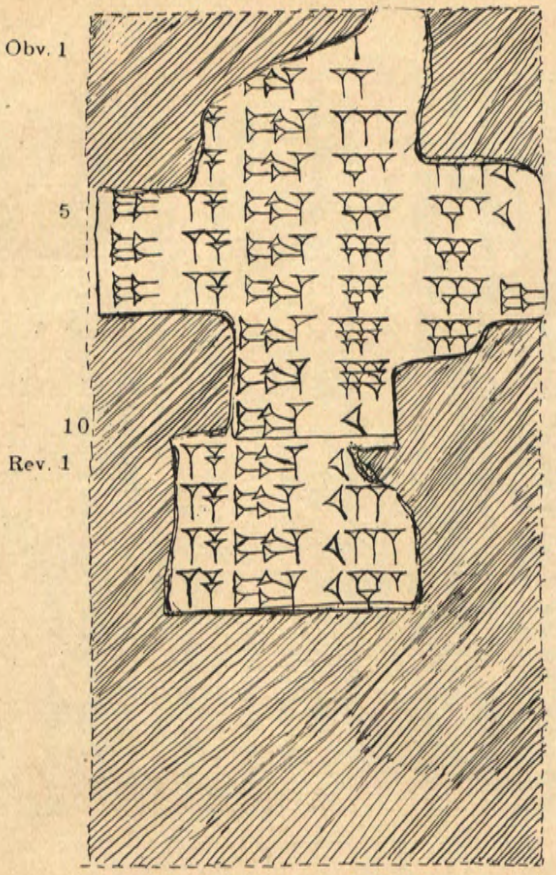
TRANSLATION: . . . . . house . . . . . in . . . . . Lâbâši-Marduk, the son of Bêl-ibni, the son of the purchaser of the house. The upper side (borders on) Bêl- . . . . . the storekeeper, the lower side (borders on) Lâbâši-Marduk, the son of Bêl-ibni, the son of the purchaser of the house. Instead of 9 . . . . . for 1/2 mina 4 shekels of white silver, ... Lâbâši-Marduk . . . . . the carpenter . . . the ? . . . . the son of Nabû-ukîn, the son of Nûr-Papsukkal, has received the price . . ? . . . . for the price . . . . . shekels of silver (Rev.) . . . . shekels of silver . . . . . the price of his house (?) . . . . . ? . . . Biba- . . . . . the son of Nabû-ukîn, the son of Nûr-Papsukkal through Lâbâši-Marduk, the son of Bêl-ibni, the son of the carpenter, has received and taken (the money). By this seal. Before Ubar, the son of Nabû- . . . . the son of . . . . -ilâni, Iddina-apli, the son of Nappâhu, the son of Kab(?)tiya, Lâbâši . . . . . the son of Iddin-Papsukkal, Bêl- . . . . . -Nabû, the son of the carpenter . . . . Nabû- . . . . . the son of Nabû-ikîša . . . . . .

The transaction involved is the sale of a house. L. 4: maḫirânu. See *Nb.* 197, 7; 477, 7; *Nbk.* 4, 4; 374, 2. Cf. also Peiser, *BV*, 137, and *KB*, II, 320–21, No. 2, col. ii, 20. L. 5: SAG-AN-TA=pûtu(m) elîtu; cf. Prince, *SL.* L. 6: SAG-KI-TA=pûtu(m) šaplîtu; cf. *ibid.* L. 9: kaspi piṣu(u)=white silver; cf. Lex.

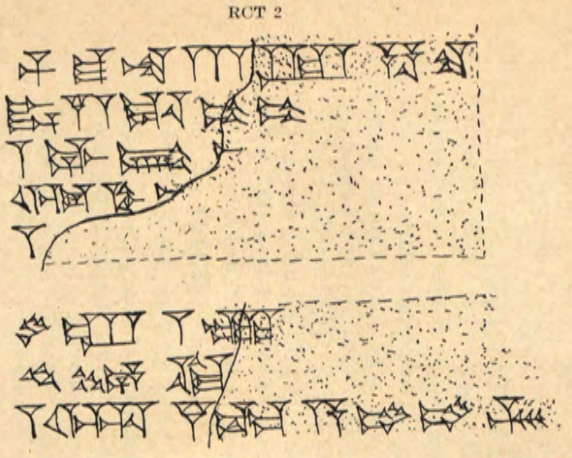
RCT, 24

Cf. Harper, *Assyrian and Babylonian Literature*, p. 276, and see comments on RCT, 22.

RCT 1



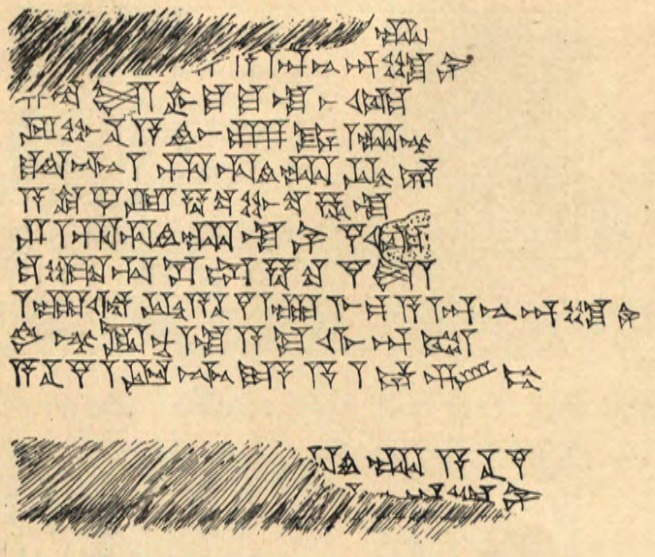
RCT 2



U E

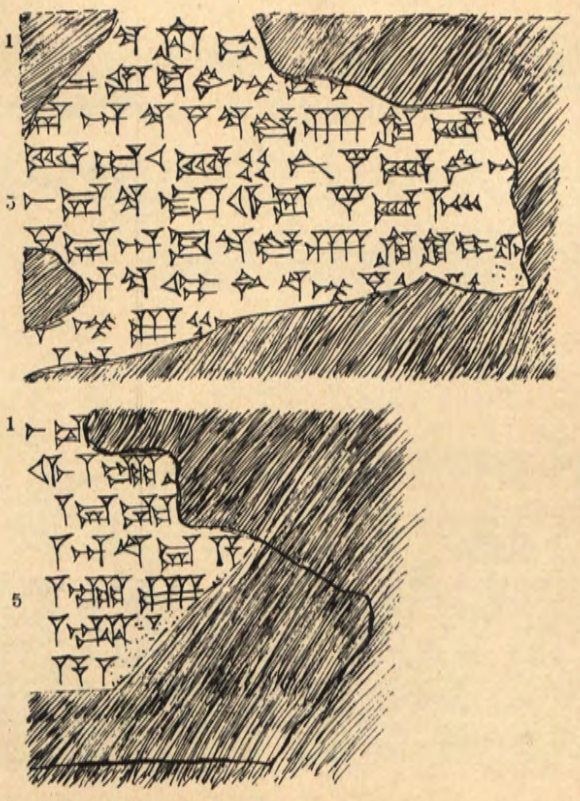
RCT 4

RCT 3



RCT 5

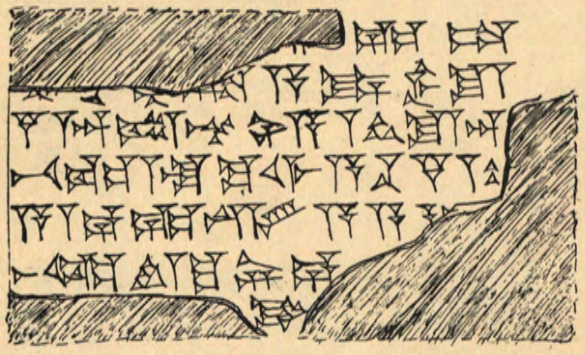
RCT 6



RCT 7

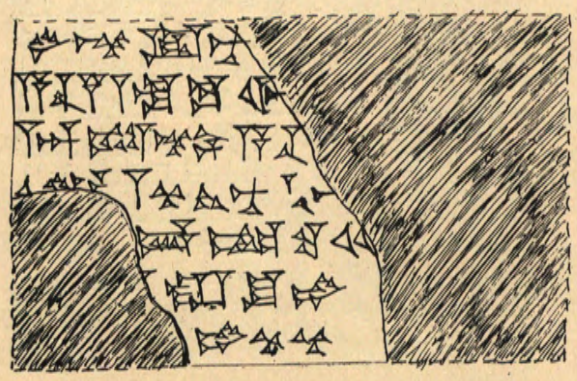
Obv. 1

5



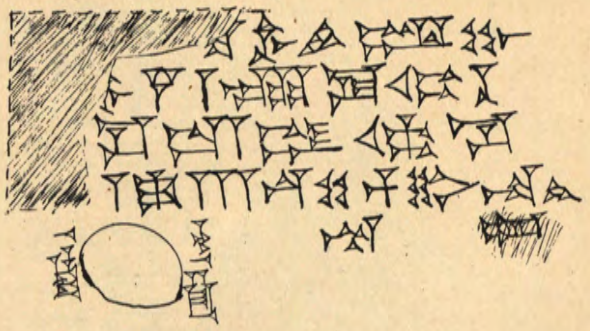
Rev. 1

5

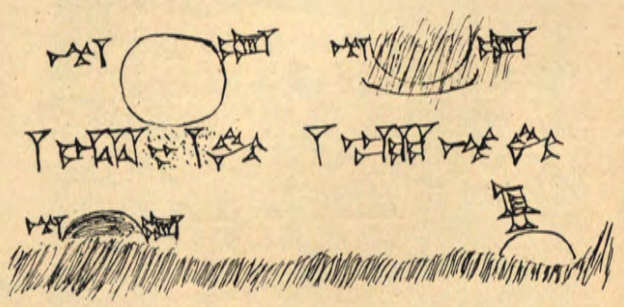


RCT 8

Obv. 1



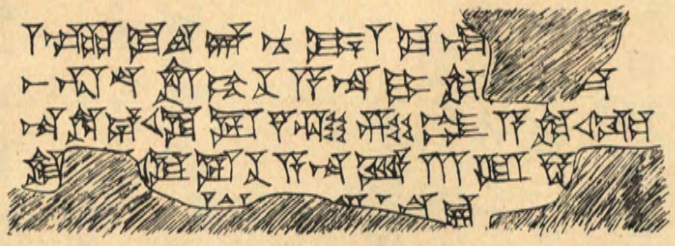
Rev. 1



RCT 9

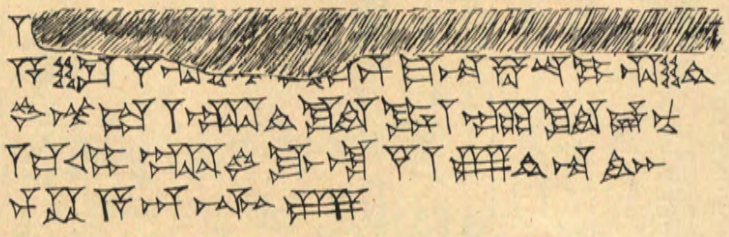
Obv. 1

5

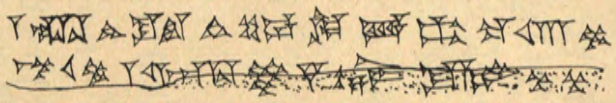


Rev. 1

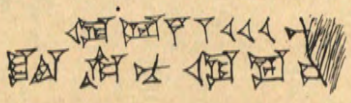
5



Lo. E



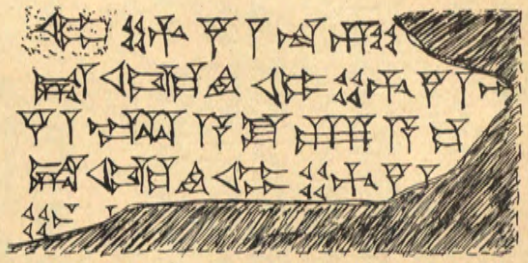
L. E.



RCT 10

Obv. 1

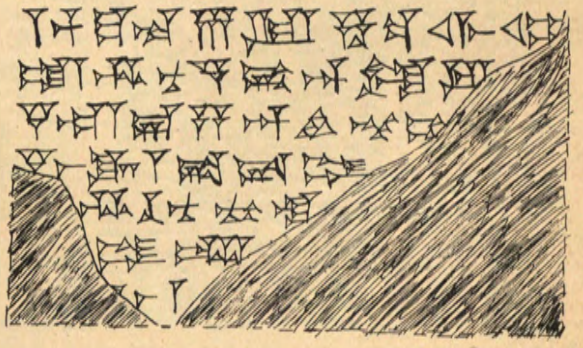
5



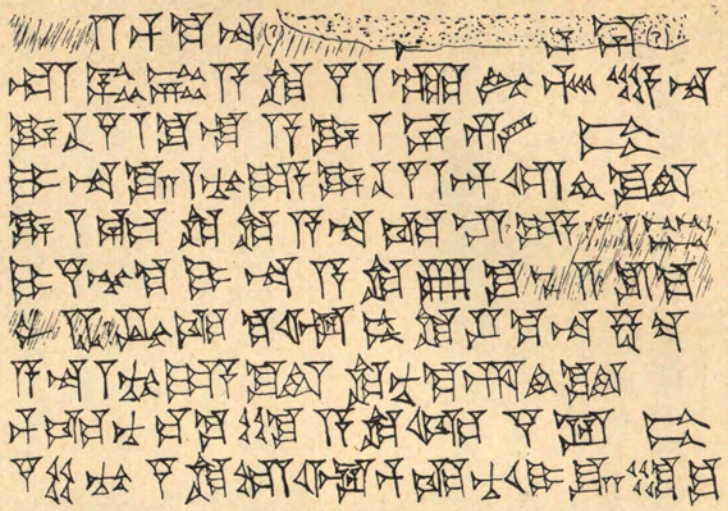
RCT 11

Obv. 1

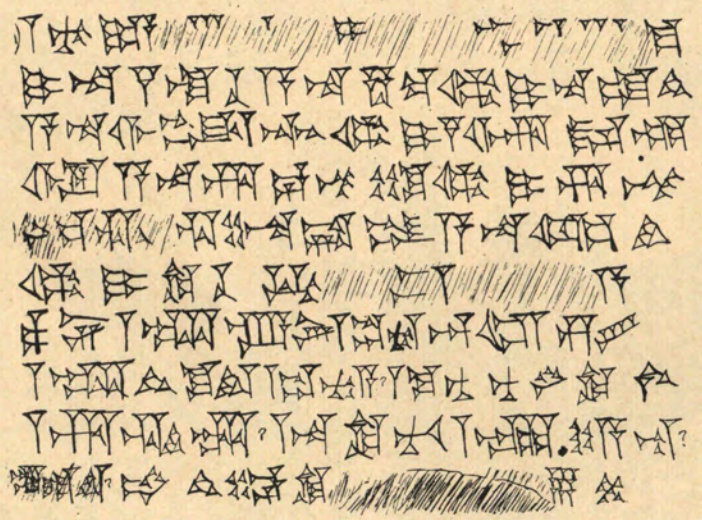
5



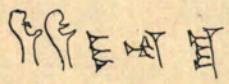
Obv. 1



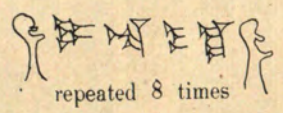
Rev. 1



Lo.E

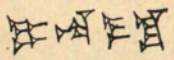


U.E.



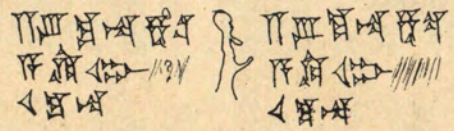
repeated 8 times

R.E.



repeated 4 times

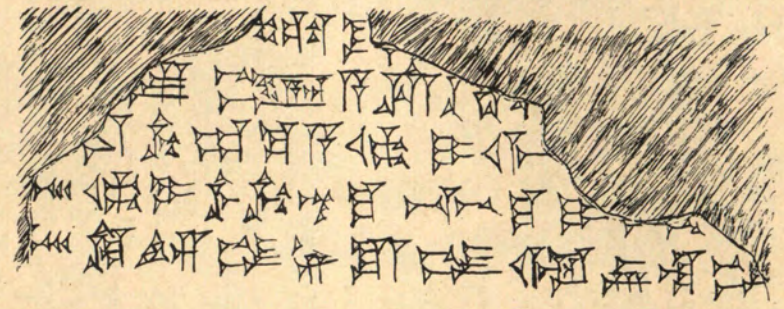
Lo.E



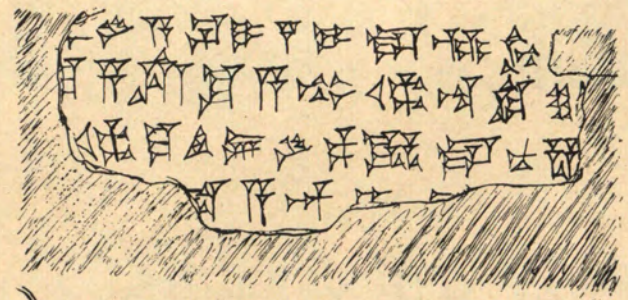
L.E. same as Lo.E

RCT 13

Obv. 1



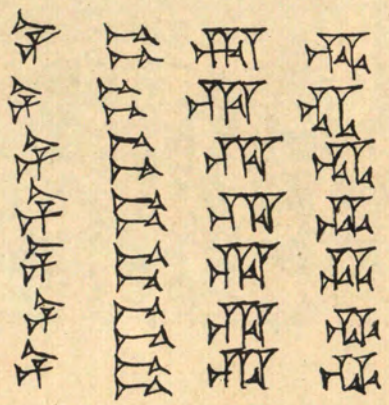
Rev 1



Lo E

RCT 14

Obv 1



RCT 16

Obv. 1

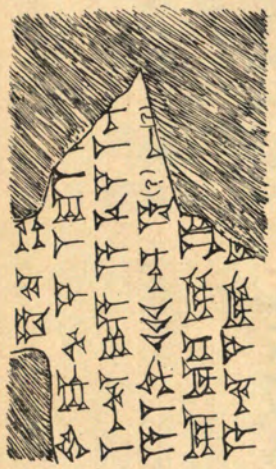
RCT 17

Obv. 1

5

Rev 1

RCT 15

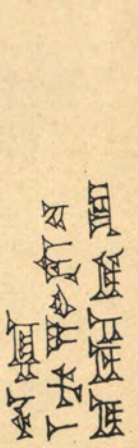


Obv. 1

5

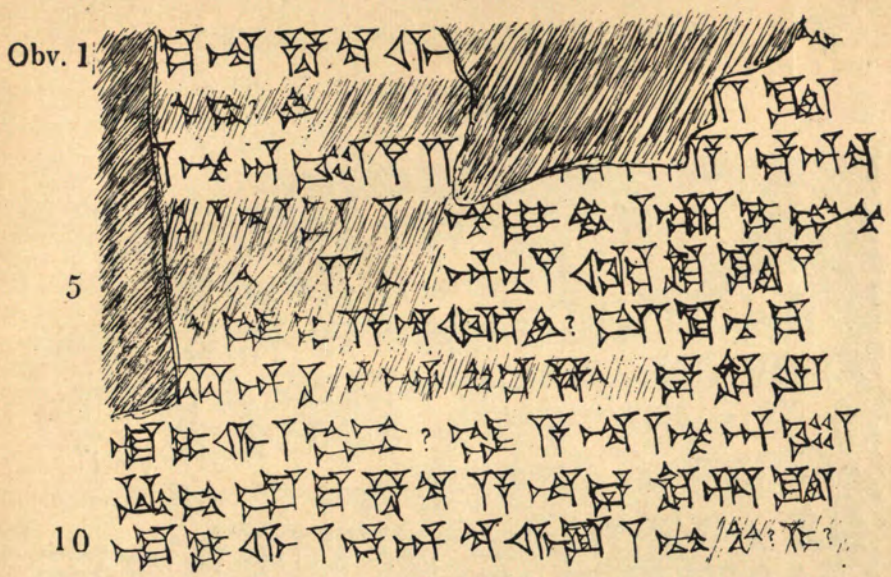
Rev. 1

5



Lo.E

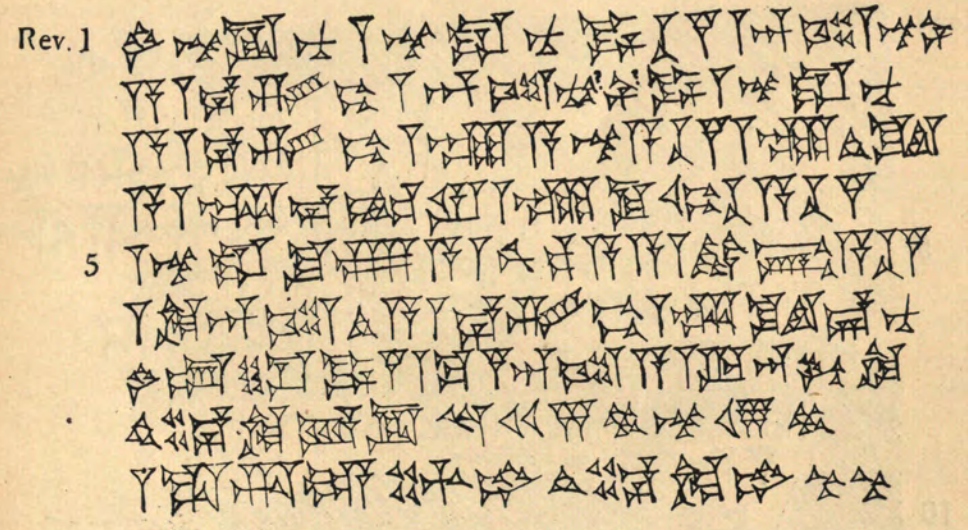
RCT 18



Obv. 1

5

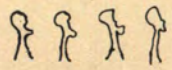
10



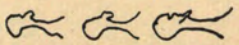
Rev. 1

5

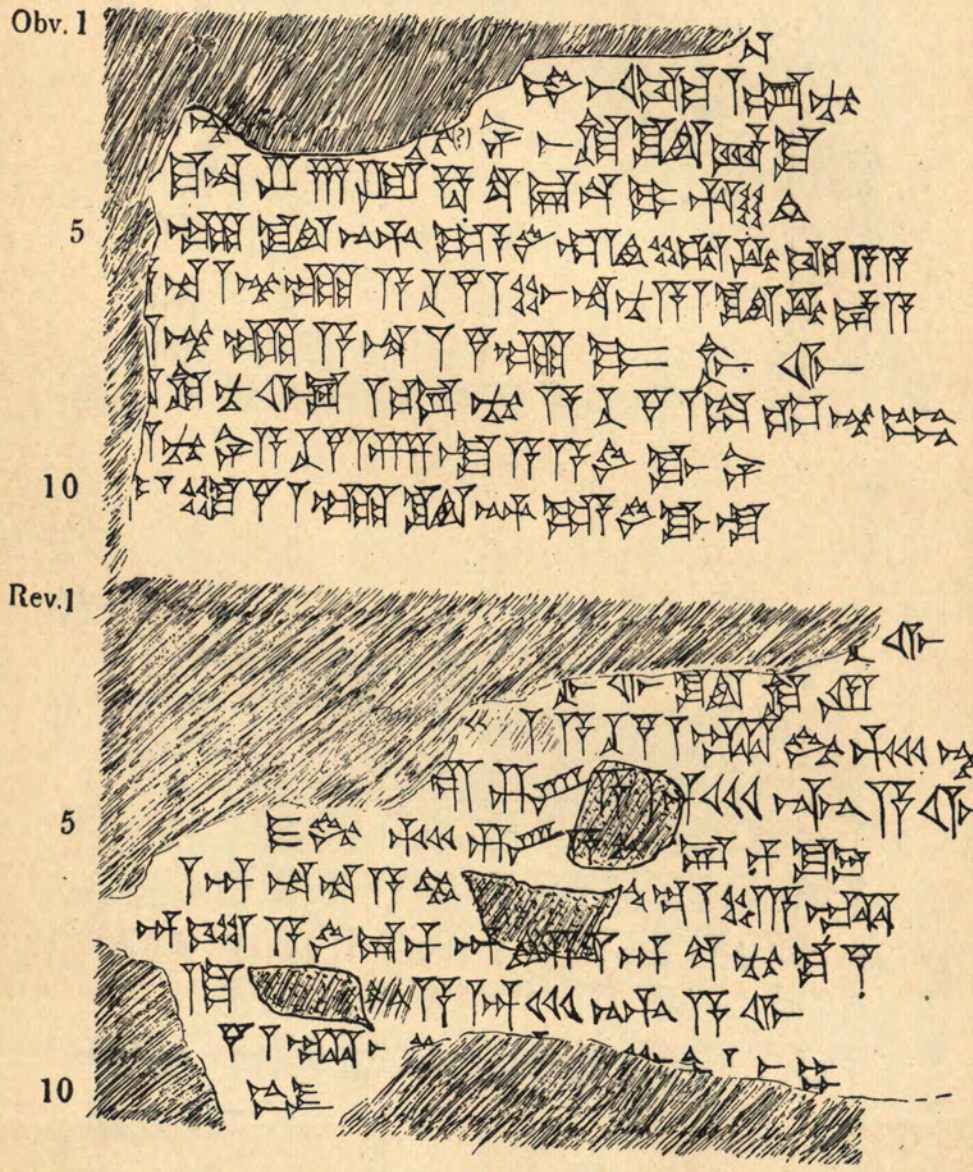
U.E



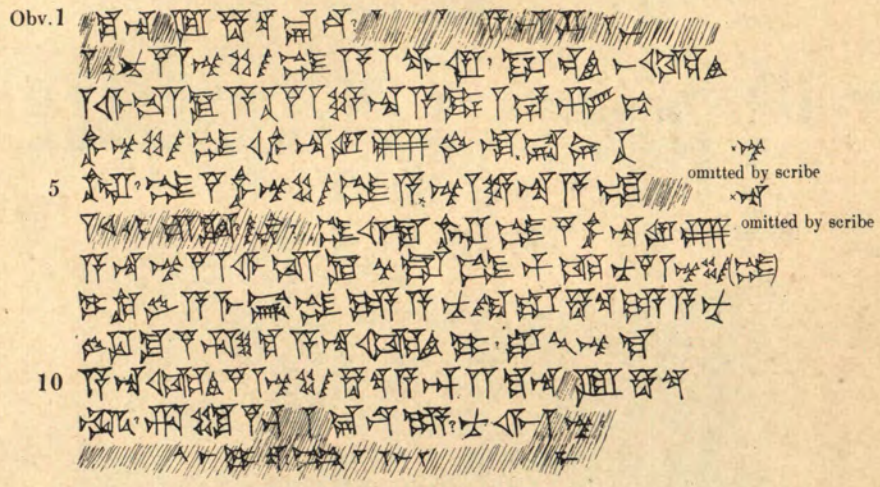
Lo.E

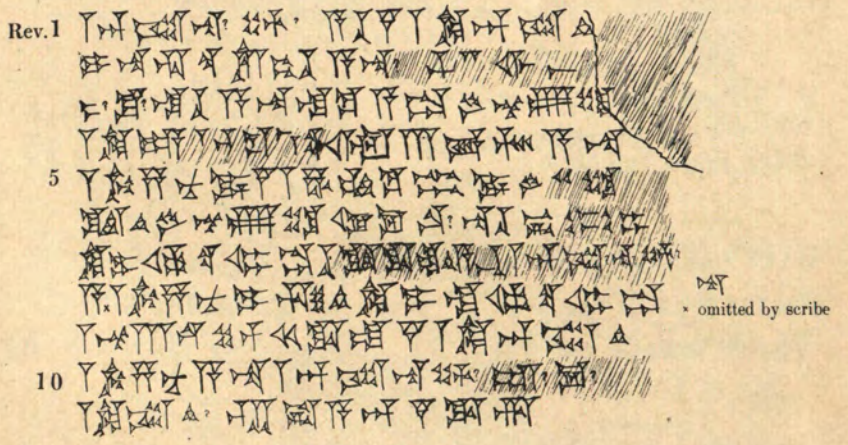


RCT 19



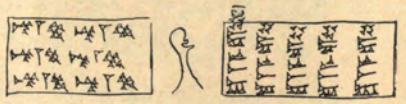
RCT 20(A)

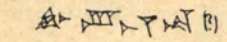




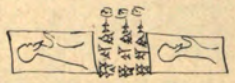
RCT 20A (Edges)

R.E 

U.E. 

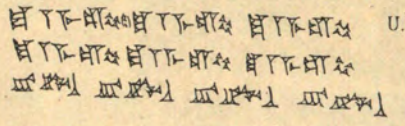
L.E. 

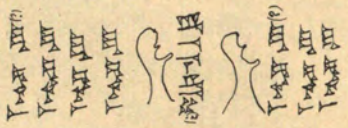
repeated 7 times

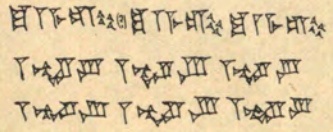
Lo.E 

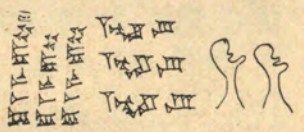
RCT 20B

This has the same obverse as 20A; nearly all of the reverse is broken away, but enough is left to see that it is different from the reverse of 20A. It seems to contain a list of witnesses.

R.E. 

U.E. 

L.E. 

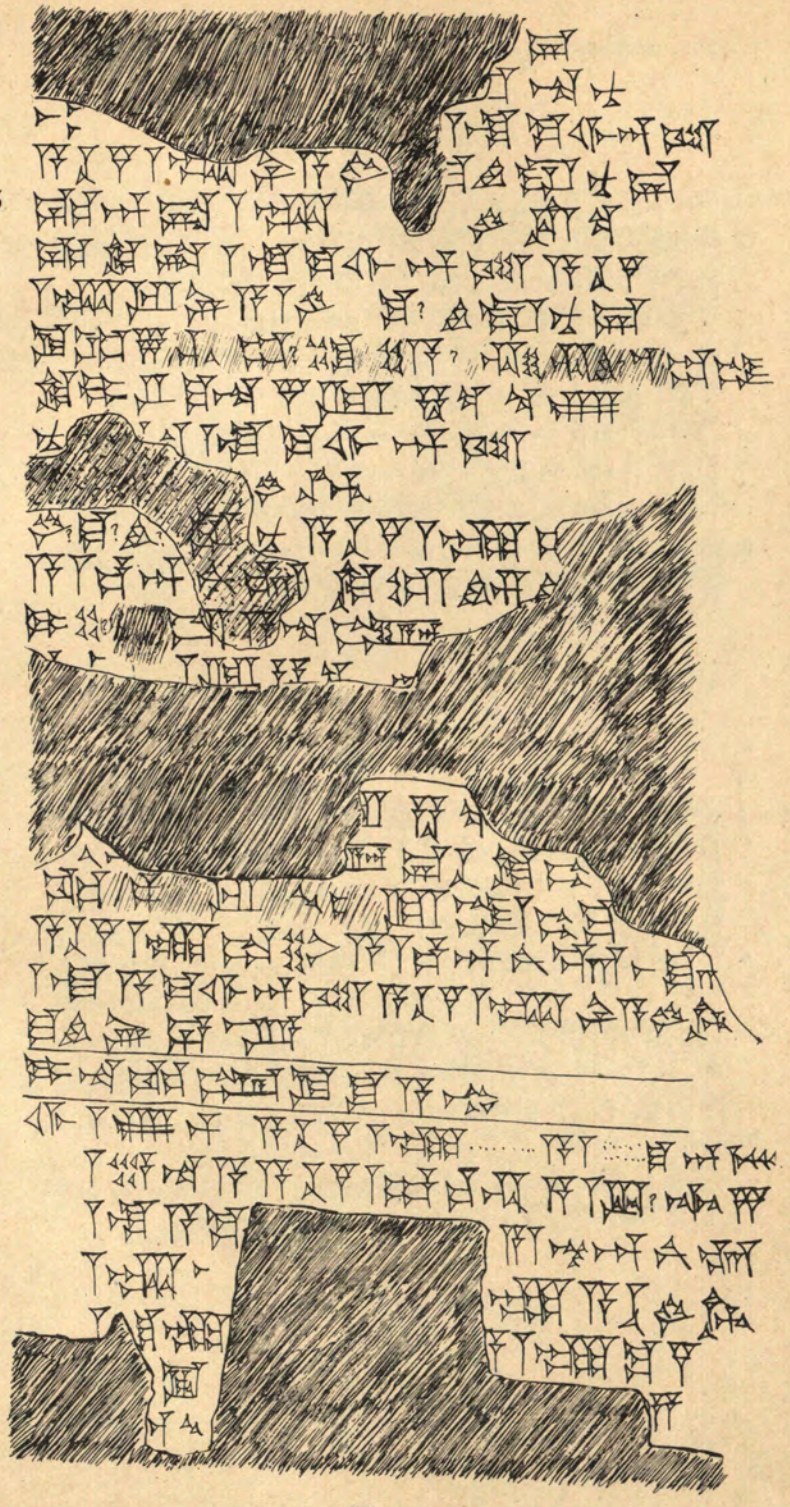
Lo.E 

Obv. 1

5

10

15



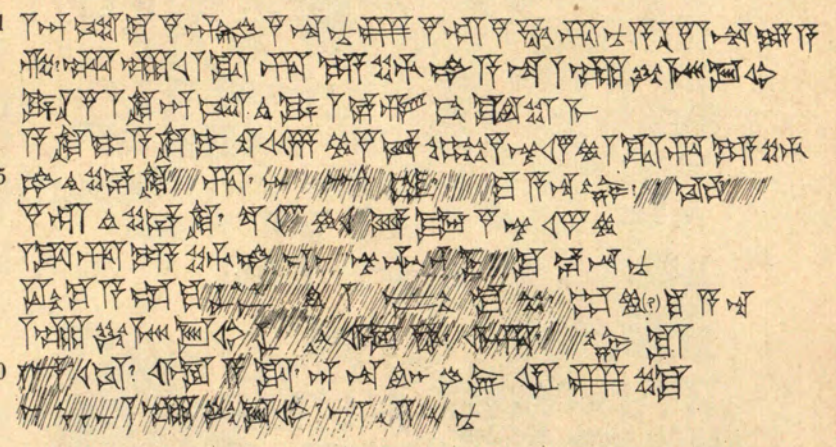
Rev. 1

5

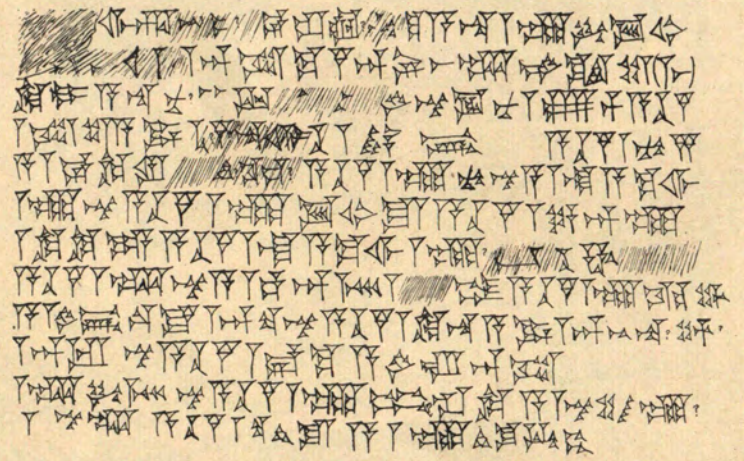
10

RCT 21 (A, B, C, D)

Obv. 1



Rev. 1



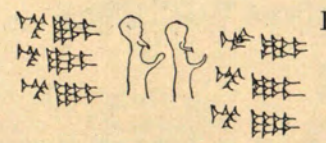
RCT 21 (B, C, and D; Edges)

U.E.

L.E.

Lo.E

U.E.



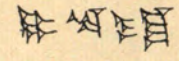
Lo.E

U.E.

repeated 3 times

Lo.E

R.E.



L.E. Same as U.E.

repeated 7 times

RCT 22 (A, B, C, D, E, F, G, H)
Edges of RCT 22(A)

Obv. 1

Rev. 1

A U.E.

L.E.

Lo.E

RCT 22 (Edges of B, C, D, E, F)

R.E.

L.E. repeated 4 times

(B) U.E. Lo.E.

(C) U.E. Lo.E.

(D) repeated 4 times on Lo.E. and U.E.
repeated 3 times on L.E. and R.E.

(E) U.E. L.E. repeated many times
K.E. R.E.

(F) The same as E with the addition of on Lo.E.

RCT 22 (Edges of G, H)

(6 times, but in opposite direction to other lines)

(G) U.E. (6 times, but in opposite direction)

L.E. (4 times)

R.E. (4 times)

L.E. (6 times)

R.E. (6 times)

L.E. (4 times)

(H) This has an erasure of the last half of lines 4 and 5 of the reverse

U.E. Indistinct, but seems to have repeated a number of times

Lo.E. (4 lines of these signs, repeated six times to a line)

R.E. repeated 3 times

L.E. repeated 3 times ?

RCT 24 The text, obverse and reverse, is identical with St. Nb. 13; the edges have something different. The signs are almost obliterated, but one can detect that the same thing is repeated time after time around the four edges. Though I am not sure of the reading it seems to be

REGISTER OF PROPER NAMES

Ṭabi-ia
  a/ Ka-za . . . . 15 Rev. 5.
  m/š Šamaš-erba 22 Rev. 8.
Ta-nit-tum . . . . . 11, 4.

U-bar
  a/š Marduk-êṭir
  m/ . . . . . 21 Rev. 3.
  a/s Nabû . . . .

U-bar
  a/ . . . . ilâni 23 Rev. 8.
U-din-na-a' 9 Rev. 4.

Zêr-ibni 19, 3; 19, 9.
Zêri-ia 12, 8; 12 Rev. 1; 15 side 2·
  a/ E-di-ru 21 Rev. 4.
  m/š Nergal-uballiṭ
  m/ Sag-di-di 12, 4.

CHRONOLOGICAL NOTES FROM THE ARAMAIC PAPYRI. THE JEWISH CALENDAR. DATES OF THE ACHAEMENIANS (CYRUS–DARIUS II)

BY M. SPRENGLING
The University of Chicago

It is now about four years since the first larger collection of Aramaic papyri from the Jewish colony at Assuan-Elephantine was published (A. H. Sayce and A. E. Cowley, *Aramaic Papyri Discovered at Assuan*, London, 1906). They were preceded by a fair number of scraps and fragments of similar origin and import, written upon stone and potsherds, as well as papyrus (cf. "Seymour de Ricci" in Sayce and Cowley, *App.* II., and Lidzbarski, *Ephem.* III, 210 f.), chief among which for the scope of this paper are a memorial stela of a commander in the army of Artaxerxes I (*RES*, No. 438), and the well-known Strassburg or Euting Papyrus. These have been followed by a goodly number of ostraka, and by the Berlin or Sachau papyri (E. Sachau, *Drei aram. Papyrusurkunden aus Elephantine*, Berlin, 1907). A larger number of papyri, etc., are in course of preparation for publication at Berlin.[1] The importance of these finds for our knowledge of the times in which they were indited, of the language in which they were written, of the people from whom and the place whence they proceeded was speedily recognized and has been largely exploited by scholars in Europe and America in many essays and articles. (A list of the most important of these contributions by European scholars is given by W. Staerk in the introductions to his edition—in Hans Lietzmann's *Kleine Texte für theol. u. philol. Vorlesungen und Uebungen* No. 22/23 the Sayce and Cowley papyri, and No. 32 the Sachau, Euting, and Turin papyri.) There is, however, one phase of the evidence of these documents which has scarcely received as much attention as the facts seem to warrant. It is in the Sayce and Cowley papyri especially that the precision and fulness of the dating stands forth

[1] Sayce and Cowley papyri, *SC;* the Sachau papyri, *Sachau*. The papyrus of Amyrtaios' 5th year, since published by Sachau in *Florilegium . . . . dédiés à De Vogüé*, 529–38, does not affect the results of this essay.

as an important factor. In all but one of them the dating is in large measure preserved. In each of these the date is given in years of the king and in the months of the Egyptian as well as the Jewish calendar. And again in all but one of these last the exact day of the month is named according to both systems. As a matter of course it was soon observed that these extraordinarily copious data were very apt to enrich our by no means perfect knowledge of the chronology of those times. In a twofold direction addition to our knowledge might be looked for. New light would almost certainly fall upon the Jewish calendar, the Jewish method of time reckoning, in the fifth century B.C., for which the biblical data are at best but few and scanty, and of which the Talmud and other early Jewish literature has preserved in the main only fragmentary remnants, not always easy of interpretation. And it might reasonably be expected that first-hand documents, so precisely fixed in point of date, would help to fix the chronology of the Achaemenian Persian kings, their reigns, and events occurring in their reigns at points where the documentary evidence, none too full and explicit, had hitherto left difficult questions moot and unsettled (see esp. Ed. Meyer, *Forschungen zur alten Geschichte*, II, 437–502, and compare, e.g., J. V. Prašek, *Forschungen zur Geschichte des Altertums*, I, 18–30). The former of these problems, falling within his own especial province, has been treated with his well-known promptness, thoroughness, and lucidity by the late lamented Schürer in the *Theol. Lit.-Ztg.* (1907), 3, coll. 65–69. For the second, Lidzbarski (*Deutsche Lit.-Ztg.*, 1906, 51/52, coll. 3207 ff.) has found the correct reading for the numerals of the king's years, established the Jewish year's beginning with Nisan, and brought out the fact that Papyrus *SC* B gives Artaxerxes' accession year, not his first year; aside from this, however, he has added little more on the purely chronological side than the cryptic and manifestly faulty statement: "In Aegypten wurde die Zählung nach Xerxes antedatiert (vgl. Ed. Meyer, *Forschungen*, II, S. 487 f.)."[2] In view of this it will scarcely appear a superfluous task to muster these data once more in review and seek to ascertain their meaning.

[2] The efforts of Billeli and similar ones, if there be any, may safely be ignored. The only reason for naming Billeli at all lies in the fact that he has received mention, though uniformly unfavorable, in journals of high standing.

In the matter of the Jewish calendar of those times, as has been indicated, Schürer has left little undone. But any addition, be it ever so little, with a somewhat fuller elaboration of the evidence, should not be unwelcome in the present state of our knowledge. As the following paragraphs are to deal largely with the three year-forms, the Egyptian, the Jewish, and the Julian, in their relation to each other, a conspectus of them is here given in parallel tables, which, it is hoped, will prove convenient for ready reference to all those readers, however conversant with these matters, who are not professional chronologers and do not constantly work with them. The months as aligned, as a matter of course, correspond only approximately to each other.

EGYPTIAN		JULIAN		JEWISH	
Months	Days	Months	Days	Months	Days
2. Phaophi	30	1. January	31	11. Šebaṭ	29(30)
3. Athyr	30	2. February ...	28(29)	12. Adar	"
				(13. Adar II)....	(")
4. Choiak	30	3. March	31	1. Nisan	"
5. Tybi.....	30	4. April.....	30	2. Iyyar	"
6. Mechir	30	5. May.....	31	3. Siwan	"
7. Phamenoth .	30	6. June	30	4. Tammuz ...	"
8. Pharmuthi .	30	7. July.....	31	5. Ab.....	"
9 Pachons	30	8. August.....	31	6. Elul	"
				(13. Elul II?) ...	(")
10. Payni	30	9. September..	30	7. Tišri	"
11. Epiphi	30	10. October	31	8. Marcheswan	"
12. Mesore	30	11. November ..	30	9. Kislew	"
Epagomenai	5				
1. Thoth	30	12. December ..	31	10. Tebeth	"
12 months and 5 days, $\frac{1460}{4}$ or 365 days.		12 months, $\frac{1461}{4}$ or 3 5¼ days, actually 365 or 366 days.		12 or 13 months, 354/5 or 384/5 days.	

Following the custom of practically all modern historians, when reckoning with the period B.C. of the Christian era, Julian years are chosen in preference to Gregorian years of complicated fractions. Where so much figuring and reducing must be done, the Julian constant of 365¼ days is much simpler to handle. The difference between the two, moreover, is of practically no consequence for our period, the fifth century B.C., amounting to only about 1 day in 128

years. And should occasion require the utmost precision, the reduction from Julian to Gregorian or even to true solar years may then be made much more easily than a reduction in the first place of the various year-forms used in antiquity to Gregorian time reckoning. The historian's method, furthermore, is followed in this also, that the year ending on December 31, preceding January 1, 1 A.D., is counted as the year 1 B.C., the preceding year as 2 B.C., etc., the years B.C. 1, 5, 9, 13, etc., being thus reckoned as leap years (of 366 days), and not the astronomer's method, whereby the year ending December 31, preceding January 1, 1 A.D., is counted as 0, the preceding year as —1, etc., thus making the years 0, —4, —8, —12, etc., leap years.

The Egyptian method of time reckoning is a perfectly well-known and a perfectly regular factor. Leaving aside the naming of the months, which is a later addition, the calendar, as above depicted, was introduced in Egypt in hoary antiquity (according to Ed. Meyer's and J. H. Breasted's brilliant reckoning in 4241 B.C.; this precise date appears somewhat doubtful to Ginzel, *Hdb. d. Chron.* I, 222, and to Lehmann-Haupt, *Klio*, 8, 213–226) and continued in use there, practically without interruption, down to the introduction of the Julian calendar in 46 B.C.[3] The relation of this beautifully conventionalized year with its beautifully conventionalized months, which went on for millenniums in its regular course, paying practically no attention to solar years or lunar months—to the Julian year, wherewith we shall have largely to deal—is clear at sight. The Egyptian year $= \frac{1460}{4}$ days; the Julian $= \frac{1461}{4}$ days. Therefore 1461 Egyptian years = 1460 Julian years. In actual practice the calendar cannot take note of quarter days, but only of $\frac{4}{4}$, i.e., full days. Thus the difference between the Egyptian and the Julian year will not be noticeable every year, but only every fourth year. Each fourth or leap year the Egyptian year will gain one day upon the Julian calendar. If in the year following upon a leap year Thoth 1, the beginning of the Egyptian year, fall exactly upon January 1

[3] The attempted reform under Ptolemy III. Euergetes (247–22 B.C.), recorded in the decree of Canopus, is later than the times with which this paper deals and need not, therefore, be taken into consideration. So, too, the division of the Egyptian year into three seasons of four months each may be ignored as of no consequence for the purpose of this essay.

of the Julian year, then that Egyptian year and the two following years will precisely equal in length the corresponding Julian years, the last of the Epagomenai=December 31. But in the fourth year thereafter the Julian year will add one day, February 29, whereas the Egyptian year will not. Athyr 29 of that year will=February 28 as before; but Athyr 30 will not be March 1, but February 29, Choiak 1=March 1, not March 2, and so on throughout the rest of that year the Egyptian dates will have slipped back one day in the Julian calendar, until the end of the Egyptian year is reached, not as before, on December 31, but on December 30, and the Egyptian New Year's Day, Thoth 1, will now fall upon December 31, Julian. This process repeating itself every fourth year thereafter, the Egyptian dates will slip back through the entire Julian calendar year, until ultimately the 1st Thoth of the 1461st Egyptian year will again fall upon January 1 of the 1460th Julian year. Under these conditions it is perfectly clear that, any one Egyptian date being certainly (e.g., astronomically) fixed upon any one Julian date, the position of the Egyptian calendar in its relation to the Julian can easily be computed for any number of years before and after. Such given dates there are, not one only, but several (cf. esp. Ed. Meyer, *Aegypt. Chronologie, passim*, and J. H. Breasted, *Ancient Records of Egypt*, I, 25–48). Hence we know beyond the shadow of a doubt that in the period covered by the Aramaic papyri of Elephantine (*ca.* 473–406 B.C.) the beginning of the Egyptian year slipped from December 19 to December 3. (Thoth1=December 19 from 473–470, December 18 from 469–466, etc.) It is at this point, exactly, that the importance of the chronological data given us in the Aramaic finds from Egypt becomes apparent. What they furnish us for this period is a series of dates according to the Jewish calendar, to which are added their more or less precise equivalents in the easily determinable Egyptian calendar. That this equation of dates in the conventionalized Egyptian calendar with dates, dependent upon astronomical phenomena, in the Jewish calendar is of value for the determination of the chronology of the Persian kings reigning in and before this period, will be shown further on. At present it is the bearing of this evidence upon the Jewish method of calendar making at that time that demands attention.

The Jewish mode of time reckoning at this period is both much less well known, and, so far as known, much less regular and conventional than the Egyptian. A fairly full statement of sources and literature is given in Schürer, *GJV*, Eds. 3 and 4, I, 745–60. Such biblical sources, contemporary or nearly so, as mention months by name rather than by number, supply us with the following list of names: Nisan, Neh. 2:1; Esther 3:7; Siwan, Esther 8:9; (Tammuz is mentioned as the name, not of a month, but of a god, in Ezek. 8:14); Elul, Neh. 6:15; Kislew, Zech. 7:1; Neh. 1:1; Ṭebeth, Esther 2:16; Šebaṭ, Zech. 1:7; Adar, Esther 3:7, 13; 8:12; 9, *passim*. To this list the Aramaic papyri add Tammuz, *Sachau* AB, l. 4; Ab, *SC*, F; Tišri, *SC*, G; Marcheśwan *Sachau* AB l. 30. This gives us, with the sole exception of Iyyar, the complete list of the later Jewish calendar above exhibited. None of these names is given in any Jewish document or literary source previous to the Exile. As found in the sources they are simply Aramaized forms of the names in the Assyro-Babylonian calendar. These names must have come into use among the Jews in Egypt, as well as those of Babylonia and Palestine, at about the exilic period, certainly not much before that time.

What sort of months did these names stand for? How was the length of each month, its beginning and end, determined? On this point the biblical evidence, and the direct evidence of the papyri as well, is scanty. The biblical sources do little more than to exhibit a strong tendency to actual observation of the moon's phases in the matter, especially the new moon (חֹדֶשׁ in its twofold meaning, as "month" and "new moon") with much less emphasis on the full moon (כֶּסֶא, Prov. 7:20; Ps. 81:4, and the laws concerning the Passover and other feasts). The name ירח for month, which the papyri have in common with biblical Aramaic and Hebrew and other Semitic tongues and dialects, is not much stronger evidence in this respect than is our "month" or poetic "moon." In another manner, however, the testimony of the papyri is fairly strong and clear. Finding, by the method above indicated, the Julian date corresponding to the Egyptian date given, and leaving for the king's year mentioned a limit of uncertainty within three years (which is certainly all that can within reason be asked for upon paleographical,

chronological, or any other grounds), if one consult for the years and months so ascertained the table of new moons in Ginzel, *op. cit.*, I, 547–62, it will be found that in most instances for one of these years the Jewish date given will show the beginning of the Jewish month to have taken place 1 or 2 days after the preceding new moon. Thus:

		Preceding New Moon
SC, A Xerxes 15	Pachons 28) Sept. 12	472, Sept. 4
472–470	Elul 18)	*471, Aug. 24*
	Elul 1, Aug. 26	470, Sept. 12
SC, B ⟨Xerxes⟩ 21	Thoth ⟨17⟩)	
Artax. acc.	(Cf. Schürer,) Jan. 3/2	466, Nov. 26
	Th. Litz., l.c.)	
463–464	Kislew 18	*465, Dec. 14/15*[4]
	Kislew 1, Dec. 17/16	464, Dec. 4[4]
SC, D(+C?) Artax. 6(?)	Mesore 1) Nov. 11	461, Oct. 31
461–458	Kislew 21)	*460, Oct. 20/21*
		459, Nov. 9
	Kislew 1=Oct. 22	458, Oct. 29
SC, E, Artax. 19	Mesore 10) Nov. 17/16	447, Oct. 28
447–445	Kislew 3)	*446, Nov. 15/16*
	Kislew 1=Nov. 15/14	445, Nov. 4
SC, F, Artax. 25	Pachons 19) Aug. 26	441, Aug. 23
441–439	Ab 14)	*440, Aug. 12*
	Ab 1=Aug. 13	439, Aug. 1/2

(In *SC*, G the date is too fragmentary to be made use of here. If the reference be to Artax. 25, i.e., in all probability 440, as the previous date shows, then the equation of Staerk, Epiphi 6 = Tišri 26, is impossible. For Epiphi 1 fell in this year upon October 7—and the date found for Ab 1, viz., August 13, shows that Tišri must have begun October 11/12, new moon, October 10. The dates for

[4] The dates here given are translated from the astronomical days, 12 A.M.–12 A.M., as given in Ginzel, into the days wherewith we ordinarily reckon, 12 P.M.–12 P.M., the exact hour, minute, second being omitted as in the case of this article an unnecessary hyperprecision. The seeming difference now and then of one day between the dates in Ginzel and here is thus easily explained, e.g., the new moon for Dec. 464 is given by Ginzel as Dec. 3.94. This is about 11 o'clock A.M. of Dec. 4, as ordinarily reckoned. If one read with a more commonly accepted conjecture Thoth <7> for <17>, this would make Kislew 1=Dec. 6, in the only year possible with this reading, 464. The reading adopted by Schürer is much the more probable, as will be more explicitly shown shortly. The date as given in Staerk, Kislew 18, Thoth 7, Xerxes 21=Artax I. 1=465 is manifestly impossible. In fact most of Staerk's dating for these papyri is atrocious.

Epiphi must thus be 4 or 5 days higher than those for Tišri. Now a date of 20+ being practically assured paleographically for Tišri and a date *ending* in a unit 6 or 9 for Epiphi this leaves the choice between Epiphi 29=Tišri 24/25 or Epiphi 26=Tišri 21/22. The date in *SC*, H is not sufficiently exact for use at this point.)

SC, J, Darius II 8 Jewish	Thoth 12	Dec. 17/16	418, Dec. 6
⟨9⟩ Egyptian	Kislew 3		417, Nov. 24
418–416	Kislew 1 =	Dec. 15/14	*416, Dec. 12*
SC, K, Darius II, 13 Jewish	Athyr 9	Febr. 10	412, Feb. 6
14 Egyptian	Šebaṭ 24		411, Jan. 27
412–410	Šebaṭ 1=Jan. 18		*410, Jan. 16/17*

There are six (seven, if C be counted separately) papyri (A, D [+C], E, F, J, K) in which no serious lacuna makes doubtful what the scribe actually wrote in the dating. For all six of these there is one of the 3 or 4 years examined, in which the beginning of the Jewish month dovetails fairly well with the date of the preceding new moon. In only one case, D (+C), does the year so found cause real, though not at all insurmountable, difficulty. B and G can be brought into line by conjectures not at all violent or improbable, fitting well enough into the lacunae and taking due account of the fragments remaining. In five of the six unquestionable cases the date found lies from 1 to 2 days after the actual new moon. In B and G the conjectures suggested lead to a similar result. Now 1 to 2 days after the actual new moon, which is, of course, invisible, occurs what is popularly called the "new moon," the חֹדֶשׁ, the first visible appearance of the newly waxing moon (cf. Ginzel, *op. cit.*, p. 93; Weissbach in *Hilprecht Ann. Vol.*, pp. 281–90). As a rule, then, in these papyri the beginning of the month coincides with the "new moon," the first visible appearance of the newly waxing moon. This is probably what determined the beginning of the month, as it did in Babylon at this time (cf. Ginzel, *op. cit.*, pp. 92 f.), and as it did among the Jews in Palestine for some centuries later (cf. the tractate *Rosh Hashanah* in the Talmud; Mahler, *Bibl. Chronologie*, 67 f.; Schürer, *GJV*, I, 750). The Jewish month, then, was not a pre-established, fixed quantity, like the Egyptian or ours. It was fixed, so to speak, on the spur of the moment. If the

"new moon" appeared on the thirtieth day of a month, then this day was taken away from this month, leaving it defective (29 days), and became the first day of the next month. If the new moon did not appear on the 30th day, the month was a full month (30 days), and the following day was the first of the next month. This was the rule. But there was an exception (Papyrus E, Kislew 1=the actual, invisible new moon). This exception is quite what might be looked for. There would be times, even in Egypt, when the appearance of the new moon would be obscured by dust, mist, clouds. Such a contingency was not at all unlikely in Egypt in the middle of November, the time when E was written. In such an event the first of the month would have to be calculated or guessed at. The date in E looks rather like a rough guess. In any case the exception rather tends to prove the rule than otherwise. The Jewish months of those times were true lunar months (i.e., lunations), not fixed with modern, scientific precision, and yet, because resting upon actual observation, corresponding fairly well to the exact measurements of modern instruments and reckonings. Now, the so-called synodical month, the time between one actual new moon and the next, is 29 days, 12h. 44m., 2.9s. This means that by the methods above outlined the Jewish months would alternate with fair regularity between 29 and 30 days, with now and then two 30-day months following upon each other. Within a twelvemonth there could scarcely, except by gross and unlikely error, be less than 6 or more than 7 30-day months. The statement of the Talmud (cf. Schürer, *GJV*, *loc. cit.*) that there may be 4–8 of either and other similar statements are either mere theoretical quibbles or the result of ignorance, or both. The twelve-month lunar year (if such a thing as a "lunar year" may be spoken of) would consist of 354/5 days (actual lunar twelvemonth 354 days, 8h., 48m., 36s. For this and the lunar month cf. Ginzel, *op. cit.*, I, 36).

The discrepancy between this lunar twelvemonth and the (tropical, solar) year (variable, *ca.* 365 days, 5h., 48m., 46s., cf. Ginzel, *op. cit.*, 32) is apparent at a glance. This was quite as apparent to the Jew of Persian (and much earlier) times as it is to the ordinary man today. Unless he lived in Egypt, the year of 365 days may not have been a matter of as common knowledge to him as

it is to modern men. But he knew quite well that his lunar twelvemonth was not a year, fell from 10–11 days short of being a year. His year was not a "lunar year." In fact, there is no such thing as a "lunar year," and it is highly probable that no people ever attempted to live with such an impossible institution except those for whom it was artificially created and upon whom it was inexorably forced by the none too intelligent but cast-iron rule of Mohammed's Quran (cf. Ed. Meyer, *Forsch.* II, 438; *GA*² I, 1, 237). The year whereby any people, nomadic, agricultural, or commercial, who have learned to measure time at all, will naturally reckon, is that space of time represented by the regular revolution of the seasons determined by the sun (cf. Ginzel, *op. cit.*, 91). The time of new grass for the herds, the time of the melons (so a woman of Arṭâs, near Bethlehem, in 1909 dated for us the birth of her babe), the time of sowing and harvest, the time when travel and shipping was safe, the time when kings went forth to battle, etc., these are the things that count in the life of a people and that determine their reckoning of the year. This was the case with the Egyptians, whose conventionalized calendar, slipping back only 15 days in 60 years, a hardly noticeable shift within the lifetime of the individual, for all practical purposes represented this natural year. This was no less the case with the Greeks and Babylonians in spite of their lunar months. And the Jews were no differently situated in this respect than these other peoples. Their year too was the natural solar year. All the biblical evidence points this way. This much, at least, may safely be deduced from the Gezer Calendar, *PEF*, QS, 1908, p. 271; 1909 *passim*, and the testimony of the papyri is clear. Most of those above examined have given us the date for Kislew 1. It is easy to deduce the same date from the others. Thus in 471 the third new moon after Elul 1 = August 26, must have become visible November 22/23, in 440 the fourth new moon after Ab 1 = August 13 on December 9/10, 411/10 the second new moon before Šebaṭ 1 = January 18 on November 19/20. This gives us in order the following dates for Kislew 1: November 22/23, 471; December 16, 465; October 22, 460; November 15, 446; December 9/10, 440; December 14, 416; November 19/20, 410. The limits of variation in these dates are wide, between October 22

and December 16. Yet Kislew does remain within these limits, roughly *within the limits of the same season* throughout. It does not, as it would in the Mohammedan lunar year, regularly and constantly slip back 10–12 days in the calendar each year, thus making a complete circuit of the seasons in *ca.* 33 years. The Jew of this place and period kept his months, however roughly, within their proper seasons. This is proof conclusive, if such proof be needed, that his year was not the lunar twelvemonth, but the revolution of the seasons, the solar year.

The means whereby he kept his months thus roughly constant were, of course, the same as those used by the other peoples of those times, who like him had lunar months and solar years to deal with, e.g., Babylonians and Greeks. About every third year he would notice that his months had slipped back about the length of a month in the seasonal year, and would supply this deficiency by inserting an extra month, a 13th month. Two questions are of interest and importance in regard to this process of intercalation: (1) How regular, how systematic was it? (2) At what point of the year did it take place?

On the first point the evidence of the documents is unmistakable. Before proceeding to the unfolding of it, we may at this point add the data of two further documents. The first is the stela, *RES*, No. 438. This is dated in Siwan = Mechir, 7th year of Artaxerxes I. Proceeding in a similar manner as above, we find:

Artax. I, year 7		Egyptian Month	Possible Jewish Months
459		May 15–June 13	April 18–May 16/17
or			*May 17/18–June 16/17*
458	Mechir	May 15–June 13	*May 6/7–June 4/5*
			June 5/6–July 4/5
or			April 24/25–May 23/24
457		May 14–June 12	May 24/25–June 22/23

On grounds to be developed later, it is most probable that the month meant is May 6/7–June 4/5, 458. For the present purpose the choice may be left open between this and the next in probability, May 17/18–June 16/17, 459. The other additional document is *SC*, Papyrus H, dated Elul = Payni, Darius II, year 4.

seem to make for Ed. Meyer's assumption, *Forsch.* II, 485, that here Nehemiah dates his years from the actual beginning of Artaxerxes' reign, not from a New Year = first Nisan, or that he here dates, as Herodotus, III:67, is supposed to do, by years according to Persian fashion, beginning with the autumnal equinox, i.e., Tišri. But the Herodotus evidence is doubtful and does not suffice to show such a method among the Persians (cf. Prašek, *loc. cit.*). And for the Nehemiah passages at least three other possibilities than those above mentioned must be reckoned with. It may indeed be (1) that he deals with a Persian year-form, beginning in the autumn, or (2) that he counts by actual years of the king's reign, beginning on or before Kislew. But it may also be (3) that the Jews at this time instituted the later "civil year" beginning Tišri 1, or (4) that a scribe or editor of some later time, when this institution obtained, made the "correction," or (5) that it is simply a scribal error. No. 1 has been dealt with; (2) seems highly improbable in the case of a man who, like Nehemiah, must have been well acquainted with the customs in vogue in Babylon and elsewhere in the Semitic and especially the Aramaic-speaking portions, at least, of the Persian Empire. Of (3) there is not a shred of real evidence elsewhere. This rather leaves (4) and (5) to choose from. And, whatever may be said of Babylonia in the most ancient times, for the Jews, at least, from the earliest times of which we have record down through the Exile and a large portion of the Persian period, all the available evidence seems to point clearly to a year-form beginning with the vernal equinox. The Jewish "civil" year beginning with first Tišri is almost certainly an institution of Greek (Seleucid?) times, later than Alexander.

Saying that we know the Jewish year to have begun with Nisan is not saying that we can fix the absolute date of this beginning for every year with certainty. There will be a limit of uncertainty of a day or two in most cases, and of a month in some. But although this point cannot be established with the same degree of precision as some of the preceding, there is some evidence in this direction also. In the first place the beginning of the year would, as a matter of course, be kept as near the vernal equinox as possible (although this would not be as precisely fixed as in modern times). In the

F

second place there is no good reason why these Jews in Egypt should not have celebrated their Passover on the fourteenth (i.e., the full moon) of Nisan. There is moreover a rule, mentioned by Anatolius (Euseb., *H.E.* VII, 32, 14–19), the Talmud (*Tos. Sanhedrin*, C II), and Josephus (*Ant.* III, 10, 5) whereby the Passover should occur when the sun stands in Aries (*ca.* March 21–April 21, present dating), i.e., practically on the first full moon after the vernal equinox (which fell in the period of the papyri on March 26–28, Julian). This rule has the ring of Babylonian loan material, especially in the mention of the signs of the zodiac. Now, why should not these Jews have appropriated this at approximately the same time at which they were borrowing so much calendaric material from Babylon, i.e., before the period of the Assuan papyri? If so, this would give us a fairly fixed point for the middle of Nisan and therewith, of course, for its beginning also. How does the testimony of the papyri agree with this? Schürer (*Theol. Lit.-Ztg., loc. cit.*), has computed from them, by the simple process of counting back a sufficient number of months, the following Passover dates: April 12, 471; May 6, 465; March 13, 460; April 6, 446; April 30, 440; May 4, 416; April 10, 411—four errors (numbers 2, 3, 5, and 6) out of seven cases, three of them bad ones. But the case does not seem to me necessarily as bad as this. No. 5 is not so bad as to be impossible, the crudeness of the methods of observation in those times being considered. For No. 3, indeed, there appears to be no remedy. But Nos. 2 and 6 may easily be remedied by the simple expedient of assuming the insertion of an Elul II in those years. This makes it seem to me altogether probable that an Elul II, also, to be inserted upon occasion, was among the calendaric material originally received by the Jews from Babylon, although later (possibly through the growing importance of a rabbinically precise Passover date) this feature was dropped. The following fuller elaboration of more or less probable 1 Nisan and Passover dates, on the basis of the material given above, counting not only backward, as did Schürer, but forward also, and computing for the intervening years of the shorter intervals as well, will, I think, make this probability more apparent. A margin of error of a day, forward and back, should, of course, be allowed.

American Journal of Semitic Languages
University of Chicago Press
April, 1911

M. Springling, "Chronological Notes – Jewish Calendar, etc."

seem to make for Ed. Meyer's assumption, *Forsch.* II, 485, that here Nehemiah dates his years from the actual beginning of Artaxerxes' reign, not from a New Year=first Nisan, or that he here dates, as Herodotus, III:67, is supposed to do, by years according to Persian fashion, beginning with the autumnal equinox, i.e., Tišri. But the Herodotus evidence is doubtful and does not suffice to show such a method among the Persians (cf. Prašek, *loc. cit.*). And for the Nehemiah passages at least three other possibilities than those above mentioned must be reckoned with. It may indeed be (1) that he deals with a Persian year-form, beginning in the autumn, or (2) that he counts by actual years of the king's reign, beginning on or before Kislew. But it may also be (3) that the Jews at this time instituted the later "civil year" beginning Tišri 1, or (4) that a scribe or editor of some later time, when this institution obtained, made the "correction," or (5) that it is simply a scribal error. No. 1 has been dealt with; (2) seems highly improbable in the case of a man who, like Nehemiah, must have been well acquainted with the customs in vogue in Babylon and elsewhere in the Semitic and especially the Aramaic-speaking portions, at least, of the Persian Empire. Of (3) there is not a shred of real evidence elsewhere. This rather leaves (4) and (5) to choose from. And, whatever may be said of Babylonia in the most ancient times, for the Jews, at least, from the earliest times of which we have record down through the Exile and a large portion of the Persian period, all the available evidence seems to point clearly to a year-form beginning with the vernal equinox. The Jewish "civil" year beginning with first Tišri is almost certainly an institution of Greek (Seleucid?) times, later than Alexander.

Saying that we know the Jewish year to have begun with Nisan is not saying that we can fix the absolute date of this beginning for every year with certainty. There will be a limit of uncertainty of a day or two in most cases, and of a month in some. But although this point cannot be established with the same degree of precision as some of the preceding, there is some evidence in this direction also. In the first place the beginning of the year would, as a matter of course, be kept as near the vernal equinox as possible (although this would not be as precisely fixed as in modern times). In the

F

second place there is no good reason why these Jews in Egypt should not have celebrated their Passover on the fourteenth (i.e., the full moon) of Nisan. There is moreover a rule, mentioned by Anatolius (Euseb., *H.E.* VII, 32, 14–19), the Talmud (*Tos. Sanhedrin*, C II), and Josephus (*Ant.* III, 10, 5) whereby the Passover should occur when the sun stands in Aries (*ca.* March 21–April 21, present dating), i.e., practically on the first full moon after the vernal equinox (which fell in the period of the papyri on March 26–28, Julian). This rule has the ring of Babylonian loan material, especially in the mention of the signs of the zodiac. Now, why should not these Jews have appropriated this at approximately the same time at which they were borrowing so much calendaric material from Babylon, i.e., before the period of the Assuan papyri? If so, this would give us a fairly fixed point for the middle of Nisan and therewith, of course, for its beginning also. How does the testimony of the papyri agree with this? Schürer (*Theol. Lit.-Ztg., loc. cit.*), has computed from them, by the simple process of counting back a sufficient number of months, the following Passover dates: April 12, 471; May 6, 465; March 13, 460; April 6, 446; April 30, 440; May 4, 416; April 10, 411—four errors (numbers 2, 3, 5, and 6) out of seven cases, three of them bad ones. But the case does not seem to me necessarily as bad as this. No. 5 is not so bad as to be impossible, the crudeness of the methods of observation in those times being considered. For No. 3, indeed, there appears to be no remedy. But Nos. 2 and 6 may easily be remedied by the simple expedient of assuming the insertion of an Elul II in those years. This makes it seem to me altogether probable that an Elul II, also, to be inserted upon occasion, was among the calendaric material originally received by the Jews from Babylon, although later (possibly through the growing importance of a rabbinically precise Passover date) this feature was dropped. The following fuller elaboration of more or less probable 1 Nisan and Passover dates, on the basis of the material given above, counting not only backward, as did Schürer, but forward also, and computing for the intervening years of the shorter intervals as well, will, I think, make this probability more apparent. A margin of error of a day, forward and back, should, of course, be allowed.

American Journal of Semitic Languages
University of Chicago Press
April, 1911
M. Springling, "Chronological Notes – Jewish Calendar, etc."

	1 Translation Period Hours	2 Day	3 Conj. J.C.T.	4 Nisan 1	B.C. Year	5 Full Moon J.C.T.	6 Passover (Nisan 14)
1	− 5.5	−.23	III 30.98	March 31	471	IV 14.52	April 13
2 ✓	3.3	.14	III 20.61	March 21	470	IV 3.61	April 3
3	.96	.04	III 23.71	March 24 (+Elul II)	465	IV 8.24	April 6
4	2.8	.12	IV 11.63	April 12	464	IV 27.11	April 25
5	11.04	.46	IV 1.29	April 2	463	IV 16.32	April 15
6 ✓	− 5.76	−.24	III 21.99	March 22	462	IV 5.34	April 4
7 ✓	5.04	.21	III 10.54	March 11	461	III 24.48	March 24*
8 ✓	22.8	.95	II 27.80	March 1	460	III 13.93	March 15*
9 ✓	5.04	.21	III 18.54	March 19	459	IV 1.93	April 1
10 ✓	− .24	−.01	III 7.76	March 8	458	III 22.63	March 22*
11	10.5	.44	III 25.31	March 26	457	IV 9.64	April 8
12 ✓	2.4	.10	III 14.65	March 15	456	III 30.19	March 27
13	3.8	.16	III 24.59	March 25	446	IV 8.89	April 7
14 ✓	11.04	.46	III 13.29	March 14	445	III 27.94	March 27
15	− 2.16	−.09	III 28.84	March 29	441	IV 12.26	April 11
16	5.52	.23	IV 16.52	April 17	440	V 1.28	April 30*
17	3.6	.15	IV 5.60	April 6	439	IV 20.96	April 19
18	18.7	.78	III 25.97	March 27	438	IV 10.47	April 9
19 ✓	9.12	.38	III 17.37	March 18	421	IV 1.90	March 31
20	11.28	.47	IV 5.28	April 6	420	IV 20.79	April 19
21	− 3.8	−.16	III 25.91	March 26	419	IV 10.00	April 8
22 ✓	3.36	.14	III 15.61	March 16	418	III 30.01	March 29
23	3.36	.14	IV 2.61	April 3	417	IV 16.73	April 16
24	16.3	.68	III 23.07	March 24 (+Elul II)	416	IV 6.01	April 6
25	− 2.64	−.11	IV 10.86	April 11	415	IV 24.93	April 24
26	− 4.08	−.17	III 30.92	March 31	414	IV 14.57	April 13
27	− 5.52	−.23	III 18.98	March 19	413	IV 3.28	April 1
28	− .72	−.03	IV 6.78	April 7	412	IV 22.26	April 20
29	12.2	.51	III 27.24	March 28	411	IV 11.68	April 10
30 ✓	− 3.60	−.15	III 16.90	March 17	410	III 31.82	March 30

The accompanying table of Nisan 1 (4) and Passover (6) dates for 30 years in the 5th century B.C., was constructed by M. Sprengling (University of Chicago). He followed a chronological schedule, worked up by Shürer, in which Passover was placed either on or before the full moon. Into this table have been inserted the conjunction and full moon dates from the Ginzel tables to show how a passover, either on or before full moon, makes the translation period altogether too short. Note the hours given in column 1. Only No. 8 -- 22.8 hours in the year 460 -- comes anywhere near the facts for the case mentioned. And the date in No. 8 is the wrong time for Passover!

In the years marked with a "−" sign, the translation period ends even before the conjunction date occurs! The checked years indicate that the Passover is dated a month too early. On such a basis of reckoning Jewish time, it was impossible to discover the true relation between the Aramaic and Egyptian dates of the Aramaic papyri.

context, however, it may be gathered to mean that for the dating of documents, etc., during the reign of Xerxes I the antedating method was employed. Now, in the first place, this is not what Meyer says, least of all in the place quoted, pp. 487 f. He is not speaking there of dating in contemporary documents like the Aramaic papyri at all, but of the dates of Manetho. These, as reconstructed at the top of p. 488, correspond exactly (except for the manifest error December 1 for December 3, 405 as the closing date of Darius II's reign) for Darius I–Darius II to the dates of the Ptolemaic canon as given in the table facing p. 457. And of these chronographers, Babylonian as well as Egyptian, and their lists, Meyer says, pp. 475 and 485, that they postdate for Cyrus and Cambyses, antedate (eliminating Smerdis) for Darius I and Xerxes I, then postdate again for Artaxerxes I and Darius II. For such contemporary documents as he had, Egibi tablets and Murašu tablets, Vol. IX, Artax. I, he assumes postdating for Cyrus, Cambyses, Darius I, and Xerxes I, then antedating for Artaxerxes I and Darius II, of which latter's reign he had no documents at all in hand (pp. 483–85). In the second place, simply to apply Meyer's results, arrived at upon the basis of less good and less full evidence to new, first-hand material is faulty method. The correct method is to test and re-examine the results of Meyer *et al.* at the hand of the newer and better documentary material. Such re-examination is what the following paragraphs propose to undertake.

The manifest slip in these matters of so able a man as Lidzbarski and the palpable uncertainty of Staerk in his datings make it seem the more desirable in writing for a wider circle of readers to preface the presentation of the material itself by a brief restatement of the conditions and the materials wherewith this examination will have to deal, and of the fundamental principles according to which it should proceed. We, the spoilt heirs of a method of time reckoning in terms of the Christian era, which makes it perfectly easy, by a few strokes of the pen, to indicate precisely any number of years preceding or following our own day, have, many of us, given little thought to the millenniums of laborious effort, to the many less successful attempts which preceded the opening of this "royal road." It is not as widely known as it should be, that the custom of dating

King's Year		Egyptian Month	Possible Jewish Months
421		Sept. 2–Oct. 1	Aug. 13–Sept. 10/11
or			Sept. 11/12–Oct. 10/11
420	Payni	Sept. 2–Oct. 1	*Sept. 1–29/30*
or			Aug. 21–Sept. 18/19
419		Sept. 2–Oct. 1	Sept. 19/20–Oct. 18/19

September 1–29/30, 420 is by all odds the most probable and may be set down as sufficiently certain to be used here. In this case, too, it is easy to find the beginning of Kislew, as the third "new moon" thereafter, November 29 (30). The reduction to Kislew 1 is made, wherever feasible, because of greater ease and simplicity in the following exposition. The date of the stela is left in its original form because of some uncertainty at this point still attaching to it. Should anyone wish to he may with little trouble follow out the reckonings about to be undertaken with the original dates throughout. Taking now the series of dates ascertained and the table of new moons in Ginzel to show the number and position of the Jewish months throughout the 60 odd years covered by these dates, it is easy to measure the distance from one to the other both in years and in months. Between Kislew 1=November 22/23, 471 and Kislew 1=December 16, 465, lie 75 lunar months within a space of 6 years. It is evident that 3 of these years must have had 13 months. In exactly which of these years intercalation was made, there is but little evidence. In view of the fact that, as we shall see presently, for four years thereafter no intercalation took place, the extremely late Kislew in 465 makes it highly probable that either an Elul II in this very year (this would save Nisan from falling inordinately late, April 23/24) or, less probably, an Adar II in the previous year had been added. As to the other two intercalations it can only be said that if the growing defectiveness of the year was overlooked between Nisan 1 (March 22/23), 470 and the end of Adar (March 8/9, 469), it could not fail to be noticed in the following year. Similarly 467/6, or in case this was overlooked, certainly 466/5 would demand intercalation. Between Kislew 1=December 16, 465 and Kislew 1=October 22, 460 lie 60 lunations within the space of 5 years, making exactly 5 twelvemonths. Between these two Kislews there is absolutely no intercalation. Reckoning the

Should be Nov. 22

year from Nisan–Adar there are four defective years in succession. As it was highly probable that 465/4 had been a year of intercalation, so it is highly probable that 460/59 could not but receive an added Adar (February 17/18–March 18/19, 459), for it is scarcely possible that Nisan should ever have been so early. The date of the stela, *RES*, No. 438, whether we take it, as is most probable, to be Siwan=May 6/7–June 4/5, 458, or as Siwan=May 17/18–June 16/17, 459, shows conclusively that this intercalation at the end of 460/59 took place, but no other between it and the stela, unless, as is quite improbable, the Siwan of the stela be June 5/6–July 4/5, 458. Upon this basis it is fairly safe to say that 460/59 an Adar II was added; it was a leap year, and 459/58 was not—was a defective year, without intercalation. The next given date is twelve years later, Kislew 1=November 15, 446. Reckoning from the most probable stela-dates, Siwan=May 6/7–June 4/5, 458, the sixth lunation thereafter, October 30/31–November 28/29, is Kislew, 458. Between October 30/31, 458 and November 15, 446, lie 149 lunations for 12 years, necessitating five 13-month years, as to the exact location of which little can be said, except that the apparent defectiveness of 458/7 makes it probable that this year or, if not this, then certainly 457/6 must have received intercalation, whereas the rather normal position of Kislew, etc., in 446 makes it improbable that it was a leap year. The space between Kislew 1=November 15, 446 and Kislew 1=December 9/10, 440, is much like the first, an interval of 6 years, for which 75 lunations demand three intercalations. The position of Ab in 440 makes it practically certain that no intercalation (e.g. by Elul II) could have taken place in 440/39 and that it must have been made in the previous year 441/40. The next date, as computed above, makes Kislew 420 begin November 29/30. For the interval of 20 years between this and the foregoing date 247 lunations demand 7 intercalations; 420/19 does not seem to have been a leap year. Within the next four years, before Kislew 1=December 14, 416, two intercalary months must have been inserted, as the intervening 50 lunations show. The following 5 years, up to Kislew 1=November 19/20, 411, show 61 lunations with but one intercalation. Thus we have, figuring the years from Nisan–Addar:

Probable Embolismic Years	Number of Embolismic Years	Period	Number of Non-embolismic Years	Probable Non-embolismic Years
		Nisan (March 31 or April 1)		*471/0*
	3	471	4	
		|		
		ult. Adar (April 11/12)		
465/4 (Elul II)		464		
		Nisan (April 12/13)		*464/3*
		464		*463/2*
				462/1
	1	|	4	*461/0*
460/59		ult. Adar II (March 18/19)		
		459		
		Nisan (March 19/20)		
		459		
	1	|	1	459/8
458/7		ult. Adar II (March 25/26)		
		457		
		Nisan (March 26/27)		457/6
		457		
	4	|	8	
		ult. Adar (March 13/14)		446/5
		445		
		Nisan (March 14/15)		
		445		
	3	|	3	
441/0		ult. Adar (April 5/6)		*440/39*
		439		
		Nisan (April 6/7)		439/8
		439		
	7	|	13	
		ult. Adar (March 25/6)		420/19
421/0		419		419/8
418/7		Nisan (March 26/27)		417/6
		419		
	2	|	2	
		ult. Adar (April 10/11)		
416/15 (Elul II)		415		
		Nisan (April 11/12)		*415/4*
		415		414/3
413/2	1	|	3	
		ult. Adar (March 27/28)		412/1
		411[5]		
Total	22	60	38	

[5] Since there is no means of deciding whether 411/0 had or had not an Adar II (March 17/18–April 15/16, 410) added to it—though the probability is that it had not—this year is left out of the reckoning.

Of a system or cycle (8-year or 19-year) there is no trace. In fact, the astonishing number of four non-embolismic years in succession (464/3–461/0), practically assured even though one assume for Pap. *SC*, B, the almost impossible date 464/3, makes it almost certain that the Jews in Persian times had no such cycle, any more than did the Jews of Jesus' time (cf. Schürer, *GJV*, 3/4, I, 751 f.). And—if this slight digression be permitted—this rather makes for Weissbach's view, that the Babylonians of this time had no such system or cycle, at least not in general, popular use (cf. *Hilprecht Ann. Vol.* 281–90, where Weissbach finds that an attempt at reform of the calendar in this direction proved abortive in the last third of the sixth century B.C., and that the 19-year cycle was not introduced until 381 B.C.+). It would, of course, not be safe to base such a view solely upon the conclusion from the Jewish to the Babylonian. But now that the tests of Weissbach (l.c.), Ginzel (*op. cit.*, 132 f.), *et al.*, have rather shaken the findings of Mahler (in many well-known writings) and Ed. Meyer (*ZA*, IX, 325 ff.), the failure of the Jews to receive with the calendar they borrowed from the Babylonians after the time of Nabonassar (747–734 A.D.) any 8- or 19-year cycle or system of intercalation is an added bit of evidence, going to show that at this time the Babylonians probably had no such system. Or may the experience of Meton among the wide-awake Greeks of classical times suggest a resolution of the difference between Weissbach and Mahler? The reform of Meton, though made in 432 and recognized in the scientific world of his day, was not adopted for popular use in Athens until much later (342/1; cf. A. Schmidt, *Griech. Chronologie*, 622). The contemporary popular opinion of the improvement is well expressed in the proverbial expression *ἀναβάλλεσθαί τι εἰς τὸν Μέτωνος ἐνιαυτόν* (*Paroemiographi Graeci*, ed. Leutzsch & Schneidewin, I, 433: *App., Cent.* III, 88.). If this was the popular feeling and the resulting course of events in regard to such matters among the Greeks of this time, is not a similar development possible and even highly probable for Babylon?—As to the point at which an intercalary month was inserted within the year, there is no direct evidence. But there is strong evidence in regard to the month and season which the Jews of that time thought of as the beginning of their year. Now this in itself is of little importance, is in fact an almost

purely arbitrary convention, as is shown by the differences on this point not only among ancient, but also among modern peoples. The Babylonians and Assyrians in the period of which we have clearest knowledge began their year at about the vernal equinox; most of the Greeks at the autumnal equinox; the Romans at about the time of the winter solstice; the Egyptians wherever within the seasons their revolving year happened to fall; and in our own day the peoples still using the Julian calendar celebrate their New Year's Day on January 14. And that our winter solstice is not a New Year especially arranged by Providence is clear, when we remember that in that case the New Year of our friends south of the equator would differ by six months from ours, and that the unfortunates living directly upon the equator would have no New Year at all. Moreover, the point at which a people begins its year has no necessary connection with the point at which they make their intercalation. The Babylonians, though for a long time there was no question in their minds as to the year's beginning with Nisan, inserted their additional month sometimes after Elul, sometimes after Adar, and a few times, possibly, even after Nisan. And we are accustomed to make our insertion at the end of our second month, foreshortened to this end by the decree of long-dead Roman Caesars. Nevertheless, the finding of the Jewish year's beginning as the people of that time conceived it is of considerable importance for the conversion of dates in Persian (or other) kings' years to years B.C., which is presently to be undertaken. And not only that, but, in connection with the Jewish feast-calendar, especially the date of the Passover, it will show with some likelihood, even if it do not conclusively determine, the point or points at which the Jews did or might insert their intercalary month.

Now in regard to the point at which fell the Jewish New Year, the Assuan papyri give unmistakable evidence, as Lidzbarski, (*Deutsche Lit.-Ztg.*, 1906, 51/52, coll. 3207 ff.) has seen and well set forth. Papyri J (cf. Lidzb., *loc. cit.*) and K show the Egyptian New Year to be ahead of the Jewish; for when with Thoth of the [9th] and Athyr of the 14th year of Darius II, the new Egyptian year has already begun, the Jews are still counting Kislew of the 8th and Šebaṭ of the 13th year respectively. But for Elul-Pachons,

Xerxes 15, and, for Ab-Pachons, Artaxerxes I, 25, for Elul-Payni, Darius II, 4 (Papyri A, F, H), and for Siwan-Mechir, Artaxerxes I, 7, (*RES* 438) the years are alike, the Jewish year has caught up. The Jewish New Year must have fallen between Šebaṭ and Siwan. The date in B, which equates Thoth and Kislew with no difference in the year, does not invalidate this conclusion. It is an exceptional case anyway, in that it is the only one of our documents to fall within an accession year, and the scribe would not be likely further to encumber an already cumbersome designation for this year by adding to it a different designation for the Egyptian date. In fact the exact point at which the year's beginning fell is indicated by the formula ראש מלוכתא in this papyrus. This formula, which has an important bearing on the chronology of the Persian kings also, is the precise equivalent of the Assyro-Babylonian SAG-NAM-LUGAL-E, reš šarruti. This is the formula, not, as Staerk in his edition of the Papyri, p. 10, says, for the first year of Artaxerxes I, but as the writer of the papyrus distinctly says, for the fag end of the predecessor's (Xerxes I's) twenty-first year, which runs to the next Zagmuku or New Year's festival, the first of Nisan. Our papyri know no other beginning of the Jewish year than that with Nisan. This is the New Year of Babylon and Assyria, and very probably that of Persia also (cf. Prašek, *Hilprecht Ann. Vol.* 14–19), in short of the Persian, as well as of the Assyrian and Babylonian Empire. And this is quite in line with the Old Testament evidence as well. For the overwhelming majority of the passages dealing with these matters throughout the Old Testament, there is no question on this point. The expressions צאת השנה, Exod. 23:16, and "תקופת הש, Exod. 34:22, often cited to prove an older New Year on Tišri 1 are at best highly doubtful quantities. They may on the one hand be balanced by the expression "תשובת הש, II Sam. 11:1; I Kings 20:22, 26; I Chron. 20:1; II Chron. 36:10; and on the other hand it is rather more than probable, as Eerdmans, *Th. Tijds.* 39:454 f., and Lotz, *PRE*^{3}, *s.v.* "Jahr," are virtually agreed, that these are simply inexact, popular expressions, not dealing with the calendaric year at all. A real difficulty, however, lies in Neh. 1:1; cf. 2:2. Here Kislew and *the following* Nisan are both counted as belonging to the same year, Artaxerxes I, year 20. This would

seem to make for Ed. Meyer's assumption, *Forsch.* II, 485, that here Nehemiah dates his years from the actual beginning of Artaxerxes' reign, not from a New Year=first Nisan, or that he here dates, as Herodotus, III:67, is supposed to do, by years according to Persian fashion, beginning with the autumnal equinox, i.e., Tišri. But the Herodotus evidence is doubtful and does not suffice to show such a method among the Persians (cf. Prašek, *loc. cit.*). And for the Nehemiah passages at least three other possibilities than those above mentioned must be reckoned with. It may indeed be (1) that he deals with a Persian year-form, beginning in the autumn, or (2) that he counts by actual years of the king's reign, beginning on or before Kislew. But it may also be (3) that the Jews at this time instituted the later "civil year" beginning Tišri 1, or (4) that a scribe or editor of some later time, when this institution obtained, made the "correction," or (5) that it is simply a scribal error. No. 1 has been dealt with; (2) seems highly improbable in the case of a man who, like Nehemiah, must have been well acquainted with the customs in vogue in Babylon and elsewhere in the Semitic and especially the Aramaic-speaking portions, at least, of the Persian Empire. Of (3) there is not a shred of real evidence elsewhere. This rather leaves (4) and (5) to choose from. And, whatever may be said of Babylonia in the most ancient times, for the Jews, at least, from the earliest times of which we have record down through the Exile and a large portion of the Persian period, all the available evidence seems to point clearly to a year-form beginning with the vernal equinox. The Jewish "civil" year beginning with first Tišri is almost certainly an institution of Greek (Seleucid?) times, later than Alexander.

Saying that we know the Jewish year to have begun with Nisan is not saying that we can fix the absolute date of this beginning for every year with certainty. There will be a limit of uncertainty of a day or two in most cases, and of a month in some. But although this point cannot be established with the same degree of precision as some of the preceding, there is some evidence in this direction also. In the first place the beginning of the year would, as a matter of course, be kept as near the vernal equinox as possible (although this would not be as precisely fixed as in modern times). In the

F

second place there is no good reason why these Jews in Egypt should not have celebrated their Passover on the fourteenth (i.e., the full moon) of Nisan. There is moreover a rule, mentioned by Anatolius (Euseb., *H.E.* VII, 32, 14–19), the Talmud (*Tos. Sanhedrin*, C II), and Josephus (*Ant.* III, 10, 5) whereby the Passover should occur when the sun stands in Aries (*ca.* March 21–April 21, present dating), i.e., practically on the first full moon after the vernal equinox (which fell in the period of the papyri on March 26–28, Julian). This rule has the ring of Babylonian loan material, especially in the mention of the signs of the zodiac. Now, why should not these Jews have appropriated this at approximately the same time at which they were borrowing so much calendaric material from Babylon, i.e., before the period of the Assuan papyri? If so, this would give us a fairly fixed point for the middle of Nisan and therewith, of course, for its beginning also. How does the testimony of the papyri agree with this? Schürer (*Theol. Lit.-Ztg., loc. cit.*), has computed from them, by the simple process of counting back a sufficient number of months, the following Passover dates: April 12, 471; May 6, 465; March 13, 460; April 6, 446; April 30, 440; May 4, 416; April 10, 411—four errors (numbers 2, 3, 5, and 6) out of seven cases, three of them bad ones. But the case does not seem to me necessarily as bad as this. No. 5 is not so bad as to be impossible, the crudeness of the methods of observation in those times being considered. For No. 3, indeed, there appears to be no remedy. But Nos. 2 and 6 may easily be remedied by the simple expedient of assuming the insertion of an Elul II in those years. This makes it seem to me altogether probable that an Elul II, also, to be inserted upon occasion, was among the calendaric material originally received by the Jews from Babylon, although later (possibly through the growing importance of a rabbinically precise Passover date) this feature was dropped. The following fuller elaboration of more or less probable 1 Nisan and Passover dates, on the basis of the material given above, counting not only backward, as did Schürer, but forward also, and computing for the intervening years of the shorter intervals as well, will, I think, make this probability more apparent. A margin of error of a day, forward and back, should, of course, be allowed.

American Journal of Semitic Languages
University of Chicago Press
April, 1911
M. Springling, "Chronological Notes – Jewish Calendar, etc."

	1	2	3	4	B.C.	5	6
	Translation Period		Conj. J.C.T.	Nisan 1	Year	Full Moon J.C.T.	Passover (Nisan 14)
	Hours	Day					
1	− 5.5	− .23	III 30.98	March 31	471	IV 14.52	April 13
2 ✓	3.3	.14	III 20.61	March 21	470	IV 3.61	April 3
3	.96	.04	III 23.71	March 24 (+Elul II)	465	IV 8.24	April 6
4	2.8	.12	IV 11.63	April 12	464	IV 27.11	April 25
5	11.04	.46	IV 1.29	April 2	463	IV 16.32	April 15
6 ✓	− 5.76	− .24	III 21.99	March 22	462	IV 5.34	April 4
7 ✓	5.04	.21	III 10.54	March 11	461	III 24.48	March 24*
8 ✓	22.8	.95	II 27.80	March 1	460	III 13.93	March 15*
9 ✓	5.04	.21	III 18.54	March 19	459	IV 1.93	April 1
10 ✓	− .24	− .01	III 7.76	March 8	458	III 22.63	March 22*
11	10.5	.44	III 25.31	March 26	457	IV 9.64	April 8
12 ✓	2.4	.10	III 14.65	March 15	456	III 30.19	March 27
13	3.8	.16	III 24.59	March 25	446	IV 8.89	April 7
14 ✓	11.04	.46	III 13.29	March 14	445	III 27.94	March 27
15	− 2.16	− .09	III 28.84	March 29	441	IV 12.26	April 11
16	5.52	.23	IV 16.52	April 17	440	V 1.28	April 30*
17	3.6	.15	IV 5.60	April 6	439	IV 20.96	April 19
18	18.7	.78	III 25.97	March 27	438	IV 10.47	April 9
19 ✓	9.12	.38	III 17.37	March 18	421	IV 1.90	March 31
20	11.28	.47	IV 5.28	April 6	420	IV 20.79	April 19
21	− 3.8	− .16	III 25.91	March 26	419	IV 10.00	April 8
22 ✓	3.36	.14	III 15.61	March 16	418	III 30.01	March 29
23	3.36	.14	IV 2.61	April 3	417	IV 16.73	April 16
24	16.3	.68	III 23.07	March 24 (+Elul II)	416	IV 6.01	April 6
25	− 2.64	− .11	IV 10.86	April 11	415	IV 24.93	April 24
26	− 4.08	− .17	III 30.92	March 31	414	IV 14.57	April 13
27	− 5.52	− .23	III 18.98	March 19	413	IV 3.28	April 1
28	− .72	− .03	IV 6.78	April 7	412	IV 22.26	April 20
29	12.2	.51	III 27.24	March 28	411	IV 11.68	April 10
30 ✓	− 3.60	− .15	III 16.90	March 17	410	III 31.82	March 30

Those marked with a "minus" sign make the phasis come before conjunction. All the periods but No. 8 are much too short. Those checked are in the wrong month.

There are, figuring on the basis of the vernal equinox dates above given, only 4 errors in 30 cases (those marked*), and only one of these (460) too bad to be explained on the ground of crude methods alone. So much for the Jewish calendar of these times.

The second subject to be dealt with in this paper is the contribution of the Assuan papyri and related material to the exact determination of the chronological succession of the Achaemenian kings. The only statement to my knowledge in all the prolific literature called forth by these papyri, even so much as touching upon this point, is Lidzbarski's faulty statement mentioned above: "In Aegypten wurde die Zählung nach Xerxes antedatiert (vgl. Ed. Meyer, *Forschungen*, II, S. 487 f.)." The statement is not very clear. From the

context, however, it may be gathered to mean that for the dating of documents, etc., during the reign of Xerxes I the antedating method was employed. Now, in the first place, this is not what Meyer says, least of all in the place quoted, pp. 487 f. He is not speaking there of dating in contemporary documents like the Aramaic papyri at all, but of the dates of Manetho. These, as reconstructed at the top of p. 488, correspond exactly (except for the manifest error December 1 for December 3, 405 as the closing date of Darius II's reign) for Darius I–Darius II to the dates of the Ptolemaic canon as given in the table facing p. 457. And of these chronographers, Babylonian as well as Egyptian, and their lists, Meyer says, pp. 475 and 485, that they postdate for Cyrus and Cambyses, antedate (eliminating Smerdis) for Darius I and Xerxes I, then postdate again for Artaxerxes I and Darius II. For such contemporary documents as he had, Egibi tablets and Murašu tablets, Vol. IX, Artax. I, he assumes postdating for Cyrus, Cambyses, Darius I, and Xerxes I, then antedating for Artaxerxes I and Darius II, of which latter's reign he had no documents at all in hand (pp. 483–85). In the second place, simply to apply Meyer's results, arrived at upon the basis of less good and less full evidence to new, first-hand material is faulty method. The correct method is to test and re-examine the results of Meyer *et al.* at the hand of the newer and better documentary material. Such re-examination is what the following paragraphs propose to undertake.

The manifest slip in these matters of so able a man as Lidzbarski and the palpable uncertainty of Staerk in his datings make it seem the more desirable in writing for a wider circle of readers to preface the presentation of the material itself by a brief restatement of the conditions and the materials wherewith this examination will have to deal, and of the fundamental principles according to which it should proceed. We, the spoilt heirs of a method of time reckoning in terms of the Christian era, which makes it perfectly easy, by a few strokes of the pen, to indicate precisely any number of years preceding or following our own day, have, many of us, given little thought to the millenniums of laborious effort, to the many less successful attempts which preceded the opening of this "royal road." It is not as widely known as it should be, that the custom of dating

The accompanying table of Nisan 1 (4) and Passover (6) dates for 0 years in the 5th century B.C., was constructed by M. Sprengling University of Chicago). He followed a chronological schedule, orked up by Shürer, in which Passover was placed either on or before he full moon. Into this table have been inserted the conjunction nd full moon dates from the Ginzel tables to show how a passover, ither on or before full moon, makes the translation period altogeth- r too short. Note the hours given in column 1. Only No. 8 -- 22.8 ours in the year 460 -- comes anywhere near the facts for the case entioned. And the date in No. 8 is the wrong time for Passover!

In the years marked with a "-" sign, the translation period ends ven before the conjunction date occurs! The checked years indicate hat the Passover is dated a month too early. On such a basis of eckoning Jewish time, it was impossible to discover the true re- ation between the Aramaic and Egyptian dates of the Aramaic papyri.

backward as well as forward from the conventionally accepted year of Christ's birth did not become established until the latter part of the eighteenth century A.D. (cf. Meyer, *GA*², I, 1, 240). The method of dating by means of an era at all is not so old as is commonly supposed, the first such era to come into common use being probably that of the Seleucids, beginning 312/11 B.C. For the Roman "A.U.C." and the Greek Olympiad era are exploded idols of a past generation (cf. Meyer, *op. cit.*, 239 f.), and the oft-mentioned Babylonian era of Nabonassar (beginning 747 B.C.), though used after a fashion by astronomers, as the Ptolemaic canon shows, was never put into practical everyday use. The need of fixing, of naming, of determining a greater or less number of years, past or future, with relation to each other and to the present, made itself felt, of course, from the most ancient times, wherever records or chronicles were kept, when treaties were concluded, when contracts were made, when history began to be written, etc., etc. But how difficult so progressive a people as the Greeks found it to fix any one date in the constant flow of time even as late as the sixth century B.C. is well illustrated by the treaty between Elis and Heraea, which was dated συμμαχια κ' εα εκατον ϝετεα, αρχοι δε κατοι, "for 100 years, to begin in the present year" (cf. *CIG* 11; Meyer, *Forschungen*, II, 440, 4; *GA*², I, 1, 238), about as effective a scheme as that used by the good burghers of Schildburg, when they cut a notch in their boat's rail to fix the location of their church bell, sunk in the lake to prevent capture by the enemy. Better schemes, however, had been invented earlier than this. The first method, to our knowledge, upon which men hit to meet this need, was to name some year after any event out of the ordinary occurring in it, and to count by this year until the intervention of the next event of this kind (e.g., years of earthquakes, of eclipses of sun or moon, of the διάβασις of Xerxes, of the battle of Marathon, etc., etc., just as we sometimes date by the Chicago fire or the Johnstown flood, etc.); indeed, the Babylonians of Hammurabi's time named each year after its most prominent event (cf. King, *Letters and Inscr. of Hammurabi*, III, lvi ff.; *Studies in Eastern History*, II, ch. vii). When this method eventually proved its inefficacy the next expedient to be tried was, to name each year or a number of years together after some person of prominence whose

name might naturally suggest itself or be artificially connected with it. Thus in Assyria years were named after persons especially designated as the eponymoi of each year, in Greece after archons, ephoroi, strategoi, etc., in Rome after consuls. In countries under monarchical government, the name of the sovereign would easily connect itself with the years of his reign. One or both of these methods then remained in use until the adoption of the era-method, the beginnings of which are sketched above. It is the latter of the two methods which prevails in the Aramaic business documents from Elephantine and in the cuneiform business documents, related to them, of Persian times from Babylon and its neighborhood (chiefly the Egibi and Murašu contract tablets).

The chief difficulty about this method lies in the fact that kings are not in the habit of dying either on precisely the same date as their predecessors or exactly at the end of the year as their merchant, artisan, and peasant subjects are wont to reckon the year as ending. This makes it highly impracticable to date either a chronological canon (like the Ptolemaic) or business or official government documents by actual years of a king's reign. Thus in the case of a contract to run for several years made in the last year of Artaxerxes I, the unfortunate parties would have to reckon with a new year's beginning at the accession of Xerxes II, which probably did not correspond precisely to that of his father, then after 1½–2 months another new year-form would be introduced by Sogdianus, and after 5–6 months still another by Darius II. It is worthy of note that among modern nations England still clings in its official documents to this cumbersome relic of remote antiquity. Most progressive ancient nations soon found means to rid themselves of this encumbrance by one of two ways. Some *antedated*, i.e., counted the year in the course of which a king came to the throne as his first year, as his in full from the beginning of the civil year, ignoring the fraction which might fall to his predecessor. This method prevailed in Egypt under the Twenty-sixth Dynasty (663–525), the dynasty preceding Persian rule. Others *postdated*, i.e., gave the year in the course of which a king died to him in full, practically ignoring the remaining fraction which fell to the successor, and dating the first of the successor's reign from the following New Year's Day. This was the method prevail-

ing in Babylon from very early times, in connection with the now well-known custom whereby one could become rightful King of Babylon only by entering the temple of Bel (Marduk) on Nisan first (Zagmuku, New Year's Day), and seizing the hands of the god's statue.

Now obviously the first thing to do in determining the dates of documents like the Assuan papyri or the Murašu tablets and in using them to determine the dates of a king or a series of kings, is to ascertain which one of the above methods is used in the dating. Then a fixed point or several fixed points (preferably, if possible, such as are astronomically fixed; in default of this, such as are fixed, e.g., by parallelism with other well-known dates) must be looked for. And finally, for a whole series of kings or for a long stretch of years, it is important to ascertain what lacunae, if any, are present. Eponym lists or lists of monarch's reigns are of value precisely in proportion to their completeness.

In regard to the first point there can be no manner of doubt in regard to the Egibi tablets (Cyrus–Xerxes); cf. Meyer, *Forschungen*, II, 462–79, 483–85. They postdate throughout. There is just as little reason for doubt in regard to the method pursued by the Aramaic papyri (Xerxes–Darius II) and the Murašu tablets (Artaxerxes I and Darius II). Lidzbarski's statement notwithstanding, *they postdate throughout*. True, Meyer, having only the Murašu tablets for Artaxerxes I (cf. *loc. cit.*, 466), assumed on the basis of a slightly misunderstood statement of Hilprecht's (cf. p. 483) and in accordance with the general scheme as by him reconstructed, that this was not the case. But now we have documents which show beyond question that Meyer was mistaken in this assumption. We have in Papyrus B (cf. above) the formula for the accession year of Artaxerxes I (equated with Xerxes' 21st year), which Meyer supposed did not exist. And we have in Clay's edition of the Murašu tablets for Darius II's reign (*The Babylonian Exped. of the Univ. of Penn.*, Series A, X, 1904) *six* tablets from the accession year of Darius II (the regular formula SAG-NAM-LUGAL-E, equated in No. 5 with Artaxerxes' 41st year), which Meyer likewise supposed did not exist. The assured dates (from Papyri E, F, H, J, and K) in the reigns of Artaxerxes I and Darius II found above show precisely the same

thing. This makes it practically certain that the somewhat less assured dates follow the same scheme. It is this scheme which makes the dates Thoth 17=Kislew 18=January 2, 465 for Papyrus B, the fifth year of Artaxerxes instead of the scribe's sixth in D (and C), and Mechir=Siwan=May 15–June 4/5, 458 for the stela, *RES*, No. 438, almost as certain as the other dates. Moreover we know that Cambyses' years were reckoned in Egypt in contemporary documents precisely as they were reckoned in Babylon, i.e., by the postdating system (cf. Wiedemann, *Gesch. Aegyptens*, 219). Now why, in the face of all this evidence, one should assume that the two Xerxes dates alone in Papyri *SC*, A and B follow a different method from their cuneiform brethren (many of which themselves have Aramaic dockets), unless it be under the influence of a preconceived set of dates, is really quite unintelligible. Such juggling with dates as Meyer assumes the Babylonian chronographers and the Ptolemaic canon to have done in the case of Darius I and Xerxes is not inconceivable in the case of chronographers or of the compilers of purely artificial chronological lists; but that such things were done in contemporary documents representing the transactions of everyday life may not be assumed except for the very gravest reasons, and Meyer himself is far from assuming this to be the case (*Forsch.* II, 484). The simple fact of the matter, of course, is that all the known contemporary documents with which we have to deal, those in Meyer's list (*Forsch.* II, 464–66) and those which have since been added in the Aramaic papyri and in the Murašu tablets of Darius II's reign (Clay, *op. cit.*) as well, follow the postdating method, and our determination of dates from this material must follow, not precede, this finding.

For such determination of dates it is necessary, first of all, to find, if possible, one or more fixed points in the series of kings' reigns furnished by the documents in question. One of the best of these is the eclipse of the moon, for which the Almagest and the cuneiform tablet, Strassmayer, *Cambyses*, No. 400, offer us the date Tammuz 14=Phamenoth 17/18 of Cambyses' 7th year=July 16, 523 (cf. Meyer, *Forsch.* II, 455). Nearly, if not quite, as certainly established is the very beginning of the period with which this inquiry deals, the Achaemenid-Persian rule over Babylon; Cyrus captures Babylon Tišri

16 (*ca.* October 10), enters in triumph Marcheŝwan 3 (*ca.* October 27), 539. The remainder of 539, therefore, is his accession year; his first year begins Nisan 1, 538. At the other end of the series, as furnished by the documents under consideration, we have the dates of the Aramaic papyri, to which the equation of the conventionalized Egyptian dates with the astronomically determined Jewish dates gives an element of astronomical certainty and fixity. From these we derive the following: Xerxes, 15th year=December 19, 472–December 18, 471, Egyptian; Nisan 1, 471–Adar 29/30, 470 Jewish-Babylonian; Xerxes, 21st year=Artaxerxes I, accession year=Nisan 1, 465–ult. Adar, 464; Artaxerxes I, 5th year=461/60 Egyptian, 460/59 Jewish-Babylonian; *idem* 7th year=459/58, Egyptian, 458/7, Jew.-Bab., *idem*, 19th year=447/6, Egyptian, 446/5 Jew.-Bab.; *idem*, 25th year=441/0, Egyptian, 440/39 Jew.-Bab.; Darius II, 4th year=421/20 Egyptian, 420/19 Jew.-Bab.; *idem*, 8th year=417/6, Egyptian, 416/5 Jew.-Bab.; *idem*, 9th year = 416/5 Egyptian, 415/4, Jew.-Bab.; *idem*, 13th year=412/1 Egyptian, 411/0 Jew.-Bab.; *idem*, 14th year, 411/10 Egyptian, 410/09 Jew.-Bab. The difference between the Egyptian and the Jewish-Babylonian dating as here exhibited is caused, of course, by the difference in year-forms above developed. This will serve to explain the similar difference between the dates of the Ptolemaic canon and those of the documents, as exhibited in parallel columns below.

To make these fixed points of use for the intervening space or spaces, it is further necessary to establish the continuity of the years given between these points, or their lack of continuity, finding as nearly as possible the points at which the breaks occur. In the case of documents dated by monarchic reigns, like those under consideration, it is not necessary in order to establish continuity to have a document or date for each year, as it would be in the case of an annually changing eponymate. All that is really needed is the first year of a king's reign and his last, correctly enumerated and equated with the successor's accession year. This looks like a simple enough process. And so, in fact, in most instances it is. Before proceeding, however, to the development of this phase of the evidence, it becomes necessary once more to take issue with Ed. Meyer upon a point of method in procedure, where it would seem the master had

nodded. He constantly speaks and reckons (*Forsch., loc. cit.*, esp. p. 473 for Cyrus and Cambyses, and 483 for Artaxerxes I) as though the proper way to establish the actual end of a king's reign were to find the last document dated under him. That this is not the case, we have now proof positive in documents, some of which Ed. Meyer did not have. These are the documents from Artaxerxes I's 41st year=Darius II's accession year. They show that the year 41 meant is not, as Meyer had assumed, by the antedating process the year 425/4, the year previous to Darius' accession, but Darius' accession year itself, which can be no other than 424/3. Now we know that actually, between the death of Artaxerxes and the accession of Darius, some 8–9 months intervened (Xerxes II and Sogdianus, cf. the histories, e.g., Meyer, *Forsch.* V, 482 f.). Yet there can now be no question that people continued throughout these 8 or 9 months after his death to date by Artaxerxes. And not only that, but even after people had recognized Darius' accession and begun to date by him—the first such dates being one on Šebaṭ 4 and two on Šebaṭ 15—another tablet slips in on Šebaṭ 17 which dates by Artaxerxes alone (cf. Clay, *op. cit.*, 2). This shows that the thing of prime importance in finding from documents using the postdating method the boundaries between kings, is not the last date of the predecessor, but the first date of the successor; that we cannot say: The last document dated by this king bears this date, therefore he must have reigned until this date or very nearly so, but what we can say, is: This is the first date by this king, therefore his accession cannot be later than this; that we must expect the datings by the predecessor to overlap into the successor's reign, while the reverse, in the case of regular succession after the demise of the predecessor, cannot be true (the case of an insurrection and of divided allegiance is only a seeming exception). Analogous to this is the way in which not a few people will slip 1909 dates into the first days of 1910, but very few indeed will date 1910 in the last days of 1909. In other words we must always reckon with the possibility, in fact, we must rather frequently expect to find, that after the accession of a new king, some people, because they had not heard or did not believe the news of the old king's demise or of the new one's accession, or because they feared the new one was a

pretender, or simply because they made a mistake, would still continue to date by the old king, of whom they were sure, and to whom they had grown accustomed.

Proceeding now with our investigation, we find quite what was to be expected, with the wealth of material on hand, namely, not only are there no lacunae, but there is an actual surplus for the intervening space between the fixed points above indicated. Between the accession year of Cyrus, 539/8, and the 7th year of Cambyses, 523/2, lie 15 years. Six of these must be given to Cambyses, making his first year 529/8. Cambyses' accession must have taken place in 530/29. This leaves 9 years for Cyrus. And 9 years is what the bulk of the tablets dated after him give to Cyrus. The continuous series of Cyrus tablets run to Tammuz 7th of his 9th year. The first accession year tablet of Cambyses in our possession is dated Ab 12. Between these two dates in the year 530 the accession of Cambyses would seem to have taken place. But there is a small number of further dates which point to disturbed and unusual conditions in connection with this accession. The Cambyses tablets Nos. 35, 42, 46, 81 are dated in the first year of Cambyses, king of Babylon, but connect the name of Cyrus with that of Cambyses, two of them by means of the formula, "while Cyrus his father was king of the lands." Further, there is certainly one (Strassmayer, *Leyd. Cong.* No. 17, dated Adar 12) and possibly another (the celebrated Cambyses No. 97; cf. Meyer, 472, note 1; but see also Prašek, *Forschungen*, I, 25) dated in the 10th year of Cyrus. This evidence, especially in view of the fact that Cyrus probably did meet his death on a distant and dangerous expedition into the Northeast (so much, at least, of Herodotus' story, I: 211–14, may very well be true) does seem to be best interpreted by Meyer and the older men as pointing to a somewhat unusual procedure on the part of Cyrus, namely that on the eve of his departure he appointed Cambyses as viceroy and as successor in case of his own death. Whether the tablet Cyrus No. 16, which seems to be dated in the first year of Cyrus, king of the lands, "while Cambyses was King of Babylon," is simply a clumsy, bungling attempt of the scribe to designate the same state of affairs as the others, or whether it actually refers to another similar act on the part of Cyrus in his first year, 538/7, is not easy to decide. Its isolation makes the first

explanation rather more probable, yet the Nabonidus Chronicle (Col. IV, ll. 24–28) makes it highly probable that at the Zagmuku festival, 538, Cambyses acted as Cyrus' representative in Babylon. But the further deduction of Meyer, that on account of the date on the tablet, Strassmayer, *Leyd. Cong.* No. 17, Cyrus cannot have met his death before Adar 12, 528, is certainly wrong, as has been shown above. Be it that his army was as signally defeated as Herodotus says, and that only a straggling remnant with uncertain news reached home, or be it that the bulk of the army remained in the field in spite of Cyrus' death, or whatever way one will, if Cyrus actually died in a far and unknown land, it is not at all surprising that the news of his death should be slow to be disseminated and accredited at home in Babylon. All that can be said on the basis of the evidence now in hand is that Cyrus' death probably occurred somewhere between Tammuz 27, 530 and Adar 12, 528.

The next interval, that between the 7th year of Cambyses, 523/2, and the 15th year of Xerxes, 471/0, is not so easily filled in. This is an interval of 51 years. To cover it we have tablets dated in the 8th year of Cambyses, tablets of the accession year and the first year of Smerdis (Barzia-Gaumata), tablets which probably reckon by the accession year and the first year of Nebuchadrezzar III, Nidintubel, tablets of Darius I, accession-year 36, and Xerxes' accession-year 5, probably 9. It is, of course, purely accidental that no tablets from the following years are extant. A new find any day may bring such dates to light, as the Aramaic finds in Egypt have given us Xerxes' 15th and 21st years. But, tablets or no tablets, we must unquestionably count 14 Xerxes years between his accession and his 15th year. Now it is perfectly obvious that some of these dates must be synchronous, for, if they followed each other in regular succession, as the dates of predecessor and successor, the accession year of the successor being always simply equated with the last year of the predecessor, this would give us a total of 53 years. It is quite clear, furthermore, which are the disturbing elements—the pretenders Smerdis and Nidintubel.[6] That the latter's accession and first year are synchronous with the same dates for

[6] The other pretenders of the Behistun inscription, etc., are passed over as irrelevant in this connection. It is doubtful whether any contract tablets at all were dated after them, while the data of the Behistun inscription leave no room for doubt that they fall within Darius' reign.

Darius I, the Behistun inscription places beyond doubt. There remains only the problem of Smerdis. On the exact position of his reign the data of the Behistun inscription are not so clear. One thing, however, they do establish with perfect clearness, and that is that Darius' accession cannot precede, but must succeed immediately, the death of Smerdis. Darius' accession year = Smerdis' last, i.e., his first year. Which is Darius' accession year? The serene flow of the years of Darius I, once he had established his rule, and of Xerxes I (in whose reign the little revolution of Šamaširba scarcely created a ripple; cf. Meyer, *Forsch.* V, 476 f.) leaves no doubt as to this. Counting back, simply, from 471/0 as the 15th year of Xerxes, 14 years for Xerxes and 36 years for Darius, we arrive at 522/1 as the accession year of Darius. But 522/1 is plainly also Cambyses' 8th year. Smerdis' first year is synchronous with Cambyses' 8th year; his accession year, from the Iyyar of which we have one tablet, is Cambyses' 7th year, 523/2. In the early months of 523, the Adar preceding Nisan 1, the revolt was begun; after Nisan 1 Smerdis announced his accession. This tallies well, as Prašek has seen, with the data of the Behistun inscription and with the course of history. Adar 523, precisely when Cambyses was farthest away, on the disastrous march to Ethiopia, was a most auspicious time for Smerdis to inaugurate his revolt. During the year 523/2 the effects of the disaster in the far south and the unrest in Egypt would keep Cambyses occupied. During the year 522/1 (probably in Ab = July-August) Cambyses died on his way to suppress the revolt. Thus the evidence of the Aramaic papyri confirms the results of Prašek's brilliant investigation (Prašek, *Forschungen*, I, 18–30). Against this contemporary evidence the secondary statements of Herodotus (best explained by Prašek, *loc. cit.*) cannot stand. And Meyer's deductions, *Forschungen*, II, 472 f., cannot stand. The two lone tablets of the 8th and 11th months of Cambyses' 8th year do not prove that he lived until then. The course of events, as above set forth, makes that quite impossible. That careful or timid souls in this year of pretenders and revolutions and murders should have found it wisest and safest to date by the old king until the situation and the news cleared somewhat, is not at all surprising. And not only in the matter of Cambyses' death is Meyer at fault, but because

he did not recognize the true state of affairs in regard to Smerdis' revolution, his dates for Smerdis, for Darius throughout, and those for Xerxes' accession are all one full year too late. Hence his troubles with the Ptolemaic canon and the documents, as above outlined. These troubles vanish completely, as does the supposed difference between the dates of the canon and the documents, with the interpretation of the evidence just given, the correctness of which appears most clearly in the new light shed upon it by the Egypto-Aramaic papyri. For the rest, throughout the remainder of Xerxes' and Artaxerxes I's reign, all is fairly plain sailing, until we come to the date of Artaxerxes' death. Here the concise brevity of Thucydides (IV: 50) in connection with a mistaken conception of the dates furnished by the documents (the assumption of antedating places all the dates one full year too early) seems again to have betrayed Meyer into error. Meyer assumes as certain that Artaxerxes died December, 425, or January, 424. Now, however, we know that the 41st year of the documents is not, as Meyer thought, 425/4, but 424/3. It would appear strange in itself, if Artaxerxes had actually died some two months before the beginning of the year 424/3, that people should have gone on dating by him almost throughout this entire year (the dates run continuously to Šebat 17), completely ignoring his son Xerxes II, who would in this case have had both an accession year and a first year. But in addition to this such historical data as we have for this period make it fairly certain that Meyer's date is some months too early. Diodorus, whose information at this point is rather full, has a note (XII: 71) giving as the length of Xerxes II's reign 2 months and that of Sogdianus 7 months. Now the first accession tablet of Darius II is dated Šebaṭ 4. This makes it certain that Darius' accession cannot have taken place later than this. And the fact that we actually have a tablet dated after Artaxerxes alone on Šebaṭ 3 makes it rather probable that Darius' accession was not much earlier, say at the beginning of Šebaṭ (cf. Clay, *loc. cit.*). Allowing, between this and the death of Artaxerxes, for the 9 months of Diodorus gives the end of Nisan, March/April, 424, as the most probable date for the old king's demise. This makes intelligible the attitude of the documents in completely ignoring the brief

reign of Xerxes II and that of the unpopular Sogdianus, who was probably never recognized in Babylon and vicinity. And in the light of this evidence, it is doing no violence to Thucydides' statement to stretch his *ὕστερον* and his *κατὰ τοῦτον τὸν χρόνον* over a somewhat longer period of time than Meyer allows. For the reign of Darius II, there is only one further passage in Thucydides (VIII:58) which causes a little trouble. He gives there the text of a treaty concluded in c. February, or possibly March, 411, between Tissaphernes and the Lacedaemonians and dated in the 13th year of Darius. Five explanations are possible: (1) Tissaphernes, in his dealings with the Greeks, may have adopted the Greek year-form, counting the year as beginning September-October, instead of in the following March-April. (2) Little time need be allowed to make the time of the conclusion of the treaty fall very near the actual beginning of Darius' 13th year in March-April. (3) The treaty may have been concluded with the understanding that it was to go into effect only with the beginning of Darius' 13th year. (4) The wily Tissaphernes may have allowed the Greeks to think of the year as beginning the previous October, while for him it would not begin until 6 months later; or (5) finally, the most probable explanation may be that promulgation or publication was delayed until after the beginning of Darius' 13th year. At any rate this statement, after all secondary, cannot overthrow the first-hand information of the cuneiform and Aramaic documents. These, it is true, carry us in the Murašu tablets only through the 13th, in the Aramaic business documents likewise through the 13th, in the Berlin papyri through the 17th year of this king. But as to the position of these years their testimony is clear. And that Darius II actually lived to see his 19th year, 405/4, the statement of Diodorus (XIII:108) and of the Ptolemaic canon leaves no room to doubt. Nor need any other, at best but secondary, information of Manetho or Christian chronographers or Greek historians, as at present known, be considered.

Below is given, first a conspectus in parallel columns of (*a*) a king's canon derived from the documents; (*b*) the Ptolemaic canon; (*c*) an 18-year list from Parthian times (cf. Meyer, *Forsch.* II, 856; Strassmayer, *ZA*, VII:199 and VIII:16) and then a list of actual dates, established as probable or certain by the above examination.

a	*b*	*c*
Cyrus (alone), 9 years, Nisan 1, 538–ult. Adar, 529	Cyrus, 9 years, January 5, 538–January 2, 529	[8] Cyrus 18=531/0
Cambyses, 8 years, Nisan 1, 529–ult. Adar, 521 [? Cyrus 10=Cambyses 1, Nisan 1, 529–ult. Adar, 528] [Smerdis, 1 year=Cambyses 8, Nisan 1, 522–ult. Adar, 521]	Cambyses, 8 years, January 3, 529–December 31, 522	
Darius I, 36 years, Nisan 1, 521–ult. Adar, 485 [Nidintubel, 1 year=Darius I, 1, Nisan 1, 521–ult. Adar, 521]	Darius I, 36 years, January 1, 521–December 22, 486	9 Darius 18=513/2 27 Darius 18=495/4
Xerxes, 21 years, Nisan 1, 485–ult. Adar, 464	Xerxes, 21 years, December 23, 486–December 16, 465	9 Xerxes 18=477/6
Artaxerxes I, 41 years, Nisan 1, 464–ult. Adar, 423	Artaxerxes I, 41 years, December 17, 465–December 6, 424	6 Artaxerxes 18=459/8 24 Artaxerxes 18=441/0
Darius II, 19 years, Nisan 1, 423–ult. Adar, 404	Darius II, 19 years, December 7, 424–December 1, 405	[1 Darius 18]=423/2 19 Darius 18=405/4

LIST OF ACTUAL DATES

539 October, Cyrus captures Babylon.
530 July/August, Cambyses appointed king.
529 (probably) Cyrus dies in the far northeast.
525 Cambyses conquers Egypt.
523 March, Smerdis revolts; Cambyses on the campaign against Ethiopia.
March/April, Smerdis assumes title and throne.
522 July/August, Cambyses dies.
October, Smerdis killed; Darius assumes the crown; Nidintubel, pretender in Babylon.
486 Darius dies. Xerxes king.
(The change of rulers probably took place late in 486.)
465 Summer, Xerxes killed; Artaxerxes king.
424 March/April, Artaxerxes dies. Xerxes II.
May/June, Xerxes II dies. Sogdianus.
423 January, Sogdianus killed. Darius II.
404 Winter or early spring, Darius II dies.

BENHADAD AND HADADEZER

BY D. D. LUCKENBILL
The University of Chicago

Ever since the decipherment of the inscriptions of Shalmaneser II of Assyria (860–25 B.C.), in which he mentions his defeat at Ḳarḳar of the Syrian allies headed by Adad (^{ilu}IM)-'idri (=Hadadezer) of Damascus, with Ahab of Israel and other kings as vassals, attempts have been made to harmonize the supposed differences between the Assyrian and Old Testament records. It was at once noticed that the name of the king of Syria, contemporary with Ahab of Israel, was Benhadad in the Hebrew narrative (I Kings, chaps. 20 and 22), but Adad-'idri in the cuneiform. It was assumed that the same person must be referred to in both accounts, and consequently attempts were made to show that the names were really the same. As we shall see below, the reason for assuming the identity of the two names was based upon the assumption that chaps. 20 and 22 of I Kings relate events all of which must have fallen within the last five years of Ahab's reign. In our discussion of the problems involved, it may be well to consider (1) the question of names and (2) the historical problem.

I. BENHADAD-HADADEZER

It is a well-known fact that in the Old Testament account of Ahab's Syrian wars, I Kings, chaps. 20 f., the name of the king of Syria is given as Benhadad, while in Shalmaneser's account of his campaigns in Syria the name of the king of Damascus with whom Ahab of Israel and a number of other Syrian princes had formed a defensive alliance against the common enemy Assyria, is given as ^{ilu}IM-'idri. This name has been read differently as Bir-'idri, Dadda-'idri or Adad-'idri. As we shall see from the following discussion, these different readings are the results of attempts to explain why the Hebrew form of the name is different from that of the cuneiform inscriptions. Since Dadda-'idri and Adad-'idri are really the same (see below), we may divide this section of our discussion into three parts, dealing with the readings Bir-'idri and Adad-'idri, and finally with the name Benhadad.

1. Bir-'idri.—It should be stated at the outset that the only reason why this reading was ever proposed was because scholars have been unanimous in holding that Benhadad (II) of I Kings, chaps. 20 f., and ^{ilu}IM-'idri of Shalmaneser's inscriptions are one and the same person. The reading was an attempt to harmonize the two accounts. The reading Bir for the ideogram ^{ilu}IM was proposed by Delitzsch, *Zeitschrift für Keilschriftforschung*, II, 161 f., and the name read Bir-'idri, "Bir (d. i. der Luft- und Himmelsgott) ist mein Schmuck, meine Zier." This reading was then declared to be the same as the Hebrew form Benhadad, which should be read Bin- or Bir-hader (ḫidri) in view of the Septuagint which reads υἱὸς Ἀδερ, that is, בן־הדר instead of בן־הדד. Delitzsch has since tacitly abandoned this reading.[1] Winckler, *Die Keilinschriften und das Alte Testament*, 3d ed., 133, and elsewhere, still holds to this solution of the problem. Zimmern, in his part of the last-named volume, p. 446, discussed the readings Bir, Bur, Mir, and Mur as names of the weather-god IM = Adad (Hadad), and concluded that there was little evidence for these readings. However, in the *Hilprecht Anniversary Volume*, 299 f., he again takes up the discussion and concludes that the evidence now seems to him to point the other way, and that there probably *was* an Aramaic god בר whose name was given in cuneiform as ^{ilu}IM. With such uncertainty on the part of the Assyriologists, it is not surprising that Old Testament scholars are in doubt as to which side to take. So, for example, Kittel, in the second edition (1909) of his *Geschichte des Volkes Israel*, II, 355 f., wavers between Dadda-idri, Dadda (Bir)-idri, Benhadad Bir-idri and Benhadad-Hadadezer.

Is Bir (בר) a possible reading of the ideogram ^{ilu}IM? That is, was there a west-Semitic, Aramaic god Bir whose name the Assyrian scribes rendered in cuneiform by the ideogram ^{ilu}IM? As has already been stated, Delitzsch merely assumed the reading Bir as possible in view of the names we are discussing. Likewise Winckler was unable to bring any positive evidence for this reading.[2] Zimmern now holds that such a reading is possible in view of the names Bar-Ṣur (ברצר) and Bar-Rekub (ברכב) of the Senjirli inscriptions. Nathaniel Schmidt, *Journal of Biblical Literature*, XXIX, 63 f., sees in the name (Kadesh)-Barnea (ברנע) evidence of a god Bar or Bir (בר), as well as in ברלע, ברשע (Gen. 14:2)[3] and certain proper names occurring in the Amarna letters: Biiri, Buribita, Biridiya, Biridašia, Biriawaza and Burṣelem. Let us examine these names.

As stated, the names Bar-Ṣur and Bar-Rekub are found in the Senjirli inscriptions (cf. Cooke, *North Semitic Inscriptions*, 171 f.): "This statue Bar-Rekub placed to his father Panammu, son of Bar-Ṣur," etc., p. 173; "I am Bar-Rekub, son of Panammu," etc., p. 181. Cooke, p. 165, translates the name Bar-Rekub as "son of Rekub-(el)." The name of a deity Rekub-el[4] occurs in these same inscriptions, and Cooke's suggestion that Rekub in Bar-Rekub is a shortened form of Rekub-el is certainly most probable.[5] So the name Bar-Ṣur means "son of Ṣur." The god Ṣur is vouched for by the biblical proper name פדהצור, Num. 1:10, and the place name ביתצור, Josh. 15:58.[6] In *KAT*^{3}, 477, Zimmern uses the name Bar-Ṣur (ברצר) to prove the existence of a god Ṣur, "rock," while in the *HAV*, 302, he uses the same name to prove the possibility of the existence of an Aramaic god Bar (בר). The name can hardly be used to prove both, and, since the god Ṣur is sufficiently well attested, we may safely put aside the two names ברצר and ברכב as furnishing no evidence for the existence of a god Bar (בר). As we shall see below, the element בר = son is common in proper names.

The names cited by Schmidt are, it seems to the writer, still less to the point. Taking the names he has gathered from the

[1] *Beiträge zur Assyriologie*, II, 624.

[2] Both Delitzsch's and Winckler's arguments were based chiefly upon the name Bur-Rammân. But we now know that the element Bur means "offspring," see below, p. 274. (Winckler's discussion is found in his *Alttestamentliche Untersuchungen*, 69 f.) If this element were the name of a deity the determinative ^{ilu} would stand before it as it stands before Rammân.

[3] Schmidt thinks ברלע, and not ברע, was the original name of the king of Sodom; cf. certain LXX readings Βαλλα and Βαρλα.

[4] The vocalization of this name is of course doubtful. Other readings Rakkab-el, Rekab-el, have been proposed. The name means chariot or steed, or perhaps charioteer, of El.

[5] Note that in this same inscription (p. 161) we have first the names of the deities "Hadad and El and *Reshef* and Rekub-el and Shamash," l. 2, but "Hadad and El and Rekub-el and Shamash and *Arqu-reshef*," l. 11. If we follow Meyer, *Die Israeliten*, 282 f., in making Jacob a shortened form of Jacob-el (cf. Jephthah with Jephthah-el, Josh. 19:14), and regard Jacob as having been at one time a deity, we have parallels in this and similar Old Testament names.

[6] Cooke, *op. cit.*, 175.

Amarna letters first: (1) Bi-e-ri. This name should perhaps rather be compared with Hebrew בְּאֵרִי, father of Hosea. At any rate, the name contains a long vowel between the ב and the ר, which is nowhere indicated in the names which have so far been brought forward as possibly containing the element בר. (2) The name Buribita, which is next cited, is to be read Abribta.[7] As for the names Biridya, Biridašwa, Biriamaza, it is doubtful whether any are even Semitic.[8] The same may be said of the place name Bu-ru-zi-lim which has been transformed by Winckler into Buru-ṣilim and used as evidence of the existence of a god Ṣelem (see *KAT*³, 477).[9] None of these names can be used as evidence of a god בר. The same may be said of the names (Kadesh)-Barnea, ברנע, Birsha[10] (ברשע, LXX, Βαρσα), king of Gomorrah, Gen. 14:2, and ברלע, king of Sodom.[11] Schmidt's suggested etymologies might be possible if the existence of a god בר had been demonstrated, but this is far from being the case.

[7] Schmidt follows Winckler's readings, but these must now be corrected in many cases by the readings furnished by Knudtzon's edition of the Amarna letters.

[8] It has long been observed that many of the proper names of the Amarna letters are non-Semitic. Some are Indo-Germanic, others Hittite or Mitannian. Cf. the writer's article "Some Hittite and Mitannian Personal Names," *AJSL*, January, 1910, 96 f. So names like Artatama are clearly Iranian; cf. the Persian names Ἀρτάβανος, Ἀρταγέρσες, Ἀρτακάμας, Ἀρταξέρξης. Others seem to be neither Semitic, Hittite-Mitannian nor Indo-European, but seem to be analogous to the "pre-Greek," Karian, Lydian, Phrygian, etc., names of Greece and western Asia Minor, collected and arranged in Kretschmer's *Einleitung in die Geschichte der griechischen Sprache*. If, as the writer believes, the endings -wa and -ma in these names are the same, then a name like Biridašwa is to be compared with such names as Barḫuiluwa, Etagama (*AJSL*, January, 1910, 97 f.), and with the names with *m*-suffix in Kretschmer, *op. cit.*, 322 f. The name Biriamaza is clearly similar in form to Akizzi, Sizzi, Sissi, Papassi, Kirbassi, Mattiuaza, Namiawazi (*AJSL*, *ibid.*, 96 f.), all of which are to be compared with the names with *s*-suffixes in Kretschmer, *op. cit.*, 311 f. In the article quoted the writer followed E. Meyer in regarding Mattiuaza as probably Aryan (Iranian), p. 101, but further study has convinced him that it would be better to regard many of these names merely as "pre-Greek," without specifying whether they are Iranian or Hittite. This change of attitude on the part of the writer was occasioned in particular by the resemblance of the ending -waza to the ending of such names as Μεριμανάσα, Ἐρινάσας, Kretschmer, p. 315; Βδενάσις, Ἐπιονάσις, Κιδαμονάσις, Οὐασις, Τερβέμασις, etc., *ibid.*, 316, 317; Ἀκτανάσσις, Ἀρνάσσις, Πανάσσις, *ibid.*, 321, 322. For the ending -ya of Biridya, cf. my article, under "Akiya."

[9] That Buruzilim is to be read Buru-ṣilim (ṣelem) is not altogether improbable. However, the *m* on the end of this word may be *mimmation*, not a radical. If it were a radical we should expect a reading like Buruzilimi; cf., however, the Amarna writing of Jerusalem, Urusalim.

[10] It has been suggested that these names are late insertions in the text; cf. Skinner, *Genesis*, 259.

[11] Since ברלע is only a hypothetical reading (see note 3), there are only two names which need be considered. The writer has no suggestion as to the etymology of ברנע or ברשע. Meyer, *Israeliten*, 80, n. 1, suggests that Barnea' "ist wohl der profane Name des Orts," as distinguished from the name Kadesh = "the sanctuary."

There is another line of evidence, which, while negative, still seems to the writer to weigh against the probability that the ideogram ^{ilu}IM stood for a west-Semitic deity בר. In Vols. XXIV and XXV of the *Cuneiform Texts in the British Museum*, Mr. King has published extensive lists of Babylonian-Assyrian deities compiled by the Babylonian priests, in which are given the different names by which these deities were known, their attributes, as well as the current identifications of foreign with Babylonian deities. So for example in Vol. XXV, Pl. 16, we have a list of names by which the god IM was known. In l. 16, he is identified with Addu, and in the next line with Dadu, while explanatory notes add that these were his names in Amurru. Now Amurru was the general name for Syria-Palestine in the Assyrian period of Old Testament history, in which period these lists of deities were compiled. In the same place we also find ^{ilu}IM identified with the god Tešub of Subartu (roughly speaking, Mesopotamia), the Cassite god Buriaš, and others. In Vol. XXIV, Pl. 32, we find nine deities identified with ^{ilu}IM; Pl. 40, eleven more (the tablet is broken; there were more identifications here); Vol. XXV, Pls. 6 f., forty-one. Besides these there are other stray references. We have thus more than sixty names which are identified with ^{ilu}IM, including the well-known variant names of the west-Semitic weather-god Adad (Hebrew Hadad), Addu, Dadu, as well as Amurru (MAR-TU). As already stated, these lists have explanatory notes in connection with the names of foreign deities identified with ^{ilu}IM. But these lists do not include a name Bir.[12]

[12] The lists, however, show that there was a god Mir or Mur, identified with ^{ilu}IM. (But there is nothing to indicate that he is of west-Semitic origin, a possibility mentioned below.) See Vol. XXIV, Pl. 16, l. 8; Pl. 17, l. 30; Pl. 18, rev., l. 2; Pl. 32, ll. 119–20; also King in the Introduction to Vol. XXIV, pp. 11 f. (The names in Vol. XXIV have been tabulated by Michatz, *Die Götterlisten der Serie An ^{ilu}A-nu-um.*) The existence of a god Mir does not, however, prove the existence of one Bir, as Hilprecht, *Assyriaca*, 77, n. 1, argued. In Vol. XXV, Pls. 16 f., l. 8, we have the name of a god Pi-ir, and l. 32, I-lu-pi-ir. The name may be a variant of Mir, since the sign *pi* may be read *me* (Brünnow, 7963). The god ^{ilu}BE-ir (*III R*, 66, 26*d*, also *Beiträge zur Assyriologie*, II, 567) cannot be identified with Adad, even if the reading of this name should turn out to be Ber, for as Meissner observed, it is not probable that we should have the same deity called upon twice in succession in an oath formula, as would be the case if we identified BE-ir with IM (Adad). The oath formula reads, "By Ašur, Adad, BE-ir, the Assyrian Bêl and the Assyrian Ištar, etc." For a discussion of the ideograms ^{ilu}IM-RA and ^{ilu}MIR-RA, see Ranke, *Personal Names*, 202. Whether Mur, Mir, MIR-RA, IM-RA, may not turn out to be variant forms of Amurru is a question which cannot be discussed here. The reading Immêru, suggested by Thureau-Dangin for IM-RA, would not conflict with such an identification.

It is of course possible that the name occurred on those parts of the tablets which have been lost, but there is a strong probability that, if there had been a west-Semitic god Bir or Bur known to the Assyrian scribes, his name would appear together with those of Addu, Dadu, and Amurru on Pl. 16 of Vol. XXV. The fact to be borne in mind is that, after all, the existence of a deity Bir or Bur[13] has never been demonstrated but merely *inferred*.

2. Adad-'idri = Hadadezer.—Schrader, as early as 1878, proposed the correct reading of this name, and called attention to the fact that the name is the same as that of Hadadezer, king of Zobah, mentioned in II Sam. 8:3 f.[14] The ideogram ^{ilu}IM, formerly read Rammân[15] by Assyriologists, is now always to be read Adad[16] unless there are definite reasons for some other reading, that is to say, Adad is the ordinary name of the weather-god in Assyrian. Addu, Addi, and Dadda are variants of the same name, as is also the Hebrew and Aramaic form Hadad.[17] There can be little doubt, then, that when Shalmaneser's scribes wrote ^{ilu}IM-'idri, they pronounced the name Adad-'idri.

The second element of the name, 'idri, which is the regular cuneiform rendering of the Aramaic עדר, Hebrew עזר, is now

[13] The element Bur, see below, found in many proper names, means "offspring."

[14] Second edition of his *Keilinschriften und das Alte Testament*, 200 f., and *Zeitschrift für Keilschriftforschung*, II, 365 f.

[15] Rammân (cf. Hebrew Rimmon) was an epithet of the weather-god Adad, and signifies "the thunderer." The discoveries in Crete and Asia Minor during the last ten years have made it evident that the two chief deities of this whole eastern Mediterranean world were the great mother-goddess, known as Mâ, Ammas, Cybele (Aphrodite-Venus, Ishtar among the Semites), and the weather-god, known by different names. The Hittites and Mitannians called him Tešub (see above, p. 271), the Amorites called him Amurru (MAR-TU) or Adad, which was also the name by which the Assyrians knew him. As already indicated, Rammân is an epithet meaning "the thunderer." Many statues and reliefs of this god have been found in Asia Minor (see Garstang, *The Land of the Hittites*, Pl. LXXVII), on which he is generally represented as carrying the double-ax (a symbol found all over Crete and Asia Minor) or a three-forked bolt of lightning. The Greeks gave him different names, such as Ζεὺς Στράτιος, Ζεὺς βροντῶν, Κεραύνιος, all of which show his strenuous character. See Meyer, *Geschichte des Altertums*, II², 635 f., 711 f. Gressmann, in his *Ursprung der israelitisch-jüdischen Eschatologie*, has pointed out the fact that the god of the Israelites, Yahweh, was predominantly a god of lightnings and the storm, and his resemblance to Hadad is really so close that some scholars see in him a local form of this western-Asiatic weather-god (Ward, *AJSL*, XXV [1909], 175 f.).

[16] King, *Annals of the Kings of Assyria*, I, pp. lxxiv f.

[17] Hadad is the chief deity of the Senjirli inscriptions; cf. Cooke, *op. cit.*, 159 f. The name Hadad-Rimmôn, Zach. 12:11, combines the name and epithet of the god. Cf. Ṭab-Rimmôn, I Kings 15:18. Naaman's master worshiped in the house of Rimmôn, II Kings 6:15 f.

known as an element of many Mesopotamian personal names of the eighth and seventh centuries B.C. Examples are Atar-idri, Bêl-ḫarrâni-idri, Ilu-idri, Milki-idri, Samsi-idri, etc.[18] There remains no reason for reading ^{ilu}IM-'idri in any other way than Adad-'idri = Hadadezer.

It remains to be seen why the Hebrew name Benhadad should *not* be changed to Bir-hader = Bir-idri. That is, why the form בן־הדד should not be changed to בן־הדר or ברהדר. We have already seen why Winckler considers the masoretic writing the result of "Umdeutung und Verschreibung" of the supposed form Bir-'idri. He was attempting to identify the name Benhadad of I Kings, 20 f., with Adad-'idri of Shalmaneser's inscriptions. But with the possibility of the reading Bir-'idri gone, some other explanation must be looked for in case the two names actually refer to the same person. Before taking up this problem, let us look at the name Benhadad.

3. Benhadad.—Benhadad means "son of Hadad." The Aramaic form would be Barhadad. We have already referred to the names Bar-Ṣur and Bar-Rekub of the Senjirli inscriptions. In II Kings 13:24 f., we have an account of the activities of Benhadad, son of Hazael. In all probability this same Benhadad son of Hazael is mentioned in the inscription of Zakir (vocalization doubtful) king of Hamath, only in the Aramaic form, as we should expect, ברהדד.[19] It is true that Zimmern, *HAV*, 300 f., believes that this name in Pognon's inscription should possibly be read ברהדר (the ר and the ד are nearly alike in the inscription), but the conclusion he reaches is that "die Lesung ברהדד zwar nicht unmöglich, jedoch ברהדר mindestens ebenso möglich, wenn nicht noch wahrscheinlicher ist." Lidzbarski, the authority on Aramaic inscriptions, to whom Zimmern appealed, also reached the conclusion that the Pognon inscription *may* have to be read ברהדר rather than ברהדד, but he regards it only as a possibility, not a certainty. We may therefore agree with Zimmern that this inscription does not decide the question definitely as was supposed by some scholars. On the other hand with the evidence of the Old Testament, the names of the Senjirli inscriptions, and as we shall

[18] Cf. Zimmern, *KAT*³, 446, n. 1.

[19] Pognon, *Inscr. sémitiques*, 156 f.

see, the names of other Assyrian inscriptions, in favor of the reading ברהדד, we hold that the presumption is that the name in the Pognon inscription should be read ברהדד.

The name Barhadad occurs in the Annals of Assurbanipal (668–625). This Assyrian king records that in his ninth campaign he met the Arabs, led by "Uaiti, son of Hazael, son of the uncle (father's brother) of Uaiti, son of Bir-Dadda." As we have seen, the name Dadda is a variant of Adad (Hadad), and Bir is, of course, the equivalent of the Aramaic Bar (son), with the vowel deflected from *a* to *i*. It is tempting to see in these men the descendants of the Damascus family (Benhadad, Hazael) who, when finally driven from Damascus by Tiglath-Pileser IV (732), established themselves in northern Arabia, where they were found by Aššurbanipal.[20] At all events there can be no doubt but that we have here the cuneiform equivalent of Benhadad-Barhadad.

Clay, in his *Light on the Old Testament from Babel*, 318, favors the view long ago proposed by Pinches in the *Proceedings of the Society for Biblical Archaeology* (1883), 71 f., that the original name was Ben-Hadad-'idri, the Hebrew preserving the first part of the name, the Assyrian the latter.[21] This view, which on first sight seems very attractive, does not, however, account for the fact that *both* the names Benhadad and Adad-'idri (Hadadezer) occur in both the Hebrew and the Assyrian records. It seems better, therefore, to keep the names separate.

The name "son of *some deity*," is very common in the cuneiform inscriptions. This is especially so in the personal names of the time of the first dynasty of Babylon (the so-called Hammurabi dynasty). The prevalence of west-Semitic or "Amorite" names has long been noticed. See especially Ranke, *Personal Names of the Hammurabi Dynasty*, 76 f.; Bur-Aya, "offspring of Aya," Bur-NIN-GAL, Bur-Nunu, Bur-Adad[22] (very common), Bur-Sin (also very

[20] Hazael, king of Aribi, had paid tribute to Sennacherib and Esarhaddon; upon his death the latter king placed Ia'lû, Hazael's son, upon the throne (Esarhaddon, Prism A, col. III).

[21] Pinches' view is further discussed by him in *Zeitschrift für Keilschriftforschung*, II, 311 f. See also the objections to this reading by Delitzsch, *ibid.*, 167 f., and Schrader, *ibid.*, 379 f.

[22] This name is the same as the name Bur-Rammân, which misled Delitzsch and Winckler, see above. But Bur-^{ilu}Ra-mâ-na is not the same kind of name as Hadad-Rimmon, הדדרמון, as Delitzsch thought, *ZK*, 175. Bur-Rammân means "offspring of Rammân"; Hadad-Rimmon, "Hadad is 'the thunderer.'" It is incomprehensible how Huber, *Personennamen*, etc., can regard Bur of Bur-^{d}IM (Adad), etc., as the name of a deity, p. 172, and at the same time translate the name as Ranke does, "offspring of IM," p. 86. So his god Bir rests upon Hilprecht's assumption discussed above, p. 271. As far as the writer can discover, there is no instance of a name with the element Bur as deity. There certainly is no case in which the determinative for deity stands before this element, which is, of course, the only final test.

common). Similar names are Pirḫu-Amurru (MAR-TU), "offspring of Amurru"; Pirḫi-ilišu, "offspring of his god"; Inbi-ilišu, "fruit of his god"; Abil-ilišu, "son of his god"; Abil-ili, Abil-Ištar, Abil-Amurru, Abil-Šamaš, Abil-Sin, etc.

Summing up: There is no reason for changing Benhadad into Bir-'idri, a form which, as far as the evidence now reaches, is purely *hypothetical*. The name in Shalmaneser's inscriptions, written ^{ilu}IM-'idri, is to be read Adad-'idri, that is, the equivalent of the Hebrew Hadadezer. The form Benhadad is to be retained, and compared with Aramaic Barhadad (ברהדד, Pognon), Bar-Ṣur, Bar-Rekub,[23] as well as with the Assyrian Bir-Dadda, etc.

The Old Testament account and that of Shalmaneser cannot then be harmonized by identifying Benhadad with ^{ilu}IM-'idri by reading both as Bir-idri. Some other solution of this difficulty must be found.

II. THE HISTORICAL PROBLEM

According to I Kings, chap. 20, Benhadad of Syria moved against Samaria and met defeat at the hands of Ahab. The following year he returned, was met by the Israelites at Aphek and was again defeated. This time he was taken prisoner, but because of "Ahab's unseasonable lenity" was released on condition that he restore the cities his father had taken from Ahab's father (Omri), and that the Israelites be allowed to "make streets," that is, have bazaars in Damascus. Thus far chap. 20. As is generally recognized, chap. 21 belongs to a different narrative—the LXX has it before chap. 20. Chap. 22 opens with the words, "And they continued three years without war between Syria and Israel." In the third year Jehoshaphat of Judah, Ahab's ally, joined the Israelitish king in his attempt to take Ramoth-Gilead from the Syrians. In the battle before this city Ahab met his death.

[23] This form of name survived even into Christian times in Syria; cf. Bar-Shemesh in the *Doctrine of Addai*.

Shalmaneser, king of Assyria (860–825), tells us that in his sixth year (854) he met and defeated at Ḳarḳar the combined forces of the Syrians. At the head of the league was Adad-'idri (Hadadezer, see above) of Damascus, with Ahab of Israel, Irḫuleni of Hamath, and others as allies. In his tenth, eleventh,[24] and fourteenth years (850–849–846) he was again compelled to meet the armies of this league. Ahab is not mentioned in the accounts of these campaigns.[25] In his eighteenth year (842) Hazael is king of Damascus, while Jehu of Israel pays tribute to Shalmaneser. This means that Jehu preferred submission to Assyria to an alliance with Damascus.

It will be observed that the Old Testament does not mention the battle of Ḳarḳar, but according to the prevailing interpretation of the Hebrew account in the light of the Assyrian records, the two years' truce mentioned in I Kings 22:1 *follow immediately upon the defeat of Benhadad at Aphek, and leave room for Ahab's presence at Ḳarḳar*. The events of the last five years of Ahab's reign would then have run as follows: 856 or 855, defeats Benhadad at Aphek and makes a treaty with him. Truce for two years, one of which must be 854, the date of the battle of Ḳarḳar. Here Ahab is the ally of Hadadezer (according to the prevailing interpretation = Benhadad) of Damascus against Shalmaneser. 853 or 852 Ahab meets his death at Ramoth-Gilead in his effort to take it from the Syrian king.

When one looks at these events more closely, many objections present themselves against the prevailing interpretation of them. Is it probable that the king of Damascus (Adad-'idri of the Assyrian records) who was at the head of the Syrian states for at least 8 years (854–846), during which time he successfully withstood three and perhaps four[26] attacks by Shalmaneser of Assyria, should be the same as Benhadad, king of Syria, who according to I Kings, chap. 20, twice met defeat at the hands of Ahab, the second time only escaping with his life because of the generosity of the king of Israel; these two defeats having occurred, according to hypothesis, the third and second, or second and first years before the battle at

[24] It is not improbable that there was but one campaign in these two years, that of the eleventh year (Winckler, *KAT*², 43).

[25] Ahab was probably dead in 850. Nor is there any mention of his successor in this rôle.

[26] See note 24.

Ḳarḳar? The writer believes that this is not probable, for from the Assyrian account of the battle of Ḳarḳar it is clear that Ahab was the ally of the king of Damascus. Adad-'idri of Damascus had 20,000 troops, Irḫuleni of Hamath and Ahab of Israel 10,000 each, while the other Syrian kings brought troops from 10,000 to 200 in number. These are of course round numbers, and it is very probable that the Assyrian scribe exaggerated here as elsewhere for the greater glory of his king. But in spite of this possibility, the fact remains that the king of Damascus was the head of the league from at least 854 to 846. There is no likelihood at all "that Ahab was the moving spirit in the alliance,"[27] nor is it necessary to suppose that he was forced into it.[28] Then according to hypothesis, a year or two after the battle of Ḳarḳar, the king of Damascus is in possession of Ramoth-Gilead, one of the cities of his late ally, who meets his death in an effort to recapture it. It is apparent that this hypothesis leaves many things unclear. Without discussing farther the prevailing hypothesis the writer will proceed to give his own view and the reasoning on which it is based.

1. Benhadad of I Kings, chap. 20 is not the same person as the Adad-'idri of Shalmaneser's inscriptions. The fact that the names cannot be equated was shown by the first part of this paper. If, in spite of this, it is held that the same person is meant, either the Assyrian or the Hebrew account has made a mistake in the name of the king of Damascus. Kittel thinks the Assyrian account has the name of the wrong Israelitish king; but this does not help out of the difficulty.[29] It is hardly likely that either of the accounts

[27] H. P. Smith, *Old Testament History*, 195.

[28] Shortsighted as the Syrian princes undoubtedly were, they could not help seeing that once Damascus, the strongest state among them, fell before the Assyrian advance, it would be but a matter of a year or two until they would meet the same fate. So we may believe that for once they put aside their own differences and presented a solid front against the common enemy. But, as has happened so frequently in history, Damascus probably soon looked upon this voluntary alliance as submission to her superior power and began to treat the allies as subjects. Ahab would of course have been the first to resent this, and, with no Assyrian army threatening, Adad-'idri would feel it necessary to bring Israel into line.

[29] Kittel, *op. cit.*, 357 f., leans to the view that the Assyrian account is untrustworthy and that the battle of Ḳarḳar came after the death of Ahab, that is, the Assyrian scribe has the name of the wrong king of Israel. The reason why Kittel holds this view is evident. According to his chronology the death of Ahab fell in the year 855, the year before Ḳarḳar. His arguments are curious: (1) The books of Kings give a great amount of attention to the wars and other activities of Ahab, but little is said of the wars of his successor. Therefore, if Ahab had been at Ḳarḳar, the Old Testament account would

is wrong in the case of either of the kings, for in other places the Assyrian and Hebrew records usually corroborate each other.[30]

2. The events of I Kings, chap. 20 and those of I Kings, chap. 22 are not necessarily to be separated by only two years (22:1). The writer starts with a fact overlooked by scholars, namely, that the *name* of the king of Syria is not given in chap. 22. At first sight this may seem a point of no importance, but taken into consideration with other points, it may have some weight. In chap. 20, the *name* of the king of Syria is mentioned twelve times (vss. 1, 2, 5, 9, 10, 16, 17, 20, 26, 30, 32, 33), over against two instances where he is referred to as *king of Syria* (vs. 22, 23). But vs. 22 is admitted to be a late insertion. On the other hand, in chap. 22, the *name* of the king of Syria is not given at all, but in both cases where he is referred to it is as *king of Syria*.[31] This point need not be pressed, but in connection with the points given above (1), it may help in constructing a hypothesis which seems to the writer to have fewer weak points than the one which is now current.[32]

tell of it. (2) The different accounts of the battle of Ḳarḳar, as found in Shalmaneser's inscription, give varying and undoubtedly exaggerated figures of the enemy who were killed. In the different accounts the number is given variously as 20,500, 25,000, and 14,000. So the Assyrian scribe may have got Ahab's name into the account instead of Joram's—had he not called Jehu *the son of Omri*? As for the first of Kittel's points, the less said the better. Kittel shows himself entirely unfitted to pass judgment upon matters connected with Assyrian inscriptions. That the Assyrians should go over a battlefield and count the number of the enemy who were left there is hardly to be expected. The number can at best have been nothing more than an estimate—and that this estimate should have been too low is not probable, nor would it be reduced when copied upon the obelisks and monoliths of the king's palace. But this does not for a moment make the date of the battle uncertain, nor raise the probability that the Assyrian scribe should have put down Ahab's name instead of that of his son. That Jehu is called the son of Omri merely shows that the Assyrians did not bother about the family trees of the kings of Israel. To Assyria, Omri was the founder of the state (Samaria is called House of Omri [Bit-Ḫumri], Land of Omri [Mât-Ḫumri]) and the later kings would be his sons. Jehu son of Omri probably means Jehu of Bit-Ḫumri or Mât-Ḫumri, that is Jehu of Israel. The important point here is that *Jehu*, and not some other king, is mentioned as paying tribute in 842, which fits very well into the history as given in the Old Testament.

[30] So Hazael and Jehu are given as contemporaries by Shalmaneser; and Rezôn, Menahem, Pekah, Joahaz of Tiglath-Pileser's inscriptions fit in well with II Kings, chaps. 15 f.

[31] It is of course a commonplace of Old Testament criticism that popular, more or less unhistorical narratives do not know the names of the rulers referred to. So in the legends of Genesis, etc., we hear about Pharaoh, and the king of Egypt, but in historical narrative we hear about Shishak, Necho, etc. So in the popular Elisha stories, II Kings, chaps 4 f., we hear often about the king of Syria, but his name is not given. Chap. 6:24, where the name does occur, belongs to another narrative, as is seen from the preceding verse. Chap. 8:7 f., is perhaps a real exception, and here the name Benhadad may have been added later; see below, p. 281.

[32] For the discussion of the text and sources the commentaries should be consulted. It will be possible here to note only such facts as bear upon the historical question.

3. From I Kings 20:34 it is evident that Benhadad I of I Kings 15:18 f., and Benhadad II of our chapter cannot be identified.[33] For Benhadad II promises to restore to Ahab the cities which his father took from Ahab's father. Now the name of Benhadad I's father was Ṭab-Rimmôn (I Kings 15:18) and he had been succeeded by his son long before the time of Omri, Ahab's father. It is not impossible that Benhadad II was the son of Benhadad I, but this would be the only case where the son bore the same name as the father. It seems better to assume that another king of Damascus came between the two Benhadads, who may have been grandfather and grandson. There can be no chronological objection to such an arrangement, for we know nothing more about these kings of Syria than our meager accounts in the Old Testament furnish.

4. The events narrated in I Kings, chap. 20 are to be placed in the early part of Ahab's reign of twenty-two years. It has long been recognized that the motive which prompted Benhadad I of Syria "to harken unto King Asa" and to make war upon Israel, was a selfish one. Damascus is by nature a trading center, and its outlet to the sea is by way of Galilee. The cities which he took from Israel, "Ijon, and Dan, and Abel-beth-maacah, and all Chinneroth, with all the land of Naphtali," lay on this route (I Kings 15:16 f.). How long he held these cities we do not know. We know little about "the acts of Omri[34] which he did, and his might which he showed," (16, 27), but it is not unlikely that he made efforts to regain the lost

(1) Apart from 22:1, there is only the reference to the 32 captains of chariots (22:31), that can in any way be regarded as closely connecting chaps. 20 and 22. But the numeral 32 is clearly a gloss from 20:1, suggested by 20:24. (2) Benzinger, *Bücher der Könige*, 117, recognizes that we cannot have in chaps. 20 and 22 all of the "Ahabgeschichte." "Denn ausser den beiden erhaltenen Stücken war im ursprünglichen Zusammenhang dieser Capitel noch mehr von Ahab erzählt: 22:8 setzt doch wohl voraus, das über Ahabs und Michas früheres Zusammentreffen schon einiges erzählt war; 22:25 deutet darauf hin, das auch die Erfüllung der Weissagung an Zedekia berichtet war. Auch die Vorgeschichte der Syrerkriege wird nicht verschwiegen gewesen sein." But he also says (p. 122) that it is clear that 22:1 must be joined directly with 20:34. The writer admits that these sections, 20:1–34 and 22:1 f., belong to the same *source*, only he would modify Benzinger's statement by saying that 22:1 continues the "Ahabgeschichte" which broke off after 20:34, but that it is probable that some of the lost section of this "Ahabgeschichte" stood between 20:34 and 22:1.

[33] Winckler, *KAT*³, 134, has "Benhadad (*vios* Ἀδερ) d. i. Bir-'idri," reign from *ca.* 885–844; contemporaneously with Baasha, Elah, Omri, Ahab, Ahaziah, and Joram.

[34] From the Moabite Stone (see Cooke, *op. cit.*, 1 f.) we learn that "Omri, king of Israel he afflicted Moab many days, because Kemosh was angry with his land." The fact that Israel was called "the land of Omri" (see above) also shows the importance of his reign.

territory from Benhadad I and his successor. The tide of battle probably surged back and forth, but finally turned in favor of the king of Syria (20:34). Now Ahab's chief sin, according to the compiler of the Old Testament narrative, was "that he took to wife Jezebel the daughter of Ethbaal king of the Sidonians"—I Kings 16:31. But in spite of the bad effect it may have had on the religion of Israel, this marriage was undoubtedly wise from a political standpoint, for it certainly meant an alliance with Phoenicia which in turn was intended to strike at Damascus. If we place the events of I Kings, chap. 20 near the *beginning* of Ahab's reign they furnish a fitting continuation of the events we should expect followed Ahab's marriage and alliance with Phoenicia. Furthermore, while the exact location of Aphek is not certain, still all the evidence points to the fact that it lay in Esdraelon (20:23 f.), which goes to show that the Syrian wars of chap. 20 were waged north of Samaria, and not east of the Jordan as was the battle at Ramoth-Gilead. The seat of war had evidently shifted between the events of chap. 20 and 22. The events of chap. 20 would then represent Ahab's successful meeting, perhaps after many defeats, of the attempts of Syria to hold or regain its route to the sea.

5. Between the events of I Kings, chaps. 20 and 22, we must leave a space of from ten to fifteen years. Among the "cities which he (Ahab) built" (22:39), or as we should probably say, rebuilt, may have been the Galilee cities referred to above. If our interpretation of the events of chap. 20 is correct, in the years following the battle of Aphek, Ahab would undoubtedly have busied himself in strengthening his kingdom. What better way to begin than by fortifying the cities which had been returned to him by the terms of of the treaty? His determination to "afflict Moab" as his father had done[35] may also have fallen in this period. Meanwhile Benhadad II was succeeded by Adad-'idri, with whom Ahab formed a willing or unwilling alliance against Assyria.[36] Perhaps the two years of peace mentioned at the opening of I Kings 22:1 refer to two years of quiet after the battle of Ḳarḳar which the Old Testament account passes over in silence.[37] This is not only a possibility,

[35] See the Moabite Stone, l. 6. [36] See above, n. 28.

[37] Or, as we should probably say, the Old Testament account of which has been lost.

but it seems to the writer a strong probability; for the battle of Ḳarḳar was in all probability not a crushing defeat of the Syrian allies. Shalmaneser failed to follow up his reported success, and it was four years before he was ready to move west again. Meanwhile the allies, undoubtedly badly battered, returned to their homes. Two years of peace followed, and in the third, the king of Damascus, perhaps expecting another attack by the Assyrian king, began to look over his forces. As suggested above, he may have begun to look upon the allies who stood by him at Ḳarḳar as subjects owing him allegiance, and, finding Ahab of Israel unresponsive, may have moved upon his territory. Hence the battle before Ramoth-Gilead. We would identify the *unnamed* king of Syria of I Kings, chap. 22 with Adad-'idri of Shalmaneser's inscriptions, and place the events of chap. 22 in the last years of Ahab's reign.

6. From the side of the Old Testament narrative, the writer sees only one objection that can be raised against this identification, namely, II Kings 8:7 f. According to this account Hazael, after putting *Benhadad* out of the way, usurped the throne of Syria. Now, it is obviously impossible to put a third Benhadad between Adad-'idri and Hazael, for, according to the inscriptions of Shalmaneser, this king's last campaign against Adad-'idri is dated in his fourteenth year (846), while his next campaign against Syria was in his eighteenth year (842), and this time *Hazael* was king of Damascus, while Jehu of Israel paid tribute to Assyria. We must assume, therefore, that the writer of the Elisha stories[38] made a mistake. Indeed, this is most probable, for Hazael is evidently not the son of the king whom he smothered to death with a wet blanket, but a usurper. Now Hazael's son's name was Benhadad. It is hardly likely that the name of Hazael's son would have been Benhadad unless his (Hazael's) father's name had also been Benhadad. This point need not be urged strongly. However, it seems most probable to the writer that Adad-'idri was not of the line of the Benhadads and the king who came between these, and that in Hazael and his son Benhadad we may see the restoration of the old line. From I Kings 11:23 f., we learn that Rezon, son of Eliadah, fled

[38] From I Kings 19:19 *f.*, it would seem as if the story of Hazael's usurpation of the Syrian throne had also been a part of the Elijah legends.

from his master Hadadezer (Adad-'idri), king of Zobah (a small Syrian province), and settled in Damascus, where he established his line. It was probably at this time that Damascus began to be the leader in Syrian affairs, as Zobah seems to have been previously. Now, although we do not have definite information on the point, it seems probable that Rezin (the name is clearly the same as Rezon and both identical with the Assyrian Raṣunnu) of Damascus was of the line of Benhadad III, II Kings 14:37 f.[39] Adad-'idri of Ahab's time may then have been a representative of the old line of the kings of Zobah breaking into the line of the Rezons, Benhadads, and Hazaels.

The history of the relations between Syria and Israel from about 900 B.C. to the time of Jehu, *ca.* 842 B.C., would, according to our reconstruction, read as follows:

About 900 B.C. king Asa of Judah invited Benhadad, son of Ṭabrimmôn, son of Hezion,[40] king of Syria, to help him against Baasha of Israel (I Kings 15:18 f.). The Syrian king was only too glad to offer assistance, in view of the fact that by so doing he might secure a free trade route to the sea. As a result of this alliance between Judah and Damascus, Israel lost a number of cities in the Galilee region, along the route from Damascus to the coast (vs. 20). Baasha was succeeded by a number of ephemeral kings in whose reigns the cause of Syria probably did not suffer. Omri, however, was a powerful ruler, and made efforts, though unsuccessful ones (20:34), to regain the lost territory. His struggles were with the father of Benhadad II, whose name we do not know. When Ahab succeeded his father, his first move was to cement an alliance with Phoenicia. This was of course directed against the aggression of Syria in the Galilee region, and soon led to war, in which Ahab was successful even to capturing his opponent Ben-

[39] Adad-nirari (812–783), king of Assyria, mentions a Mari, king of Damascus. Some scholars have identified him with Benhadad III, son of Hazael, but this is not necessary. Our suggestion that Rezon of the time of Solomon and Rezin (Rezon) of the time of Tiglath-Pileser IV are of the line of Benhadad and Hazael would be raised almost beyond a doubt if we made the Benhadad of Asa's time, son of Tabrimmôn, son of *Rezôn*, instead of Hezion. Thenius identifies Rezôn and Hezion, but regards Hezion as the correct form (LXX, Εσρων 11. 23); Winckler, on the other hand, reads the name Hazael, LXX Luc. Αζαηλ, Vat. Αζιν (see Benzinger, *Könige*, 100). The reading Αζιν would point to an original רצן or רזן Rezon.

[40] Perhaps to be read Rezon; see above, n. 39.

hadad II. A treaty was formed, the conditions of which called for the restoration of the cities which Benhadad's father had taken from Ahab's father Omri, and the establishing of Israelitish bazaars in Damascus. The second clause of the treaty, as well as the battle-field of Aphek, shows that the wars between Ahab and Benhadad II were fought for the control of the trade route to the sea. When Benhadad's father controlled this route he had his bazaars in Samaria, but now that Ahab was in control, he was able to dictate terms. So far I Kings, chap. 20; the events recorded here are all to be placed in the early part of Ahab's reign of twenty-two years.

Some time before 854 Benhadad II was succeeded by Adad-'idri, who was able to force or persuade the Syrian states to form an alliance with him against Assyria. Ahab was one of these allies, and fought with him at Ḳarḳar (854). The Assyrian king claims a victory, but the battle cannot have been decisive else he would have followed up his reported success. It was four years before Shalmaneser appeared again in Syria. Meanwhile Ahab withdrew from the alliance. This was the signal for renewing the warfare between Damascus and Israel which had been interrupted for a few years in the face of a danger which threatened not only these rival states, but the whole Westland. This time the Syrian king began by taking Ramoth-Gilead, east of Jordan. In the attempt of Ahab and his ally, Jehoshaphat of Judah, to recapture this city, the Israelitish king met his death, I Kings, chap. 22. Ahab's successors carried on the war, as we are able to infer from the Elisha stories, as well as from the fact that the name of no Israelitish king appears among Adad-'idri's allies in Shalmaneser's account of his campaigns of 849 and 846.[41] Between the years 846 and 842, Adad-'idri was disposed of and succeeded by Hazael. When Shalmaneser appeared in Syria in 842 he found Hazael king of Damascus, while Jehu of

[41] For the question as to whether or not Shalmaneser also appeared in the west in 850, see note 24. In the Monolith inscription of Shalmaneser, where the fullest account of the battle of Ḳarḳar is given, the names of most of the Syrian allies are given: Adad-'idri of Damascus, Irḫuleni of Hamath, Ahab of Israel, etc. In the inscriptions relating the story of the campaigns of (850), 849, and 846, only the names of Adad-'idri of Damascus, and Irḫuleni of Hamath, "together with the twelve kings of the seacoast," are given. It is clear from the Monolith inscription that the kings of Hamath and Israel were next in importance to the king of Damascus, and the absence of the name of the king of Israel in the accounts of the following campaign, while that of the king of Hamath is given, clearly points to the non-participation of the Israelitish king.

Israel paid tribute to Assyria. It was only natural that Jehu should submit to Assyria rather than to the hereditary enemy Damascus. Shalmaneser received the tribute of the Tyrians and Sidonians at the same time, a fact which shows that we may be misled if we conclude from the Elisha stories that Jehu's accession necessarily meant a break with Phoenicia.[42] In 839 Shalmaneser crossed the Euphrates for the twenty-first time, taking four cities belonging to Hazael, and again receiving the tribute of the Phoenician cities Tyre, Sidon, and Byblos. It is significant that he did not meet Hazael again. This king succeeded in taking most of the east Jordan territory from Israel in Jehu's time, II Kings 10:32 f., and later had to be turned away from the gates of Jerusalem by "the gold found in the treasuries of the house of the lord and in the king's house" (II Kings 12:17 f.).

	Israel	Judah	Damascus
ca. 900–890	Baasha	Asa	Benhadad son of Ṭab-Rimmôn.
	Elah		
	Zimri		
	Tibni		
ca. 885	Omri (12 years)		Father of Benhadad II, name unknown.
ca. 875	Ahab (22 years)	Jehoshaphat	Benhadad II
	In early part of reign, wars with Benhadad II (I Kings, chap. 20).		
	In latter part of reign, battle of Ḳarḳar (854) and battle before Ramoth-Gilead (I Kings, chap. 22).		Adad-'idri (Hadadezer)
842	Jehu tributary to Shalmaneser.		A year or two before 842, Hazael succeeds Adad-'idri, not Benhadad.

[42] See, however, Amos 1:9 f.

The Higher Education as a Training for Business

By HARRY PRATT JUDSON, President of the University of Chicago

"It must not be forgotten that no college can insure an education to a young man. More definitely, no college gives an education. All that colleges can do is to provide the facilities whereby one who wishes may educate himself more efficiently than would otherwise be practicable. It is believed that students who wish may obtain knowledge and training in a college course which will fit them to be more efficient than would otherwise be the case in business activity. It is also believed that a liberal education may provide not merely such increased efficiency, but also so much wider comprehension of society and life as to enable one to be useful and to find interest in a multitude of ways not usual with one who is deprived of such an education. A college education, in short, may enable one to earn a living. It should also teach one how to live."—*From the Preface.*

56 pages 12mo, cloth postpaid 55 cents

The University of Chicago Press
Chicago - - - Illinois

The Country Church and the Rural Problem

By KENYON L. BUTTERFIELD
President of the Massachusetts Agricultural College

THE aim of President Butterfield's book is to analyze this problem and to inquire into the influences which can most effectively aid in solving it. His conclusion is that no influence can wield more power or achieve more far-reaching results than the church itself. But the church to which he looks for the incarnation of individual and community ideals in personal and family life, in industrial effort, and in social and political relationships is not the narrow denominational or institutional body without a program of work and of effort. He would have a church which, under the inspiration and guidance of the religious motive, makes appeal to the ideals of personal development and neighborhood advancement, and which, because it can be, should be the dominating influence in the community for leading men and women to a new birth of aspiration and hope.

165 pages 12mo, cloth postpaid $1.08

The University of Chicago Press
CHICAGO, ILLINOIS

The University *of* Chicago Press

AGENCIES

THE UNIVERSITY OF CHICAGO PRESS WILL HEREAFTER BE REPRESENTED IN NEW YORK CITY BY THE BAKER & TAYLOR CO., 33 EAST SEVENTEENTH STREET. DEALERS AND CUSTOMERS EAST OF BUFFALO AND PITTSBURGH WILL SAVE TIME BY ORDERING OF THIS AGENCY. ANY OF THE BOOKS ON THE LIST OF THE UNIVERSITY PRESS CAN BE THUS OBTAINED.

THE AGENCY FOR THE BRITISH EMPIRE (EXCLUSIVE OF THE WESTERN HEMISPHERE, BUT INCLUDING EGYPT) WILL HEREAFTER BE VESTED IN THE CAMBRIDGE UNIVERSITY PRESS OF LONDON AND EDINBURGH. ORDERS FROM THIS TERRITORY SHOULD BE SENT TO THEIR ADDRESS.

The agency for the Continent of Europe will be in the hands of Th. Stauffer, Universitätsstrasse 26, Leipzig, Germany.