Page 1.

INTRODUCTION.

L. 1. The manner of perception in which we gain and organize Impressions from our surroundings (lit: the outside world) in their sequence, time presents to us in a manner similar to space an uninterrupted succession of ideas (or presentations), which, like every other mass of homogeneous parts connected into one unity, we term quantity.

L. 6. Taken as a quantity, time for its more accurate definition (or fixation) needs a measure, a unit, through the repetition of which we may imagine the quantity to have been formed.

L. 8. In order to find such [a unit], we must take refuge to the concept of motion, which stands in between space and time, inasfar as it connects the two; for only with the aid of the uniform motion, ~~at which~~ with which a mass (or body) moves through an equal number of space-units during a corresponding number of time-units, is it possible for us to define (or limit, circumscribe) the time required for a determined distance, and evaluate it as a measure

for all remaining time quantities.

L.14. Only the celestial orbit can supply such a generally valid time measure; for though by aid of artificial products we too might be able to sustain a uniform motion, nevertheless on the one hand this uniformity has been perfected in too small a degree (i.e. not enough) and furthermore the use of these artificial instruments is too limited due to the changes to which they are subjected, that they might give us any manner of substitut for the celestial bodies which circle (or rotate) according to eternal, unchanging (unalterable) laws.

L.22. Only the on the rotation of the earth appearent period of the Stars can be regarded as perfectly uniform.

L.24. However ~~the~~ humanity in its process of evolution (or development), to whom the division of time was an unescapable necessity, had given preference to the more striking, although less uniform motions of the sun and the moon,

Page 1.
and instead of the stellar day has chosen the natural day
the period from one Sunrise or sunset to the next as time unit.

Page 2. L.1 This measuring rod however could only satisfy it (i.e. humanity) on its lowest level, and with increasing interest for the past and future human society quite soon saw itself led (i.e. was led) to look for larger units of time.

L.5. At first the changes of moon phases, which occured in ~~to~~ not altogether too great intervals and in second place the week (note 1) presented a more convenient and more practical measuring rod.

Note 1. Regarding the manner in which the week has become a measure of time there are conflicting views. Goguet (De l'origine des Lois I p 217) maintains that it originated from the day unit. Bailly (Hist. de l'Astronomie ancienne p.32.) claims that it is a subdivision of the sideriau or periodical month of 27 days 7 hours 43' 11.5".

Page 2.

Most obvious is the view, also supported by Ideler (Handbuch der mathematischen u. technischen Chronologie I p 60) which suggests that in introducing the week, the synodian month had been used as a basis and that the number "seven", to which very early were attached mystical ideas, was accepted as a measure of time and retained, although it did not correspond ~~with~~ exactly with the phases of the moon.

L. 8. For as long as the human race had not progressed to the agricultural level, it was less concerned with the exact knowledge of recurring annual seasons, but rather paid attention to the aspects, which the moon presented in a ~~so~~ striking manner.

L. 12. And they also soon found, that the period after which the different phases of the moon were repeted amounted to aproximatly 29.5 days.

L. 14. This time was termed "month", and since only full days could be

Page 2

taken into consideration, there remained nothing but to figure the months alternately at thirty and twenty nine days.

L. 17. From 12 such moon-months, during which roughly speaking the annual seasons return (or are repeted), a third or rather a fourth unit — the moon-year (note 2) — was formed.

Note 2. — The months ~~were~~, as the name in all ancient languages proves to satisfaction, were moon-months, and just as the moon-year developed from the moon-months, so also inversely did the sun-month come out of the sun-year.

L. 19. The sun-year is of a much later origin; in a certain sense the determination of its length must be regarded as the result of observations, which the first agriculturists made, and it is more than likely, that the tropical sun-year of the Egyptians, whose land is to no

Page 2
small degree subject to the influence of the sun, was introduced (or incorporated) into the chronology (or reconing).

L. 25. Because of this the moon year was however in no wise put out of use; only those nations who celebrated their festivals not only according to the moon-phases also according to the annual seasons, took to a new type of year, the empirical moon-year.

Page 3 L. 1.
To these peoples, which chose such a year as the foundation for their chronology, who sought to compensate (or equalize) the periods of the sun and of the moon, belonged the jewish people right from the its entrance into the worlds history.

L. 4. Regardless of how much has been said to the opposite and how violently one might resist it, still it remains an unchangeable fact that our lawgiver began

At this point continuation is found in spiral note book.

(continuation of note 2 starting on bottom of page 12.):

L23. This again in within 50 years leaves a surplus of nearly 13 days, in addition to that 365 days of the current year = 378 days or 54 weeks; therefore a jobel year of 2 weeks (!!) We then have a fifty year cycle in which the days of the week are given consideration and all festival days ~~fall~~ come unalteringly on their predetermined day of the week.

Zipser, to be sure, does admit that this System (!) is untenable; but he wants to raise the hypothesis because he supposes that the Sabbath-year-cycle and the jubilee period had a calenderal significance, and because it seemed to him that thereby two difficulties were removed.

In the first place he finds an answer to why it might be said of the suckoth festival that it was celebrated in the 7. month and simultaneously at the end of the year.

According to Zipser's theory these concurred with the year of jubilee which consisted of two weeks. —

Page 13.

It does not pay to waste words on that sort of notions, and we only intend to have mentioned this matter as an oddity.

How ridiculous a 364 day long lunar year is, which begins with Nisan, and a Suckoth-festival, (which) falls on the 15. of the 7. month) preceded by a jubilee year of 2 weeks, a jubilee year that begins on the 10. day of the 7. month, impresses everyone in an unfavorable way. But it is to be sure only a hypothesis!

Page 13 L. 1. In similar fashion we can raise another hypothesis, without having to accept the 49 year cycle which has found so much support in chronological respect.

L. 3. We can agree outright with Chaninin (Note 1) and proceed from the following data in the adjustment which a semi-centennial period of jubilee offers:

50 Julian years = 18 262 d 12 h
50 lunar years (à 354 day) = 17 700 " 0 "
562 d 12 h

19 leap months:
11 thirty day months and
8 twenty nine day months = 562

Epact: ~~Epact~~ 12 h

Page 13.

L. 11. With this small epoct we need not suppose any series of periods of jubilee, in order to effect an actual adjustment; according to our supposition it is sufficient to introduce 12 thirty day months and in the other one 12 in order to eliminate the epoct.

L. 15. But we forego this hypothesis because we do not need it.

Page 14. L 1. Furthermore we cannot attribute our immortal law maker with intentions which only are based upon an accuracy linked with astronomical knowledge.

L 3. Neither one of the two hypotheses holds any plausibility, not Frank's because it still is very doubtful whether at the time of Moses there was any fixed, not to speak of the Indian solar year in use, not Zucker months because we cannot use modern astronomical data as basis for mosaic institutions.

L 8. At that time, when the month began at the appearance of the moon and the chronology consequently.

Page 14

depended entirely upon observation, ~~no leapcyclus regulated by rudiments was needed.~~ there could be no thought of a determined duration of the synodian month.

L. 12. And since everything did depend on observation no leapcyclus regulated by rudiments (principles, basic facts) was needed.

L. 14. Moses did neither intend to introduce ~~the~~ an astronomical lunar month nor the tropical solor year as the basis of the chronology, but an economical year composed of both, and for such he needed no astronomical computations.

L. 18. Every agriculturist could tell at the end of the 12. month whether the barley would be so near ripe ~~that a sheav could be ready for~~ ....

and according to this measuring rod of the season the following month was instituted either as the 13. of the current or as the 1. month of the following year

Page 14 L. 22.

Obviously there could here occur no such fraud as Verres once perpetrated in Sicily.

L. 24. The seasons themselves would have stood witnesses against the priest who might have dared such an act, to accuse him of transgressing the sacred law.

L. 26.

During the first epoch of our chronology no adjustment of the different types of year could take place; the Israelitic ~~the~~ lunar year had to continue limping as compared with the tropical solar year; for in ordinary years it was 10 or 11 days shorter ~~than~~ and in leap year again 18 or 19 days longer, however 365 economical years did agree with 365 tropical solar years within a small fraction.

Page 14 L 33.

II Epoch. From Ezra to R. Jude I.

Just as in the first so also in the second epoch does the month begin with the appearence of the crescent in the evening twilight.

L 36. Consequently we cannot speak of a fixed duration of the month here either ~~for~~ because the calender adjusts itself according to the true, elliptical course of the sun and of the moon and because furthermore the time which lies between the actual conjunction and the visible appearence of the moon depends upon ~~various factors~~ too varying factors to permit it to be of an even length.

Page 15. L 1. But the process of observation is much more rigid than earlier.

L 2. While during the biblical era newmoons and festivals were fixed and regulated, as the phases of the moon demanded, the establishment of the beginning of the month was in the second era regarded as a judiciary act, to be preceded by the hearing of witnesses.

Nisan & Tisri "observed"

Page 15.

L.T. It is most probable that the great Synagogue had already established the custom, that the new moons - at least of the two months of celebrations, Nisan and Tischri - were fixed by means of observations and the exposition of credible witnesses (Note 1); and we are the more justified in making this assertion since we must say ourselves that our ancestors recognized this ~~to~~ procedure to be the most convenient (suited) means of determining the length of the month.

Note 1 Consequently it became the duty of every Israelite to personally inform the court of his observation of the new moon, unless he was more than one day's journey away from the seat of the Synhedrin. For this purpose he might override the Sabbath commandment and this later on was also the case for those persons who were to testify to their credibility. The witnesses were treated in a most hospitable fashion, and nomatter how many of them came before the Sanhedrin, not a single one was offhand sent away. Compare Rosch hosch. I 4, 6, 9. II, 1. In earlier times the high priests seemed to have performed the hearing of the witnesses as evidenced in 1.c. I 7.

Page 15.

Under R. Gamaliel II noone else was allowed to presume anything during the hearing of the witnesses; for he watched the admission of witnesses strictly. The Interesting is the passage in j. Rosch hasschanah which contradicts the ~~Babylonian~~ Bab. Talmud:

In the babli the matter is repre = sented in a different way, there it reads:

This however contradicts the Mischnah.

L. 13. And this length they sought because they at times were dependent upon it when observations were hindred or defective.

L. 15. As a result it is in our opinion superfluous, yes unjust, to maintain that our ancestors were the disciples of the Chaldeans and the Greeks, and that they got their astronomical knowledge from abroad, when they did have an institution at home which must give them fairly safe results though first after ~~long~~ drawn out lengthy and complicated computations.

Page 15.
L 21. For they only needed to know accurately the distances of the meridians, under which two successive new moons were observed in the evening-twilight, in order exactly to determine the length of any particular month, and after a series of such observations to divide the sum of recorded days and hours by the number of months, in order to ascertain the duration of the month.

Page 16. L. 1.
But let it not be forgotten, that this month, was essentially different from our present day month, in as far as its limits were not the conjunctions but the appearance of the first edge of the crescent, and that ~~was~~ needed further computation in order to ~~bring~~ gain the actual mean duration of the synodian month, since the time between the mentioned limits depends upon the position of the ecliptic to the horizon in each case.

L 7. Nomatter how incomplete therefore the recordings might have been, which the Synhedrin made after not always dependable witnesses, it is not surprising that R. Gamaliel I (Note 1)

Page 16.

thought himself justified in making the average length of the synodian month an unchangeable result.

Note! Compare Rosch Hoschanah 25a

Farther down we shall return to this passage but we want already here to point out that the expression is not to be taken litterally; for if it actually had reference to the true conjunction then the reference would not be entirely correct and furthermore incomplete since the other limit cannot be ascertained.

L. 12 Besides, we cannot help but find the reason for the secrediveness, with which the calendercouncil acted (Note 2) in the fact that it was as a matter of appropriate and justified precaution no final result was to become public and that for this reason only such men were to be summoned, who were reticent and at the same time capable of evaluating the testimonies of the witnesses not only for the moment but also in view of the intended goal.

Page 16.

Note 2. It is evident from Ketubboth 112 a that originally did not mean calendar secret but calendar council. It is said of R. Eleazar (and not of R. Seira, as it is wrongly said stated in Orient II 526) that he expressed his threefold joy over it. There is no more reason for accepting the words in any other sense. It is however plausible that in a later period the results which were gained in this calendar council themselves were called if for no other reason because they were known to few other than the experts. It is a mere conjecture that they were kept secret to the gentiles for the passage Ketub. 111a does not prove anything, because, as already Raschi stated, means something entirely different. Compare further down.

L. 19. It would be expected, that subjected to so careful a procedure the calendar would be entirely based upon observations.

L. 21 ~~In reality~~ ~~actually~~ however this is not the case.

~~however~~

Page 16. L. 22. Already Esra apparently did not seem to follow the true conjunction at all times; for the source informs us that since his time the month Elul never has been complete (Note 3).

Note 3. Rosch hoschauch 19b 32a, Beza 6b and parallel passages. However the matter is represented in the Talmud as if Esra had taken no steps in this regard and as though it were established merely through tradition or even historically that the month Elul had been incomplete during that entire era.

Elul

Page 17. L. 1. It is likely that he could not help but make some arrangement in this respect, because he was deeply interested in ~~bringing~~ expressing the unity of the people through the simultaneous observation of the festivals.

L.H. But we only intend to present this as a supposition, for one thing because there are differing interpretations as regards the name of the writer and then also because there has only been preserved the one piece of information from that period that the names of the months

Page 17.

are of Babylonian origin, (Note 2) and because we find no dependable information prior to the second [generation of Tanai (?)]

L. 9. But we find so much more evidence in later periods that ~~as a result of the~~ based upon the results gained from observation the observation itself was partially anticipated, yes & to some extent entirely avoided.

New Light anticipated

L. 12. If the true conjunction i. e. the appearance of the moon had always been the standard, there would have been no place whatever for computation, thus it is clear how the character of the month could be predetermined with accuracy.

L. 16. And the controversy between R. Simon's b. Gamaliel with the Chochamim (Note 3) proves that this was done, and further the circumstance that the patriarch already announced the duration of the resp month to the congregation of the Diaspora at the end of the 12. month. (Note 4)

Page. 17.
Note 3. Synhedrin 11a.
R. hoshanah 19b.
Erachin 9b.

Note 4. Synhedrin ibid. If we join Director (probably: president of a school) Frankel in supposing that Gamaliel I was the author of the writings of the Synhedrin then we would have evidence to the fact that the observation was influenced by computation already prior to the distruction of the temple. But nomatter how strongly the passage suggests Gamaliel I, the Talmud itself refers the case to R. Gamaliel III, since he considers the modesty of the patriarch which is evidenced in the writing concerned to be a result of his loss of office. Compare Darke hamischnah p 54 and on.

L. 20. Did he know that the new moon or would be visible, since he was able to make the Adar II complete or incomplete in advance?

Page 18. L. 1. And in those years it was just as impossible to follow the true course of the moon when for several successive months the observation was omitted due

Page 18

partly to the weather conditions partly to lack of witnesses.

L. 4. We have a Mishnah (Note 1) which has the marks (stamp) of that age and which furnishes a chronological basis for this case where the observation cannot be carried through.

L. 7. ~~H~~ Note 1 Eroshin II, 4. This Mishnah was interpreted in two different manners in Talmud p. 9. Ulla endeavours to minimize the somewhat too wide (or indefinite) limits by asserting that the protasis is explained by the apodosis According to him the axiom must read: There shall be no less than four complete months, for there may ~~be~~ no more than eight of the incomplete months. It is striking that Samuel, who is famed also as an astronomer, extends the limits of the lunar year as far as does R. Huna, and still more striking ~~it~~ is the manner in which Talmud explains these different types of year according to Samuel.

120
2 52
372

Page 18.

Regardless of the fact that here must be understood ~~in~~ a way different from usual, since the year types of 253 and 355 remain unexplained otherwise.

L. 7. It teaches (or says) that the number of complete months may not be less than four and not greater than eight, which is to say that the lunar year must have no less than 352 and no more than 356 days.

352
356

L. 10 These limits still are to far apart to permit the assumption that the average duration of the synodian month was known even approximately at that time.

L. 13. Boraita shows a gratifying progress in this direction in that the limits within which the mean lunar year lies, gradually narrowed down. (Note 2).

Note 2. Rosch haschanah 6 b, 20 a, Sukka 54, Sabbath 87 b, Erachin 9 b. According to Tosifta Erachin c. I the weekly festival can only fall on the day of the week on which the the second passah day had been,

Pentecost = same day as 16 Nisan

Page 18.

but the can coincide with either the second or the third day of the Passah.

From this it is clear that the Acherim stand in contrast to the proponents of the prior view, and nevertheless the Talmud Erach. 9b. strives to present this second viewpoint as non-contradictory, and it is R. Meschorschajah who takes it upon himself to show how according to the Acherim. could fall on and that as follows. He says that Adar II was counted full in leap years and consequently of the summer months four in stead of three were counted at 29 days, since otherwise there would be 6 days between two R"H. The whole matter would be settled - if there were not one objection. True enough, when the week festival is shifted from the 6. to the 7. ~~Sivan~~ Sivan due to an incomplete Sjar, then the R. H. falls on the same day of the week on which had been the ; it is likewise true that under these circumstances the year would have no more than 383 days, but it remains incorrect

Page 18.

~~to assume~~ that there be only 5 days between the two weekly festivals. The 30. day of the esp month cannot be displaced in relation to .

Page 19. L. 1. R. Schemajah teaches that the week festival might come on the 5., 6., 7., Sivan depending upon whether the year has 355, 354, 353 days, while according to the Acherim, which only accept one type of year, the first between two successive week festivals must be taken to be a constant.

L. 5. Though this Baraitha be only of theoretical importance, it still shows us that the average duration of the ~~month was~~ lunar year was obtained gradually and that our ancients ~~first~~ understood the lunar year to be 354 days after many years of observations (Note 1)

354

Note 1 Tosifta Nasir c I and parallel passages.

L. 9. In course of time they approached the true value more and more until finally the

Page 19.

average duration of the month was thought to be known with accuracy; for the greater the mutual influence of computations and observations, the more carefully did either one need to be treated, and the so much sound was the conviction reached that the mean duration of the synodion month must be greater than 29.5 days, since already after three years a ~~moon~~ lunar year of a full day's longer duration was observed.

L. 17. And in reality long before the destruction of the Temple it was believed that the mean duration of the month amounted to 29 d. 12 $\frac{720}{1080}$ h. Proof hereof is found in the Talmud as well as in the other ancient sources.

L. 20. Once, thus the Boraitha (Note 2) tells us, the moon was believed to have been seen on the 29. day in a cloudy sky, and the people wanted to make the court celebrate the new moon.

~~Note 123.~~ Note 2 Rosh hosch. 25a I may assume that the controversy between the patriarch and the

Page 19.
powerful and astronomically learned R. ~~Jonas~~ Josua (compare Horajoth p 10.a and Rapoport's letter to Slonimski in) and the manner in which R. Akiba intervened is already known to the reader.

L. 23. R. Gamaliel III (Note 3) is said to have placed his veto against this and at this occasion given the following explanation to his colleagues, who frequently had been concerned over the arbitrary acts of the patriarch

Note 3. R. Gamaliel had made astronomy his special study and was a stern judge also to the his cross-questioning and the manner in which he conducted the hearing of witnesses proved to satisfaction that he did not only heed the observation. The Karaes (Eschkol hakofer p 75 קפ) regard him as the founder of the new calender, just as they consider to be the founder of the Dechijoth. ~~Occasionally~~

Page 19.
At this place we mention that Makrizi according to De Sacy calls a certain R. Eliezer ben Tarnon the founder of our calendar. Compare De Sacy Chrest. arab. I. (2nd ed.) p. 287, Hojouch § 18 and Ideler l.c. I, 599. Most likely reference is made to that R. Eliezer who ~~as~~ according to Steinschneider, places the Creation on (or at)

Page 20. l. 1. The words ~~are~~ as David Gans (Note I) clearly confirms and as is plainly evident from its different mode of expression, are an epenthesis.

Note 1. In his Treatise Nachmod venaim § 213 Gans produces more evidence for the correctness of this interpretation. The words are missing in who quote them and likewise in the Pirke of R. Eliezer. Also Nachmanides the opponent of Maimuni, ( ) seems to have had the same version, else he could not have maintained, that no rudiment of our calendar is to be found in the Talmud. Further, Gans does not believe that R. Gamaliel speaks of the average

Page 20

duration of the month, because he is of the opinion that the true course of the moon was rigidly adhered to at that time. Also Luzzato, who first (Orient 1850 p 689) objected violently to the idea of any interpolation and who opposed the viewpoint held by Gaus & with all means, has later (Kerem Chemed VIII p 39) upon studying admitted that R. Gamaliel did not know of the , and that these words only could come from a later Amorea. Compare also Arnolen 1840 p. 141

L. 3. R. Gamaliel would certainly have said , if the division of hours in Cholakim had been known to him.

L. 6. The duration of the synodian month as accepted by R. Gamaliel is also mentioned in two other old sources, in the Boraitha of Samuel and in the Pirke of R. Eliezer, where we encounter it as the basis for the 84 year cycles.

Length of Months

L. 9. The last passage we only know from quotations of old authors.

Page 20.

L. 10. The first who remembers it is Sabbatai Donolo (913-970) in ~~this~~ the preface to his (Note 2) and in his Commentary to the same (Note 3), in which ~~he~~ he calls Samuel (Note 4).

Note 2. Compare Geiger Melo Chofnajim p. 31. 32.

Note 3. Kerem Chemed 8, 65, Frankels Monatschrift VI. B.

Note 4. These words originated with Donolo himself; the fact that R. Elieser of Worms, the author of the book Rasiel had read it proves this. is here intended to substitute the word ; in accordance with that, Carmoly's supposition (Annalen 1840 p. 225) that Samuel is not the one of the Talmud is fully as unfounded, as it is outright wrong (ibid. u. 1839. p 222) ~~to~~ quote R. Elieser from Mainz ~~as~~ (1050) as the author of . Compare Zunz Gottesdienstliche Vorträge p. 93 Rojanah p. 19.

Page 20

L 13. It is further mentioned by Raschi Jes. 9,13. 19,15; Abraham Hanasi says thereof (Sefer haibbur II, 2)

(Note 5) i.e. in other words: the Molad character of the moon is 1 d 12 h 720 ch. (Note 1)

Note. 5. H. Philipovski, the editor of Sefer haibbur, proposes to conclude ~~that~~ from the words

that these are identical, and believes that he is able to prove this assertion with similar quotations from the same and ~~as~~ from Donolo and the words of Kusari 4, 29. David Cassel has already pointed out that Raschi, who died 18 years prior to the compilation (or writing) of , has made reference to both of these treaties with different names, that further already Aruch is familiar with the Boraitha of R. Eliezer and Ibn Esra, the cotemporary of Juda ha Levi uses both names (compare Monatsschrift I, 66 on) But Sen. Sachs has floored this hypothesis by proving that both Boraithoth are not original, but

Page 20

are based upon a common older source (compare his Techijah pp 20 Monatsschrift I, 280) and that there are passages in Donolo's writings and in Midrasch Konen from the B. of S. of which there is found no trace in the P. of R.E. Oppinions diverge widely regarding the time of the writing and the actual contents of the B. of S. While some people identify them with the סוד העיבור as referred to in ר"ה 20b (viz Nachmanides Iob c.26), others explain them as being a collection of all pronouncements of Samuel as found throughout the Talmud. (Zunz l.c.) Slominski and Steinschnader claim that the B. of S. are older than the P of R.E. and that they were used by the latter, while S. Sachs claims the ~~contrary~~ opposite. In the year 1863 the B. of S. was edited by one Mr. Eliah Kohn from Lubrowitz. The publischer has seen to it that there should not long remain any doubt as to the value of for he makes mention of the fortunate Discovery

Most likely it is a compilation of Donolo's commentary, though it does contain sentences which are not found there. It contains 9 Sections of which the 5. begins with the words:

Page 20.
To it is added
Here let me briefly mention that
certain passages such as those re=
garding the relationships between the
course of the moon to that of the
sun also are found in Jeruschal=
mi ירו.

Page 21 Note 1. Compare further
the second part of our work
(here probably: treatise.)

L. 1. Also Ibn Ezra Exod. 12, 2
and Simon Duran (in his
Job commentary are mindful
thereof. In the Calendar published
in 1527 in Basel by Sebastian
Münster it says p 56

and readingon:

on p. 90 it says

The passage about the astronomical
knowledge of the sons of Issachar
is also found in the introduction
to the of Elieser
Bellin Aschkenasi (twice edited
Riva 1562 and Offenbach 1772
Note 2)

Issachar

Note 2.
Here it reads:

Likewise the author - who was one of the most learned chronologists and who was quite acquainted with the essence of the calendar - claims that the 1080 Chalakim are referred to in the Bible verse Jesaias 27, 4. (3)

L. 10. It is possible that the Boraitha (Note 3) quoted by Israeli in Jesod Olam also is a fragment of the B. of S.

Note 3. Jesod Olam. Berlin 1848 c IV 2

The Boraitha is also referred to by Scaliger l. c. 62a.

L. 12. Regarding this topic we cannot get beyond the mere supposition, for we have no assurance that the secondary sources at hand were drawn from the originals; perhaps the

all the quotations of later men are taken from the writings of Donolo.

L. 5. In the p Pirke (Note 1) of R. Elieser (Note 2) which according to Rapoport (Kerem Chemed 7, 17) and Zunz (l. c. 277) were edited not earlier than the eighth century we find three chapters (6, 7, 8) that contain detailed information about the calender system and which most probably were taken from a much older source.

Note 1. Reference is also made to them under the name R. Nathan in Aruch, by Rashi C. 17, 3 and R. Tam by § 668. The latter says. Ketuboth 99

Note 2. According to Zunz there lies a complete plan at the base of this agadian treatise; with a few breaks the order of the chapters is systematic, particularly between ch. 46 and ch. 49 as also between 52 an 53 does there seem to be gaps. But every trace is lacking that at some time there might have been more available than we have now.

Page 22.

Furthermore the treatise is not entirely ascribed to R. Eliezer. Maimonides (More II, 26) ascribes ~~regards~~ it fully to him. Senior Sachs is in regard to the P. of R. E of the opinion that it has come to us in its present form from two books, which perhaps have one and the same author and which relate themselves to each other as text and Commentary. The text, which treats the history of Israel in hagadaic Pintform and which probably was intended for ritual purposes, is followed by a number of hagadaic narrations and interpretations as though to explain and confirm that which is said in the text. Comp. Monatsschrift I, 377 and Techijah p. 20 Note. hojaoth p. 95.

L. 10. The narrow limitation of our work does not allow us to go into further details here; we refer to Steinschneider's Emendations (Note 3) and shall extract from it the indispensible points as far as our subject demands.

Note 3. Compare Ersch and Gruber Allg. Enc II. Section, 27. Part p 434 and out and hajaoth 17-35. ibidem p. 23 line 2 omit

Page 22.

L. 13. After the author at the beginning of the 6. Chapter has discussed briefly the order and dominion (Note 4) of the planets and their relationship to the other celestial bodies and particularly to the constellations in the Zodiac, he goes into a discussion of the tropical solar year.

Note 4. In order to make this expression (term) clearer, we shall quote a passage from Dio Cassius which also Ideler (l. c. 178) makes use of in the proper place. Dio Cassius, states (l. 37. c. 17) that the Jews celebrate the day of Saturn and this affords him the opportunity to raise two principles which in his opinion were used in naming the days of that time cycles. The one is of a harmoneous nature, the other astronomical. Dio Cassius states, that if the musical interval δι᾽ ὀξειῶν, the ~~quarte~~ fourth, is used applied to the 7 planets according to their time of revolution then ~~the~~ the sun, the fourth, is first encountered, then the seventh, the moon and so on the planets in the order in which the succeed each other in the names of the days of the week.

Order of planets name days of the week

Page 22

Or if the hours of the day and the night are counted from the first (hour of the day) this being attributed to Saturn the following to Jupiter, the third to Mars, the fourth to the Sun, the fifth to Venus, the sixth to Mercury, the seventh to the moon in the order which the Egyptians ascribe the planets, and this is continued over again, then, when all 24 hours have been passed through it will be found that the first hour of the following day will fall on the sun, that of the third day on the moon, in short the first hour of every day will fall on the planet after which that day has been named. The planet with which the first hour of the day begins is the ruler of that day; if the astrologer knows the ruler of the particular day, after which it is named, then he also knows under what influence every hour stands. It is then important to find the ruler of every day of the month or the corresponding day of the week. In the P. of ☆ R. El. both rulers, of the day and of the night are mentioned

76 years = 8 hrs. lag by moon
84 years = 9 " " "

L. 2. The tropical solar year of 365.25 days has four Tekuphoth, of which each is 91 days 7.5 hours.

L. 4. Four such years form the small solar cyclus, ~~the~~ whose character (thus we will call the excess of days per analogiam) is 5 days.

L. 6. The large solar cyclus consists of 28 years = 7 × 4 small cycles.

L. 7. The Molad character of the triennial small lunar cyclus = 6 days i. e. the conjunction after 3 × 12 months comes one day earlier and after seven such small cycles which make out the large lunar cyclus it comes at the same time again.

L. 11. After three large solar ~~cycles~~ cycles and just as many large lunar cycles [seems wrong; should obviously be three solar cycles: 3 × (7 × 4) ~~and~~ = 84 and four lunar cycles: 4 × (7 × 3) = 84. Note by translator], i. e. at the end of a 84 year period which is one ~~hour~~ divine hour, the Sun and moon return to the same place, from which they started at the creation.

Page 23

L. 15. In order at the end of this period to be able to establish a real adjustment it is necessary to accept with Bucherius (Note 1) who has treated this cycles thoroughly and has commented on it at length, 15 common years of 355 and 38 of 354 days, and also 31 leap years of 384 days – and that in the following fashion: 8 times 3, 3, 2, 4 times 3, 2, 2, and once 2, 2, 2.

84-year cycle

L. 20. According to Bucherius, with whom Epiphanius (Note 2) and Cyrillus (Note 3) agree, this 84 year cycles was introduced at the time of Simon the Maccabean (142 B.C.) and was kept in use up until the introduction of our present constant calendar.

Note 1. In his treatise de doctrina temporum in Vitorium Aquitanum p. 331

Note 2. Haeres L. I c 26 p 448.

Note 3. Prologus Paschalis.

L. 24. We may well consider ourselves relieved from the trouble of demonstrating the unreasonableness of this hypothesis.

Page 23

L. 25. The entire intercalary cyclus is a dalliance, and can never have been used practically, and least of all among us at at time when the determination of the beginning of the month as also the intercalation if not exclusively, then at least principally depended upon observation.

84-cycle a dalliance

Page 24

L. 4. If there was any time in this era, at which the computations were alone decisive, that could only be during the sad years 135–140 of the Hadrian rule, that time, when R. Akiba administered the patriarchy ~~inter~~ provisionally.

Hadrian-computation

L. 7. The after-pains of the Bar-Kochba war and the Hadrian persecutions' edicts tended, to be sure, to suspend the investiture of the new moon by means of testimony and to impress the ~~com~~ law teachers, gathered in ~~Sotter~~ the loft in Lydda with the necessity of a calendar based upon computation.

L. 12 And actually the fact that R. Akiba, who was languishing in his prison cell, was consulted (Note 1) serves as proof that at that time no attention was paid to the observations.

Page 24

Note 1 Synhedrin p 12 a compare Derke hamischnah p. 121 where this fact is explained in a different way.

L. 15. But hardly had the unexpected end of the persecution called the many refugees back to their homeland, hardly had the ~~four~~ seven disciples of R. Akiba come out from their hidingplace, before they began to order the calendar system that had become confused during the suppression and to order a leap-year.

L. 20. R. Simon (b?) Gamaliel II had no sooner taken over the patriarchy than he knew - as evidenced in his way of treating R. Chanina (Note 2) - how to reestablish the statusquo ante with the energy inherited from his father and to observe the process of intercalation as also the regulation of days of festival and new moons

Note 2. R. Chanina, a ~~Halbbruder~~ nephew to R. Josua, had organized a Synhedrin ~~in Judaea~~ in Nahar-Pakor during the hopeless condition in Judea and had founded a center for the congregations which in Babylonia were cut off from the homeland, from which center religious regulations should emanate. As head of the

Synhedrin he claimed the right to institute leap-years and festivals in agreement with the same principles that were customary in Judea. But as soon as the Synhedrin in Usha had been constituted and the patriarch had assumed his functions, he sent two representatives, R. Isaak and R. Nathan to R. Chanina with a letter which had the flattering and unusual formula: "To his Holyness Chanina". The judean ambassadors, who were most cordially received, sought to assure themselves of the confidence of the people, and first when the head of the babylonian Synhedrin had introduced them to the congregation did they disclose the final purpose of their mission. In public service the one of them read from the Pentateuch the other from the prophets

This ironical interpretation called it to the attention of the audience how contrary to the law it was to have an ~~separate~~ independent Babylonian Synhedrin and troubled their conscience. In vain did R. Chanina seek to justify his actions, in vain did he try to ~~set~~ place the authority of the Judean law teachers in the ~~the~~ shade; the ambassadors discharged

Page 24

their duties in a worthy and dignified manner: they replied to R. Chanina: "the small ones, which you have left have meanwhile grown up" and they showed to him how a counter-synhedrin in Babylonia would endanger the unity of the Judaism. R. Chanina did not want to yield in spite of all this, and not until R. Juda ben Batyra in Nisibis had given him to understand that the regulations of the general synhedrin must be followed, did he send messengers on horseback to the nearest congregations in order to revoke the festivals that he had arranged. Compare Berachoth 63.; jer. Nedarim VI 8. Synhedrin I, 1 Regarding the authenticity of these sources compare Grätz IV Note 21.

Page 25. L. 4.

L. 4. The manner in which the adjustment of the astronomical lunar year to the tropical solar year was accomplished is the best proof that there was no knowledge of an intercalation cyclus regulated by certain principles.

L. 7 In the second era the establising of the intercalary month was not determined solely by the condition of the barley, but also other factors were taken into considerarion

L. 9. At the time of the law-research and of the exact law observanceit was felt that the earlier custom no longer could be retained, and since the Scripture uses the word in reference to the Pessach festival and the word in connection with the Sukkoth celebration, it seems necessary that beside the agrarian principle , which to be sure stands in closest connection with the seasons but in no wise accuratly with the course of the sun. the latter receive some attention.

L. 16. according to the wording of the scripture it is less important regarding the whether the sun has reached the spring point than whether the barley is ripe,while on the other hand for the Sukkoth it is important that the sun moves into the Libra at the time for the festival.

L. 21. Strictly speaking then we only need to keep these two points in view, in order to satisfy the requirements; but since at the festival of the week the first-fruits

of the trees were to be brought, this third point was also taken into account, and as the Tosifta (Note 1) tells the intercalation was determined by the condition of the barley, and the tree fruits and also by the course of the sun; two instances however were enoughto cause the institution of an intercalary month (note 2) while with only one condition there wreeseveral other deciding factors (note 3).

Note 1. Synhedrin c. 1
Note 2. Synhedrin p. 11.
Note 3. Ibidem.

Intercalation

L. 29. With reference to the agrarian requirement of course only the three Provinces of Palestine (Note 4), Judea, Perea, Galilee came into consideration, and at least in two of these there should be the reasonable prospect of ripe barley.

Note 4. The intercalation could only originate with the Synhedrin in Palestine. Jer. Synh. I p. 19a

Compare the parallel passages. Gratz has proven by means of the that the Synhedrinites, of whom the b. Talmud says that they had instituted intercalary months abroad, were nothing other than messengers who brought the decision of the Synhedrin to the various congregations. In the note by Mischna at the end of Jebamoth it must read (not)

and likewise wherever there is mention of the abroad the emendation must be carried out. The passage in the dialogue between R. Chanina and the delegates from Palestine in which the former refers to R. Akiba who also introduced

intercalary months outside of Palestine, is not found in the jer. Talmud. Compare Tosifta Megilla 18, j. Nedarim VIII. p. 10. Gratz IV. Note 21.

Page 26.

L. 3. Certain years such as Sabbath and Jubelee years could in no wise be embolismic.

L.4. It is therefore seen that it was not required that a regular intercalary cyclus be introduced and that it was sufficient fot the desired purpose to gradually determine the character of the year in the calendar council.

L. 7. It is in the nature of things that the Synhedrin first came together at the end of the winter for this purpose; but this act which should take place no later than the last day of AdarI could under compelling circumstances take place after new year and in exceptional cases stillearlier; but then the Adar II also remains Intercalary.

L. 12. Intercalation on the account of the following year as well as the succession of several leap years was offhand prohibited. (Note 1)

Successive leap years

Note 1. b. Synhedrin 11a.

L. 15. The intercalation was always regarded as an important act, in which precipitation or influencing of the members of the Synhedrin were excluded.

L. 17. Already one day in advance the Patriarch summoned 7 Synhedrinites, that they might be instructed from competent sources.

Page 26

L. 19. In the secret session the pros and cons were thoroughly ~~[illegible]~~ weighed, and when the debate had cleared the opinions, they proceeded to vote, beginning with the youngest members. (Note 2)

Note 2. j. R. Hosch 2, 1

L. 22. Since the days of R. Simon ben Gamaliel a threefold differentiation was made in the calendar council; the small college consisting of the three most dignified members was to agree by majority that the ~~council should~~ consultation should take place in which case two other members were called in; if the proponent now was in a minority the meeting was ~~adjourned~~ adjourned forthwith, but if he received a majority then the college was once more increased by two and in this college of seven judges resolutions could become law by a majority of four votes.

Page 27. L. 2. The patriarch was regularly the one who presided, and if he was hindered from attending the session

then his consent had to be had subsequently for the resolutions made, and if this was refused a second session would have to be called.

L. 6. The accepted resolutions were then presented to the congregation in a synhedrinal note, which also stated the reasons for the action of the college (= board).

L. 9. The patriarch was invested with the same autocratic power regarding the institution of the new moons, yes, prior to R. Jochanan ben Sakkai the witnesses had to go to whatever might be the temporary residence of the patriarch.

L. 12. He presided over the hearing of the witnesses, he entangled the men who appeared in court by cross questioning about the time, the place of the observation, about the size and elevation of the new moon, and only when according to his conviction two witnesses agreed with each other and with the theory did he (note 1) declare the day holy.

Note 1 Rosch hoschanah II, 6, 7.

L. 17. Opinions in the Mishnah (Note 2) differ as to whether the same procedure also took place on the 31. day of the month.

Note 2. Ibidem.

L. 19. The new-moon-day was announced to the Gola congregations by means of fire signals, which were waved back and forth on the various mountain summits (Note 3), and that only after months of 29 days on the evening between the 30. and the 31. day. (Note 4).

Note 3. Concerning these stations comp. Frankel in his Monatsschrift 1853 p. 412

Note 4. The right ~~way of reading~~ form in the Mishnah and Tosefta must be

Note 4. Compare Rosch hasch p 22 b and parallel passages in j. T. where it is given in detail.

~~It is~~ this passage disproves the assertion by Krochmal, that it was

not always possible to announce the new year's day to the Gola. Thus also his hypothesis (falls) that earlier the Synhedrin of each town instituted new moons and festivals. (Chulin III, 145) Compare however Tosifta chap. I.

Alexandria

L. 22. In reference to Alexandria it is doubtful whether the Synhedrin in Jerusalem or the court in Alexandria was decisive for the institution of the new moon.

L. 25. Perhaps they had already long before in Babylonia introduced the second day of celebration, since the fire signals to Egypt had to be omitted from lack of suitable stations. (Note 1)

Note 1. Director (of some school, probably) Frankel has long ago proven that there was no other calendar in Alexandria than in Palestine. (Zeitschrift der d. morgenl. Gesellschaft Vol. 4 p 102)

Double festival

Page 28. L. 1. In the Gola this double festival first was introduced at the end of the

L. 2. When it became necessary to

~~to~~ abandon the long observed pro=
cedure and to ~~institute~~ announce
the institution of the new moon
by special messengers, due to the
crookedness of the Samaritans
who sought to lead the congregation
astray, the arrangement was also made
that all those congregations which
the messengers could not reach
were to celebrate a second day in
case of doubt.

L. 8. This second day known by
the name
is of much older origin than
usually supposed. (Note 2), for
as Mischnah tells, the institution
of messengers was already known
at the time of the second temple.
(Note 3)

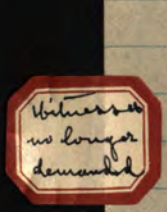
Note 2. Gratz (IV p. 218) too, basing
his statement upon
(j. R. H. 2, 1) claims that R. Juda
abolished the mountain fires; but
Frankel has already (Darke
hamischnah p. 205 Note 8) pointed
out that this ~~interpretation~~ version
is wrong, because it is contra=
dictory to the Mischnah 1, 3. It
cannot either be made to agree with
the Tosifta c. 1. Here is said:

It is from this obvious that R. Juda already found the institution of messengers already in existence and that he only introduced new improvements in this respect; maybe he abolished those mountain fires, which then as earlier were in use in vicinities where there were no samaritans. Comp. j. Talmud l.c.

Note 3. Maimuni Kiddusch hachodesch 3, 11 – 15

L. 12. III Era: From R. Juda I to Hillel II.
R. Juda I., who by editing the Mschnah had created a new center for Judaism and (with) his authority and independence had put aside many customs of long and hallowed standing, also brought about reforms of the calendar system, which paved the way for our present fixed calendar.

L. 17. Under his patriarchy the astronomical computation commences to prevail over the observation.



L. 19. The hearing of witnesses sink to the level of a mere form, which is most clearly evidenced from the fact that the messengers, who were to notify the Gola congregations of the new moon, ~~started out~~ from this time on started out before the hearing of the witnesses

was ended.

L. 23. Of course no one was very particular about the witnesses anymore from then on, now ex witnesses and criminals were admitted, people who in other judiciary sets would be given no credence. (Note 4)

Note 4. Ser. Rosch hasch. 2,1

L. 26. The announcement of the new moon, which had been a chief function of the patriarch, R. Juda let a proxy make and at that not in the town of the Synhedrin but usually in Jin-Tab (Note 1) located to the south.

Page 29.

Note 1. Rosch hasschanah 25a

compare Tosapoth. That Rabbi was not so particular about the determination of the new moon is proven from the following interesting passage from Erachid 9b.

Tosapoth sought to make this fact clear ~~through~~ by means of the data of our present calendar, as though our chronology depended upon the

~~appearance of~~ the true conjunction or even upon the moment of the appearence of the ~~moon~~ crescent.

L. 4. Perhaps the formula which he had introduced, and which his proxy applied in manifesting the sanctification of the new moon, was intended to safeguard the authority of the patriarch.

L. 6. In general the study of astronomy seemed to receive special attention at the university of R. Juda I.

L. 8. At least the declarations of the opinion of his most outstanding s disciples may be taken as proof that their master did not omit to encourage his more capable students to the study of this topic

✓ which ~~bordered~~ touched (maybe: dealt with?) the Halacha.

L. 12. Thus the gifted Bar Kappara said: "The word of the prophet: 'The works of the Eternal one they see not and they do not behold his handiwork' (Note 2) is directed against those who do not apply their talents to compute astro= nomically the Tekufoth and the course of the planets (perhaps it originally read מזלות in stead of מזולות)

Note 2. Isaiah 5,12)

L. 17. The more severe Rab felt that such a one [cannot tell to what author has reference; translator] should be ignored completely, and R. Jochanan, who was at home familiar with astronomy went so far as to make this study a commandment which the (scriptural) to everyone. (Note 3)

Note 3. Sabbath. 75a.

L. 21. These words prove to our satisfaction the great importance which the computation had gained as a factor in the chronology.

L. 23. And actually after the death of the patriarch the necessity of the astronomical computation did actually become more evident, when the need of a regulated calendar grew keener and in Babylonia the demand for a solid order of festivals become more insistent.

L. 28. Thus the consequent institution of the new moon throug testimony of witnesses had to give way to the fixation of the beginning of the month based on mathematical accuracy out of consideration to the Diaspora.

L. 1. If in spite of all this the introduction of a constant, i.e. a calendar based on computation of average was generally opposed, and if the leading men of Judea still shunned the complete ~~surrender~~ (rather abolishment) of the merely formal testimony of witnesses, then this was not, as some hyper Critics think, because the patriarchs wanted to exercise their power and to hold the Diaspores in dependence, but only because they did not want to postpone the beginning of the month.

L. 9. If the enlightened men of the calendar council had been certain that the matter ended not with the conjunction, but with the appearance of the crescent, in the astronomical computations, then certainly they would not have hesitated one moment to make their final results known and to abolish the hearing of witnesses for ever.

L. 14. But because they were convinced that sooner or later the strict astronomical computation would be followed by a more mediocre, and that hereby the beginning of the month which had been held sacred by (through) the centuries, would be shifted, therefore and only therefore did they watch (observe)

Page 30

The principles which they followed, with great diligence, in order that no unauthorized person should obtain that knowledge.

L. 21. Nevertheless concessions were allowed in order to appease the congregation of Gola somewhat.

L. 23. Thus at least the duration of the month preceding the Passah was established once and for all, and Mar Ukba, the supreme judge was informed (Note 1) in order that the first day of the Passah might be known in all of Babylonia.

Month preceding Passah established

Note 1. Rosch haschanah 19 b.

L. 27. Gola was however in no wise appeased hereby; due to the uncertainty regarding the high feast days the demand for a regulated calendar grew ever greater, until even Mar Samuel Jarchinai, ~~could not~~ the Babylonian authority, could not help expressing the general demand, and certainly the constant calendar would have been introduced at this time, ~~had it not~~ if some energetic men in Judea held the reins.

Mar-Samuel

L 34. It is plain from the controversy which Samuel had with Aba, the

father of R. Simlai, that originally he claimed more than the authority over the customary astronomical method of computation in the calendar council.

L. 37 For when Samuel, who could claim that he knew the courses of the planets just as well as the streets in his home town Nehardea, made a public declaration that he was able to give all of Gola a regulated Calendar he was told by Ada that probably only was able to introduce an arrangement of festivals based upon the average computation, and that such a one in no wise would agree with the one observed in Judea.

Page 31. L. 5 "Do you actually know how to determine the time between the Conjunction and the visible appearence accurately?" (Note 1).

Note 1. The words (Rosch hashanah 20 b)

can not be taken literally, because we have to assume that Samuel who was well versed in astronomy did know the difference between an earlier and a later conjunction ~~with regard to the~~ with relationship to the

appearance; what he denied knowledge of, ~~was~~ can impossibly have been a matter of the Molad; just as little can one seriously claim that Samuel ~~was~~ well was informed but just refused to answer Aba. Furthermore the passage is one of the most obscure, and, nomatter how many have tried to clarify it, we are still uncertain as to the actual meaning of these lapidary words. Here we shall combine the different explanations.

Meridian

The old chronologers are all of the opinion, that the meridians of the conjunction and of the appearance were to be strictly separated, only as regards the distance between the two do they greatly differ. Mar Hassan, with whom Abr. hanasi agrees is of the conviction that the time between the molad and the ראיה at least is 18 hours and that consequently the conjunction ~~and the appearance~~ was computed in the farthest easterly position and the appearance of the crescent in the farthest West. R. Serachja halevi chooses the farthest East for the appearance ~~of~~ meridian of and for that of the Molad he takes the middle of the hemisphere, still since the day begins below the latter meridian there are 18 hours between the two possible limits. Israeli considers to be the meridian of the

conjuncture and
for that of the
and though these limits are only
1 hour 642 ch apart, then, he thinks,
that is of little importance since the
true conjuncture takes place 14 hrs
648 ch. before the mean, and ac=
cordingly the moon could be seen
on the same day ⅓ of an hour after
sunset. The second viewpoint is least
of all in agreement with the points
that are validated in the Talmud; also
it cannot be seen how the [illegible] could
be kept everytime after the
Rosch kodesch; for until the Witnesses
reached Jerusalem, the 30. day was long
passed. In most modern time
Slominski has explained this pas=
sage in quite an original fashion
except that he does not explain ac=
cording to his opinion the Molad Tisch
does not have to be confirmed as
in the Talmud. Slominski thinks
that does not mean noon
but rather midnight and that con=
sequently the meridians of the con=
junction and the appearance
fall together. (Compare homoge
1864 p. 766 and also Pinles' Wider=
legung ibid.)

L. 6. Aba asked him ~~this question~~
[whether he could do this] "to outline a
calendar according to the method
customary in Judea", and when

Samuel said "No", his opponent let him know in no uncertain terms that his ~~astronomical~~ so highly praised astronomical knowledge was far from sufficient to circumvene the calendar council in Judea.

L. 11. Having been made to see the contradictory side of his undertaking, he turned to a different method of getting independence for his home country; he did not mind the trouble of preparing a calendar for 60 years based on the true movements of the moon and the sun, and this he sent to R. Jochanan, in order to make it plain to the Judean authority, that in Babylonia the messengers in reality were not needed. (Note 1)

Note 1. That the Judeans held this effort against Samuel is plain from the passage j. Ketuboth II p. 26 according to the opinion of Kochmse (Chaluz 3, 141) and Grätz (IV 479). "Samuel's two daughters had for no other reason died so young:

Cause of error in computing a calendar

they had met an early death, not because of their own but because of their father's guilt, because their father had committed the same sin as Chanina, R. Josua's nephew, who intended to take an important prerogative away from the house

of the patriarch and from the Judean Synhedrin." It is evident that Samuel intended to introduce an independent calendar, and that in Judea Samuel's calendar which had been handed to R. Jochanan was not looked upon as a mere mathematical test, but as a means of effecting the independence of the Gola.

L. 7. Already the fact that it was arranged for 60 years shows that this calendar of Samuel's was not our constant, as Krochmal (Note 2) thinks.

Note 2. Cholez III 142, 148.

L. 9. If he started with the mean conjunction, why should Samuel need to compute more than 19 years?

L. 11. How could Samuel, after having been shown the contradictory in his undertaking by the father of R. Simlai suppose that R. Jochanan would favor the introduction of a calendar which was based upon an entirely different beginning of the month.

L. 15. Samuel could not demand anything other than the release of the true astronomical computation, he had no other intentions than to win the influential R. Jochanan over to his

Page 32

undertaking thereby that he thought he was able to give crucial evidence how his chronology agreed with the principles existing in the council of the calendar.

L. 21. But the data that lay at the base of his calendar were not considered to be exact in Judea, to R. Jochanan they seemed to generalized, which he sought to point out with the words

L. 24. But where might the inaccuracy of Sonnel's computation ~~is~~ have lain?

L. 25. If the Boraitha of Sonnel were not apocryphical, we might indicate the difference with certainty; but this Boraitha cannot have come from Sonnel, simply because the length of the Synodical month does not correspond with the length of the year suggested by Sonnel; for if it is remembered that the conjunction is the result of two different motions, and that the smaller or greater velocity of the sun also ~~makes itself note~~ is noticeable in the Molad then the duration of the months as suggested by Sonnel must be only a Pirfel shorter than

L. 6. But we shall not delve into such ~~minute~~ detailed investigation, and only ~~keep in view~~ study the Tekuphah as Samuel himself indicates it (Note 1)

Note 1 Erubin 56a.

L. 8. Samuel's year of 365,25 days, as we shall show farther down (Note 2), does not allow for any adjustment of the different types of years, unless the average duration of the synodical month is taken to be 6 ch larger.

Note 2. Compare the section about the Tekuphoth in the second part.

L. 12. This circumstance and the undeniable fact (Note 3) that in the calendar council the length was regarded as a final result leaves us no doubt that Samuel's year was considered too long in Judea.

Note 3. The small importance which was given to the testimony of the witnesses is the best proof that the infalibility of computation was accepted. If this had not yet seemed certain, that the ~~synodical months~~ duration of the synodical month was quite accurate, how much more attention would have been paid to the hearing of witnesses.

But when in spite of all of this it is claimed that the Talmud knows nothing of then it is over=
looked that Robina (Erochin 9b) poses the question
Also those, who think that Robina only knew , are wrong, for even then the figures do not balance, since there are at least 10 intercalary months in 30 years. Robina merely supposed some round number.

L. 15. S.[S. = holy; saint, ?] Pinilas (Note 4) sought ~~to determine~~ by the following passage to determine how great the difference might have been:

L. 18 In contrast to the view held by Rab, that the saturnalia begin eight days previous # to the Tekuphath Tebeth, R. Jochanan maintains that they begin 2 days (πρόχρονος) before the Tekupha.

L. 21 And if we figure the Tekuphath Nisan from the year 4010, then we find that it was on 26. March, 5 days 8 hours 173 ch after the Molad Nisan which came on the 20. March at 9 P.M. + 907 ch.

Note 4 p. 147-150
Ser. Seder Sera 1, 2. It is evident both from the parallel passage in Babli

Page 33.

and from the passage in Jer. that this version is correct. It probably occurs to everybody that means πρόλδες than τροπικός.

L. 24. if we subtract 91 days 7,5 hours from this Tekupha then the Tekuphath Tebeth ( ) 4009 was on December 25.

L. 25. The Tekuphath Nisan of R. Adda was 9h. 642ch before the Molad, so the Tekuphath Tebeth was on the 19. December, i.e. six days earlier.

L. 27. Thus it would be ~~proven~~ proven according to Pinilos, that R. Jochanan was acquainted with the Tekupha of R. Adda and that he actually ~~valued~~ ~~it~~ made use of it in the calendar council in which he had been since early youth (Note 1)

Note 1 Jer. Rosch hasch

Page 34

L. 4. We shall farther down come back to the Tekupha of R. Adda, here we only only state that reference is made ~~to it~~ in the declaration of Samuel ben Nachman

(Note 2)

to the fact that the Tekupha of R. Adda according to which in the 16. year of the cycle the Tekuphath

Atison comes exactly on the first day of the 7 Pasover, was known long before the introduction of our constant calendar.

Note 2: Tolkut Exod. § 191

L. 11. Under R. Iochanan, who according to all probability occupied an out-standing possition in the calendar council, the prevalence of astronomical calculations over the observation advanced to the point when the witnesses were intimidated (Note 3) without hesitation, in order that they be induced (Note 4) to a testimony which agreed with the result obtained, and this is also a proof that the day of the appearance was precalculated, and that out of consideration to the Diaspores it was thought undesirable to change the days of festivals which had been announced to them even though the observation turned out to contradict (the calculation).

Note 3. T"Y p. 20a.

Note 4. Maimonides puts the matter in an entirely different light; according to him it is not a question whether the testimony of witnesses at the beginning of the month is given consideration or not, but only whether the witnesses subsequently were able to abolish the resolutions of the Synhedrin. Further Maimonides thought it possible to

limit the entire debate regarding the intimi-
dation to the months with no festivals
and for Nisan and Tischri to limit it to
the case when the witnesses first appeared
before court after the first half of the
month, so that according to his opinion
the testimony of dependable witnesses should
take precedence over astronomical cal-
culations. Kid. notes. III. But this
opinion must seem strange, more so
since according to Maimuni himself
the subsequent testimony is no longer
valid on the 31. day, and since the
whole debate was brought up in the
Talmud from the question how
the ~~month~~ Elul could be made
full in favor of the Babylonians.
Comp. I. Landau in his "Commentar
zu Beza" p. 16.

L. 20. After the death of R. Jochanan
it was R. Eleazer ben Pdath who
[redacted] the introduction of the
constant calendar.

L. 22. Although a disciple of Samuel
still he opposed the innovation
urged by his master. (Note 5)

Note 5. Comp. Frankel p. 112 b.

L. 23. It is possible that instructed
through the experience in the calendar
council he saw the desires of the

Page 34.

Babylonians in an entirely different light; the joy which he felt ~~at~~ when he was accepted into the Sod Ibbur and the manner in which he gives ~~it~~ expression to it, make it plain that he was impressed with the mathematical accuracy of the computations.

Page 35 L. 5. He also seems to have interpreted the Bible verse Ezekiel 13, 9 in disfavor of those who relying upon their astronomical knowledge demanded the cancellation of the second day of celebration.

L. 7. But later it seems that the calendar council accepted the view that the Gola congregations should be furnished with the calendar for the running year at an early date.

L. 10. We feel the more justified in the assumption that the institution of the messengers had undergone great improvements, since it is a proven fact that the calendar was ~~better~~ known more accurately in Babylonia from that time on.

L. 14. From a more careful study of the passages of the Talmud where are found the words
it is evident that there no longer was

any doubt as to the true beginning of the month; and this cannot be the case only for those places in which messengers use to come, as R. Tam (Note 1) maintains, for then the question has no sence.

Note 1. Pesachim 57b. Tosaphoth (s. v. = ?) . It does say in the Sukka 43b but the passage talks in regard to a later period in which the connection between Judea and Babylonia was weak.

L. 19. Admitting that ~~as~~ the messengers could reach the remotest bounds during favorable seasons, still it is not clear how so important a request could be based upon such exceptions.

L. 23. In this case it certainly would not have been necessary to point out the warning by Eleazer ben Padath, but only to show that it would be unsafe to eliminate the second day of celebration because there was no assurance for the duration of the favorable conditions.

L. 27. It seems much more likely that the calendar council in Judea computed the order of the festivals much earlier than previously and

that the result was made known to the Gola in the month Elul in some practical way.

L. 30. In introducing this reform R. Eleaser did however not forget to enjoin very earnestly upon the Babylonians

that they might continue to celebrate the second day, since it must be feared that the communication between Judea and Babylonia might be interrupted by enemy hand and the old inaccuracy again might creep in.

L. 36. And this precaution was indeed justified, for before so very long even the intercalation could only be brought to the general knowledge by round-about means, due to the heavy pressure that rested upon Judea.

Page 36. L.2. That unintelligible letter (Note 1) which the Judean Synhedrin addressed to R Raba the then school superintendent in Mechusa in order to inform him of the intercolation which had taken place already in the month of Ab, proves sufficiently that the bailiffs watched over the lawobserving Jews with Argus-eyes, and that the connection between the home land and the

Diaspores had been interrupted.

Note 1 Synhedrin 12 a.

L. 8. ~~During~~ In this tragic ~~deplorable~~ period it may have happened that a few over zealous men, due to the uncertainty (unprecedented) regarding the order of festivals, ~~no~~ considered it a duty to celebrate even the day of atonement twice (Note 2.)

Note 2. Rosch Hosch 21 a.

L. 12 Certainly the fluctuation was greater than one day, to be sure there was a total uncertainty as a result of the complete isolation of Judea.

L. 14. Thus the sufferings under Constantius whose edicts of persecution far surpassed those of Hadrian, urged to decisions ~~against~~ which had been opposed violently throughout an entire century.

L. 17. The Synhedrin now found it necessary to raise the dense veil that had been spread over the secrets of the calendar council and to tell Rabo the rule: "When you notice that the Tekuphoth Tebeth reaches (continues) to the 16. of Nisan then don't hesitate to perform the intercolation by yourself" (Note 3)

Note 3. Rosch hasch l. c. In Eliesers ~~Pirke~~ Pirke it says toward the end of the 8. chapter:

This passage is an irrefutable proof that two Tekuphoth were known already then; the 22. of Nisan was the extreme limit for Samuel's and the 16. for Adda's; but peculiarly enough this passage in the R. Eliesers Pirke remained unnoticed and even Tosophoth thought that the latter limit applied to the with which they were familiar. At the same time the before mentioned words from the Pirke of R. Eliesers show that there was no doubt whatsoever regarding the inaccuracy of Samuel's year.

Samuels Tekuphas = 22 Nisan

L. 22. Of course this was not enough, Rabe had to be informed about the duration of the tropical year, as it was determined in the Sod haibbur, if he was to follow the rule given him.

L. 25. The same purpose which caused our unselfish ancients to the concealment of the astronomical fundamentals, now ~~gained~~ revealed the secret of computation.

L. 28. The unity of Judaism, which was all important to them, urged them to the act against which they had religious doubts, and they feared not to introduce

a reform which the welfare of Judaism urgently craved.

Page 37. L 2. Now the introduction of a constant calendar became an imperative necessity; if the Gola congregations were to celebrate the festivals - which were the tie that held the scattered members of the Jewish people together - at the same time as in Judea, then the only solution was to fix the calendar once and for all.

L. 7. Much thought was given to finding means whereby to appease the religious conscience which objected to the entire innovation altering the order of the festivals, and then the Dechijath was discovered.

L. 9. How the objections were removed we hope to make plain in the second part of our treatise.

L. 11. Let us here just mention that the younger (?) Talmud knows of ~~our~~ the Dechijath of our calendar (Note 1)

younger Talmud knows Dechijath

Note 1. j. Megillah 1, 2, Sukka 4, 1.

L. 13. R. José II, the contemporary of Hillel II says expressly that the Purim could neither come on a Monday nor on a Saturday, since otherwise

Page 37. 76

~~Jom~~ Jom kippur would have to come on a Sunday ~~or~~ and Friday.

L. 16. The constant calendar was introduced by R. Hillel II, 359 (Note 3) shortly before the death of this ~~[illegible]~~ Amoraan, who seems to have grown to be quite old. (Note 2)

Note 2. Compare Frankel p. 101, R. José, survived his friend R. Jona far; that he had been connected with the calendar-council is evident from several passages. The introduction of the constant calendar falls in the last years of R. José, for from j. Berachoth 4, 7 it is clear that in his time the instituting of the new moon was performed in the old manner,

✓ Note 3. R. Hai Gaon bei (maybe: at) according to Abraham Hanasi l. c. p. 97

L. 18. R. José ~~passed~~ handed the calendar over to the Alexandrians, among whom he stood in high esteem as an authority, and just as once R. Eleaser ben Padath warned the Babylonians, so he now urged that the second day of celebration which had been observed since the days of R. Jochanan, should be kept ~~continued~~

Alexand-
rians warned
[illegible]
[illegible] day

continually.

L. 23. We retain the opinion that Hillel II introduced the constant calendar and that as a unit based upon the Tekupha of R. Adda bar Ahaba, and we shall also try to justify this viewpoint after we have familiarized ourselves with the different hypotheses that have been raised regarding our calendar.

At this point continuation in spiral note book.

All notes however are listed below.

Page 38.

Note 1. Abr. Ivnos l.c 59. Isroeli 4, 6
Note 2
Note 3 Not translatable
Note 4
Note 5
Note 6

Note 7. Mazref lekesef p. 69. It is

Page 38.

clear from Esra 7, 7-10. 8, 15. 31-33
that בדה only had been גהז. The
excu... (?) started their journey on
the first of Nisan, on the 12. of the same
month they went on from the river
Ahawa, where they had rested for three
days, and on the 1. Ab they arrived in Je=
rusalem and on the 4. of the same
month they handed over the gold and
silver which they had brought with them.
The first Nisan or the 1. day בדה was
not on the ששה, else they could not
have started out on the journey, not on
sunday for then the 1. Ab came on saturday
and they must have reached Jerusalem
on ששה, not on Tuesday, for in
that case they would have left בהוה
on ששה, not on Thursday, because other-
wise the 4. Ab would come on saturday
consequently לא בד״ו and likewise
Pessach can only have been on one
day, גהז.

Note 8 }
Note 9 } No translation needed.
Note 10 }

Page 39

Note 2 }
Note 3 }
Note 4 } —"—
Note 5 }

457 Synchronisms

Note 6. - Meon Enojim c. 29 and 40. De Rossi who prepared the way for scientific investigation of the Genesis of the calendar, is inclined to accept the view that the founders of the calendar were only acquainted with the Tekuphas of Samuel; and when he does not fully declare himself in favor of it, that ~~hap~~ is just because the order of intercalation ( ) remained unsolved to him. Compare the end of chapter 40.

~~Note 7.~~

~~Page 40 l. 9.~~

MADE UNDER ONE OR MORE OF THE FOLLOWING SPIRAL PATENTS: [illegible] — [illegible] — [illegible]

[illegible]

GINN'S . GINN'S . GINN'S .

GINN'S · GINN'S · GINN'S · GINN'S

GINN'S · GINN'S · GINN'S · GINN'S

Secretarial NOTE BOOK

GINN'S · GINN'S · GINN'S · GINN'S · GINN'S · GINN'S

GINN'S · GINN'S · GINN'S · GINN'S · GINN'S

NO. __________

FROM __________

TO __________

. GINN'S . GINN'S . GINN'S .

-1417-C-

GRIPPER EDGE PATENT NOS. [illegible] — [illegible]

Translation from German

LC-CE71 .I4

"Manual of the Mathematical and Technical Chronology"

(Handbuch der mathematischen & technischen Chronologie)

Compiled by Dr. Ludwig Ideler

Astronomer of the King, Prof. of Berlin University etc.

Vol. I. - Berlin, August Rücker, 1825

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p. 477

Section Five.

Time Reckoning of the Hebrews.

There are three states (stages?) to distinguish in the Hebrew time reckoning.

1/ The time reckoning of the ancient Hebrews until the destruction of the first temple & the Babylonian captivity. The source from which we have to draw are is the books of the Old Testament written before the deportation, mainly the Pentateuch. It is completely interwoven into the ceremonial law given to the Hebrews by Moses & contrasts greatly from the complicated time reckoning

of the later (newer) Jews by its simplicity.

2/ The time reckoning from the period of the return from captivity until the destruction of Jerusalem by Titus or during the second temple. The sources are the Scriptures (compiled after the deportation) of the Old Testament, Daniel, Esra, Nehemia, Esther, the Books of the Maccabees, the New Testament, the works of Philo & Josephus & the Talmud ~~written after the deportation~~ compiled which contains many traditions of this period. In it the present cult & (and) calendar of the Jews is completely developed; only the way of determining the Passover & New Year's festivals, on which the other feasts depend, was not yet ~~based~~ traced back to quite solid foundations. (p. 478)

3/ The time reckoning of the later Jews since their dispersion under Titus. The source is the Talmud, the edition of which was completed about the sixth

century A.D., besides, the writings of several Jewish scholars above all those of Maimonides. Inasmuch as now the celebration of the two main feast could no more be ordered every year from one central point, a it was necessary to have a sure way of reckoning which was based on the 19-year cycle. It is generally accepted that this was done in the 4th century A.D. Since then the Jews have a fixed time reckoning & it is only to be desired this were more simple.

The First Period of Hebrew Time Reckoning

The days of the month are first mentioned in the Mosaic story of the flood, in the 7th & 8th chapters of Genesis. Noah is supposed to have gone into the ark on the 17th day of the 2nd month, & after the flood waters had risen for 150 days, the ark came down on mount Ararat

on the 17th day of the 7th month. It is generally taken ~~for~~ granted that this number of days is figured between both dates, or that the original months of the Hebrews like those of the Egyptians & Persians always consisted of 30 days. However, already earlier (70) there are objections raised against this view. But though it (p. 479) be correct, still it will not be possible to determine ~~the~~ with certainty the form of the year on which these months were based. Was the year a movable one like that of the ancient Egyptians? Or was a month of 30 days intercalated every 120 years as like the Persians did? Or did the year have the form of Alexandrian? Or did it merely consist of 360 days without any intercalation so that its beginning was running through all seasons of the year? Each of these views has found its defenders.

Especially Des-Vignoles has taken great pains to promote this latter view. With the aid of a differing version of the Septuagint he manages to squeeze everything chronological of the story into a 360-day year which he finds with almost all ancient peoples. But on more than one occasion above I have taken my stand against such a year which would neither have been a solar nor a lunar year, & I shall remain in opposition until decisive historical reasons are brought forward for it.

Without dwelling any longer on the antidiluvian form of the year, which will never be cleared up (settled?) we shall now proceed to the period of which we have the first more certain knowledge of the time reckoning, it is

Jewish

the period of their law-giver Moses.

During their wandering of many years through the stony & desert Arabia their leader gave them a constitution which was to become ~~valid~~ ~~completely~~ fully valid after ~~entering~~ they had entered the promised Canaan, the original home of their nomadic ancestors. This constitution was set out to make of them an agrarian people which is distinctly evident also in the time reckoning by which we find organized the celebration of the prescribed festivals & rest days.

p. 480

First of all Moses gave orders that every 7th day was to be a rest day "Remember" he says (1) "the Sabbath day to keep it holy.....

[Note 1 p. 480: Exodus 20, 8-11; Compare Exod. 23:12; 31:12-17; 34:21; 35:2-3; Levit. 23:3.]

About this keeping of the Sabbath compare Michaelis Mosaical Right Law (2) [Note 2, p.480: Vol. IV, p 194 + on.]

In Hebrew the week is called schebua from scheba meaning seven. Thus it is evident that at the time of the dispersion of the Jewish people when this idea reached the Greek + Romans they passed the word on correctly by as ἑβδομάς + septima. The day of rest with the Hebrews closes the week (while with us it is the beginning of the week) + is called schabbath, Sabbath the same as every other day to be kept by refraining (abstaining?) from work; the root (p.481) of the word means to finish the work + celebrate. (1)

[Note 1, p.481: Levit. 23:15 gives the singular Schabbath + the plural schabbathoth in their different meaning. The former designates, (also as) in verses 11, 24, 32 + 39 of the same chapter.

a holy day of rest, i.e. the first of the feast of unleavened bread; the latter can be translated only ~~with~~ as weeks. For since they are told ~~to~~ always to count (seven schabbath oth) as from the second day of the said festival, which did not always begin on a Sabbath or Saturday, in order to arrive ~~to~~ at the week festival (Pentecost) it is evident that the word can be taken only in this sense what is taught also by the comparison ~~of~~ with the parallel text Deut. 16:9 where schabuoth stands as the proper word ~~of~~ for weeks. How Hr. Gesenius could say that one could do very well with the general meaning of the word, I cannot see (see his Compendious dictionary "Handwörterbuch" under שבת). The μία σαββάτων given in the New Testament for the first day of the week, our Sunday, leads you to surmise an analogous usage of the language with the Hebrews. The Syrians, too,

generally say the first, the second... of the Sabbath instead of Sunday, Monday..., & with the church fathers similarly we find μία, δευτέρα... τῶν σαββάτων, for inst., Epiphanius, Haer. LXX, P.12. Even in the Talmud it is not rare to see שבת for week, for inst. Nazir Bl.6, p.2. [Here & later when the Talmud is mentioned it always means the Babylonian.]

In ordaining (instituting) this Moses must have found an old custom of among his people which was recognized even by the Egyptians; for he describes the Sabbath as being instituted by God Himself immediately after creation (2), & does not mention anywhere that it was abolished before his time or not any more customary.

[Note 2, p. 481: Gen. 2:1-3.]

p. 482 Presumably it was customary not only with the Hebrews but all

the Semitic peoples had it in common. At least Muhammed found it with the Arabs who hardly got it through the Jews & Christians.

What constituted the oldest divine service on the Sabbaths, we do not know with certainty. After the return from captivity the Hebrew came together in their synagogues, read the Bible & listened to an explanation or a devotional speech. In Moses' time & immediately following it there was no need of an explanation of the law, since it was worded in a generally understood language. Only once in seven years, i.e. on the feast of tabernacles of the Sabbath year, it was once to be publicly proclaimed.①

[Note 1, p. 482: Deuteron. 31:10-13]

Only one sacrifice we find prescribed on the Sabbath② Besides, the show-

[Note 2, p. 482: Num. 28:9-10.]

bread was laid out.③ [Note 3, p. 482: Lev. 24:5-9] newly!

Right here the question must be touched, when the ancient Hebrews began their civil day. It is generally taken for granted that it always counted as from sunset. It is true that all known peoples (nations?) who arrange their time according to the changes of the moon (to which whom doubtless belong the Hebrews, at least since Moses), begin their civil day in this way (80); besides, right in the beginning of Genesis it seems as though it was not without a purpose that (p. 483.) the evening was placed before the morning -

Yet nowhere in the Pentateuch it is expressly stated that the setting of the sun was to be the epoch of the civil day. It can rather be deducted that the break of the depth of night is to be taken for it. For when it is said of the day of atonement

the tenth of the seventh month ①:
[Note 1, p 483: Levit. 23:31,32.]
" ....

Moses probably would have said, in case the civil day began with sunset, you are to start your fasting with the evening of the tenth day of the month, or simply with the 10th day — unless the word ereb, evening, did mean as from the latter part of our afternoon. This seems to be proved by the expression been haarbaïm, between the two evenings* which on different places of the Pentateuch ② designates the time of
[Note 2, p. 483: Exodus 12:6; Numer. 9:3; 28:4]
the Passover & the daily evening sacrifice. The Pharisees at least, whom the present Jews follow, understood by it the period between the ninth & eleventh hour of the day, according to our reckoning between 3 & 5 o'clock in the afternoon. The Samaritans

(Of a different opinion were)

& Karaites who took the been haarbaim to be the time between sunset & complete darkness, especially on account of the Keboh haschemesch, when the sun is at the point of setting, which is used in a parallel text ① to designate the same period of time ②.

[Note 1, p. 484: Deuteron. 16:6]

[Note 2, " : See the quoted dictionary (Handwörterbuch) under ערב.]

The four main periods of the day, morning, noon, evening & midnight are plainly evident in the scriptures of the Old Test.; boker, morning, & ereb, evening, often. Noon is expressed by zoharaim, the two lights or double light ③, & midnight by chazi halailah, half of the night ④.

[Note 3, p. 484: Gen. 43:16, 25; 2 Sam. 4:5; I Kings 18:26-29; Job XI:17 & other places.]

[Note 4, p 484: Exod. 12:29; Judges 16:3]

Whether the idea of noon & midnight presupposes sundials & waterclocks, as is

supposed by Ideler ⑤ can be left undecided. [Note 5, p 484: Abriss der Chronologie, p 144. (Compendium of Chronol.)] One should think that when these measurements of time were received both periods of the day since long must have been were in general use. At noon the shadow was shortest, & as to midnight presumably they were not very particular about it.

The sun dial of Ahaz – maaloth Achas –, mentioned twice ⑥, [Note 6, p 484: 2 Kings, 20:9-11; Isa. 38:8.] (p. 485) looks very mysterious, especially in connection with the miracle that is to have happened with it. If we think of a real sun dial, the maaloth, meaning steps & translated by Josephus with βαθμοὶ ①, should be taken as hour lines thus supposing that as early as in Hezekiahs time to the ~~Jews~~ Hebrews ~~was known~~ had the division of the day into hours or something similar. Yet the definition hour does nowhere not occur in the books of the Old Test. written [Note 1, p. 485: Ant. Jud. X, 2, 1.]

before the Babylonian captivity. Only in Daniel [4:16] ② is found the Chaldean schaah apparently meaning this unless Kerschaah chada means but a short time, which is probable because the Chaldean translation of the O.Test. always gives the Hebrew rega, moment, as schaah or schata ③ [Note 3, p.485: Comp. Exod. 33:5; Psalm 73:19.] However, it would not be impossible that the Hebrews had received a sun dial (from Babylon) as early as the 8th century B.C. ✓ where presumably this discovery was [made] at home & ~~as taught by the~~ the division of the day into hours was known as early as that what we learn from the Chaldean observations of Ptolemee (195); it is however more likely that not a proper sun dial was meant but rather a Gnomon surrounded by concentric circles by which the length of the shadow was measured in order to at least

(p.486)

roughly to know & determine the time of the day ⊙. [Note 1, p. 486: Compare Martini's Dissertation on the Sundials of the Ancients, p. 35 & on, where it can be seen what has been written on this sundial.]

With the Hebrew, as in ~~the whole antiquity~~ all ancient times, the night was devided into watches - aschmüroth -. In the O. Test. only three are spoken of. The first is nowhere mentioned expressly, the middle in Judges 7:19 & the watch of the morning in Exod. 14:24. According to our way the first would have to be reckoned from sundown until about 10 o'clock p.m., the second until 2 A.M. & the third until sunrise. In the N. Test. there are four night watches, the fourth in Matth. 14:25. Several Rabbis, too accepted four night watches.

There can be no doubt

the Hebrews very early divided their year into twelve months. As early as in the story of the flood are mentioned the first, second, seventh & tenth month. Likewise In the same manner the months are designated all the way through the Pentateuch. One single month only is given by its own name. Abib means the ear & thus chodesch haabib, the month of the ear, i.e. the month when the first ears are ripe. In this month the Israelites ~~had~~ left Egypt (2), therefore it is being ordered (3) that it shall be the first of their year.

[Note 2, p. 486: Exod. 8:4; 23:15; 34:18; Deuteron. 16:1.] [Note 3, p. 486: Exod. 12:2.]

(p. 487)

On the 16th day of same or on the 2nd of the feast of unleavened bread ripe ears had to be brought as a first fruits offering - omer - (1).

[Note 1, p. 487: Levit. II:14; 23:10-11. As is evident from these texts, from Josephus (Ant. Jud. III, 10, 5) & from the Talmud M'nachoth Bl. 66,

p1x2, one measure of roasted corns, of which the offering consisted. This measure & the whole offering was called Omer.] So in order to be able to determine its place in the solar year the question is when the barley gets ripe in Palestine; for this is the kind of grain that ripens there first & is named expressly by Josephus as the one from which the offering was made (2). [Note 2, p 487: Compare Talmud, a.a.O. Bl. 68, p.2. From 2. Sam. 21:9 it is evident that the harvest began with the barley. The wheat harvest followed. Ruth 2:23.]

According to the descriptions of travelers, whose information were collected gathered by Michaelis (3) [Note 3, p.487: Commentatio de mensibus Hebraeorum P.2. It is the eleventh of his Commentationes in societate regia scientiarum Gottingensi praelecta (Bremen 1774, 4).] & more complete by Buhle (4) [Note 3, p.487: Calendarium Palaestinae oeconomicum (Göttingen 1785, 4)] the

Ideler - 19

barley gets ripe in the plains of Jericho, the warmest place in Palestine, usually in the first days of our April. Beginning with the moment when the first ears were offered, the harvest could begin ⑤, & this takes in the northern parts of the country near the Lebanon until the latter half of May. [Note 5, p. 487: Talmud, a.a.O. Bl. ~~#~~ 71, p1.]

Since, therefore, in Palestine the barley begins to ripen about fourteen days after the vernal equinox, it is evident that the month of the ears according to Moses regulation would have began at this time of the year if it were measured after the sun. The question now is, ~~of what character were the months then~~ what kind of months did they then have.

p488

It is true that nowhere in the ancient Hebrew documents we are told this expressly. But as we know with certainty that at least since the erection of

the 2nd tempel the Jewish months began with the new light (new moon?) & since it ~~is~~ can not very well be supposed that the celebration of the festival ordered (instituted!) by Moses later on underwent completely changed time regulations, we can accept with great probability that his months, too, were measured by the moon, which fact is revealed by the word ~~chod~~ chodesch designating the month. Analogous to the Greek νουμηνία it really means the new moons-day from a root meaning "to be new"; but also the month, as a synonym of jerach, especially when preceded by rosch, caput, in that case meaning the first day of the month. Here the words of the crowned poet can be appropriately quoted ① [Note 1, p 488: Ps. 104:19] which can not mean but: "He created the moon, to divide the time by it," plainly expressed by the Chaldean translator in his paraphrase. So though in the canonic books of the O. Test. nowhere

mention is made of an intercalary month still we shall have to accept (p. 489) such a one because unless the beginning of the year is to wander through all seasons of the year, from time to time a thirteenth month must be added to the twelve months of the lunar year. (68). Indeed, to assert that at the time of the first tempel there was not yet an intercalary month would mean either to make the year a free lunar year (67) or to give to the months a conventional duration quite independent from the phases of the moon. The substance (meaning?) of the month of the ears, does not allow of the first (based on the spring①);

[Note 1, p. 489: Even the word schanah points to a year that was adjusted to the sun, for it is generally accepted that it means the repetition or encirclement. This, however, does not take place in the case of the mere lunar year. It is worthwhile here

to compare Aben Esra in the introduction to his Commentary on the Pentateuch & in his exegesis to Exod. 12:2. Here it is said that chodesch cannot be derived but from the moon & schanah only from the sun. The former has no schanah, the latter no chodesch.] the latter is not likely because Moses had ordained instituted a sacrifice on the first day of each month - chodesch, νουμηνία - (2) the proper time for ℰ which nothing but the recurring crescent of the moon could make known to a yet unscholarly people (3).

[Note 2, p. 489: Num. 28:11; 29:6.]

[Note 3, p. 489: The texts 1. Chron. 27 [according to another division, 28], where the captains of the companies that ~~ministered~~ served the King David are named through (for) all the 12 twelve months of the year, & 1 Kings 4:7 and on, where the twelve officers are mentioned, who (one after another) provided for the table of the King Salomo each for one month without reference

in either place ~~of~~ to the intercalary month, ~~hardly~~ prove just as little ~~anything~~ against such a month, than many a text of Greek authors or inscriptions which merely refer to institutions of the common year, for inst., where the duration of the Prytanies are mentioned (289, 343) ~~while in other places~~ are a ~~proof~~ against the existence of the Greek intercalary month so well founded in other places.]

p. 490

Thus the ~~arrangement~~ of the year, as instituted by Moses must have been as follows: Towards the end of the twelfth month, later named Adar, in the warmer territories of the country the standing crops were observed in order to determine whether the barley had advanced so far that it could ~~can~~ be hoped with certainty to be able to offer ripe ears about the middle of the following month. In this case the next ~~next~~ new moon started the ~~ear~~ month of the ears

& simultaneously the new year; in the contrary case the old one was prolonged one month, the thirteenth. This agrees also with the opinion of Aben Esra, one of the most learned Hebrew interpreter of the Old Test. Says he:[1] "Moses does not state anywhere whether we are to count twelve or thirteen months. He merely orders that we begin with the month when Abib (the ripe ear) is found, this is to be the first month whether the year is given 12 or 13 months."

[Note 1, p. 490: In his Commentary to Exod XII: 2. Comp. Talmud Rosch haschanah Bl. 7, p. 1.]

From this it can be seen that the Jewish months cannot be compared so exactly with ours. Certain is merely that in Moses' time the months of ears could not have begun (started) prior to the first days of the Julian April the time of the then spring

p 491

equinox.

Michaelis in his dissertation (essay) endeavours to prove that the month of the ears, or the Nisan of the ancient Hebrew as it was named in those then, corresponded to April & not to March as is stated in Buxdorf's Chaldaic Dictionary & in many other books. To be exact, it ~~does not~~ agrees just as little with one month than with the other. A potiori, however, one cannot but (rather) compare the Nisan, as set by Moses, & with April than with March. Josephus refers to Nisan & Xanthicus as synonymous names (401). Both are lunar months with him which later were made solar months in Syria where then Xanthicus ran became exactly parallel with April (430).

Says Gatterer[1]:

[Note 1, p. 491: Compendium of Chronology (Abriss der Chronologie) p. 145]

Ideler 26

"The Jewish months at all times were civil lunar months of 29 & 30 days alternating." This assertion is not based (consolidated) on anything. We do not know with certainty how the months of the first period of the Hebrew time reckoning was measured. Very likely it was done by direct observation of the first phase. Besides nowhere in the Old Test. the duration (length) of one month is given.

At the time of the second temple the Jews had a double year, a religious (ecclesiastical? canonical!) which began with Nisan at the time of the spring equinox, & a civil year which began six months later with Tishri at the time of the autumnal equinox The first was ordained by Moses; it regulated the feasts

p 492

+ we find that in the Old Testam. the months were counted from its beginning. It is believed that the other existed not only simultaneously (by the side of it) but even prior to it. This ~~is~~ conclusion is drawn partly from various scattered hints (indications?) for inst. that the feast of harvest, hezeth haschanah was to be celebrated at the end of the year ①; [Note 1, p. 492: Exod. 23:16.] that Job once said ②: In the days of my autumn, i.e. at the time of my youth, where we would say in the days of my youth ③; [Note 2, p. 492: 29:4.] [Note 3, p. 492: Comp. Gesenius Dictionary under יַרְחִי.] that Hieronymus (Jerome?) in a place cited earlier (432) says: "Apud orientales populos post collectionem frugum et tortulania October erat primus mensis u.d.m., partly on account of the excellent sanctity of the seventh new moon,

for inasmuch as according to Moses' regulation every new moon was to be solemnly celebrated by presenting a sacrifice (489), of this it is said in particular (4): "In the first day of the seventh month shall ye have a Sabbath, a memorial of blowing the trumpet, & a holy convocation." [Note 4, p 492: Lev. 23:24.] Michaelis is so convinced of this view that he expresses himself as follows in an essay on the months of the Hebrews (5): [Note 5, p 492: p. 397]

p. 493 "Before the Israelites, upon Moses' command, made the month when they left Egypt the first months, they started the year, as is generally known, with the seventh month, so that originally this first month corresponded with October, the second with November etc. & it must be regarded that it was of these months Moses speaks on the occasion of the flood which accordingly must have started

in November being the second month."
However, I fear, that too much is concluded from above indications & that the great age of the year's beginning in autumn with the Hebrew is not quite as certain as believed. The hezeth haschanah which seems to prove most, fits badly on with the feast of tabernacles of which it is being spoken, also under on the supposition that the year began with Tishri, because the feast was celebrated only about the middle of the month. In the parallel text Exod. 34:22 instead thekuphat haschanah is given which is analogous to the Roman vertente anno. Yet if one does not wish to accept altogether the civil year as the original one which always remained in force & according to which in common (everyday) life the months & years were counted (reckoned), still one must agree with the scholar cited [1] [Note 1, p. 493: See his Mosaic Law, th. IV, P. 200.] in that the autumnal equinox for the Hebrews

made a convenient cut in the solar year because then the harvest, fruit crop & vintage are concluded in Palestine & that for the dealings in civil life - purchases, leases etc. - no other time was more suited. It This does not necessarily follow from this imply a beginning of the year at this juncture; for with us, too, leases contracts are begun made on Martins day late in the fall & yet in our civil life we do not count the months & years as from this period.

p. 494

Gatterer assumes the Hebrews had six seasons of the year (1) [Note 1, p. 494: Compendium of Chronology (Abriss d. Chron.) p. 161.] because Gen. 8:22 reads: "In future, as long as the earth stands (remaineth!) there shall not cease zera, seedtime, & the kazir, harvest, kor, cold & chom, heat, kajiz, summer, and choref, winter, jom, day, and lailah, night." However, one can see that from these purposely chosen

Ideler - 31

contrasts not more than two really different seasons of the year can be concluded with certainty - the summer kajiz, ~~simultaneously~~ covering also the spring or harvest time, kazir, and the winter, choref, which included also the autumn or seedtime, sera. In other places, too, summer and winter only (2) ~~are~~ ~~diff~~ it is differentiated between. (2)

[Note 2, p.494: Ps. 74:17. Zach. XIV: 8. Compare Bredow's Investigations on Single Items of History, Geography & Chronology p 30 & on.]
[illegible]

As stated above in the Pentateuch none but the first month of the year is mentioned (~~under~~ by) a peculiar name while the others are merely numbered. The same applies to all Scriptures of the O. Test. written prior to the deportation. Only three more names of the months are mentioned in the first book of Kings on the occasion of the building of the tempel of Salomon. In

p 495 the first ~~first~~ verse of chapter 6 it

reads: "In the month Siv which is the second in the year." The same name without the ~~additional~~ amplification is repeated in verse thirty seven. In the following it reads: "In the month of Bul, i. e. the eighth." In chapter 8, verse 2 mention is made of Ethanim, as the seventh month. It is believed that these names are of Chaldaic origin, & that the first means something like month of brightness, (splendour? radiance?) (~~with regard~~ referring to the flowers & the freshness of nature), the 2nd second meaning rain month, & the 3rd - the month of ~~rushing~~ streaming rivers, [1] [Note 1, p. 495: See Mr. Gesenius Dictionary.] an etymology which fits quite well with the places these months occupy in the solar year of Palestine. In the present Hebrew calendar for Siv stands Ijar, for Ethanim - Tishri & for Bul - Marsheshvan.

The order of the feasts, the main facts about which we here must explain in their chronological relationship, is an essential part of the Mosaic legislation. The main texts are Exod. 12 & 23:14-16; Lev. 23; Num. 28:16 & on and 29:1 and on; Deut. 16:1 and on.

Of the feasts we find ordained by Moses there are five, Passover, Weeks, Trumpet atonement & Tabernacles.

The first was celebrated in memory of the departure from Egypt which is indicated even by its name; for pesach really means "the lamb which had to be presented to Jehovah at this feast because He spared the Israelites when killing the first born of the Egyptians, (1) from a root meaning 'to pass by sparing him'." (2) [Note 1, p. 496: Exod. 12:27.]

p 496

[Note 2, p 496: The name τὰ διαβατήρια used by Philo (vita Mosis I. III, p 686, and de septenario et festis p 1189, ed. Francof.)

by Eusebius (Hist. eccl. VII, 32) and in other places about this feast, is as can be seen a translation of Pesach. The form πάσχα comes from the Chaldaic form as mentioned also by Philo in the first (above!) citation.] This lamb was slain at a time of day of which was dealt with above (483) (3). [Note 3, p. 496: According to the second above cited text of Philo it took place ~~at the~~ in his time between noon & evening.] From then on the meal of the feast lasted through the night until the morning of the 15th, when the Israelites left Egypt (4). [Note 4, p. 496: Num. 33:3 reads that they left on the 15th of the first month mimacharath hapesach, on the morning after the Passover. According to Deuter. 16:1 it ~~took place~~ was done already in the night.] As is plainly evident, (5) in Moses' time merely the beginning of the festival in memory of the departure was called Pesach or Passah, the rest beginning with the 15th early

it was named chag hamazoth - the feast of unleavened bread. (6)
[Note 5, p. 496: Levit. 23:5,6. In the Old Test it is still differentiated between Pesach & Chag hamazoth. Comp. 2 Chron. 35:17.]
[Note 6, p. 496: Mazah means something without leaven. Num. 6:19. The unleavened bread was to remind them that the Israelites when leaving Egypt lacked the time to let their bread (dough!) get sour.], because as from been haarbaim on the 14th until the 21st inclusive) no (leavened bread. (it was no allowed to eat). (p. 497.)
Later sometimes the name Passah is applied to the entire feast of seven days. Only the 15th & 21st were Sabbaths or strictly kept days. On the remaining it was allowed to work; the celebration consisted in offerings, offerings' meals & singing of praises to the Godhead. deity. As noted above (487) on the 16th the first fruits of the barley harvest were presented as an offering.

After the expiration of the seven weeks which ~~da~~ time the harvest usually lasts in Palestine, the week (?) feast was celebrated. The time for it is designated as follows: ①

[Note 1, p. 497: Levit. 23:15,16.] "And ye shall count unto you from the morrow after the sabbath, from the day that you brought the sheaf of the wave offering; seven sabbaths shall be complete; even unto the morrow after the seventh Sabbath shall ye number fifty days; and ye shall offer a new meat offering unto the Lord." As is seen, the 50th day is meant, counted from the 16th of the first month inclusive. Furthermore it is said: "And ye shall come together on this day that it may be a holy convocation unto you: ye shall do no servile work therein." It was the feast when thanks was offered to God for the blessing of harvest ②. [Note 2, p. 497: Exod. 23:19; 34:26, Num. 18:13, comp. with Deuter. 26:1-11, Nehem. 10:35 & 37 and the entire Bicurim ~~pa~~ paragraph in the Talmud.] This is

Ideler 37

p. 498 taught through the names chag hakazir, harvest feast, and jom habikurim, day of firstfruits which we find in use for these feasts. (1)
[Note 1, p 498: Exod. 23:16; Num. 28:26.].
It is expressly stated in Exod. 34:22 that the firstfruits ~~mean~~ refer especially to those of the wheat (2); besides, this goes without saying since the firstfruits of the barley were presented seven weeks earlier. [Note 2, p 498: Levit. 23:20 speaks of the first fruits of the (wheat) bread.] The most common name of this feast, however, is chag schabüoth, the feast of weeks (3), derived from the seven weeks which were counted from the Passah until this day. [Note 3, p. 498: Deuter. 16:10.] Now it is being celebrated in memory of the proclamation (giving) of the law on Sinai which coincided with the feast of the week, as the Talmudists conclude from Exod. 19. (4).
[Note 4, p. 498: Num. 29:1; Levit. 23:24.]

It is stated already earlier (492) that the new moon or first day of the seventh month was a Sabbath, thus counting as one of the great feasts. On account of the trumpet announcing this day it is called jom thruah, (the day of thruah) or schabathon zichron thruah, the Sabbath of the announcing thruah. (5) [Note 5, p. 498: Numb. 29:1; Levit. 23:24.] from a root meaning shouting aloud, shouting with joy, blow the trumpet, in short, to make noise of every kind. (6) [See Gesenius Dict'y. v. תרועה.] Now it is the new year's feast which simultaneously is celebrated as the day on which God determines (decides?) the destinies of the peoples men for the next year (1) [Note 1, p. 499: Talmud, Rosch haschanah Bl. 16, p. 2. Maimonides, More nebochim, (in the place quoted a.a.O.)]

p. 499

The 10th day of this same month is named jom hakippurim, day of (Reconciliation or) Atonement because on it the sins of the whole people were

reconciled or atoned by the high priest. Levit. 16:29-31; 23:27 and on. In both places it is ordained that it be a Sabbath & simultaneously a day of fasting. As it was especially prohibited to work or eat on this day, it was the most holy of all feasts ordained by Moses, as is stated also by Philo (2) [Note 2, p. 499: De septenario et festis, p. 1194.] & it is still considered as such. Until the Babylonian caplivity it was the only fast day of the Hebrew. During the exile several others were added, more about that later.

A third feast was set in the seventh month, that is a feast of thanks for the now completed harvest of fruits & wine as is seen from Exod. 23:16 & 34:22 where it is called chag haasif, feast of ingathering. The time of its celebration is given in Levit. 23:34 and on, as follows: "The 15th day of the 7th month is the feast of tabernacles. Seven days unto Jehovah! On the first day shall be an holy

convocation: ye shall do no servile work therein. Seven days ye shall offer an offering. On the eighth day again shall be an holy convocation" and so on. So we see, the 15th and # 22th days of the 7th month (#p. 500) were Sabbaths; the days in between though belonging to the feast yet work was not prohibited on them. During this feast the Hebrews had to live in tabernacles which is easily done in the warmer parts of Palestine. "Seven days, says the lawgiver in the name of Jehovah,① you shall dwell in booths that your posterity knows that I let the Israelites dwell in booths when I brought them out of Egypt." Such huts (booths!) made of palm & other branches are called sukkoth② and therefrom the feast usually is called chag hasukkoth, feast of tabernacles (huts). The feast proper finished with the 7th day. On the 8th there is to be a holy convocation of the people③, wherefore this day preferably was named azereth, meeting (or convocation), παν ήγυρις④.

[Note 1, p. 500: Levit. 23:42 + on.]
[" 2, " : Neh. 8:16.]
[" 3, " : Levit. 23:36; Num. 29:35.]
[" 4, " : On account of Michaelis not having correctly understood this word, ~~read~~ consult Gesenius' Dictionary.]
[Note 5, p. 500: Num. 9:10 + on.]

The feasts ordained by Moses thus came in the 1st, 3rd + 7th month of the year, i.e. as a rule in April, June + October. In the remaining months there were only the usual Sabbaths + the new moon feasts. However, sometimes there was a Passah in the 2nd month in case there were unclean who could not take part in the Passah proper in the first month (5).

p. 501

We have yet to deal with the year reckoning common in the first period of the Jewish Chronology.

Read in Lev. 25:2-4 (1)

[Note 1, p 501: Comp. Exod. 23:10 + on.]

verses 8-11.(2) [Note 2, p 501: (Vs 8) In the text schabbathoth schanim. Schabbath, in the plural & in the feminin form, in a repeating ~~row~~ turn of seven time-units - be it days or years - means each time the seventh, thus the seventh week day dedicated to rest, & the seventh year destined (intended!) for the earth to rest.] As each 7th day was a rest day for ~~the~~ man, likewise each

p. 502 7th year was to be a year of rest for the field; and after seven such rest or fallow years had followed each other, the fiftieth was to be an extra rest or fallow-year in the which all land sold or pawned was to be returned to its original owner & freedom was restored to everyone who had foregone it as well as to the captives & slaves. The spirit & real meaning of this peculiar regulation of the Hebrew law-giver legislator is developed by Michaelis in his essay: De paradoxa lege Mosaica, septimo quovis anno omnium agrorum ferias indicente(1), & in his "Mosaic law" [off](2)

[Note 1, p. 502: It is the 9th of his academic lectures (487.]
[Note 2, p. 502: Th. II, p. 24 f. on.]
[" 3, p 502: Deuter. 15: 2; 31:10.]

The Sabbath year in Hebrew is called shenath hashmittah or in short shmittah ③ which Luther & Mendelssohn translate with remission year and Michaelis respite year, because during same the debtors were granted ..... The jubilee year is called shenath hajobel or in short jobel, no doubt ~~from~~ after the wind-instrument ~~of~~ by the same name which proclaimed it.

The years of this 50-year period are, as in the Pentateuch, always counted as from Abib or the spring months. The first six year the field is to be cultivated but in the 7th (really, from the middle of the 7th until the middle of the 8th) it is to lie fallow. Likewise from autumn of the 49th and then two years until fall of the first year of the new jubilee period.

p. 503

[Note 1, p. 503: When the yrs are begun with Tishri in the fall, as the Rabbis hold the years of Schmittah & Jobel (Talmud Rosch haschanah Bl. 8, p. 2; Bl. 9, p. 1), the calculation then is more simple. Then in the beginning of the yrs 7, 14, 21, 28, 35, 42, 49 & 50 of the jubilee period no sowing is done, hence no harvest about the middle of these yrs.] The wording of the law is so definite that a misinterpretation should seem impossible. And yet attempts have been made to identify the seventh Sabbath year & the jubilee year or making the jubilee period not 50 but merely 49 yrs long. As we learn from the Talmud, (2) this was the opinion of Rabbi Jehuda, who asserted against the majority of the rabbis the Jobel consists only of 49 yrs as the 50th of the expired Jobels is also the first of the following. The Gaonim, certain learned rabbis who lived soon after the closing of the Talmud & interpreted it, heads of

Jewish academies, sided later with him (Jehuda). According to Maimonides' (3) report they had a tradition that since the destruction of the first temple only schmittahs & no Jobel were counted, i.e. only 49-year periods. According to their chronological tables in the Jewish world era every 7th yr is a Sabbath yr, for. inst. the next now the 5586th. Maimonides [Note 2, p.503: Erichin Bl. 12, p.2; Bl 13, p.1; Bl. 32, p.2; Bl. 33, p.1.] [Note 3, p.503: Jad hachasaca (a work wherein the Talmud is systematized (?), Hilchot schmittah w' iobel, c 10, fol. 142.] himself, whose authority p.504 is of the highest value does not share this view; for he says: "The 49th yr is Schmittah, the 50th Jobel, & the 51st is the 1st. of ne new Schmittah." Just as definite expresses himself Josephus. Says he, "Every seven ~~yrs~~ years the field is allowed to have a respite like ~~the~~ man every seven days. The same ~~is done~~ takes place after the 7th year-hebdomade, & this makes in all 50 yrs - The 50th yr is named

by the Hebrews 'Ιωβηλαῖος."

Though this is stated so plainly in the law, still in recent times Gatterer and Frank have anew tried to make valid the hypothesis of the Gaonim, the latter in a great work under the title: Joh. Georgii Frankii novum Systema Chronologiae fundamentalis, qua omnes anni ad solis et lunae cursum accurate describi et novilunia a primordio mundi ad nostra usque tempora et ulterius ope epactarum designari possunt: in Cyclo Jobelaeo biblico detectae et ad chronologiam tam sacram quam profanam applicatae, cum praefatione Joh. Christ. Gatterer ②. [Note 2, p. 504: Göttingen 1778, fol.] In the introduction the jubilee period is called a "mysterium S. Scripturae", "quod fundamentum totius chronologiae in se continet, et veritatem sacrarum litterarum historicam earumque divinam originem novo quodam argumento eoque firmissimo firmat." One should

p. 505

not asked where Moses got such exact knowledge of the courses of Sun & moon as is (demanded) necessary in view of the construction of the glorious jubilee period, for God himself is expressly is named as its originator ①: [Note 1, p. 505: Lev. 25:1.] With these words the whole law is introduced.

The main argument on which Gatterer & Frank base their view is as follows. ② [Note 2, p. 505: vers 20 & on.] Read verses 20-22 If the 7th sabbath year were different from the jubilee year, says Gatterer ③, then 2 two fallow years had followed each other, & the reserve of grain from the sixth harvest received early in the 7th yr would have had to last until the harvest in the 10th year, and not of the ninth year which is expressly named. To this one could reply, Moses merely wanted to define how the ordinary Sabbath yrs were to be handled and he had no need especially to emphasize the jubilee yr as an extraordinary fallow year.

Ideler 48

p. 506 However, ~~in~~ the words: "as is sufficient for three yrs", it is plainly implied that he also took into consideration the rest (fallow) of the jubilee yr; otherwise he should have spoken of two yrs only.

Had the institution of the Sabbath- & jubilee yrs been kept inviolated by the Hebrews they could have ~~depended~~ counted with all certainty after the 50-yr jubilee periods and single yrs, thus do without any further era. It seems, however, as though it was not strictly kept under the Kings. Nowhere in the early history of the Hebrew people mention is made of the celebration of a Sabbath or jubilee year, nowhere in the Bible the reckoning is according to jubilee yrs though such a reckoning presented itself quite naturally in case the period was really observed. Not until the 2nd temple these rules of the mosaic law were again taken up as an old tradition, and, as we see from the first book of the Maccabees (1), from Philo (2) & Josephus (3), they were really followed. observed!

[Note 1, p. 506: VI, 49 & 53.]
[" 2 · " : p 1187]
[" 3 " : Aside from above given (504) place compare Ant. Iud. XIV, 10, 6; XIV, 16, 2; XV, 1. 2. The Sabbath yr is called here σαββατικὸς ἐνιαυτὸς and ἑβδομαδικὸν ἔτος. Simultaneously the beginning of the yr with the 7th month in civil life must have became stable : fixed?

like Herodot, Moses counts in generations ④. [Note 4, p. 506: See Michaelis essays on 'Chronologia Mosis ante et post diluvium. These are the 14th & 15th of his lectures held in the Göttingen Society.] later the Hebrews, like all the ancients counted according to the years of the regent, proof of what is found almost in every chapter of the books of Kings & Chronicles.

(p. 507)

As the current era they used the one beginning with the departure from Egypt & possibly also that from the building of the first temple. The first is mentioned in Exod. 12: 1;

Adeler 53

Num. 33:38 + 1. Kings 6:1. — Comp. 2 Chron. 3:2. In the same book 8:1 + 1 King 9:10 a certain period is thus defined: "20 yrs after Salomo had built the house of the Lord;" from which texts, however, it can not be concluded with certainty that such a year reckoning was in use in civil life. The Jewish chronologists ① unanimously set these epochs in the years 2448 + 2928 of their world era; or in the yrs 1314 + 834 B.C.; Des-Vignoles, in the contrary (to quote only one of the best founded among the manyfold varied opinions of the Christian chronologists) sets it in the yrs 3069 + 3716 of the Julian period or 1645 + 998 B.C. Read for yourself what prompted him to consider the intervall between the two events to be 167 yrs greater than the Bible + the Jewish chronologists. ② [Note 2, p. 507: Chronology of holy history (Chron. de l'histoire sainte) Vol. 1, p. 172 + on.]

p. 508

Mention should also be made that in his Remarks on texts in the

Psalms + in Genesis, Hensler in a circumstantial way tries to prove the hypothesis that ~~in~~ Genesis deals with a threefold year growing by steps (degrees?) year-schanah, with a three-month-yr until Abraham, an 8-month-yr until Joseph + after that with a 12-month yr. A thorough refutation of it is found in Bredow's "Investigations on single items of History, Geography + Chronology[1]. [Note 1, p. 508: p. 18 + on.]

The Second Period of the Hebrew Time Reckoning.

The oldest Time reckoning, partly introduced + partly confirmed by Moses, was very simple as far as we can judge. The first appearance of the lunar crescent in the evening twilight decided the beginning of the new month + in case the weather prevented its observation, the passed month was given a maximum duration of 30 days. Whether after 12 mos a new yr

was to begin or a 13th month added depended on the circumstance whether the barley had ripened sufficiently in order to make the offering of the Omer to Jehovah about the middle of the 1st month (487). In this whole calendar arrangement in my opinion there is yet not trace of scientific ideas & therefore I cannot see what entitles Gatterer to say (1) that its originator must have had more than general (common) astronomical knowledge.

p. 509

[Note 1, p. 509: Compendium of Chronol. p. 150] third ed.

In the second period of the Hebrew time reckoning the same fluctuating way of determining the months & yrs still persisted (for nothing has made it seem likely to me that the new moons were determined already after a stable cyclic theory or even astronomically as some chronologists convince themselves); nothing but the names of the months, the beginning of the year & the feasts took its present shape (during that time) in it.

The present names of the Jewish months are:

1	Nisan
2	Djar
3	Sivan
4	Thamm
5	Ab
6	Elul
7	Thischri
8	Marcheshvan
9	Kislev
10	Tebeth
11	Schebat
12	Adar ②

[Note 2, p. 509: S in Nisan & Sivan is hard & the v in the latter, likeא in Marcheshvan, soft. The accent in Nisan is on the 2nd syllable. b in Ab must be read as a v and the e in Schebat is not to be accentuated.]

According to Talmud Jeruschalmi (Rosh haschanah c. 1) followed by Aben Esra ①, the Hebrews brought these names of the months from the Babylonian captivity. It leaves less room for doubt that they are of Chaldaic origin since mostly they agree with national Syrian names of the month (430). Mention of them is found first in the scriptures of the O. Test written

during & after the deportation, Zaharias, Esra, Nehemiah, Esther & the books of the Makkabees.

Nisan which took the place of the mosaic months of the ears, is mentioned in Neh. 2:1 & Esther 3:7. In the latter place it is called the first month, i.e. in regard to the feasts as stated by Josephus (401).

Ijar is not mentioned in the Bible. In earlier time it was called Siv (495).

Sivan is given in Esther 8;9 as the 3rd month.

Thammus & Ab are not mentioned in the Bible. The first name is found in Ezek. 8:14 but that is as the name of an idol ② [Note 2, p. 510: Maimonides writes a note on that, More nebochim P. III, c. 29, p. 158.]

Elul is mentioned Neh. 6:15.

The 7th month is given repeatedly, f. inst. Esra 3:1; Neh. 8:2 but not yet under its present name which (by the way) incidentally is used already

(p. 511) by Josephus & other writers of this period. Earlier its name was Ethanim (495).

Marcheshvan, often called Cheshvan by Talmudist & later Jews, is not mentioned in the Bible. Josephus calls it Μαρσουάνης (401). Earlier it was ca had the name Bul (495).

Kislev is mentioned Zah. 7:1 Neh. 1:1 & 1 Macc. 1:57; in the first place as the 9th month.

Tebeth is found in Esther 2:16 as the 10th month;

Schebat: Zah. 1:7 as the 11th &

Adar: Esth. 3:7 & 13; 8:12 & 9:1 & 2 Macc. 15:37 as the 12th month. The latter is given also in Esra 6:15, a book, like in the prophet Haggai & others, otherwise the months are still given in the old way with ordinal numbers.

The intercalary month is not mentioned anywhere in this 2nd period either ① [Note 1, p. 511: Not even in the Thargum Scheni where (Esth. 3:7) is found the first complete list of the present names of the months.] though

it cannot be doubted that it did exist since long (2). [Note 2, p. 511: In the word Kejamim, "about in the days" designating the time of the celebration of the Purim feast in Esther 9:22, several Jewish commentators, especially Aben Esra, see an allusion to the intercalary month for otherwise it should read kejamim, "in the days". For this feast - as we shall see farther on - is celebrated sometimes in the 12th, and at other in the 13th month according to the fact whether it ~~was~~ is a common or an intercalary yr.]

An amateur of etymology will find ample satisfaction in the Corollarium of Christoph Benedict (p. 512) Michaelis on the Hebrew, Chaldean, Arabic, Ethiopian + Coptic names of the months, ~~to~~ which his son Johann David has added to his essay on the months of the Hebrews (487).

Now the duration of the months which still was not a fixed one during the 2nd temple we

find in the talmudist tract Rosch haschanah ① [Note 1, p. 512: Bl. 13 a on] and from Maimonides' Kiddusch hachodesch ②, from where we take the following. ③ [Note 2, p. 512: De consecratione Calendarium c. 1 a on. This main work for the Jewish time reckoning was brought to light by Leid. de Compiegne de Veil, together with the paper "De sacrificiis" of the same author, in a Latin translation London 1683, 4.] [Note 3, p. 512: Mostly in Bendavid's words. See hies valuable paper: On the Calculation a History of the Jewish Calendar (Zur Berechng a Geschichte d. jüd. Kal.) Berlin 1817, 8, p. 7 a 10.]. As long as the high council - Sanhedrin - had its seat in Jerusalem (until the destruction of the 2nd temple) the entry of the new moon was worked out as best they could; but it was liked if before the announcement of the new moon feast at least two reliable men

appeared before the council & stated: we saw the new moon at such & such a time. Was she announced on the 30th day of the month, the council declared the expired month as insufficient - chasar - and consecrated the new with the ~~esto~~ exclamation "hallowed!" twice repeated by the people. Was no announcement made on the 30th, it was added to the old month & declared it full - male - without consecrating the new month which began without further announcement with the following day. Since thus in gloomy (dull?) weather it was easy to have two or more months 30-day months follow each other, which would have caused the calendar to shift in regard to the sky, therefore it was ruled the year was ~~not~~ to have not less than four & not more than eighth full months.① [Note 1, p. 573: Talmud Erichin, Bl. 40, p. 2. Now ~~in~~ a year can have no less than five full months.] On the 1st day of each

p. 513

month in Jerusalem an offering had to be presented & otherwise everywhere a prayer had to be performed. Besides on the determination of these days depended the celebration of all feasts. So it was important to spread the news of it everywhere as quick as possible. In the beginning this was done by signal fires kindled on the mountains and after this was misuse made of this, by sending out messengers. The latter method, however, was insufficient because in the time of the 2nd temple many Jews had settled down outside of Palestine, in Syria, Egypt & in other places which could not be reached early enough in this way. So it was determined decided that ~~every~~ where the messengers could not get in good time, after the expiration of 29 days the following was to be called rosch chodesch, new moon. In case the expired month was deficient Rosch chodesch counted as the first

day of the new month; on the contrary, if it was full, its last day was so named & then two days got the same name - the last day of the expired month & the 1st of the new. Simultaneously, all (p. 574) important feasts were doubled, i.e. the first & last days of Passah, the ~~week~~ feast of weeks?, the New years feast, and the first & last days of the feast of tabernacles so that if in the provinces an ins a deficient month was taken as full or the other way round, at least the feast would be celebrated simultaneously on one of the two days. This arrangement exists until this day despite the fact that the duration of the months is now quite fixed thus leaving no doubt as to the right day for the celebration of one of those feasts. Since it was made only for the more distant living Jews, in Palestine proper the feast have always been celebrated only on one day, except the beginning

of the yr. & the Rosch chodesch was not doubled.

Now we shall see how the mosaic feasts, still the most important with the Jews, took shape in the 2nd period of their time reckoning, & which were newly added.

Says Josephus (1) [Note 1, p 574: This quotation is cited already earlier (401).] "We present the sacrifice called Passah in Xanthicus, the first month of the year which we call Nisan, and that on the 14th according to the moon while the sun is in ram." You can see here plainly expressed the substance of the bound (2) lunar year. The 14th of the lunar month, the quarta decima luna, is the day of the full moon, when Philo expressly sets the Passah feast. (1) p. 515 [Note 1, p. 515: Vita Mosis l. III, p. 686.]. Says Josephus furthermore: On the 15th the feast of unleavened bread follows the Passah - ἡ τῶν ἀζύμων ἑορτή - on which nothing sour must be eaten". It is found also with the Evangelist

Ideler 62

for instance
Marc 14:1, in short called τὰ ἄζυμα.
Since the above referred to doubling of the main feasts, it is celebrated during eight days of which, however, only the 1st, 2nd, 7th & 8th, i.e. the 15, 16, 21 & 22nd Nisan are Sabbaths or feast days proper.

This feast is mentioned repeatedly in Christ's passion and that in circumstances which should not be passed over here.

From all circumstances it results most certain that Christ & his disciples ate their Passah on a Thursday as is accepted also by the church. This day is called by Luke (2) ἡμέρα τῶν ἀζύμων, by Matthew (3) & Marc (4) πρώτη ἡμέρα τῶν ἀζύμων, the first day of unleavened bread.
From the additional sentence given by Luke: ἐν ᾗ ἔδει θύεσθαι τὸ πάσχα, on which the Passah had to be offered, it is clearly evident that the 14th Nisan is meant. So it really was the day before the beginning of the ἄζυμα, towards

the end of which – been haarbaim – as shown above (483) – the passah lamb was eaten. [Note 2, p. 575: 22:7] [Note 3, p 575: 26:17] [Note 4, p. 575: 14:12.].

(p. 576) Though it is not quite common, yet this day can be counted as one of the ἄζυμοις, because the usually abstain from leavened bread from as early as 9 o'clock in the morning. Consequently there is no room for doubt left that the three evangelists have set Christ's death which took place the following Friday on the 15th Nisan or the real beginning of Jewish Easter. (1)

[Note 1, p 576: The old German word Easter which I am using here according to Luther's Bibel translation (f. inst. Luke 22:1) for the Jewish feast, is of disputed origin. You need but compare Schilters & Wachters' Glossaries. The most common opinion is that it is derived from urstan meaning "get up" in the most ancient German language. Beda has a note which to my mind should not be rejected (or pushed aside);

at least one can ~~trust~~ expect of him who lived in the 8th century of our time reckoning that he was well informed of the fact to which he refers with such certainty. For he says in De temporum ratione c. 13: "Eosturmonath, qui nunc paschalis mensis interpretatur, quondam a dea illorum (veterum Anglorum) quae Eostre vocabatur, et cui in illo festa celebrabant, nomen habuit; a cuius nomine nunc paschale tempus cognominant, consuetae antiquae observationis vocabulo gaudia novae solemnitatis vocantes." Whoever does not believe it feasible, that the old German Christians would borrow the name from one of their heathen forefathers' goddess for one of their main feasts, he should but think of the German names of the week days, which decidedly are derived from heathen deities.] This day of death by all evangelists[2] is called παρασκευή, which Mare explains as προσάββατον, the day before the Sabbath, & Luther th translates it as "day of preparation". [Note 2, p. 516:

Adeler 65

Matth. 27:62; Mark. 15:42; Luke 23:54; John 19:31.] It is the Hebrew ereb schabbath, "evening of the Sabbath" meaning really the later time of the day on Friday. The expression is also used by Josephus (1) in an edict of Cesar Augustus, wherein the Roman prefect in the orient are told to use forbearance with the Jews (ordaining) ruling among other things not to call them to court on Sabbath or on the preceding preparation day as from 9 o'clock - ἐν σάββατον ἢ τῇ πρὸ ταύτης παρασκευῇ ἀπὸ ὥρας ἐννάτης. Here the changing hours (84) are meant common in all ancient times, mentioned all through the New Test., f.inst., in the parabel of the sower, so that its use cannot be doubted with the then Jews wherefore now & then the Chronologists call them the "Jewish" (2).

p. 517.

[Note 1, p 517: Ant. Jud. XVI, 6, 2.]

[" 2 ": For inst. in Wolf's Elem. Chronol. P. 24. Maimonides (in the 12th cent. A.D.) still seems to recognize them when he says in his above mentioned Kiddusch hachodesch c.6, § 2: "Day & night (consist)

deler 66.

together have 24 hours of which "12 belong to the day & 12 to the night". From what follows, however, it is evident that he means the uniform hours, ~~so~~ Thus he did not express himself here quite adequately.] So in the edict according to our way of reckoning the time from 3 o'clock P.M. is spoken of when the proper "Ereb shabbath" began.

Christ died as reported by Matthew③ about the 9th hour; [Note 3, p. 577: 27:46, 50]; and as evening now had come – ὀψίας γενομένης – as stated by this same evangelist① [Note 1, p. 578: v. 57.] p. 578 Joseph of Arimathia begged the body of Jesus in order to bury him. Evidently here is spoken of the later hours of Friday (when it was still permitted to work). Mark says this expressly in these words:② "καὶ ἤδη ὀψίας γενομένης, ἐπεὶ ἦν παρασκευή, when evening had come for it was the day of preparation. When Luke adds③: καὶ σάββατον ἐπέφωσκε, this must be taken, as stated by Grotius, as "ἔμελλεν ἐπιφώσκειν" Saturday was just about

Ideler 67

to begin". The Jewish day began with sunset & as shown by this interpreter, ἐπιφώσκειν can be said just as well of the beginning of the night as of the day, thus can be used also of the beginning of the civil day of the Jews.

Over Sabbath or Saturday Christ remained in the grave; but on "the first day of the week" on Sunday, at earliest daybreak he rose. This time is designated by Matthew by ὀψὲ σαββάτων, τῇ ἐπιφωσκούσῃ εἰς μίαν σαββάτων, by Mark by πρωὶ πρώτῃ σαββάτου, by Luke by τῇ μιᾷ τῶν σαββάτων ὄρθρου βαθέος, by John by τῇ μιᾷ των σαββάτων πρωΐ σκοτίας ἔτι οὔσης ④. [Note 2, p. 518: XV:42] [Note 3, p. 518: 23:54.] [Note 4, p. 518: Matth. 28:1; Mark 16:9; Luke 24:1; John 20:1.] Μία for πρώτῃ σαββάτων is a Hebraism, according to the analogy of echad, one, for rischon, the first ⑤. [Note 5, p. 518: Gen. 1:5.] The ὀψὲ σαββάτων by Matthew according to Grotius is translated in the most simple way by "exacta dierum hebdomade", after the expiration of the week.

p. 519.

519-cont'd. He explains this usage of the ὁψὲ by citations from Plutarch & other authors.

It (is evident) can be seen how well those connected these time designations (dates!) are. The only question is on which week day to set the 15th Nisan, the first Easterday of the Jews. As is known, the opinions of the exegetists on this point have always been divided. It may be permitted to a layman (to express himself on this too. (on account of his chronological investigations).

It has already been stated that the first three evangelists plainly make Friday the 15th Nisan. But the present Jewish calendar is so arranged that the 15th Nisan must never come on a Friday. True, it can be said, this is a regulation which got into their ceremonial law only after their dispersion when their calendar

Why we reject the Uberlis

While in Palestine the depressed position of the Jews, ~~who~~ often barely ~~could wrest from the unfavorable~~ managing to make a scanty livelihood inflicted upon the disciples of the sages the duty to marry only at an advanced age after having completely finished their studies so as not to be hindered in their brain work by worrying cares of subsistence, with the Babylonian Jews living in luxury it was generally the custom to enter into marriage before the 20th year, and it was not a rare ~~occasion~~ case when a Babylonian studying law left his home country as a husband & father of a family to go to Palestine

2/ there to complete his studies.
Soon after his return from
Palestine Samuel too was
given a faithful life compagnon
However, he was not willing to leave
her and go far away, but
intended to continue his
scientific studies in his homeland.
Aside from practicing medicine
& law he applied himself
mainly to Astronomy, that
science which is ~~in the~~
~~position~~ able to bring about the most
stimulative impression of the
Sublime upon the human
imagination carrying the
(dust born) the mortal human
off his feet in admiration of
the greatness and omnipotence
of the creator of the universe.

3 Already in ancient time Babylon was the home of Astronomy No other country than this afforded the observing investigator a wide ~~unrestrained~~ unhindered view over expanded plains and in a clear sky not darkened by ~~one~~ clouds which extraordinarily favored the cultivation of this science. The inhabitants of these p 17 regions actually have occupied themselves with astronomical Observations more than other nations and stood in high esteem on account of their Knowledge in this sphere. Especially about the city Nehardea, the place of Samuel's residence, Plinius reports that it was the seat of the Hipparenians, a famous sect of the Chaldean ~~sages~~ wise men.

① In these regions probably

4/ also the Jews became friends with the science of astronomy and acquired multiple Knowledge which seems especially ~~important~~ significant with the house of the patriarch in Palestine which came from this country. Here Samuel too, cultivated with habitual zeal this sublime science. §

But while with the Chaldeans – as on the whole with most of the nations (in ~~ancient~~ times) of antiquity – astronomy was closely tied to astrology – that delusive science which pretends to be able to predict the fate of man from the constellation of the stars, in fact thanks to this latter it had received its proper significance – with the Jews it received a much higher ~~conseration~~ meaning X

5 The study of this science was declared a religious duty because it leads to the knowledge of divine omnipotence and omniscience. Bar Kappara, one of the most exellent students of R Juda ha-Nasi, taught: Who knows how to figure out the courses of the stars and omits to practice it, to him the words (statement) of the prophet applies: "they regard not the work of the Lord, neither consider the operation of his hands." Isa. 5:12). In the same ~~spirit~~ sense (line?) also other teachers of the law taught that it was meritorious to make astronomical observations. Heeding the words of these teachers Samuel too occupied himself with astronomy chiefly

for the sublime purpose
cultivating merely the
scientific side of it.
Though he associated with
heathen astrologists in order
to increase his knowledge,
he even had an astrologist (p.18
by the name of Ablat as ~~his~~
his intimate friend; however,
he censured those of his coreligion-
ists who pursued the pseudo-
science of astrology, saying:
With the astrologists who are
constantly looking to the sky
you will not find knowledge
of the law. He also decidedly
(energetically) opposed the view of
the astrologists that the fate
of all men is determined un-
alterably (irrevocably) by the con-
stellation of the stars; he

I taught, in the contrary that it is within the might of man by good and God pleasing deeds to (withdraw) be spared of the misfortune the astrologists pretend to have read from (into?) the constellations.

He further tried to convince his friend Ablat of this his Jewish view by produced facts. X

It is not possible exactly to determine the extent of Samuel's knowledge in the astronomical science, for aside from the numerous teachings (doctrines?) and sentences (quotations?) in the two Talmuds — of which only a few come under the province of astrology — no written works

8/ of his have come down to us. We do not even have reliable information (Knowledge) of the fact that he has been literary active in the sphere of astronomy. Although/two works are credited to him but as to the Baraïlha de-Samuel insight into which was made possible to us a few years (p.19 ago – it has proved to be of much later origine. And it can be assumed with certainty that as to the other works bearing Samuel's name we also have to ~~deal~~ do with pseudo epigraphs. X

From the following words spoken by him it is evident however that he ~~was~~ especially distinguished himself in the

9/ Knowledge of the heavenly bodies and their (courses) movements: "The heavenly courses are so well known to me as the streets of Nehardea; yet I cannot get to the bottom (fathom?) the nature of the comets and their movements; only that much I know for certain that a comet never crosses the Orion, for if that would happen the world would be destroyed. It is an optical illusion if we sometimes see one cross it; the light emanating from the comet appears to us as being the star itself." Many more of his doctrines & statements that he tried to explain the phenomena of the sky (astrily) with a scientific mind

10 and from this it must be concluded with certainty that in astronomy he kept pace with his time or even was ahead of it.

The special merit of Samuel was that he especially cultivated (fortend.) the branch of practical astronomy ~~named~~ representing the calendar science ~~which~~ the knowledge the of spreading it in Babylon.

This branch so important for the religious as well as ~~the~~ however civil life at that time, could find practical application only in Palestine the only place where the determination of the beginning of the months and the intercalations

11 were permissible (x)4; yet in spite of this upon the suggestion of Samuel soon it became the subject of eager (ardent?) study ~~in~~ with the Babylonian teachers of law. //

[(x) Note 4, p. 19: Sanhedrin 11 b, Jerusch. Nedarim VII, 8. Only in an emergency case those qualified abroad were allowed to make calendar determinations. The proceeding (method?) of Chanania, nephew of R. Joshua, who in Babylon determined beginnings of the month and intercalalary years, was severely censured from (by) all sides.]

~~The determination of the beginning of the month on which the festival days were depending(ed), in the days when the Sanhedrin headed by the Patriarch with seat still in Palestine,~~

K 20

In those days when the Sanhedrin headed by the Patriarch had his seat still in Palestine, the determination of the beginning of the month on which also depended the festival days, always took place on that day, on which the new moon became visible in the sky for the first time after conjunction new moon in form of a narrow crescent. This had to be announced by witnesses to the Patriarch and his council, who had to be very well experienced in the reckoning of each new moon (i.e. the time when the moon comes (?) in conjunction with the sun) as well as in the knowledge of the time when the visibility of the moon becomes

13 possible for the first time after the ~~new moon~~ conjunction — firstly in order to be able to examine the statements of the witnesses and on the other hand, in order to avoid irregularity (confusion?) in the calendar system in case the moon would have been seen by witnesses (not) at the proper time. [Note: (to) cf. Maimonides, Jad ha-Chasakah h. Kiddush ha-Chodesch cap. 1 and 18. Although in figuring out the time when the new moon starts to become visible, witnesses were completely superfluous, a traditional law wanted to see applied if possible the statements of witnesses, and allowed only in case of an emergency the

14 determination of the beginning of the month on the basis of mere calculation. But this calculation, however, differs from the calendar rule introduced later by Hillel II, which figured the interval from one new moon to the other according to the mean (average) length of the synodic month.

As soon as the beginning of a new moon was appointed all Jewish communities were informed of it by messengers. Those communities, however, who were so far away from Palestine that a messenger could not reach them before the beginning of the festival, remained in doubt as to the correct proper time

15/ time of the festival and had to celebrate two days instead of one * (Note: Bezah 4 b & many others). The rules followed by the Sanhedrin in all calendar determinations, as well as the astronomical reckonings connected with it, were entrusted committed under the name of Sod ha-Ibbur [Calendar secret] only to ordained teachers of the law. (Note: 1, p21 Kethuboth 112 a. The reason for keeping ~~these teachings~~ this information secret is given by R. Serachjah ha-Levi, Maor, Rosch ha-Schanah paragraph 1 and by R. Mordecai Jafah, Lebusch ha-Chur §427.) Besides, they were recorded in short, dark suggestions (indications)

p21

16 in a Baraïtha. //

Through his astronomical studies Samuel had now gained the necessary knowledge on the movements of the moon and could make the statement before his colleagues that he was able to announce to the Jews in the Diaspora each time the beginning of the month as it is ~~being~~ set in Palestine thus saving the double festival days. [Note: The same according to the explanation of Rashi; differently R. Abraham ha-Nasi in Sefer ha-Ibbur Th. II porta 5; cf. Asarjah de Rossi, Meor Enajim, Appendix.]

17 Although he was not able to unriddle the sentences from the Baraïtha de Sod. ha-Ibbur on this placed before him by Abba, father of the famous Agadist R Simlai, and had to hear of the latter the remark that he does not understand much more of the Sod ha-Ibbur, still he knew how to make up a calendar for 60 years. later he sent this to the head of the Palestine teachers, R. Jochanan, to show him (prove to him) his superiority. (*)

(X) Note 5, p. 21: The dark sentences asked by Abba later were explained by R Seira who had gone to Babylon from Palestine. Yet this explanation to be found in the Talmud (Rosch ha-Schanah 20b) is still so dark that the commentators differ on it in many interpretations.

18 cf. Rashi and Maor ~~das~~ same
Kosari II, 20, Ibn Esra, Iggereth ha-
Schabbath porta II; but especially
R. Isaac Israëli in the Jesod Olam IV, 8.)

(*) Note (p. 21) Talmud, Cholin 95b. This calendar very likely contained the order of the festivals as they ~~were~~ then usually were set by the Palestine Sanhedrin, ~~which~~ which in determining the beginning of the month as is known was ruled by the visibility of the new moon. Therefore it was not arranged like the one ~~introduced~~ established later by Hillel II. instituted This, however, needs yet a thorough investigation since much can be said against it. cf. Maimonides Jad ha-Chasakah h Kiddusch ha-Chadesch cap. 18.]

19/ He did, however, never think
of making public this calendar (p 22)
because as long as there
existed in Palestine a
chief religious (authority)
government he did not
wish to sever the only bond
which (still) knit the Jews to
their former homeland. (x)

[x Note: 1 p. 22. The fact that
Samuel wished to have
the 2nd festival day to be
observed (kept) as holy as the first and
that he strongly animadverted (?)
on its desecration (Pesachim
52 a) proves that his statement
..... Hebrew .....
had nothing to do with an
intention to remove the second

festival with a fixed calendar. (cf. Israëli l.c.)]

Nevertheless he did not cease to teach colleagues and students in the calendar science, and the Babylonian Jews received their first (through him) Knowledge in this science.

[Note 2, p. 22: Due to Samuel's ex-cellent Knowledge in the calendar science which even revealed to him the secret of determining the beginnings of the month (.... Hebrew ....) he was given the name Jarchina'ah. (cf. Baba mezia 85b.)] Among other things they learned of him also how to determine the

21/ duration of the solar year
at 365 days and six hours, ⊗

[⊗ Note 3, p. 22: Erubin 56a]
Therefore this determination
of the length of the year
although ever before (all along)
in use with the Sanhedrin
in Palestine, carried the
name. Tekufah de Mar Samuel
with the Babylonian as well
as later with the occidental
Jews. ⊗ [⊗ Note 5, p 22: Though
this Tekufah even according
to the Jewish calendar is
not worked out quite
exactly — for according to it
19 solar years, which in Hillel's calendar
should correspond to 235 months
were 1 485/1080 hours in excess (over)
But this in no wise was a
secret to Samuel.

22/ He merely wanted to accept a more convenient figure because in his time it still was fit for use (cf. Abraham Ibn Esra, Commentary to Exod. 12, 2 and Iggereth haschabbath porta 1.) A certain Rab Adda later divided this excess in 19 parts and deducted one such part from the 365 days and six hours, thus reducing the length of the solar year to 365 days 5 hrs 55 145/342 minutes. so that 19 solar years amount to exactly the same as 235 months at 29 days 12 hrs 44 1/18 min. This length of the year is called named Tekufah de Rab Adda. Yet the Tekufah de Mar Samuel was not completely displaced (set aside)

23/ by it. Some regulations (decisions) with regard to lithurgy still ~~have the former (it?) as a basis~~ are based on it (the former?). cf. Tur and Schulchan aruch, Orach Chajim §117 & §229.)

Translation from German

The Date of the Crucifixion of Jesus Christ

Bond 240

by O. Gerhardt.

Christ died under Pontius Pilate. All attempts to find the year of of the crucifixion in a purely historical way from this procurators ~~time~~ period in office according to the years mentioned in the gospels have ~~resulted~~ yielded merely approximate results. The day of death was a Friday in the beginning of the Passiah. Since this date depended entirely on the renewal of the moon, the question after the year and the date of the crucifixion is decided by astronomy. In this respect my presentation is based on the calculation of the new and full moons by F. K. Ginzel (1) [See appendix for list of papers used by me.]

(1) Note 1, p. 137:

2

How valuable the contribution of P.V. Neugebauer is will be evident in the respective places. I am endeavouring to present the facts in such a way that the reader easily can form his opinion, probably at variance with mine.

1. The time of office of the procurator Pontius Pilate is ascertained from Josephus' Antiquities. 18, 4, 2 and 3. When Pilate reached Rome where he was to defend himself before the emperor Tiberius, the latter had just died, March 16, 37 A.D. Tiberius had recalled him before the Passover of the preceding year — i.e. 36. A.D. — after he had administered Palestine 10 years. Thus his time of office (run) lasted from spring 26 until then in 36.

3

2. When began the public ministry of Christ? Luke first of all dates (3:1) the beginning of John the Baptist's sermon on repentance: "in the fifteenth year of the reign of Tiberius Caesar, Pontius Pilate being governor in Judaea .... the word of God came unto John." Tiberius had ~~followed~~ succeded Augustus August 19, 14 A.D. The dating "in the fifteenth year of the reign of Tiberius Caesar" can be understood in ~~a three fold~~ ~~treble~~ (different) ways: it can mean the year as from August 19, 28 until then of 29, or the year 28, that is if 14 as the starting year was counted in full, for which E. Schürer found ~~examples~~ (precedents) in the third place it can also mean the year 29, in case the reckoning begins only Jan. 15. A fourth mode to reckon the years of Tiberius would result

4/ from the fact that this emperor by a (law) decree was put on a par with Augustus while he yet lived as to the administration of the provinces and also in the command of the army. Sources for this are Velleius Paterculus II. 121 and Sueton. According to the latter it seems as though this decree was decided on in the year 13 A.D.; but V. Paterculus, who had ~~been~~ accompanied Tiberius on his war expeditions for many years, gives the exact date: it was ~~published~~ issued prior to the triumphal march on Jan. 16, 12, or probably at the end of the year 11 A.D. It requires no explanation that in Rome officially the reign of Tiberius was reckoned from August 14. But through the decree which put Tiberius in the administration of "all provinces" and in the chief

5/ command "over all armies" on a par with Augustus so that Tacitus called him collega imperii, a legal situation was created on the strength (basis) of which in the province for a time his years of reign were counted. a/ Luke 3:1 reads: "ἐν ἔτει δὲ πεντεκαιδεκάτῳ τῆς ἡγεμονίας Τιβερίου Καίσαρος, ἡγεμονεύοντος Ποντίου Πειλάτου..." The emperor's rank in office is here designated with by the same word as the one of the governor and at that in immediate succession. With an author like Luke this is no chance. The simple words "in the 15th year of Caesar Tiberius" would have been quite sufficient. ~~Yet~~ But Luke choose the word ἡγεμονία, in order to combine the

6/ coregency and the autocracy
The fact that with by this word
occasionally also autocracy is
designated is not against
this. the customary (usual)
meaning was "chief command"
and Tiberius held that. —

b/ A documentary proof
furnishes numismatics.
Tiberius coins ~~are preserved~~
have been found which the
governor Silanus had
coined in the Syrian
capital Antioch~~ia~~, the
native place of Luke. One
of them has the numbers
A and TM, that is 1 and 43.
The last number proceeds
from the era of Aktium
(31. B.C.) while A gives the
first (2) year of Tiberius;
[Note 2, p. 138: Compare Zahn,

1// Commentary to Luke's Gospel and his "Compendium on the Story of the life of Christ," 1928. p. 40; further, Hartl, p. 67... Hartl has examined two (well preserved) specimens of that coins in good condition in the cabinet at St. Florian.] so this corresponded to the year 12 A.D. — c/ The autocracy of Tiberius had lasted 22 years, 6 months, 27 days. By authors of the first century like Philo and Josephus this was rounded off to 22 and 23 years respectively. But the Alexandrian Clemens (about 200) - who himself gave 22 years of reign - knew other authors, who ascribed to Tiberius a reign of 26 years, 6 months, 19 days (s. "Teppiche" (Rugs) I. 144). Accordingly,

8// since the emperor died March 16, 37, it was reckoned as from 11 A.D. – Hippolyt of Rome about 230, writes in the Daniel Commentary, that Christ "suffered in the 18th year of Tiberius" adding the names of the consuls – Fufius Geminus and Rubellius Geminus.
As their year of office was in ~~the year~~ 29 A.D., in this date the first year of Tiberius was 12 A.D. – d/ Luke writes 3:23: "Jesus himself began to be about thirty years of age". Of what value is this estimation of age? It did not originate with the evangelist for he had never seen the Lord. Evidently he received it from those of whom he ~~learned~~ got "from the beginning ... perfect understanding

9// in order that his most excellent friend Theophilus might "Know the certainty of those things, wherein he was instructed." Luk 1:2-4. Consequently this estimation of the age should not be passed by as meaningless. But to what year could it point? Herod had died in the spring 4 B.C. so that 5 B.C. would have to figure as the latest year of birth. Then 26 A.D. Christ would have been exactly 30 years old and "about thirty" would well fit to 27 ~~oder~~ or 28. (We dare not go back farther than 26 on account of P. Pilate's entering upon office.) We must, however, accept an earlier year of birth. The history

(139)

10

of Christmas ~~or the holy night~~ (Luke 2) as is known begins with the decree of emperor Augustus that all the world should be taxed. According to everything now ascertained about this, the unanimous conviction prevails that Jesus was born between 8 and 6 B.C.

1) [Note 1, p. 139: From the story of the star of the wise men follows ~~that~~ 7 B.C. as the year of birth. The solution of this problem given by me in my book "Star Messias" Leipzig 1922, is based on facts completely eliminating hypothesis after I had succeeded to prove from the abundant source material covering a period of over 2000 years, that the star spoken of in the gospel has existed. My

11

astronomical calculations are ~~checked~~ verified by Ginzel.] Accordingly the estimate "about 30 yrs." does not allow ~~of it~~ to set the beginning later than 28; for in 29 or 30 Jesus was already 34-37 yrs old and that was not called "about 30" The character of an author like Luke who [~~EB's note: Kindly look up other English translations of Luke 1:2-4~~ "having fully followed all accurately from the very first to write to you consecutively" should receive due appreciation. After careful investigations he had learned of the three important dates: The birth of Christ at the time of the registration of emperor Augustus – the appearance of the Baptist in the 15th year of Tiberius – the statement about the age "about thirty yrs." It would be an absurdity to bring

12

Luke in contradiction to himself. Having fixed the beginning of Jesus in this indirect form to 27 or 28, he thus decided that he had reckoned as from the beginning of the coregency. This he could do according to the legal status in Syria. //

The first (~~beginning~~) year of Jesus according to the gospel of John. — After the baptism, the temptation and the election of the disciples when Jesus for the first time was in Jerusalem, on a Passah, with regard to him the Jews said: "46 yrs was this temple in building, and wilt thou rear it up in three days?" Capt. 2:20. What year do these words fit? After repeated examinations of the sources (Fl. Josephus and

13 // Dio Cassius) Zahn & Schürer have found that the building of the temple was begun in Winter of 20-19 B.C. and that Jan 28 A.D. the 46 years had elapsed. Since the Jews there in the tempel before Jesus obviously counted the current year for full, that debate on the demolition and construction of the tempel took place on Passah 27 ②

[Note 2, p. 139: The latest investigation by E Power S.J. editor of the periodical "Biblica", 1928, after some wavering (staggering) came to the result, that the interpretation of the Greec texts - John and Josephus - which is to be considered the "valid" - current - leads to the year 27 regarding the 46 years of the temple building and to 30 for the crucifixion. (hardly on Passah 28). Consequently 3-4 months earlier]

in January 27, the baptism had taken place and the beginning of the Baptist in the year 26. The opinion that "in the 15th year of the reign of emperor Tiberius" includes his coregency, thus has received five confirmations: a few coins, the authors known to Clemens, furthermore Hippolyt, then Luke himself by his statement "about 30 years" and indirect John in the note 2:20 just discussed. //

3. In what year, therefore, Jesus began his ministry? From the statements of the four evangelists follows that he began a few months after the Baptist: Matth. 3:1-13; Mark 1:4-9; Luke 3:1-21; John 1:19-. Again we allow all possibilities to stand: John the B. began "in the 15th year of the reign of emperor Tiberius", that can mean a the year from August 28 until Aug. 29,

15// or b) the year 28, or (p. 140
c) the yr 29, or d) the
year 26. Accordingly Jesus
began in January either
according to a) and b) of the
yr 29 or according to c) of
the year 30 or acc. to d) of
the year 27; besides there is
4) accord. to John 2:20 of the
year 27 (or 28). //

4/ How long lasted
Jesus' ~~the~~ public ministry? After
the baptism and the 40 days
of temptation Jesus preached
for the first time in Nazareth;
from here he moved to Caper-
naum where he choose the
first disciples, took part
of the wedding festival in
Cana and went to Jerusalem
for the Passover (John 2).
These events may (might?)

16 // cover 3 to 4 months, be it rounded off to ¼ year. //

Although the synoptics mention but the one Passah when Jesus was crucified, still they show distinct traces of an activity of several years; compare especially Luke 13:6-9 and verse 34. An exact outline offers us the gospel of John: chapter 2, the passover which Jesus passed in Jerusalem, chap. 6, the Passah Jesus passed in Galilee, chap. 12 the Passah of the death. Between each two Passah festivals was one year; in chap. 5:1 there is yet one more festival to be determined. Jesus was in Jerusalem at the time and among others healt the paralytic of 38 years illness, 5; 5 om. infirm.

2 / The course of all preceding and following events is quite clear from the following texts:

17

John 2:13,23on; 3:22; 4:1-5, 35, 40-46; 5:1; 6:1-4. After the first Passah Jesus remained a few weeks in Jerusalem, i.e. April probably ~~early~~ beginning in May, then stayed for considerable time "in the land Juda", on his return journey to Galilee he stopped in the city of Sichar, and that was in January (4:35) of the following year; after that he was in Galilee for some time 4:43-54, i.e. in the month of February.

"After these things there was a festival of the Jews and Jesus went up into Jerusalem" 5:1. This follows by the Passah 6:1-4 which he passed in Galilee. Earlier it was assumed after that festival was the Purim; it was but four weeks prior to the Passover. 5:1 if so, Jesus would have gone ~~from~~ in March from Galilee

18 // to Jerusalem and in April — probably even end of March — again to Galilee for the Passah. Accordingly the interval between chap 5 and 6 would have amounted but a few weeks. That, however, is quite out (of the question). For the events in chapter 6 show us Jesus at the height of his ministry in Galilee: drawn by his deeds of healing, thousands accompany him wishing to make him king; the apostles have long be chosen, and a recurrent movement is beginning to make itself felt, 6:6 and on. All this can be but the result of a preaching and healing activity over a period of months. So the festival was not Purim. This follows, too, from the tradition of the text. In a great number of manuscripts 5:1 reads "it was the festival of the Jews" —

19/ this usage which we find also in the old Testament and with Josephus, referred exclusively to the Feast of Tabernacles; compare also John 7:2. - The church fathers, in dealing with the contents of chapter 5. call it the festival of the Passover; this ~~corresponds~~ is compatible with an especially valued manuscript which (p141 reads "it was the feast of the unleavened bread. - (It was not customary to go to Jerusalem for the Purim!) //

Accordingly we have obtained ~~gained~~ the following brief outline ~~(survey?)~~:

5./ The duration of Christ's public ministry: 3-4 months as from the baptism until the first journey to Jerusalem.

1st Passah: Jesus in Jerusalem, John 2,
2nd " or more likely Feast of Tabernacles: Jesus in Jerusalem, John 5,
3rd ": Jesus in Galilee, John 6,
4th ": crucifixion,
altogether in round figures three and one quarter years.

By adding these to the years 27, 28, 29, 30 ascertained as the starting point, the clear result is that

the year of the crucifixion

must have been one of the four: 30, 31, 32 or 33. Every other, earlier or later, is out of consideration. //

6. Following the example of others I have made (earlier) use of the year of the conversion of the apostle Paul in order to find a

terminus ad quem
for the crucifixion. In case
for instance it were certain,
that the event on the street
to Damaskus had taken
place in the year 32, then
only the years 30 and 31 could
come into consideration
for the crucifixion. But
according to the present
status of research – for
instance Th. v. Zahn, A. v. Harnack
Deissmann, Wohlenberg – the
conversion of Paul ~~could~~ can
have taken place in one
of 6 years 31–35. Harnack
holds to 31 or 32 adding:
"33 also must be left open" –
Zahn, on the contrary, holds
to 35. But these

two leaders (conphei!) have figured out that 30 was the year of crucifixion. //

7. The day of death was a Friday, see Matth. 27:62; Mark 15:42; Luk 23:54; John 19:14, 31, 42. The technical expression for this weekday was Παρασκευή, which in some modern languages still lives as paraskeve, paraséve. It means "preparation, getting ready", hence in our Bibel "Preparation day". Mark elucidates this 14:52 "the day . . . .

8. Passah, Feast of the unleavened bread, Azyma. About the origine,

significance and customs of the festival see Exodus 12; 34:18; Lev. 23, Num. 9 and 28; Deuteron. 16. — The name ΠΑΣΧΑ, Pascah, come from the Hebrew Pesach (= passing over) and immortalise (perpetuate) the passing over of the Lord's (the) Israelite houses which were marked with the blood of the lamb. Exod. 12:2-14: On the 14th day of the first month the lamb was slaughtered and prepared and "eaten between the two evenings". This means either the time between the sun's going down and sunset or the time as from sunset until darkness. The beginning of the evening formed the end of one day and its closing

24 // the beginning of the other day. The Passah meal lasted from the 14th into the 15th Nisan. This was followed by "the seven days of unleavened bread", "mazzoth, ἄζυμα". But as early as the 14. Nisan no other than unleavened bread was allowed to have in the houses so that this was considered as the first day of unleavened bread, see Matth. 26:17; Mark 14:12. - The two names of the festivals as early as in the time B.C. were (p. 142) no more strictly discriminated; the whole festival often was called Passah or merely feast of the unleavened bread. This varying usage of the names is amply proved in the Old and New Testament, also with by Josephus it is found. //

25

9a. The day on which Jesus held the Passah Feast (Last Supper), is determined by Luke and Mark in a most precise way thinkable (~~imagin~~) Luke 22:7: " . . . . . .

– quite unequivocal the 14. Nisan. Mark 14:12: "on the first day of the unleavened bread, when it was customary to sacrifice the Passah."
In the original this is expressed by the imperfect tense but unfortunately in the German translation it is not. Thus Mark refers twice to the 14. Nisan in this text: 1/ "on the first day of the unleavened bread," 2/ when it was customary to sacrifice the Passah". The latter is found also in the old Latin version quando immolabant.

The Peschittha and a north Egyptian translation each have the present tense: "when Passah is sacrificed."; it is impossible to designate that day still more plain than these five texts have done it. There is no mistaking it that Mark and Luke wished to avoid every (uncertainty) obscurity, ~~confusion~~; their words are synonymous with the date "on 14. Nisan" (ters ~~distinct~~ clear is Matth. 26:17 on)

Thus we have gained a distinct calendarium:

14. Nisan, Thursday, on the eve of the Passah feast,

14-15 " in the night: Gethsemane, Arrest,

15 " Friday: Trials, ~~sentence~~ Verdict, crucifixion, burial.

27

The reliability of this synoptic report has been challenged (~~contested~~, attacked sometimes in one direction: ~~According to the prohibition contained~~ given in the Mischna the two trials befor Hannas and Caiphas were not allowed to have taken place on Friday, for it was on a fertival. First of all picture to yourself the cource of events: the party of the high priest since long was firmly decided to make away with the hated adversary (antagonist?); unexpectedly soon the traitor delivered him into their hands in the night from thursday to Friday — what were they to do now? Their trials were ended finished when the day broke;

28// all the rest was for the governor to settle. – Besides, it is more than questionable whether that prohibition is from the time before Christ, for the facts repeatedly reported in the New Testament directly contradict it: in Christ's time measures or interventions by the police, judicial proceedings, even the execution of capital punishment took place on the Sabbath itself (see Matth 12:14; Luke 4:29; John 7:30,32,44-52; John 8:59; 9:13-34; 10:31,39). //

So the synoptic dating stands. //

96 Has John given the 14 or 15 Nisan as the day of the crucifixion? Above

is shown that with him as well as with the synoptics it was a Friday, see Nr. 7. Now he calls it 19:14: "Preparation day of the Passah". This erroneously has been interpreted as the preparation day for the (~~until, before~~) Passah thus making this Friday the 14 Nisan. But the paraskeuē used there was the only customary expression for Friday, found everywhere in the New Testament as well as in the Greek Old Test., also twice in the same chapter 19, verses 31, 42. There was always a Friday in the seven-day festival and that one was meant there. // (p. 143)

On this day Pilate spoke to the Jews "it is your usage that I should be releasing one to you in the Passover. Do you wish that I release to you the king of

the Jews?" 18:39. He did not say "about the Passover", nor "for the Passover", but rather "in the Passover" i.e. within, during the Passover. Had that been on the morning of the 14. Nisan on the afternoon of which day the Passover feast was to be prepared, Pilate hardly would have said "in the Passover". His words characterise Friday as the 15. Nisan, which was in the festival (the day within the festival[2]).

The opinion that according to the fourth gospel the crucifixion is to have taken place on the 14 Nisan and that this was the Friday is based mainly on two texts. In chapter 13 the last supper is mentioned which Jesus had

with the twelve befor his arrest; in this connection no mention is made of the Passah rites. And then after the last ~~speeches~~ orations, discoursen in chapters 14-17 and after the arrest in Gethsemane and after the first trial 18:28 "then they lead Jesus from Caiaphas into the Pretorium lest they may be defiled, but may be eating the Passover." If here the eating of the Passover lamb was meant, then it was on the morning of the 14 Nisan, then the supper meal of chapter 13 was not the ritual Passah feast, and the crucifixion was on 14 Nisan. The counter-arguments are telling (decisive?):

a The fact that the Passah rites are not mentioned is on a level with a number of similar cases: John does not mention the establishment of the holy communion (nor of baptism) nor further the prayer-

full struggle in Gethsemane, the falling asleep of the disciples, Juda's kiss, the trial befor Caiphas, Christ's oath that he was Christ, the son of God. It is the known characteristic trend in the passion story of the fourth gospel: The passing over of various events means (the) agreement with the synoptic reports. Nor does John's report differ from that of the synoptics (John, too, does not report differently from the synoptics) that the day of death was a Friday and that on the evening before the Lord had the supper when he designated the traitor.

b) The defilement the Jews tried to avoid helps to make the date clear. If the scene before the pretorium had taken place on 14. Nisan, a defilement committed early in the morning, could very well be atoned until the afternoon. That, however, was

impossible on the 15 Nisan, which was a high day of the festival with a meal having the character of a thank offering.

c) The Jews did not wish to become defiled "in order that they could eat the Passover". What did Passah mean in the language of Jewish cult (worship)? "Passah took place - it was the Passah - Passah was prepared - Passah was held - Passah was arranged! - these are the customary expressions in the Bible and also with Philo and Josephus; i.e. ~~it was named after~~ the feast or rather the meal, but not ~~after~~ the animal was mentioned. By (through? thanks to?) metonymy the meaning of the word Passah was widened, as is evident from the expressions "they cooked the Passah - they

34 roasted the Passah on fire", where it refers to the animal. But in other expressions "they slaughtered or sacrificed the Passah" again reference is made to the festival which is clear from the expression "they slaughtered - sacrificed - the festival"; the latter expression is used by Josephus. Another widening of the meaning "Passah" is found in Deuteron. 16:2, where it reads "and thou shalt...

(p. 144

This could not refer to the meal (supper?) of the 14. Nisan, where merely a lamb was eaten, it rather referred to the thank offering meal; the majority partook of this on the 15. Nisan, yet one could partake of it also on the other

35 days of the festival. It is no different with the word "to eat the Passah". In one place the Mischna reads: "The Passah of Egypt was eaten in haste and at night and the Passah of the generations (i.e. the repeated celebration in after-times) was customary for seven days." This corresponds exactly with II Chron. 30:22 "and they ate . . . . .

the same by Josephus, in the Targumen and by Hieronymus. Here always the meal of the (it means) festival, which could be eaten on each of the seven days; nobody was to avoid it (withdraw from it), it was to be eaten "with joy", and according to tradition it usually took place on 15. Nisan.

1) [Note 1, p 144: Compare E Baneth to

36 // Mischna Pesachim VI. 3, note 24.

Thus the dread of the Jews to enter the pretorium on Friday morning, 15. Nisan, is understandable. To sum it up: Luke and the fourfold text in Mark express in the most distinct and clearest form that the Lord with his disciples held the ritual Passah meal at eve of the 14. Nisan. The statement in John's gospel, it must be admitted, is not quite clear [/ ?]; but the meaning of it could be shown (explained) from the expressions used in worship (~~cults~~), and it proved the harmony (accord) in the dating ~~with~~ in the four gospels. Hence the calendarium remains in tact: the 14. Nisan a Thursday, the 15. Nisan Fridan, the day of the crucifixion //

37

The last objection against this date. It is asserted that Friday of the crucifixion by the synoptics is given as the 14. while by John as the 15. Nisan, and furthermore that both dates are correct; for in those times it could happen that one weekday had two month dates of the This is an hypothesis by Jechiel Lichtenstein 1913, D. Billerbeck in the Commentary to the N.T.; Father J. Schaumberger manifests a strong tendency towards this hypothesis in "Biblica", 1928. As shown by Johannes Lundius in his excellent work "The old Jewish Sanctuaries", Hamburg 1701, it was strongly discussed as early as ~~from~~ beginning in the time of the reformation. Its originator is supposed to have been the bishop Paulus von Burgos, a convert from Jewry

+1435. Among the points supporting this hypothesis a single one is fit to make it credible. I quote according to Schaumberger from the Mischna tract Sanhedrin 5.3:

"if two witnesses in dating an event differ by one day of the month, still their witnessing is valid; for it is possible that both mean the same day and only figure reckon the beginning of the month differently." Schaumberger does not offer an explanation for such a calendar curiosity. ||

(Dating the same day twice)

10./ (The twofold dating of the same day) was the p145 natural result of the calendar system (in ~~those~~ that time) of the time; it is supported by many facts discussed in the Mischna and very easily explained.

To begin with I choose a case

as follows: "if the court of justice (tribunal? Sanhedrin?) and all the people of Jerusalem have seen the new crescent of the moon on the 29th of the month soon after sunset, but by some hindrance due to the 30th day, too, has elapsed i.e. the full night to the 31st has begun without (before?) the tribunal (court?) (Sanhedrin?) hat pronounced the sanctification, the past month then is inserted as a full month of 30 days, though according to the new light observed it should have but 29 days." (Rosh haschana 3 b u 25 b; see also 2 Baneth 4 o 1 on). This official dating was followed in Jerusalem and in regions which could be reached by messengers; but in other places where messengers

110 // did not get to, the dating was done according to the new light (conjunction?) - thus the same day received a double monthly date. - The reverse also happened: After sighting the crescent on the 29th at eve in Jerusalem the 30th day was made the first: yet in other places where the crescent was seen neither on the 29th nor on the eve of the 30th, according to old custom (usage?) the month was given 30 days so that the 31th became the first. In this case, too, one day had two dates. //

But the most odd or strange cases of "dating back" occured when due to failing new light the 31th day had been made into the first and on the 4th or 5th day witnesses appeared who had seen on the eve of the 29th. If they were able to maintain their testimony through the most severe (strict?) trial of the tribunal (Sanhedrin?), the latter was compelled to date back

41 4 and 5 days respectively. All who learned of it, dated the days through the month correctly, who did not hear of it, differed by one day. There matters were public; everybody knew that ~~due to the fact that~~ because the new light had been seen (sighted) here while, then it had been invisible, the result was the difference in the date by one day. So the (judicial) Sanhedrin 5,3, was quite self-evident. It was therefore customary in order to avoid errors, to state on documents by the side of the date also the day of the week. — In the diaspora it was customary, for the same reason to hold the 30th as well as the 31th as Rosch Chodesch (= First of the month) The following case shows how intent the effort was to prevent the double dating. New year's day was the 1. Tischri, the month prior to this was named Elul. If on the 29th Elul at eve the crescent was

not sighted, the tribunal? waited all day of the 30th ~~whether~~ for witnesses from outside; yet this 30th day (for the new light) was celebrated as new years day. Did no witnesses arrive, this 31th day was reckoned (considered?) as 1st Tischri, and a second new year's day was celebrated in Jerusalem. The official reckoning of the Tischri days, i.e. beginning with the last named day (new year?), was spread far and wide by messenger; so the uniform dating of this festival month existed in the regions reached by messengers.

All these unavoidable happenings had brought about in very early times in the provinces and still more in the diaspora the custom to celebrate the great festivals on two succeeding days (except the day of atonement because of the strict

fast). For only in this way was it possible to carry out the principle that the whole of Israel had one common festival day. This principle was traced back to the holy origins of the feasts. (festivals?). Maimonides II, 10 presents it as follows:

"Everything is under the obligation to arrange the feast and festival days according to the day sanctified as the new moon (conjunction?)... and everybody who was told to observe the feasts, is obliged to rely on the judicial court (Sanhedrin?), for it is written in the Scriptures: These are the feasts of the Eternal which you are to call out in order to be able to celebrate time in this time" (similar in many other places). The messengers who where to announce everywhere the beginning of

44 Nisan, were not allowed to leave the meeting place of the court of justice until the chairman had spoken the word "sanctified" (Rosch haschana 21 b; Maimonides III, 10), in order to have the days of the Passah and the unleavened bread uniform in all regions. What was accomplished in this way outside, still more was an holy duty (obligation) in the center of Jewry: celebration of the Passover supper on ~~one and~~ the same evening. A double reckoning of the Nisan days, a double Passah day in Jerusalem was completely out of question.

So our task remains as before: To find out from astronomy, in what year

45 the 14 Nisan fell on a Thursday, ~~and~~ the 15 on a Friday, and which (what?) dates these were according to our calendar.//

II. Passah and Full Moon

(Based on)

On the strength of the fact that in ancient christian time the first full moon after the spring equinoktium was counted as the 14. Nisan, Theologians — for instance Achelis — have sometimes requested of astronomers, to figure out the spring full moons of those ten years. The result was the following.

in the year 27 on Wed. April 9
28 " Monday, March 29 and Tuesday Apr. 27.
29 " Sunday

A.D. 30 Thur. Ep. 6
31 Fri. M. 27 + Wed. A. 25.
32 Mon. A. 14
33 Tue. A. 3
34 Fri. M. 23 + Thu. A. 2
35 Mon. A. 11
36 Fri. M. 30 + Sun. A. 29

The last three years do no more come into consideration for the chronology of Jesus. //

The result is surprising. According to this, whoever accepts the dating as stated by John as the correct one, accordingly could explain (only) but the year 33 as the one of the crucifixion because there the 14. Nisan by (through?) the full moon is fixed to a Friday. But whoever holds to the other dating – the 14. Nisan on a Thursday and the 15th on a Friday – if he goes by the full moon, cannot but take 30 as the year of the crucifixion. All the other years are out. //

But according to the

then calendar (practice) system, the ascertainment of the full moons cannot solve our problem. For instance, (+147) on the eve of April 3, 33 the full moon began (?) at $17^h 14^m$; there, first of all, we cannot know that was the 14 or already the 15th day! The Passah festival began in the afternoon of the 14. day, which was dependent on the new moon, or rather new light. The interval from new moon to full moon is very variable: for the years 28, 29, 30 AD and the months January to April inclusive it is easy to find from Ginzel's tables that each interval (digression?) in the minimum was 13,94, but in the maximum 15,57 days (accordingly it is in all years). So the full moon appeared

sometimes 14, sometimes 14½ or 15 and even 15½ days after the new moon. On the average, however, the Jewish month began one day after new moon, occasionally also 1½ days, as will be shown shortly. From this it is evident that the 14. day decreed for the Passah observance sometimes came 15, may be even 16 days after new moon and that only occasionally it coincided in an astronomical sense with the full moon.

12. In more recent times occasionally it has been asserted — lately by F. Wertberg, Riga 1910 — the Jews were in possession of the constant calendar as early

as in the times of Christ. E. Schürer, F. K. Ginzel and many others have have rejected this. The endeavours of Rabbis Juda Hanasi of about 170 A.D., Rab, Jochanan, Mar Samuel Jarchinai 160-250, Adda bar Ahaba, Hillel III, who lived still later, created the basis of the constant calendar. It was introduced about 300 A.D. //

13. The (3) adjournments[2]

According to the constant calendar new years' day must not come on a Sunday, Wednesday, Friday, the first day of Parsah not on a Monday, Wednesday, Friday. If now according to the course of the moon the 1. Tischri would fall on a prohibited day, then new year is

50// adjourned by one day.
It is proved from the Mishna-
tracts (Sabbath XIX, 5; Menachot
XI, 7; Rosch haschana II, 1), also
from the Tosefta and Gemara
that these adjournments
were carried out only after
Christ's time. More about this
by Zuckermann, Sidersky, p. 660
and Schaumberger in the
magazine Biblica 1928. //

14. The Intercalation
and the position of Nisan. The
shortest Jewish year ~~covered~~
(~~encircled~~?) consisted of 352 days
(8 months at 29 each; 4 mos at 30 days
each); the longest 356 days (reversed,
4 at 29, 8 at 30). Accordingly, the
average length amounted to
354 days, i.e. the year was short
by 11 days of the course of the
sun. In three year it amounted
to more than a month.

If, for instance, in one year Nisan coincided with our April, three years later it would have begun in February and Passah would have come before the middle of March. For cultic reasons ~~of cultworship~~ this was impossible: the ~~sacrificial~~ animals to be immolated had to be developped according to set rules, on the 16th Nisan the barley-first fruit offering (sacrifice?) and 50 days later the offering of the fruits of the trees had to be presented. Therefore the Sanhedrin in the last month had to convince itself of the status of the harvest and the fruits of the trees. After a negative result of this investigation, a whole month

was ~~intercalated~~ inserted, it followed the twelveth month Adar and was called Veadar. The principle for the intercalation read (Sanhedrin II, 2): "Upon three signs the year is declared as intercalary: The ripeners of the grain, the fruit of the trees and the Tekupha ("Aequinoctium") on the strength of two the calendar can be fixed, but not on ~~one~~ a single one." This astronomical condition means: The festival month Nisan must be so placed, that the vernal equinox had taken place before the Passah. And Ginzel repeatedly found the confirmation with Aristobul, Philo and Josephus, that Passah was observed ~~while~~ "when the sun was in the Aries". But for the intercalation as thus also for the

53 // position of the Nisan the astronomical momentum was not decisive, but rather one of the agricultural conditions — ripeness (maturity?) of the barley and the fruit of the trees — had to be added. (It therefore was an error when Sidersky fixed the beginning of Nisan and the position of the Passah ~~according to~~ exclusively after the equinox.) //

When does barley ripen in Palestine? The climatic (situation) conditions are so ~~uneven~~ variable, ~~different~~, that in the favorably situated territories round about Jericho the harvest begins almost 4 weeks earlier than in the mountains of Juda. "The territory at the lower Jordan around Jericho has almost tropical climate and partly a tropical vegetation; there the barley harvest

5½ // often begins the end of March"
(Vogelstein, p. 58; Benzinger in the
P. R. E. I. 137; Baedecker, G Ebers and
Guthe I. 144 and others). If we re-
construct the then calander on the
basis of the new moons, Nisan must
come in ^in such a position that the feast
days of the 14 and 15 at the earliest
fall end of March¹) [Note 1, p. 148:
According to the tract Menachot X̲. 2
sometimes they were at a loss to
get ripe barley for the offering on
the 16. Nisan.] But a new moon
the beginning of March can only
introduce Adar or Veadar.//

15./ The Jewish month and
the course of the moon. God has
"made the moon to determine
the time" (Ps. 104:19, where our (Luther's)
translation, ^(free transl.) reads: God has "made
the moon, to divide the year by it").
How closely the calendar followed
the course of the moon, we re-
cognize from the following facts:

55

a/ from new moon to new moon 29 1/2 days elapse, the months had 29 or 30 days, never more and never less; b/ The form of expression so often repeated in the Mischna "if the moon is seen at the time" designates each time the sighting of the moon ate the end of the 29th day; c/ there were years with 8 months at 29 and 4 months at 30 days each — such a year of 352 days was behind by 2 days of the 12 times-change of the moon; d/ sometimes two months of 29 days each followed immediately one upon the other; together they were shorter by one day than the two-times change of the moon. //

16. The lunlight. If on the evening after the conjunction the crescent again appeared, this was considered as the sign established by God, according to which the new moon had to be "sanctified"; the new moon feast was celebrated,

56 // which is mentioned often in the Bible. the new light appears in the evening twilight on the western sky near sunset, mostly low on the horizon. Its visibility depends on different factors: a/ as to the horizon - whether it is clear or cloudy, whether the atmosphere is pure or vaporous (hazy?), whether the twilight is long or short; b/ as to the plase of observation; - whether it is on a high mountain or in the plains, and in what geographical latitude; c) as to the lunar orbit, - whether it is in the perigee or apogee (in the former case it moves very fast, in the latter very slowly), furthermore, how many degrees above or below the ecliptic (i.e. the geocentric latitude of the moon), and finally how wide its crescent is. "In the spring",

p. 149

57 says F. X. Kugler, "the ecliptic is rises in a steep line, while in the fall it forms a considerably more pointed corner with the horizon. The result of it is that after the conjunction the moon — given the same width of the moon and the same elongation — goes down much quicker in the fall than in spring ... and that the time between new moon and new light is greater in the fall, in given some circumstances much greater than in the spring." //

The conditions under b) and c) can be figured out by mathematically, the contrariwise we are completely helpless before the factors named under a). A cloudy sky can hide the moon completely; 2/ the narrow crescent which appears

58/ the first evening like a fine luminous thread can become invisible through a light dimness of the atmosphere. That is why in some territories of the same geographical latitude one observer sees the new light but the other does not. 3/ Finally at times in the evening glow there are seen fine reddish stripes similar to the (also) bright and fine thread, ~~too~~, of the crescent, which ~~mislead~~ delude the observer, even the experienced one. The Mishna reports ~~of~~ sufficient cases of wrong new light observations and gives the necessary hints, how to examine the witnesses in order to arrive at the true facts.

(non-appearance)
The absence of the new light forms the first unknown quantity in the problem to reconstruct the Jewish calendar

59 of those years. Though the climatic conditions of Palestine guarantee a clearer horizon than ours, though on an average there are only about 50-52 rainy days besides several snowy days, yet the fact that the rainy days are just in the months October until beginning of May suffices to prove, how often the new light can be wanting. (One of my informants, a teacher in Jerusalem, did not see in 1928 the new light four times in succession, due to a cloudy sky.) Maimonides calls attention to the fact that the crescent cannot become visible in all months, this possibility is not often to happen, "but do not believe, that such a case is impossible". //

When of the monthly observation was frustrated on account of the weather, it was customary

60 // to have a 29-day month follow a 30-day month. This is evident from the tracts Rosch haschana and Erachin. //

Beginning with the time when the calendar scientists knew the duration of the 22nd lunar ecliptic?, they began to standardize by calculation of end and beginning of the months. For this, too, the tracts named, as well as the Sanhedrin provide many clues. Gamaliel, teacher of the apostle Paul, was in possession of a tradition from the system house of instruction? of his grand father according to which the course of the moon took 29 1/2 days 2/3 hours (and 73 parts) and that the moon at times was moving faster and an times slower so that the

61 interval between new moon and new light is of unequal duration. This astronomical knowlege enabled the judicial court to examine the statements of the witnesses who had first seen the crescent and eventually reject as erroneous. (Maim. II. 4.). 150

At the turning point of the time with the calendar council was making use of observation and calculation (reckoning) alternately." "It is a law of the Thorah, that the court find out and know whether the new moon will be seen or not" - so Maimonides I. 7; compare further I, 6, 8; II. 4; XI. 1 and more often.

The new moons of those days are worked out most exactly by the excellent

62/Ginzel (see Handbook of math. and techn. Chronology, 2 Vol.) But how many hours after the conjunction does the new light appear? //

17./ How do we determine the appearance of the new light?

From the two facts that 1) at times two months of 29 days each followed in succession, which therefore were shorter than twice the course ~~ecliptic~~ of the moon by a whole day, and that further a year could (and did) have 352 days, which is two days shorter than the 12 times-course of the moon, it follows that from the new moon to the new light often considerably less than 24 hours elapsed. A Schwarz has

63

proven from the Mischna (p. 31, 1), that the Rabbis, who supplied the basis for the constant calendar, reckoned with an interval of at least 18 hours; it was, of course, known that it could be considerably longer. //

The parchments of the 5th century B.C. found in Assuan contain Jewish dates of months, which Ginzel has examined: in two cases the new light had appeared after 24 hours, in two other cases after less time. Ginzel succeeded in making a similar find ~~discovery~~ from three equations of dates in Ptolemeus' Almagest: the new light had appeared after 22 hours.

– Epping found in cuneiform texts in

64/ characters an interval of 19 and 18, 8 hours. — In the months of February, March, April and May 1918 I had my oldest sons and their fellow-soldiers carry out a number of observations in Northern Palestine, Syria and Northern Arabia. The result was, that in 23 successful cases the crescent was seen 29 ½, 27, 26 and on March 13 as early as 20 hours after the conjunction. This latter result was reported to me by three observers of Aleppo and vicinity — On March 22, 1928 in the territory of the Carmel and near Kubebe-Emmaus the ~~new light was seen by~~ six observers saw the new light when the moon was 19, 1 hours old. (Biblica 1928). — J. K. Fotheringham published (in Observatory, Oct. 1921) the results

65 of 14 places of observation: 14,5 — 26,1 hours interval, the first (14,5) from Equatorial territories. — Sir G.B. Airy figured out the minimum for Jerusalem 18 hours (see Observatory 1911); this was confirmed by Dr. Downing. Ideler, Wurm, Wieseler, Caspari, Ginzel take 36 hours as the maximum. //

Let us first apply these results to April 33 A.D. New moon was for Jerusalem on Thursday March 19, 1h 23m. noon. If on the next evening, i.e. on March 20, after 29 hours the moon was seen — which is very well conceivable, then the day beginning that evening was sanctified as the "first" of the new moon. We take it that it was the Nisan.

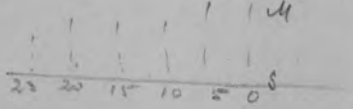
So the 1. Nisan corresponded to our March 21, Saturday; and the 14. Nisan, beginning of Passah, fell on Friday, April 3. That would merely (+151) be a support to the so-called date after John. But what, if on March 20 the sky was cloudy? Then everything was shifted by one day: 1. Nisan = Sunday March 22, 14. Nisan = Saturday April 4. Thus every relation of the year 33 to the Passion — With this possibility must be reckoned.

The fluctuating (differing?) interval as from the conjunction to the new light - 18 to 36 hours - ~~forms~~ presents the second uncertain quantity in our projekt (?) ~~intention~~ problem?

This procedure, to fix the beginnings of the

months in that time according to the intervals, is applied to day only in cases when an approximate result suffices.//

18. Since about 20 years another method is used in determining the new light. Its author is J.K. Fotheringham; to improve it Maunder, C. Schoch and P.V. Neugebauer have worked. The basic thought is so to speak self-evident. At sunset the moon, which receives her light from the sun, must be at a certain distance from the latter and stand at a certain height above the horizon in order to be visible. My sketch which Neugebauer kindly ~~examined~~ verified may serve as an illustration.//



The horizontal line indicates the horizon. S is the place where the center of the sun would be

if the refraction ~~is~~ were not taken into consideration. The upper figure indicate the height of the moon M above the horizon in degrees. The dotted lines mark the vertical circle (orbit?) where the moon stands illustrating each distance between sun and moon (the azimuth differences). These distances are given in degrees 0-23 on the horizontal line. In the first case the moon is on the same vertical circle as the setting sun, hence her distance 0°; on this evening the minimum height necessary for the visibility of the lunar crescent, 10°.4. The greater the distance between the two celestial bodies, the lower need be the hight of the moon for the new light It amounts to but 4°.8 at a distance of 23°.

a: Azimuth difference sun-moon
b: Minimum height of the moon for visibility

This table shows the connections between the two factors guaranteeing the visibility of the new light (acc. to Neugebauer, Astron. Chronology 2, 1929). //

This procedure, too contains an "uncertain quantity. Picture yourself how small a degree curve (arc?) ~~is~~ on the sky is and how minimal a tenth of a degree. According to the supposition that ~~for~~ with ~~to~~ a certain azimuth difference (goes) ~~belongs~~ a certain minimal height of the moon ~~is necessary~~ (~~discovered~~ found? ~~by~~ through new light observations), Neugebauer states: "The calculation of the visibility possibility of course is not absolutely (dependable) reliable. The decision will be uncertain especially if the real height of the moon lies near the border infered as the minimum height (acc. to) from the observations. In this case the possibility of the visibility is not ~~out of question~~ excluded. ~~impossible~~

10 Schoch had
a convincing example for this
in (with) the above mentioned
new light of March 22, 1928; it
proved to him that his formula worked
out for the height of the moon
must ~~had to be~~ reduced (lowered?) by
0.3°." //

19. Our task to reconstruct
the Jewish calendar, has four
"uncertain quantities" - the meteoro-
logical conditions - the occasionally
prevented sanctification of the
30th day - the fluctuating interval
from new moon to new light -
the ~~value (s)~~ theoretically worked
out for the height and distance
of the moon. //

Nevertheless the solution
of the problem is possible. For ~~it~~
~~stands~~ unchangeably (sure is) a) the
course of the moon of 29½ days
and b) the (herefrom resulting)
hereby implied length of the months
of 29 or 30 days. In fixing the first of
the month ~~with~~ a fluctuation

71 of one day) is to be reckoned with. // (but not with more)

The dating of one and the same day in two different ways which has happened here and there is of no significance for our ascertainment (research?). — The intercalation either causes us any difficulties: Passah must come after the spring equinox; eventualities must be taken into consideration. //

The first column of the following calendarium shows the new moons figured (worked) out by Binzel for Jerusalem time, counting the hours from midnight; in the 2nd column the beginnings of the month according to the Julian and Jewish calendar, (after) according to the interval from new moon to new light.

Jan. 15 $15^h\ 9^m$ | $\frac{28}{17.(18.)}$ Jan = 1. Schebat

1) In this year 28 intercalation is out.

20. In the year 29 in Jerusalem was new moon on March 4, $3^h 44^m$ in the morning; 39 hours later, on the evening of March 5, the new light could be seen; the height of the moon was 16°, the azimuth difference 7° – both very favorable. Then the first day of the new month coincided with March 6, Sunday. It could not have been Nisan, because then the 14th and the 15th fell on the 19th and 20th of March (Saturday and Sunday) which was too early for the Passah. So on March 6 the intercalary month Vegam-Veadar. – The Next new moon on Saturday, ~~on~~ April 2, $7^h 52^m$ at evening. Height and distance of the moon need not be reckoned with because the two possibilities are clear: New light either on the evening of the 3rd or the 4th of April; accordingly, either 1. Nisan

73

= April 4, Monday; 14. Nisan = April 17, Sunday; or 1. Nisan = April 5, Tuesday; 14 Nisan = April 18, Monday. If due to cloudy sky the crescent could not be seen on those evenings, then the ending month was given 30 days and ~~closed~~ (finished) ended on April 4, and the 14. Nisan was on Monday, April 18. In view of these clear (plain) results the year 29 is quite out. //

21. The year 30. We count 12 months from the 1. Nisan 29 and determine the Adar in the year 30 after the new moon of Feb. 21, 4h 45m in the morning. On the 22nd at eve the moon was 36-37 hours old, so 1. Adar = Feber 23 (same after Schoch according to his formulas) and the 29. Adar = March 23. Next new moon March 22, 8h 21m at eve (Kinzel). When was the

74

1. Nisan 30? A debate of decades has been waged around this determination:

1/ On March 23, the moon was 22-23 hours old, sunset $6^h 15^m$. Since the young crescent there is seen in March already at a much smaller interval, the new light can be fixed on (at?) March 23. So 1. Nisan = March 24; 14. Nisan = April 6, Thursday; 15. Nisan = April 7, Friday. These are the days of the Passion (week?). Thus had decided Wurm, Richter, Hontheim, the Holland astronomer Oudemans, myself and others. C. Schoch had pronounced this date as the correct one (Biblica 1926), and that not by applying the interval (~~working on~~ based on the interval) but from his formulas for height and distance of the moon. //

75

2. J. K. Fotheringham found, that on March 23, the height of the moon was but 9°.3 while it should be 11°.9. Therefore he asserted, that the 1. Nisan = March 25, and the 14. Nisan = April 7, Friday; consequently "the synoptic date of the crucifixion must be abandoned." Fotheringham called Schoch's attention to a mistake in calculating (of 1½ hours) causing the latter to verify his calculation and he found that on March 23 the height of the moon amounted to 9°.3, but should have been 10°.2 in order to guarantee the viribility (Biblica 1928, 9). Now Schoch agreed with Fotheringham's date and stated, "that those are right who set the date of the Lord's

7.6 //
death, on the strength (basis) of the gospel of John, on 14. Nisan." About the date according to John's gospel and its agreement with the synoptics see above No. 96. The possibility that on March 23 the moon could not be seen due to cloudy sky p. 155 is weighed below under Nr 21. 6. //

3. So far it has not been examined by anybody, how Nisan came (fell?) in the year 30, if several times at each lunation (change of the moon) the sky were cloudy. I proceed from Sept. 29: On Sept. 26 new moon in the afternoon $2^h 35^m$; new light on Sept. 27 or 28; 1. Tischri on Sept 28 or 29. If from then on the new light failed to come, we must (tut) have 30- and 29-day months follow alternately. To begin with

7)// as from Sept. 28, 29:

see p 155

} our looked for days.

If, however, the alternation of 30 and 29-day months proceeded (began) with Sept. 29, then these dates shift by one day, and the last result is: 14. Nisan = April 7, Friday. In exactly the same way I have made up a calendar according to above new moons beginning Oct. 26 and so on. The result was the same: Sometimes the 14. Nisan fell on Thursday, April 6, sometimes on Friday, April 7. //

4./ Inasmuch as Schoch, according to his own mathematical calculations at first agreed with my result, confirming it to me in several written

statements, but finding later that according to his formula on March 23, 0.°9 were lacking of the height of the moon, and since further his new formula at ~~through during~~ the new light of March 23, 30 has proved to be inexact – by 0.°3 – I approached Neugebauer requesting him to figure out (calculate) the astronomical factors and to criticize (give his opinion?) the (state of affairs) situation. I am passing on his statement verbatim as a most valuable contribution. //

"The astronomical data for the new light on March 23, 30 in Jemsalem (latitude 31.°8) are as follows:
Sun (center) in the real horizon (~~no~~ without refraction).
March 23, $6^h\,8^m$ at eve, Jemsalem mean time,

Moon length	$\lambda = 10°.80$
—"— width	$\beta = 3.96$
Sun length	$\odot = 0.73$
Right ascension of moon	$a = 11.49$
Declension of moon	$\delta = +0.63$
Right ascension of sun	$A = 0.67$
Declension of sun	$D = +0.29$
½ diurnal arc of sun	$T = 90.18$ (without refraction)

Thus the hourangle (horary) of the moon = $A + T - a = 79°.36$.

and according to the known formulas for transforming the right ascension and declension in Azimuth and height: (p. 156)

Height of moon	$h = 9°.37$
Azimuth of "	$= 84.89$
—"— of sun	$= 90.35$
—"— difference	$\Delta = 5.46$.

According to the condition stipulated (advanced) by C Schoch (compare Neugebauer, Astron. Chronology 1929, 2. Vol. p. 23)

80 // the new light is visible when (if) at a azimuth difference of 5°.5 the least hight of the moon is 9°.9. Since here it is but 9°.4, theoretically the new light is not visible on March 23. //

It is evident that the decision of the quistion is wholly dependable on the reliability of the accepted ~~border~~ (limit?) of the height of the moon. The values (quantities?) here used are the newest arrived at by Mr. Schoch on the basis of the "Carmel new light" (Biblica 1928). According to the older table of Schoch (in his "Planet tables for everybody") the least (minimum) height required was 10°.2. According to the new table the moon now comes

as near as
~~up to~~ 0°.5 to the theoretically
required ~~border~~ limit. This difference
of a moon's semi-diameter is
so small that one can well
say that under favourable
conditions the crescent ~~still~~
yet could be seen; the theoret-
ical limit (~~borderline~~) of 9°.9
is not absolutely dependable;
this is also proved by the fact,
that Mr. Schoch was able to reduce
the limit from 10°.2 to 9°.9 ~~on the~~
~~basis~~ because of a favorable
new light."

Thus far Neugebauer.
Therefore, again I set as above:

1. Nisan = March 24
14 " = Apr. 6, Thursday } the days
15 " = " 7, Friday } of the Passion

5/ Neugebauer rendered
further support to me in the
calculation of (figuring out!) the
"mean conjunction". The technical
expression for this phase of the

moon in the Jewish calendar was "moled". They had a simple mode (arrangement?) on an empirical basis to figure out the appearance of the new light with the aid of the Moled.

Mischna Rosch haschana, 20b, says: "one must figure (compute?) out the Moled; if it takes place before 12h noon, then he knows, that the new moon shall be visible after sunset. If it does not take place before 12h. noon, he can be sure, that she (the new moon) shall not be visible after sunset."

Similarly Maimonides VII, 2: "if the Moled takes place before noon, though merely for one Chelek (i.e. a few seconds), then the Rosch Chodesch (i.e. the first of the month) is fixed for the same day of the Moled". In other words: if the mean conjunction begins before 12 o'clock noon, on the eve

Therefore the 1. Nisan = March 24;
14. and 15. Nisan = April 6 and 7,
as above, the days of Passion. //

6. A last fixation

Of the 1. Nisan 30, based on the Mischna can be derived from (is to be traced back to) the principle, that was valid for the prolongation of a month: "Has the court, yea even all Israel seen her (the new moon), or the witnesses had already been heard but it had not been possible before nightfall to pronounce the word of sanctification, then the month is prolonged", i.e. it gets 30 days. From this follows that it does not prolong but rather that the 30th day became the first of the new month, if the "sanctified" ensued before nightfall. This could happen "before the first star appears" (so the Mischna and accordingly Maimonides II. 9).

85

This could have been the case on March 24, 30 if on the previous evening the moon was covered. The situation was as follows: The height of the moon – figured out by Neugebauer – 20°, i.e. 10° above the theoretical ~~border~~ (limit?); the moon went down (set?) 1 hour 34 min. after the sun, she stood high on the sky, was 46-47 hours old, had gained considerably in width, and so, provided the sky was clear, she was seen long before sunset (on March 24). It was known, that of the new revolution of the moon two days had already elapsed; there was yet sufficient daytime (the day ended only at the appearance of one greater or two medium sized stars) in order to pronounce the "sanctified" (this could be done only in daytime), and so Adar

of this day the new month begins.

This rule the Jewish calendar scientists had gained through ~~century~~ a practice ~~of~~ over centuries. Its application is simple: the mean conjunction - the Moled - took place, as Neugebauer has figured out,[1] on March 22, 9,4 in the evening, consequently the new light could be seen the next evening.

[Note 1, p. 156: Neugebauer adds: "If by chance the mean new moon was at 6 o'clock early and the disturbances? (perturbation?) amounted to +14 hours, then the new moon fell at 8 o'clock, and the new light surely was not seen on this evening. Such cases, of course, are rare exceptions. But the rule could serve as a make-shift, because at the worst the new light would fall one day later and so could not cause a great ~~mistake~~ error in the calendar."]

86 // was not prolonged, but this just closing day was sanctified as the 1. Nisan. So the result is the same calendarium as before: 1. Nisan = March 24; 14. Nisan = April 6. //

About this case:

2 » Was on the 30th day - when at eve the crescent was seen and everything found in order, - the word "sanctified" ~~pronounced~~ announced in the twilight before nightfall for the 30th day pro-

1 ~~announced~~ ? " Slonimsky and Pineles in the magazine Hamagid (Lyck 1868) have had a controversy. Slonimsky ~~supplied~~ furnished the proof in the above positive sense; Pineles considered this sanctification unthinkable because in his opinion the crescent could not be seen before the end of the day. This assumption is erroneous. For my statement I ~~can~~ am able to quote (refer to) two more Jewish authorities:

87 E Baneth and B Schwarz, the former bares his opinion on Rosch haschana III, 1. — In April and May 1918 in Nazareth, Damaskus and Aleppo the new moon was seen by five observers at sunset, i.e in daytime. The same observation Prof. Alt has made repeatedly in Palestine (according to his information May 1923). Schoch writes in Biblica 1928 "in the spring – February to April – every new light which is at least 34 hours old, is visible in Jerusalem before sunset." – Kugler II, 576 found in cuneiform texts two cases, where "in Babylon the duration of the visibility of the new light amounted to 84 to 86 minutes... The crescent had a ~~considerable width~~ and so a become rather wide and so was considerably bright." //

The final result is clear: in the year 30 the Nisan began on the eve of March 24;

88 the beginning of Passah, the 14. Nisan, accordingly was on Thursday April 6; Friday April 7 was the 15. Nisan, the day of the crucifixion. On Thursday, the day of the Passah-meal, was full moon. //

The year 31. Starting to count with Nisan 30, the twelfth month, Adar, began after the new moon of Febr. 10, 12h 55m noon. Consequently 1. Adar = 12 (or 13th) of February; 30. Adar = March 13 (or 14.). The next new moon on March 12, 1h 9m at night; age of the moon on the evening of March 12, 17 hours., on March 13, 41 hours. We are weighing all possibilities: The visibility on March 13, but also the invisibility due to cloudy sky, and get: p. 158

a/ 1. Nisan = March 14, Wednesday;
14 " = " 27, Tuesday;
15 " = " 28, Wednesday;

89

b/ 1. Nisan = March 15, Thursday
14. " = " 28, Wednesday
15. " = " 29, Thursday.

Passah could very well have been as early as that: the astronomical condition (sun in the Aries) was fulfilled, and ripe barley could be present. In case, however, the agricultural conditions — ~~condition~~ status of the grain and the fruit of the trees — were unfavourable in February, then the month was inserted, then the month just mentioned was Veadar, and the Nisan began but after the new moon of April 10, $2^h 7^m$ noon. On April 11 at sunset $6^h 25^m$ the moon was 28¼ hours old, her distance amounted to 40, her height 12°, while it needed to be but 10°.1. Therefore, provided the sky was clear:

c/ 1. Nisan = April 12, Thursday;
14 " = " 25, Wednesday.

90 If, however, the visibility of the new light was prevented by clouds, then:

d/ 1. Nisan = April 13;
14 " = " 26. Thursday
15. " = " 27 Friday

These would then be the days of the Passion. //

All calendar possibilities for Nisan 31 are exhausted. According to the first three cases the 14. Nisan came on Tuesday, or Wednesday respectively, so that the year 31 must be eliminated. According to the last case — for which, as can be noticed, the probability is small — the 15. Nisan could have come on Friday, April 27, 31. //

The year 32. The new moon on Febr. 29 noon 12h55m, ~~counted~~ reckoned as from March 14, 31 was the thirteenth, from April 12 it was the twelfth. It did not introduce

the Nisan because then the beginning of Passah would have come too early - the middle of March. The next new moon March 29, $10^h 59^m$ at night; two possibilities are to be reckoned with:

a/ New light on March 30; moon 19 hours old,

1. Nisan = March 31, Monday;
14 " = April 13. Sunday;
15 " = " 14 Monday.

b/ New light on March 31, moon 43 hours old,

1. Nisan = April 1
14. " = " 14, Monday;
15 " = " 15 Tuesday.

Nor does the assumption of a cloudy sky bring the days of the festival of the 14. and 15 on a Thursday or Friday.

The year 32 is completely out.

The year 33. Beginning with March 29, 32 the new moon on March 19, 33, at noon $1^h 23^m$ was the thirteenth, thus the

92 Nisan began. Theoretically there are to be considered four possibilities: = 159

a/ New light on March 20 (age of moon 29 hours), then the
1. Nisan = March 21, Saturday;
14 " = Apr. 3, Friday.
According to the formulas for height and distance of the moon C Schoch found the same dates, also Mengebauer by using two methods (see Help (Aid:) table III, p. XXIX).

This April 3, 33 A.D. has frequently been said to have been the Friday of the crucifixion by referring to the dates of John. That this reference does not stand the test because the dating according to John agrees with the dating of the synoptics, has been shown above under No. 96.

b/ If on March 20 and 21 the crescent was covered by clouds,

93 then Adar was given 30 days, so that the 1. Nisan = March 22; 14. Nisan = Apr. 4, Saturday.

The possibility, that on March 21 and 22 resp., the intercalary month Veadar began is quite remote; still, be that considered. The next new moon on April 17, 9 3/4 o'clock in the evening. Consequently either:

c/ 1. Nisan = April 19;
14 " = May 2, Saturday;

or: d/ 1 " = April 20;
14 " = May 3, Sunday.

According to these astronomical possibilities the year 33, too, must be eliminated.//

The reader is asked to draw with me the conclusion of the investigations. He will remember that in the purely historical part I have given given space to all possibilities so that the final result could be formulated with absolut certainty: the crucifixion took place in one of the years 30-33. The correct

94 one of these four years must meet an indispensable condition: the Friday of the crucifixion must fall on the 15. Nisan. In reconstructing the then calendar I have again given space to all possibilities in order to bring results which are - within unavoidable fluctuations - absolutely sure. According to the position of the 15. Nisan the result was as follows:

a/ The years 29 and 32 are to be eliminated completely, because in these Passah fell on Monday or Tuesday.

b/ In the year 31 most likely the 15. Nisan came on a Wednesday or Thursday (March 28 or 29.); there is very little likelihood for accepting it on Friday, April 27.

c/ In the year 33 of the four calendar possibilities one is for the 14. Nisan on Friday (April 3), but not one for the 15. Thus it, too, is out.

33

d/ Remains the year 30. I refer to the multiple way to fix the Passahdays of this year: the 14. Nisan = April 6, Thursday; the 15. " = " 7, Friday; there are our looked for days. //

Supplement a) Supporters of the opinion that in the New Test. two dates are given for the Friday of the crucifixion – the 15. Nisan with the synoptics, but the 14th Nisan by John – find this double date exclusively in the year 30 (realized). //

Supplement b/ The proof given in the beginning of taking into account the co-regency by Luke in the words "in the 15. year of the reign of emperor Tiberius" now has received its final acknowledgment. //

For the year 30 as the year of the crucifixion in closing two more witnesses outside the Bible be referred to. First the

96 Talmud. In "Jerusal. Talmud, Joma fol. 43c, and very similar in the Babyl. Talmud, fol. 39 b, it is stated that Rabbi Jochanan ben Sakkai saw one morning certain things which terrified him greatly because he recognized them as omens of the end of the sanctuary. "The western lamp went out (~~extinguished~~), and the carmesin red woolen ribbon? remained red, and the lot? of God came out at the left side, and the door of the temple was locked on the evening, and ~~when~~ after arising in the morning, it was found open. Then R. Jochanan said: "Temple, why do you terrify (scare?) us? We know that your end is destruction, as it is written: open, Libanon, thy gates, and fire will devour your cedars." Zech. 11:1 ("Libanon" here means the cedar wood, of which

97 the temple was built, when it opened its door this would be the omen of the destruction by fire'). [Note 1, p. 160: The ~~continuous~~ uninterrupted burning of the western lamp, the becoming white of the woolen ribbon and the appearing of the lot Jehovas at the right (?) were three "omens of mercy"; see Laible: A Jesus reference in the Talmud (not yet known in the "Allg. Ev. Luth. Kirch-Ztg". 1926.]

Of "the visible signs and intimations" of the coming "destruction of the temple" Josephus writes in Jüd. Krieg VI, 5, 2-4. He refers to a written report of an eye witness and says with regard to the door of the temple, "the eastern gate of the inner fore-court[2] which was of brass! and of enormous weight and was closed in the evening by 20 men with difficulty and blocked barricaded with

98 // an iron-clad cross-beam, the bars of which fell deep into the threshold, was seen at midnight to open itself". Josephus adds, that this "happened "at the feast of the unleavened bread". (His dating for of all omens merely saying "before the ~~uprising~~ revolt" sometimes has been so understood (erroneously) as though he had written "shortly before the revolt"; he meant, however "in the period before the revolt". (compare Laible, see below Note.) //

The Hebrew-gospel had preserved the tradition that at Jesus' death the upper ~~threshold~~ cross-bar in the temple, which was of enormous size, broke and fell down. The knowledge of this tradition we owe Hieronymus, who has copied and translated that gospel in the

years 374-79. Of the breaking of the top crossbar (?) he writes on four different places (in the commentary to Matth. 27:51 and to Isaja, in a letter to Hedebia and in one to the Roman bishop Damasus). In this connection he mentions people "who proclaim, that in that time, when the veil in the temple tore, the top crossbar? was destroyed and the whole house of Israel was overshadowed by a cloud of error." Of the tearing of the veil at the death of Jesus report Matth. 27:51; Mark 15:38 and Luke 23:45. It is at once clear that there was a natural connection between the rending of the veil, the breaking of the top crossbar and the opening by force of the huge heavy door: "if the top beam (rafter!) of this heavy

For the oldest date of the crucifixion we have to thank the Alexandrian Clemens (about 200). In the "Rugs" (Tapestries?) 1. 21, 146, he writes "Those who have carefully investigated (set his Passion in the 16. year of the emperor Tiberius, - some on the 25. Phamenoth, others on the 25. Pharmuthi, others say the Saviour died on 19. Pharmuthi." These exact investigations were made, as is seen from the sequence? concatenation? by Egyptian gnostics at about 150. It cannot be doubted that at that time in Christian circles of Palestine or Northern Egypt a firm tradition of the date of the year and the month of the

crucifixion had been kept alive. The 16. year of Tiberius ran from August 29 until then in 30. Thus according to this tradition Christ was crucified at Passah 30. With this also the question as to the date of the month is decided: Friday of the crucifixion at the beginning of the Passah in the year 30 cannot be but April 7; the would-be difference between John and the synoptics in this case is insignificant (has nothing to it). //

Now what about those three Egyptian dates of the month? There then ~~simultan-~~ ~~county~~ existed two calendars ~~side by side~~: the one come down from ancient times,

101 // In my first work on "the date of the crucifixion" (Berlin 1912) I expressed a faint doubt about the round figure "forty years": this I am taking back. The evident inner ~~relationship~~ connections of all those events in the temple and the right dating to the year 30 cannot be based on chance.] And Josephus knew from the eyewitnesses that it had happened at the Passah. Thus through the Talmud indirectly the crucifixion is dated Passah 30 and hence simultaneously the date of the month, too, is determined, for Friday at the beginning of the Passah was April 7. //

100 door had a split (fracture?) then the tearing rending of the veil fastened to the top cross beam, was the next result, and the opening of the door wings during the night a later one" (Th. Zahn). And all that was due to a natural cause ~~back of it~~, i.e. the earthquake, of which Matth reports 27:52. The Christian tradition has (merely) preserved the memory of the two events, which happened on the afternoon at the death of Jesus (earthquake, rending of the veil), the Jewish preserved the memory of matters of cult and of the weird (horrid!) omens of the temple fire. In the Talmud in both places it is stated, that this happened "forty years before the house was destroyed", hence in the year 30 [1]. [Note 1, p. 161:

popular, movable:, and the one reformed (improved?) by Augustus with a fixed solar year. On this we have precise information through numerous inscriptions and double dates. By The commutation of the three ~~goes results~~ we arrive at in the following dates:

	Accord. to the old.	Acc. to the new Calendar
25. Phamenoth	= March 8, Wedn.	= March 21, Tuesday
19. Pharmuthi	= April 1, Saturday	= Apr. 14, Friday
25 "	= " 7, Friday	= " 20, Thursday.

There, again, we have Friday, April 7, 30. But why were these three dates mentioned? E. Preuschen, to whom we owe this discovery, has (p. 162 brought light into this darkness. In the old calendar, from which the (that) tradition was taken (on which this ~~particular~~ tradition was based)

double dates were entered as usual; this is confirmed by many examples and is easy to understand. In order to express the parallelism with the official date at the 19. Pharmuthi the note was added "Cal. Apr." (April 1); the third date, 25. Phamenoth, corresponded to March 21 of the reformed calendar; that was the day of the equinox according to Alexandrian astronomy, which (day) often formed the beginning of the year. Through misunderstanding these two dates, too, were brought in connection with Christ's suffering so that Clemens included them in his reference. This explanation regarding the 25. Phamenoth and 19. Pharmuthi very likely will be correct. It is of the greatest

valuable that the careful investigations of the Egyptian gnostics also resulted in giving April 7, 30 as the day of the crucifixion. We must not be surprised that in later times no more attention was paid to it. For in Clemens' time the symbolic chronology was already in bloom, which was placing creation and salvation in the closest parallelism dating both after (according to?) the beginning of spring. For 500 years (all the) church fathers have adhered to this symbolic chronology. //

After an objective examination (investigation?)

of the historic statements of the gospels and after the astronomical determination of the days of Passah it clearly results that the day of Golgotha was

Friday, April 7, 30.

The most important literature

D. Sidersky: Study on the origine of Jewish chronology 1911.

B. Zuckermann: Materials for the development of ancient Jewish time-computation (era?) 1882