

The Jewish Calendar: Past and Future

It was always believed that the transition from the observation to the fixed calendar was clear cut, with the fixed calendar immediately adopting its definitive form. In the present paper, we try to outline the history of the Jewish calendar from the Mishna period—roughly the beginning of the third century—until about 420 C.E. We prove the existence of substantial Talmudic evidence allowing the outline of this evolution; the systematic study of this material was never undertaken. We explore the progressive evolution, hardly seamless and immediate, toward the precedence of calculation and predictability upon observation and empiricism.

The transition from a variable to a fixed and predictable calendar occurs during the first half of the fourth century and ends by the middle of this century.

We summarize the most important and definitive conclusions on the rabbinic fixed calendar's evolution until the mid-ninth century. Indeed the fixed calendar was not set immediately but it still evolved during this period and it was not definitively set before the tenth century.

We also explore the most significant rabbinical positions in response to the history of the Jewish calendar and its transition from empiric to fixed structure.

We further speculate upon the Jewish calendar's future, particularly the question of whether we might improve upon our fixed calendar. We suggest the calendar indeed might be improved, especially if this improvement can be achieved in a manner which is indistinguishable to the overwhelming majority.

*Finally, we consider how the calendar might be structured in the remote future with the re-establishment of the Sanhedrin. These utopian considerations are beyond normal scholarly preoccupations; the only reason to examine this problem was the recent publication by Rahamim Sar Shalom in Sinai vol. 138, Nissan-Sivan 5766 of an article headed: *האם נשוב לקדש חודשים עפ"י הראייה?* and the quasi unanimous rejection of its clever and lucid conclusions among a specialized group, who visibly confuses individual rabbinical opinions and Halakha.*

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I. A Short History of the Jewish Calendar¹

1. The Calendar of Observation.

1. The Communication by Fires

As far as we know, the calendar was established during the period of the Mishna by testimony of witnesses who saw the new moon. We have clear evidence that Rosh Hashanah and Yom Kippur could fall on any day of the week.² The Neomenia communicated with the people of the Diaspora via fires informed them that the former month was defective (29 days). They lit these fires on hills, which allowed for rapid communication³ to Babylonia,⁴ which is reminiscent of the optical telegraph used around 1870 C.E. The Jews who lived on the roads near the hills received the information of the date of the Neomenia on the same evening and all could know the dates of Yom Kippur and the other festivals with certitude. But those who lived further away from this road had no information at all and had to rely on an empirical calendar of months of 29 and 30 days successively. Unsure, they had to observe two festival days out of doubt, and they

¹ The present study is limited to the Jewish rabbinic calendar which developed around the Sanhedrin and the Pharisees and later around the Patriarch and the Talmudic academy of Tiberias. The history of this calendar is outlined from Talmudic and rabbinic material. A more general and critical study of this subject, including other concurrent non rabbinic Jewish and Christian calendars, resting also on few non Jewish and non rabbinic extant material, is beyond the scope of this study; see Stern, Sacha, *Calendar and Community*, Oxford University Press 2001.

It has been assumed in this paper that unless we have explicit doubt about the authors or the contents of quotations, we can rely on the historicity of the mentioned facts and on the Talmudic attributions. Unless otherwise specified, all the Talmudic quotations are according to the text of the Vilna edition of the Babylonian Talmud and the text of the Krotoshin edition (1886) of the Jerusalem Talmud. The quotations of the Mishna are according to the text of Hanokh Albeck.

² See the following references in the Mishna: Sabbath XV, 3 and 19; Menakhot XI, 7 and 9. See further Maimonides' commentary of the Mishna Menakhot XI, 7.

³ It is clear that this communication middle could only be used in areas comprising hills; it required also a Jewish population along the way. These requirements restricted much the possibility of the system. It is clear that most of the Jews of the Diaspora had no regular information and they must find their way with a schematic calendar based on the observation of the moon or later with a schematic fixed calendar as described in Tosefta Arakhim I: 8 (I: 4 in the Vilna edition). R' Isaac Israeli (Yessod Olam, edition B. Golderg 1848, 4:5, p. 8d and 4: 6, p. 10d) had already suggested that the Babylonians observed a calculated calendar based on the conjunction which differed systematically by one day from the Palestimian *keviyah*, as the latter was based on the sighting of the new moon. They needed additional information in order to know the intercalated years. The Talmud mentions letters sent by the Patriarch Rabban Gamliel to Galilee, the South, Babylonia, Media and the whole Diaspora, see B. Sanhedrin 11b, Y Sanhedrin 18d and Tosefta Sanhedrin II: 6.

⁴See B. Rosh Hashanah 22b-23a and Y. Rosh Hashanah II, 2,58a. Stern (2001) examines the problem pp. 162-163. He asks himself if the beacon procedure was ever really carried out, and if so, whether it could have been effective.

perpetually worried their calendars would indicate a difference of one month with the Palestinian calendar, due to a difference of intercalation. Even as the Temple still stood, an enactment was adopted which restricted the court's office hours for examining witnesses' testimonies of viewing the moon, until Minha,⁵ the time of the offering of the afternoon sacrifice (Tamid). Later testimonies were delayed to the following day. After the destruction of the Temple, Rabban Johanan ben Zakai re-established the prior policy of the Court examining testimonies until night fell.⁶

2. The Communication by Messengers

The Mishna Rosh Hashanah II, 2 tells us that the Samaritans were lighting fires when it was not wished, i.e. when the month was a leap month, in order to frustrate the communication of the calendar. In response, a radical change in the way the Jewish calendar was communicated to Babylonia became necessary. Rabbi Judah the Patriarch⁷ (second half of the second century) suppressed the communicative fires, which obliged the Babylonian population to adopt the principle of two festival days out of doubt which was the correct date.⁸ Nevertheless, and without waiving the former principle of respecting two festival days, it became the rule to have Tishri⁹ and probably also Adar¹⁰ defective, so that the Jews of the Diaspora and the Palestinians might celebrate the first festival days together. The case of Elul was specifically aimed to synchronize the fast of Kippur. We have no elements to date this new custom, which is presented in the Talmud as having found its origin during the time of Ezra. This system has certainly existed for a few centuries.

3. Transition from an Empirical to a Fixed Calendar

The chronological classification¹¹ of the following Talmudic passages shows that the transition from the empirical calendar to a fixed calendar was much more progressive and less clear-cut than currently believed.¹² It shows that before the institution of a fixed calendar in 358 C.E., an early version of a pre-calculated calendar was communicated to Babylonia beginning in approximately 325 C.E. In fact, even before 325 C.E., the calendar committee of Tiberias used calculations and sets of rules to establish the Neomenia (fixing of the new moon) at the expense of the traditional empirical observations.

⁵ Probably 9.5 temporary hours i.e. 15h 30m at the equinox.

⁶ Mishna Rosh Hashanah IV, 4.

⁷ Y. Rosh Hashanah II: 1, 58a (11b in the Vilna edition).

⁸ As mentioned above the beacon system could have been more theoretical than effective and therefore the principle of two festival days "out of doubt" may have been much older and may have concerned all the regions of the Diaspora which were out of reach of calendrical information.

⁹ B. Rosh Hashanah 19b and Y. Sanhedrin I, 2, 18d. 5b in the Vilna edition.

¹⁰ Y. Sanhedrin I, 2, 18d. 5b in the Vilna edition.

¹¹ I am fully aware of the limits of this method because of the uncertainties about the name of the authors of the different quotations. However the Talmudic material remains the only internal source of information allowing the outline of the evolution of the Jewish calendar during the fourth and the fifth centuries.

¹² Stern (2001) has also suggested that the transition from an empirical to a fixed calendar may have been slow and gradual (p.180 and p. 240) but his assumption remained unsubstantiated.

A. Before 210 C.E.

1. Rabbi, (also called Rabbi Judah ha-Nasi or Judah the Saint, died about 210 - 220 C.E.)

Rabbi suppressed the fires (see above).¹³

Rabbi displaced the obligation to intercalate in Judea to Galilee, in order to enhance the prestige of the patriarchate whose seat was in Galilee.¹⁴

During the life of Rabbi, the Sanhedrin became more lenient in examining the witnesses of the new moon (and therefore laxer in declaring a new month). For example, in Babli Rosh Hashanah 25b, Rabbi sent Rabbi Hiya to sanctify the new moon of Tishri, although it was certain that the new crescent could not yet be seen.¹⁵ This witnessing was obviously wrong, but Rabbi and Rabbi Hiya accepted it to respect the rule that Elul and Adar should be defective (29 days).¹⁶ The purpose of this rule was to help those people who were out of reach of the calendar envoys to observe the true holidays together with their Palestinian peers. It also aimed to make them more comfortable by fasting Yom Kippur together with the Palestinians.

The next passage of Yerushalmi Aboda Zara¹⁷ relates probably to this period:

אמר רבי יודן , קרייא מסייע למה דאמרי חברייא , וביום עשרים וארבע לחודש השביעי נאספו בני ישראל בצום ובכי ושקים ואדמה עליהם . ולמה לא אמר בעשרים ושלושה , משום בריה דמועדא . אין נימר דהוה בשוכתא, לית יכיל דאת מחשב ואת משכח צומא רבא בחד בשוכא . ומה בה ולית רבי חוניה מיקל למאן דמעבר ליה מן אתריה. אמר רבי יוחנן בר מדייא אנא חשב יתה ולא הוה בשוכתא.

Rabbi Judah says that the text of Nehemiah about the meeting and the fast of the people on Tishri 24 comforts the opinion of the Rabbis. Indeed why didn't they gather on Tishri 23, certainly because of the "son of the festival."¹⁸ Should we explain that it didn't occur on Tishri 23 because it was a Sabbath, then if you calculate you will find that Yom Kippur was on Sunday! And is that a great deal? Doesn't Rabbi Hounia hold in contempt those who intercalate the year in order to displace Kippur from its place (Sunday)? Said Rabbi Johanan bar Madia:¹⁹ "I made the calculation and Tishri 23 didn't fall on a Sabbath."

¹³ Y. Rosh Hashanah II,1, 58a.

¹⁴ Y. Sanhedrin I: 2, 18c.

¹⁵ B. Rosh Hashanah 25a. Another version is found in *Yalkut Shimoni*, chap. 191.

¹⁶ Elul: B. Rosh Hashanah 19b and Y. Sanhedrin 1:2, 18d (5b); Adar : Y. Sanhedrin I: 2, 18d. (5b).

¹⁷ Y. Aboda Zara I, 1, 39b, (4a).

¹⁸ This is certainly the origin of the custom of אסרו חג.

¹⁹ Rabbi Johanan ben Madia was a Palestinian Amora of the fifth generation, contemporary of Rabbi Mana II, second half of the fourth century. He lived more than hundred years later than Rabbi Hounia. In his time the calendar by vision was no more in use and the new precalculated calendar was operational.

Apparently this passage is related to the situation when the *dehiyot* or postponements *lo DU Rosh* were not yet enacted but there were already voices in their favor. This passage could perhaps correspond to the time of Rabbi when this *dehiya* was not yet practiced; Rabbi Hounia could correspond to the tana רבי חוניא דברת חוורן,²⁰ an expert and member of the council of intercalation²¹ and Rabbi Youdan to Rabbi Judah bar Ilai.²²

B. From 210 until about 300 - 305

1. *Rabbi Johanan*. – From ~239 C.E. until ~279 C.E., under the leadership of Rabbi Johanan, the calendar was still empirically based on the observation of the new moon. Nevertheless, R' Johanan introduced a new rule: in order to avoid Yom Kippur falling on a Friday or Sunday, the first day of Tishri cannot fall on Wednesday or Friday. This rule is mentioned in the declaration of Ulla (Babli Rosh Hashanah 20a):

כי אתא עולא אמר, עברוהו לאלול, אמר עולא, ידעי חברין בבלאי מאי טיבותא עבדינן בהדיהו

When Ulla arrived in Babylonia, he said that Elul had been made full [thirty days]. Ulla said: our Babylonian colleagues know what a pleasure we are making for them [by taking the necessary measures to prevent the occurrence of Yom Kippur near to Sabbath].

Before this time, all weekdays were suitable for Rosh Hashanah.²³ Now, Wednesday and Friday were no longer suitable, requiring some manipulations²⁴ of the testimony by the witnesses (Babli Rosh Hashanah 20a):

שלח לי רבי יהודה נשיאה לרבי אמי, הווי יודעין שכל ימיו של רבי יוחנן היה מלמדנו, מאיימין על העדים על החודש שלא נראה בזמנו, אף על פי שלא ראוהו, יאמרו, ראינו

Rabbi Judah II sent a message to Rabbi Ammi: you should know that during all the years of his reign, Rabbi Johanan taught us to frighten the witnesses in the case of a new moon that has not been seen in its proper

²¹ See Y. Aboda Zara III, 1, 42c, (18a).

כד דמך רבי חנינא דברת חוורן איתבזע ימי טבריא. אמרין כד הוה סליק לעיבורא הוה ימא מתבזע קומי.

²² Rabbi Judah was older than Rabbi Hounia, but he lived to an old age, and survived Rabbi Meir. The latter attended the marriage of Rabbi's son. Rabbi Johanan bar Madia was a later Amora of the time of Rabbi Mana. His statement is from after the establishment of the fixed calendar. He made a retroactive calculation, using the rules of the new calendar and extrapolating it into the past, to prove that Tishri 23 was not a Sabbath.

²³ Mishna Shabbat 15:3 and 19:5, Mishna Menahot 11:7 and 11:9, see also Babli Sukkah 43b and the commentary of Maimonides on Menahot 11:7.

²⁴ The purpose is to prevent Yom Kippur from occurring on Friday or Sunday because of the difficulty of remaining for two days without fresh vegetables or without the possibility of burying the dead due to the co-occurrence of Yom Kippur and the Sabbath.

time [the eve of the thirtieth day], so that they testify that they saw it even if they did not.

Therefore, if it was necessary to have a defective month, they resorted to frightening the witnesses (*Kiddush le-Tsorekh*).²⁵ If it was necessary to have a full month of 30 days, they could frighten the witnesses for the reason of annulling the testimony (*Ibbur le-Tsorekh*). They could also, if they were reluctant to unfairly frighten witnesses,²⁶ reach the same result by delaying the procedure until the night. Ultimately, we find three to five cases in the Talmud, in which Elul was not defective,²⁷ and all of these cases correspond to this period. The Babylonians were not only not pleased, but in fact embarrassed,²⁸ contrary to Ulla's assertion.

2. *Another decision of Rabbi Johanan*

Another decision of Rabbi Johanan's was a decree obliging those areas which the envoys of Nissan reached but beyond the reach of the envoys of Tishri (because of difference of two days of travel, one day due to Rosh Hashanah – only one day in the place of the calendar committee – and another day for Yom Kippur) to observe two festival days even in Nissan.²⁹ **However it is likely that this *takana* is more ancient and was already enacted before the leadership of Rabbi Johanan. We find indeed a dictum³⁰ by Rabbi Johanan on behalf of Rabbi Simon ben Yehotsadak:**

דאמר רבי יוחנן משום רבי שמעון בן יהוצדק שמונה יום בשנה יחיד גומר בהן את ההלל ואלו הן, שמונת ימי החג ושמונת ימי חנוכה ויום טוב הראשון של פסח ויום טוב של עצרת. ובגולה עשרים ואחד יום, ואלו הן, תשעת ימי החג ושמונת ימי חנוכה ושני ימים הראשונים של פסח ושני ימים טובים של עצרת.

We read the complete Hallel on eighteen days a year, eight days of Sukkot, eight days of Hanukah, the first day of Pesah and the day of Shavuot.

In the Diaspora we read it on 21 days, nine days of Sukkot, eight days of Hanukah, the two first days of Pessah and the two days of Shavuot.

²⁵ The problem is debated. It was apparently easier, religiously speaking, to arrange for positive testimony about something false than for negative testimony about something true.

²⁶ There remains much uncertainty in the Talmud and in Maimonides' *Hilkhot Kiddush ha-Hodesh* about the way the council of intercalation used these rules.

²⁷ Babli Rosh Hashanah 21a: the case of R' Nahman; B. Rosh Hashanah 21a: the case of R' Rava; B. Rosh Hashanah 20a: the case of Ulla; B. Rosh Hashanah 21a: the case of Levi; B. Rosh Hashanah 21a: the case of R' Eibu bar Nagadi and R' Hiya bar Abba.

²⁸ The situation was worse than before. The former situation (when Yom Kippur could fall on any day, even on Friday and Sunday) gave them a certain comfort and security about the fast of Yom Kippur, because Elul was always defective. But in the new situation, there were three to five cases related in the Talmud, in which there was a difference of one day between Palestine and Babylonia. This situation leads to the conclusion that the Babylonian Amoraim, contrary to the assertion of Ulla, did not know the reason behind the new decision. Otherwise, they would have adapted to the new situation to take advantage of it. It appears that they were not able to decide when they should make Elul full.

²⁹ B. Rosh Hashanah 21a: מכריז רבי יוחנן כל היכא דמטו שלוחי ניסן ולא מטו שלוחי תשרי ליעבדו תרי יומי גזירה ניסן אטו תשרי

³⁰ B. Ta'anit 28b and B. Erakhin 10a.

We see thus that prior to the leadership of Rabbi Johanan, there was one unique rule in the Diaspora for the three festivals. As soon as the messengers of Tishri did not reach in time, they held two festival days on the three festivals,³¹ there were no intermediary solutions. The second festival days of Tishri were held out of doubt;³² the second festival days of Pesah in Alexandria and the second festival day of Shavuot even in Babylonia were held because of this rabbinical enactment and were considered as a doubt of rabbinical order.³³

3. *Rabbi Yose* – Yerushalmi Sanhedrin 5:3 says:

ואמר רבי יסא, כגון אנא דמן יומוי לא צלית מוספא מן דלא ידע אימת ירחא

Rabbi Yose said: for example, someone as me, who never prayed Mussaf³⁴ on Rosh Hodesh when he didn't know the exact day of the new moon.

From the context, we see that R' Yose must be Rabbi Yose bar Hanina, Rabbi Johanan's important pupil and colleague. The exact significance of this passage has never been examined in detail. Rabbi Yose is probably a member of the academy of Tiberias, and on the thirtieth day of each month, he did not pray *Mussaf* before the proclamation, in case the Neomenia would be postponed until the next day. This decision seems to be the only acceptable stance for someone living in Tiberias. But why did R' Yose take exception more than anyone else?

I believe that the original meaning of this passage is that Rabbi Yose did not want to pray *Mussaf* if Rosh Hodesh had not been fixed on the proper day of the first sighting of the lunar crescent. His decision must have been a reaction against increasingly numerous cases of manipulation of the calendar, and its significance was forgotten over time.

4. *Levi*.

Rosh Hashanah 21a states:

³¹ Maimonides writes in *Hilkhot Kiddush ha-Hodesh III :12*, that in order to avoid any difference in the keeping of the festivals, one must keep the two festival days on the three festivals, even on Shavuot, as soon as the messengers of Tishri could not arrive in time. The commentators give as Talmudic reference the passage in B. Rosh ha-Shanah 21b: מכריז רבי יוחנן. However the remark "even on Shavuot" is not commented and seems to be the own reasoning of Maimonides. The truth is that the reference is the quotation of Rabbi Johanan in his master's behalf B. Ta'anit 28b and B. Erakhim 10a.

³² ספק דאורייתא

³³ ספק דרבנן

³⁴ Stern (2001) p. 164 translates מן ד as "because." According to Stern, R' Yose never prayed *Mussaf*, which seems odd and incorrect. How could he not know the fixing of the month in his capacity as an important member of the Academy of Tiberias and as a very close pupil of R' Johanan? Furthermore, Stern's understanding is in contradiction with the two classical commentaries *Korban ha Eda* and *Pnei Moshe*.

לוי א יקלע לבבל בחדסר בתשרי , אמר בסיים תבשילא דבבלאי ביומא רבה דמערבא , אמרי ליה אסהיד , אמר להו לא שמעתי מפי ב"ד מקודש.

Levi happened to be in Babylonia on Tishri 11 and he said to the people: How appetizing is the meal of the Babylonians on the day of the great fast of the Palestinians.

Levi ben Sisi was one of the closest pupils of Rabbi, later a disciple of Rabbi Hanina bar Hama, and finally a friend of the father of Samuel in Babylonia. Some commentators have believed that he arrived on this very day³⁵ in Babylonia, or more precisely that he entered the thrum Sabbath of this Jewish settlement before the night of Tishri 11, which represented the day of Yom Kippur in Palestine. He had left Israel on Elul 30³⁶ before he could have heard that the 31st had been declared Tishri 1, but he was certain that the month of Elul would be a full month of 30 days. Therefore, he could not play the role of a messenger communicating the calendar and obliging them to fast for a second day. This commentary is impossible, however. We know already that the messenger could not arrive in Babylonia before Tishri 15 and Nissan 15. Furthermore, Levi was lame.³⁷ The only acceptable explanation is that Levi left in the beginning of Elul, but he already knew about the new rule that Rosh Hashanah cannot fall on *DU*, and thus knew that the month would be made full and lengthened to 30 days. Rabbi Zerahia ha-Levi is the only commentator to give a very similar explanation. This event would have occurred around 220 C.E. when Levi left definitively to Babylonia at the very beginning of the ascension of Rabbi Johanan, and would have been enacted under the leadership of Rabbi Hanina. However, this seems unlikely, because Rabbi proclaimed that Elul is always defective,³⁸ and similarly Rav still proclaimed that Elul is always defective.³⁹ Further the rule *Lo Du Rosh* seems to be a later enactment during the leadership of Rabbi Johanan. Therefore the second interpretation—of R' Hananel — reading that Levi happened to be in Babylonia on the Babylonian Marheshvan 10, which was in fact the Palestinian Tishri 10. Because of political reasons prevailing at that time, the Babylonians had not been informed that the year had been intercalated. But if so, this event could also have occurred much earlier in Levi's youth, when he used to travel.⁴⁰

5. *Rav Nahman.*

רב נחמן יתיב בתעניתא כוליה יומי דכיפורי , לאורתא אתא ההוא גברא א "ל למחר יומא רבה במערבא

Rav Nahman fasted the day of Yom Kippur, but in the evening a Palestinian told him that in Palestine the great fast was a day later.

³⁵ They understand that he happened to come on this day, Tishri 11.

³⁶ Novellae of Ritva. The novellae of Rabbenu Nissim records Ellul 31st, before he could hear the proclamation.

³⁷ B. Ketubot 103 b.

³⁸ B. Rosh Hashanah 19 b and Y. Sanhedrin 1, 2, 18d.

³⁹ Y. Sanhedrin 1:2, 18d.

⁴⁰ B. Kidushin 72a ; B. Sabbath 130a.

This seems to happen in the second half of the third century. We must again understand that this Palestinian was a traveler who left Israel in the beginning of Elul but was aware that Elul would be made full to avoid that Rosh Hashanah the 30th day of Elul falls on DU.

6. *Rabbah.*

רבא הוה רגיל דהוה יתיב בתעניתא תרי יומי, זימנא חדא אשתכח כוותיה.

Rava was accustomed to fast two days. Once it was proved correct.

We know that Rava lived until 352, and according to Heyman,⁴¹ he was born around 279 C.E. We will see below that after 325 when Abaye was promoted to head the academy of Pumbedita, the Babylonian Rabbis already knew the fixing the month.⁴² We will see below that in about 305 the Court of intercalation no longer made Elul full, and two days of fasting no longer proved justified. It also seems unlikely that the Talmud would have recorded the details of the conduct of Rava before 305, when he was still a pupil under Rav Hisda. Therefore, the reading of R' Hananel seems to be correct: He reads Rabbah instead of Rava.⁴³ Rabbah was promoted to the head of the Academy of Pumbedita in 298 and remained in that position until his death in 320.⁴⁴ In 305, he was already 7 years in function, and the quotation seems to fit much better; it must correspond to the conduct of Rabbah during the first years of his reign.

C. *From about 300 until 323*

1. *Rabbi Simon.* -- Yerushalmi Sukkah 4:5 says:

רבי סימון מפקד לאילין דמחשבין, הבון דעתכון דלא תעבדון לא
תקיעתא בשבתא ולא ערבתא בשבתא...

Rabbi Simon ordered those in charge of the calculations (“demechashvin”): Pay attention and do not place either Rosh Hashanah on Sabbath or Hoshanah Rabbah on Sabbath. But if you are squeezed, then place Rosh Hashanah on Sabbath, but do not place Hoshanah Rabbah on Sabbath.

⁴¹ Heyman, Toledot 1040 b.

⁴² An interesting quotation from Taanit 21b proves that Rava had no doubt what about the day of Kippur: לרבא כל מעלי יומא דכיפורי, Rava was greeted on each eve of Kippur by the celestial Academy and the context proves that Abaye was still alive. Probably from 305 onward, he knew the date of Tishri 1 in advance and had no doubt about the day of Kippur.

⁴³ However in a responsum of R' Hay Gaon, the reading is Rava. Otsar ha-Gaonim, Rosh ha-Shanah § 46. This responsum is reproduced in Torah Shelema, part 13, chap 3, p. 26.

⁴⁴ B. Rosh Hashanah 18a states that Rabbah lived forty years. Heyman has already emended the text and replaced forty with sixty: Toledot p. 1063a. Rabbah would then be born in 260 and would have been 19 at the death of Rabbi Johanan. The invitation to Rabbah to join the academy of Rabbi Johanan (B. Ketubot 111b) would have occurred before Rabbah was 19. This is likely, and it is unnecessary to postpone Rabbi Johanan's death by 9 years, as Heyman does in his commentary ad locum on ESG and in Toledot p 671.

Rabbi Simon (also known as Rabbi Simeon ben Pazi) was a Palestinian Amora of the second half of the third century C.E. He was the pupil of R' Joshua ben Levi, the latter was himself the pupil of Bar Kapara the younger pupil and colleague of Rabbi. He was a friend and contemporary of Rabbi Abahu from Caesarea. I estimate that he lived until 310 C.E. The word *demechashvin* shows that calculation, rather than empirical observation, was increasingly taking place in fixing the Neomenia, even if the formalism was probably still organized as if the sanctification of the Neomenia depended on observation.

2. Rav Hisda.

R' Hisda was the head of the Academy of Sura for ten years from 300 until 309; he lived 92 years.⁴⁵ Yerushalmi Rosh Hashanah⁴⁶ and Hallah⁴⁷ say:

תמן חשין לצומא רבא תרין יומין , אמר לון רב חסדא למה אתם מכניסין עצמכם למס פק הזה המרובה חזקה שאין בית דין מתעצלין.

There, in Babylonia, they are worried about the true day of the fast of Kippur (and some Rabbis fast two days). Rav Hisda said to them: "Why are you putting yourself in this big doubt? There is a strong presumption that the Court is not neglectful."

This quotation of Rav Hisda must be from the very beginning of the fourth century. The classical commentary Korban ha-Eda claims that the Court sends the messengers immediately. This explanation is untenable, because we know that the messengers could never reach Babylonia in time to inform them about the true day of Kippur. I think the correct explanation of this quotation is the following: Until this period, the Babylonian Rabbis did not know when the Court decided that Elul would be a leap month of 30 days, and therefore they lived in great doubt, especially about Kippur. Rav Hisda seemed to know that the Court of Palestine had changed its conduct; Elul is again a defective month of 29 days in all the cases. If it was necessary to avoid an instance of Rosh Hashanah falling on Wednesday or Friday, the Court would move the Neomenia of Elul or even of Av by one day, in order to obtain the correct result without making Elul a leap month. "The Court is not neglectful" would then mean that it reacts in time enough in advance and does not any more wait for the last moment. Of course this new attitude implies that it was necessary to consider calculation more than observation.

3. Rav Safra.

אמר ליה רב ספרא לרבי אבא כגון אנא דידענא בקביעא דירחא ביישוב לא
אבדינא מפני שינוי המחלוקת במדבר מאי?
אמר לי, הכי אמר רב אמי, ביישוב אסור במדבר מותר

⁴⁵ B. Moed Kattan 28a.

⁴⁶ Y. Rosh Hashanah I, 4, 57b (at the end of halakha 4), (8b in the Vilna edition).

⁴⁷ Y. Hallah I, 1, 57c (4a in the Vilna edition).

Rav Safra said to Rabbi Abba: for example, in my situation, when I know the fixing of the month in a Jewish settlement, I do not perform [any work on the second festival day] to avoid any dispute, but in the desert [when I am alone] how should I behave? Rabbi Abba answered: This was the ruling of Rabbi Ammi: Among Jews it is forbidden, but in the desert, it is allowed.”

Rav Safra was a Babylonian Amora who spent much time in Palestine at the occasion of his frequent commercial journeys between Babylonia and Palestine during the leadership of Rabbah⁴⁸ and Rav Joseph.⁴⁹ Later he retired in Babylonia where he became friendly with Abbaye⁵⁰ and Rava.⁵¹ He died in Babylonia under the leadership of Abbaye.⁵² Almost all of the different commentaries of this Talmudic passage about Rav Safra, depart from a false hypothesis: they all assume that the calendar was still empirical, based on the observation of the new moon. Under such conditions, Rav Safra could not have had any advance knowledge of the fixing of the moon with respect of the calendar envoys.⁵³

It may be assumed that this dictum of Rav Safra belongs to the first quarter of the fourth century, when he was frequently visiting in Palestine. I propose the following explanation: the council of intercalation was working more and more on the basis of calculation. The calendar committee was still announcing the fixing of each month on a monthly basis, as in the past. Therefore, the Babylonian and even the Palestinian population did not know the *keviya* before the committee's monthly proclamation and the Babylonian population was holding two days for the festivals “out of doubt”. However, the committee was already calculating the calendar in advance, and the members of the academy of Tiberias and the scholars, like Rav Safra, who were close to it, were aware of the committee's calculations before their monthly announcements. This situation explains how Rav Safra knew the *keviya* when traveling to Babylonia before the institution of the fixed calendar (358 C.E.), and even before the communication to the Babylonian academies of a pre-calculated calendar (around 325 C.E).

D. Around 323 - 325 C.E.

1. Era of Rabbah and Rav Joseph. -- Babli Sukkah 43b provides:

אנן לא ידעינן בקיבוע דירחא, אינהו דידיעי בקיבוע דירחא...

⁴⁸ From 298 until 320.

⁴⁹ From 321 until 323, during 2.5 years.

⁵⁰ B. Hulin 110b, B. Eruvin 45b and B. Beitsa 38b.

⁵¹ B. Batra 144a and B. Zevahim 116b.

⁵² B. Moed Katan 25a

⁵³ Stern (2001) pp. 249-250 has also examined the problem. He also considers that Rav Safra was still in the period of the sighting calendar and he supposes that Rav Safra was using a fixed calendar scheme of his own. This supposition seems impossible for many reasons. First, such a calendar could not guarantee that he be in concordance with the fixing of Palestine. Second, if his supposition were the actual meaning of Rav Safra's knowing of the month's fixing, Rabbi Abba would have rebuked him, because Palestinian academies never accepted calendrical activities in Babylonia. Third when Samuel intended to use a fixed calendar (see B. Rosh Hashanah 21b), it was intended for the population of Babylonia, here Rav Safra would use this calendar for himself alone!

We [the Babylonians] do not know the fixing of the moon; they [the Palestinians], who know the fixing of the moon...

As can be seen from the context, this passage is from the time of Rabbah and Rav Joseph, before 323 C.E. (Rav Joseph died in 323 C.E.). At this time, in Babylonia, the Jewish people were not yet aware of the fixing of the moon. In other words, Babylonians (except perhaps those living in western Babylonia) did not know the exact day of the Neomenia before the fifteenth of each month,⁵⁴ while people living in Palestine did know that exact day before the fifteenth.⁵⁵

7. *Bar Hedya*. – In Babli Sukkah 43b, we find:

כי אתא בר הדיא, אמר לא איקלא

*When Bar Hedya came back to Babylonia, he said that Hoshanah Rabbah does not occur on Sabbath.*⁵⁶

We know that Bar Hedya came back to Babylonia when Rav Joseph was still alive,⁵⁷ henceforth in 323 C.E. or slightly earlier.

3. *Rava*. – Babli Sanhedrin 12a says:

והא שלחו ליה לרבא, זוג בא מרקת ותפשו נשר ובידם דברים הנעשה בלזז ומאי ניהו תכלת בזכות הרחמים ובזכותם יצאו בשלום ועמוסי יריכי נחשון בקשו לקבוע נציב אחד ולא הניחן אדומי הלז אבל בעלי אסופות נאספו וקבעו לו נציב אחד בירח שמת בו אהרן הכהן...

They sent a message to Rava:

A couple was coming from Raqat⁵⁸, but an eagle⁵⁹ captured it. In its hand were things made in Luz- and what are these? Purple.⁶⁰ Through the merit of the Merciful and through their own merit, they got out safely. And the offspring of Nahshon's loins⁶¹ wished to establish a netsiv,⁶² but that Edomite⁶³ did not allow them. However, the members of assemblies assembled and established one netsiv in the month⁶⁴ in which Aaron the Priest died.⁶⁵

⁵⁴ Therefore, they still hold two days for the festivals “out of doubt.” Nevertheless, if my interpretation is correct, since 305 the most rigorous people don’t fast any more for two days on Yom Kippur, because Tishri is again defective without practical exceptions.

⁵⁵ Y. Sanhedrin 5:3 (Mishna and beginning of Guemara).

⁵⁶ And therefore Rosh Hashanah does not occur on Sunday.

⁵⁷ Babli Berahot 56b.

⁵⁸ Tiberias.

⁵⁹ The Romans.

⁶⁰ The special purple required for the manufacture of the fringes. One fringe of the *tzitzit* must be *Tekhelet*.

⁶¹ The Nasi, the Patriarchate.

⁶² A thirteenth month in order to intercalate the year.

⁶³ The Romans;

⁶⁴ The month of Av. Thus exceptionally they had a second Av.

⁶⁵ Literal translation according to Stern (2001) p. 217.

This quotation looks like a coded message. It gives the impression that they were some communications problems between Palestine and Babylonia which could be connected to the war situation between the Roman Empire and Persia. It seems furthermore, according to the Talmudic interpretation of the message, that the Romans objected to the intercalation of the Jewish calendar and its communication by the messengers; but the reason is not explained.

According to modern historians,⁶⁶ there is no external evidence of any Roman Imperial interference with the Jewish calendar during the fourth and fifth centuries and therefore the reason of this Roman hostile attitude remains not explicable.

However there are some indices⁶⁷ in the Talmud of persecutions—perhaps short-lived crisis—at this period, confirmed by the Letter of R' Sherira Gaon.

4. *Rava*. – Babli Hulin 101b says:

אלא אמר רבא, שמדא הוה ושלחו מתם דיומא דכיפורי דהא
שתא שבתא הוא. וכן כי אתא רבין וכל נחותי, אמרוה כרבא

[After a discussion without a convincing conclusion between Abaye and Rava] Rava concluded that there was a persecution in Palestine and they [Sanhedrin in Palestine] sent from there [a coded message] that Yom Kippur of this year will occur on Sabbath. Later, when Rabin and all the travelers came back to Babylonia, they confirmed [the interpretation] of Rava.

The Letter of Sherira Gaon⁶⁸ mentions that after Rabbah and Rav Joseph (predecessors of Abaye and Rava as heads of the academy of Pumbedita), there was an important persecution in Palestine. For that reason, the level of the teaching diminished drastically in Palestine and those Babylonian Rabbis in Palestine, such as Rabin and Rav Dimi, returned to Babylonia. Rav Joseph died in 323 C.E., and Abaye was appointed in 325 C.E. This event (the sending of the coded message) seems to occur after the death of Rav Joseph and before the return of Rabin, around 325 C.E.

I had been struck by the coincidence between the date of the return of Rabin and the other travelers in about 325 and the council of Nicaea and I had proposed an explanation similar to the suggestion of Lieberman.⁶⁹ He suggests indeed that the persecutions which led to the institution of a fixed Jewish calendar were the result of decrees by the Christian Imperial authorities against the Jewish calendar in order to prevent the dissident Churches of the East, after the council of Nicaea, from observing Easter at the same time as the Jews. Therefore the Christian Emperors prohibited the patriarch to dispatch messengers to the Jewish Diaspora, in Syria and Babylonia. This would give the natural explanation of our Talmudic quotation and of the former one.

⁶⁶ Stern (2001) pp. 215-218.

⁶⁷ See former and next quotations. Note the coming back to Babylonia of Bar Hedya, Rabin, R' Dimi and the travelers, B Sukkah 43b. See also B. Beitzah 4b mentioning a possible future persecution. See finally at the end of Horayot about the coming back to Babylonia, before 325, of Rabbi Zeira II. See also next note.

⁶⁸ Part II, chap.3, page 54 in the edition of Heiman.

⁶⁹ Lieberman, 1946: Palestine in the 3rd and 4th Centuries. JQR, n° 36: 329-370. See pp. 330-334.

However Stern (2001)⁷⁰ rejects this theory and considers it completely unsubstantiated. He writes: “the absence of any external evidence in either Christian or Roman legal sources, of any imperial prohibition against Patriarchal calendar reckoning, casts considerable doubt on its historical validity.”

We have already mentioned that there are some indices⁷¹ in the Talmud of persecutions—perhaps short-lived crisis—at this period, confirmed by the Letter of R’ Sherira Gaon. This Talmudic quotation, as the former, must correspond to such a situation.

It appears that Rava, unlike Abaye, understood in advance that Yom Kippur would occur on Sabbath. It was perhaps the first time that the council of Palestine was sending such information so early. The council of the calendar had already decided long before that Yom Kippur would occur on Sabbath. Probably from this time onwards, Rava knew the exact date of the festivals, and they began to hold two days on the basis of a takana, the enactment sent by the Palestinians, but no longer out of doubt.⁷²

This situation also provides additional evidence that the council of Tiberias calculated the calendar in advance. This evidence records one of the first instances of communicating advance calendar information to the Babylonian academies.⁷³

5. *Babli Arachim 9b*. – This passage provides:

אמר לי רב אדא בר אהבה לרבא, אחרים מנינא אתא
לעשמועינן, הא קא משמע לן דלא בעינן מצווה לקדש על
פי ראייה

Rav Adda bar Ahava said to Rava: Does Aherim [generally R’ Meir] intend to let us know a count [of the new month]? No, he wants to teach us that it is not an obligation to sanctify months by observation.

This passage seems connected to the decision to switch from empirical observation to calculation for the fixing of the moon, and provides a theoretical solution to the practical problem raised by the situation described in the previous paragraph. Although Rava was Babylonian and was completely outside the calendar committee, he was consulted on the subject. This evolution occurred in the beginning of Abaye’s reign.

6. *Rabin*. – *Babli Sukkah 43b* provides:

כי אתא רבין וכל נחותי, אמרי, איקלא ולא דחי

⁷⁰ Stern (2001), p. 217.

⁷¹ See former and next quotations. See the coming back to Palestine of Rabin, R’ Dimi and the travelers, B Sukkah 43b. See also B. Beitzah 4b mentioning a possible persecution.

⁷² See Rabbi Yose infra.

⁷³ Maybe it was not the first time, and therefore, Rava was able to understand the coded message, but it could have been the first time, which is why Abaye could not understand the coded message.

*When Rabin and all the travelers came back to Babylonia, they said that Hoshanah Rabbah may occur on Sabbath.*⁷⁴

As discussed above, Rabin returned to Babylonia around 325 C.E. It appears that the problem of Rosh Hashanah occurring on Sunday was a subject of discussion and that the council was hesitant to find a solution. At first, the council decided not to accept Rosh Hashanah on a Sunday, as told by Bar Hedyā, but it later reversed its decision and decided to abandon this additional constraint. Indeed, there is evidence that during the reign of Abayē, Rosh Hashanah could still occur on Sunday, and in Babli Taanit 29b, we see that the ninth of Av could occur on Friday.⁷⁵

E. After 325 C.E.

1. Rav Zeira II. – Babli Beitzah 4b states:

אמר רב זירא, כוותיה דרבי אסי מסתברא, דהאי דנא ידעינן
בקביעא דירחא וקא עבדינן תרי יומי

Rav Zeira II said: things seem logical according to the advice of Rabbi Assi, because today, we know the fixing of the moon and nonetheless, we observe two festival days.

Note that Rav Zeira II must not be confused, as often occurs, with his more famous predecessor, Rabbi Zeira I, the Palestinian Amora of the former generation and elder colleague of R' Abba. Rabbi Zeira I lived in the second half of the third century and probably the first years of the fourth century and lived a long life (Babli Megilah 28a).

Rav Zeira II was a Babylonian Amora, who spent some time in Palestine. He must have come back to Babylonia around 323 C.E., because he was then the colleague of both Abayē and Rava and a candidate for the direction of the academy of Pumbedita together with Abayē (who had not yet been appointed), Rava, and Rabbah bar Matna.⁷⁶

Apparently, after 325 C.E., the Babylonian academies began receiving advance information about the year's calendar and thus began to know the fixing of the moon. But the meaning of this knowledge, as expressed in this passage about Rav Zeira II, is different: Here, the academies know the length of each month and consequently the date of each Neomenia for a relatively longer period, probably one year in advance.

⁷⁴ Therefore Rosh Hashanah can occur on Sunday.

⁷⁵ It is very likely that this passage corresponds to the reign of Abayē, after 325 C.E. It is also very likely that the number of days between Passover and Rosh Hashanah was already fixed, so that the ninth of Av (Tisha Be-Av) occurred on the same day as Passover, and the next Rosh Hashanah occurred two days later. There is later evidence that during the reign of Rav Yemar (428-432 C.E.), Rosh Hashanah could still occur on Sunday. See Babli Niddah 67b, See Ajdlar (Hilkhot Kiddush ha-Hodesh, Sifriati 1996, p. 670 note). Later evidence confirms that in 506 C.E., Rosh Hashanah still occurred on Sunday and Pessah and Tisha be-Av on Friday: see Epistle of Sherira Gaon 3:4 (p. 85 edition Heiman): 4 Adar 4267 was a Sunday.

⁷⁶ Babli Horayot (at the end).

The contradiction between this passage and the passage in Babli Sukkah 43b, mentioned above, has embarrassed commentators such as Tossafot. R' Solomon ben Aderet,⁷⁷ in his novellae on Babli Sukkah 43b, is probably the first to give a correct explanation of this apparent contradiction. He writes that this Talmudic passage dates from after “the institution of the calendar by Hillel, the last Patriarch, the son of Rabbi Judah the Patriarch,⁷⁸ grandson of Rabbi Judah the Saint.”

2. *Rabbi Yose in Yerushalmi Erubin.* – The end of chapter 3 of Yerushalmi Erubin states:

רבי יוסי משלח כתב להון, אף על פי שכתבנו לכם סדר
מועדות, על תשנו מנהג אבותיכם נוהי נפש

Rabbi Yose sent them [the people of Alexandria] a letter: Although I sent you the order [i.e., the details] of the festivals, do not change the custom of your late ancestors.

The last passage seems to refer to the beginning of Rabbi Yose's leadership, around 325-330 C.E. There is a parallel passage in Babli Beitzah 4b:

והשתא דידיעיןן בקביעא דירחא מאי טעמא עבדינן תרי
יומי, דשלחו מתם, הוזהרו במנהג אבותיכם בידכם,
זמנין דגזרו המלכות גזירה ואתי לאקלקולי

And now, when we know the fixing of the moon, why are we observing two festival days? Because they sent from Palestine the following order: be careful to maintain the practice of your late parents. It could once happen that the authority enacts [unfair] laws [against the Jews] and they could be wrong, if they observe only one day.

This passage is clearer than the first one in explaining the reason for this decision. It is a later interpolation, from the time of the redaction, in the time of Rav Ashi and his son. This passage was not correctly understood⁷⁹ as long as people believed that the institution of a fixed calendar in 358/359 allowed the Diaspora to calculate the calendar

⁷⁷ Rachba (c.1235-1310 C.E.).

⁷⁸ R' Judah II Nessiah. He forgets two generations, R' Judah III (also called Nessiah II) and R' Gamaliel IV. Therefore, the exact sequence is the following: R' Judah I the Saint c. (135 - 210), R' Gamaliel III c. (210 - 219), R' Judah II Nessiah I c. (220 - 270), R' Gamaliel IV c. (270 - 300), R' Judah III (Nessiah II) c. (300 - 330), and finally R' Hillel II c. (330 - 365).

⁷⁹ Therefore Rashi feels obliged to explain that the Babylonians must perform two days as they ancestors, because if a bad kingdom would emerge and forbid the study of the Torah they could forget the rules of the Jewish calendar and be mistaken. This quite far-fetched explanation was never questioned. The truth is that the Babylonian communities didn't know the rules of the calendar before the ninth century and still received the information from Israel. The fear was that a bad kingdom would prevent the messengers to bring the information, the *keviya* of next year, to Babylonia in time. They would then be in the same situation of ignorance as before 325, when they didn't know the fixing of the month.

in full independence. Under such conditions, the maintenance of two festival days is not easy to justify, because a fixed calendar gives complete independence to all communities.

Rabbi Yose imposed upon the Diaspora the observance of the second festival days on the ground that new persecutions could place them, once more, in the situation of not knowing the fixing of the moon.⁸⁰ This passage provides evidence that those in the Diaspora were not able to calculate the calendar by themselves. Each year, the Palestinians contacted those in the Diaspora with the data about the calendar for the next year. This indicates the fragility of the Jewish calendar. The only practical improvement upon the empirical calendar was that the envoys came only once a year rather than twice. In the case of crises or persecutions, envoys could even cut back their visits to once every few years. More importantly, the envoys could travel at the beginning of the year, well before the month of Elul. This status, in the case of a possible persecution or communication problem, would then confuse the authorities and the Jews' enemies, who were accustomed to look for the envoys around the month of Elul.

When the Babylonians began to calculate the calendar by themselves in the ninth century, one could argue that the reason for observing two festival days disappeared. However, the observation of the two festival days was already so entrenched in their tradition that it was too late to consider removing it, and the Babylonians did not seriously consider doing so.

3. *Abaye in Babli Taanit 29b:*

ואם לא כבס בחמישי בשבת מותר לכבס בערב שבת מן המנחה ולמעלה, לייט עליה אביי...

And if he didn't do the washing on Thursday (and has no cloth for Sabbath) he is allowed to make the washing on Friday afternoon, day of Tisha be-Av, from Minha onwards; Abaye cursed those who let themselves carry to such extremes.

After 325, during the reign of Abaye, the Babylonian communities already received communication of the *Keviya*⁸¹ of the year and they “knew the fixation of the month.” The number of days between Passover and the next Rosh Hashanah was already fixed, so that the ninth of Av occurred on the same day as Passover and the next Rosh Hashanah occurred two days later. As we know, Rosh Hashanah could still fall on Sunday, and therefore Passover and Tisha be-Av could occur on Friday.⁸²

4. *Rava in B. Taanit 21b:*

⁸⁰ The expression “second festival days of the Diaspora” was created by Rabbi Yose: Y. Megilah 4:5.

⁸¹ The *keviya* is the indication of the characteristic of the beginning Jewish year, i.e. the day of Rosh Hashanah, the day of the following Pessah and an indication whether the year is defective, regular or abundant, 353, 354 or 355 days in a normal year, 383,384 or 385 days in a leap year.

⁸² It is interesting to note that the Talmud mentions one case of occurrence of Tisha be-Av on Friday in the time of Rabbi Akiba, when Rosh Hashanah could still fall on any day: B. Erubin 41a.

אבא אומנא הוה אתי ליה שלמא ממתבתא דרקיע כל יומא, ולאביי כל מעלי יומא דשבתא, לרבא כל מעלי יומא דכיפורי.

Abba the bonesetter received the greetings of the celestial academy each day, Abaye received them each eve of Sabbath and Rava each eve of Kippur.

Apparently Rava had no more doubt about the day of Kippur. After 325, they received the *keviya* of the next year in advance and had no more doubts about the festivals; the two festival days were held because of the *takana* sent from Israel and no longer due to doubt. But this passage could also relate to a period earlier than 325, perhaps after 300-305, when the council of intercalation decided, according to the testimony of Rav Hisda, that Elul would be again defective, so that Kippur would be Elul 39. The attribution of the passage to a period after 325 seems more likely, because only after this year Abaye and Rava appeared as outstanding personalities.

5. *Abaye and Rava in B. Sabbat 23a:*

אמר אביי ודאי דדבריהם בעי ברכה, ספק דדבריהם לא בעי ברכה. והא יום טוב שני דספק דבריהם הוא ובעי ברכה, התם כי הכי דלא לזילזולי בה. רבא אמר, רוב עמי הארץ מעשרין הן.
Abaye said: an obligation which has the status of certainty by rabbinical enactment⁸³ requires a benediction but an obligation which has a status of uncertainty by rabbinical enactment⁸⁴ does not require a benediction. But the second festival day has the status of uncertainty by rabbinical decree⁸⁵ and it nevertheless requires a benediction?⁸⁶ This is only in order that one should not despise the second festival day. Rava said: most of the peasants deduct the tithe.⁸⁷

When from about 325 onwards Abbaye and Rava knew the *keviya* in advance, they knew that the first festival day is the true festival day while the second festival day is in fact a working day.

However, they received from Palestine the instruction to go on keeping the second festival days as before under the status that the second festival day could still be the true festival day. Thus by rabbinical enactment this second day remained a day of uncertainty in order to allow them facing a situation of disruption of the Jewish calendar because of a possible lack of information from Palestine. This corresponds well to the expression: ספק דדבריהם. The uncertain character of this day is the tenor of

⁸³ The obligation of lighting the Hanuka candles does not suffer any uncertainty and is a rabbinical obligation.

⁸⁴ Demai is the peasant's crops; by rabbinical enactment it is considered uncertain whether the peasant deducted the tithe and therefore, in order to go out of this state of uncertainty the rabbis prescribed that one should deduct מעשר מעשר. Demai is thus ספק דדבריהם.

⁸⁵ The second festival day should be now a working day but the rabbinical enactment sent by the Palestinians orders to go on keeping the second festival day and consider it as the possible true festival day.

⁸⁶ The introductory Kiddush.

⁸⁷ According to Rashi and Rabad, Rava says that in the case of Demai, the probability that the peasant did not deduct the tithe is very little and we cannot speak of a doubt. The deduction of מעשר מעשר is intended only to remove any fear but we cannot speak of a case of uncertainty and therefore no benediction is required. But in other cases of uncertainty by rabbinical enactment like *yom tov sheni* a benediction is required without the necessity to have recourse to Abbaye's argument.

the rabbinical enactment. This represents a considerable evolution with regard of the situation existing before, when both the first and the second day could be the true festival day and had therefore, both, the status of uncertainty.⁸⁸

6. *Rabbi Yose in Yerushalmi Megilah.* – Yerushalmi Megilah I, 2, 70b. says:

אמר רבי יוסא, לית כאן חל להיות בשני ולית כאן להיות בשבת. חל
להיות בשני, צומא רבא בחד בשובא, חל להיות בשבת, צומא רבא
בערובתא.

Rabbi Yose said: Purim may not occur on Monday or on Sabbath. If it occurs on Monday, then the big fast [Yom Kippur] occurs on Sunday, and if it occurs on Sabbath, then the big fast will occur on Friday.

Based on this passage, the number of days between Purim and Yom Kippur is now clearly fixed.⁸⁹ From Purim until the day after Yom Kippur, there are exactly twenty-nine weeks. Consequently, the number of days between Passover and Rosh Hashanah also becomes fixed. It is impossible to ascertain if this passage is from the beginning of Rabbi Yose's reign, around 325-330 C.E., or if it belongs to a later period, when the calendar had already evolved from a semi-empirical stage to a fixed calendar, probably around 350-358 C.E. It is likely that the decision to have a fixed number of days between Passover and Rosh Hashanah was made very early, because it responded to the motivation to inform the Diaspora easily. In any case, we see that the occurrence of Rosh Hashanah on Sunday was not a great concern.⁹⁰ Rosh Hashanah could still fall on Sunday

⁸⁸ From the Torah. The following quotation from Yerushalmi is related to this period:

דאיפלגון, שני ימים טובים של גליות, רבי יוחנן אמר מקבלין התרייה על ספק, רבי שמעון בן לקיש אמר אין מקבלין התרייה על ספק.

See Y. Pesahim V, 4, 32c; Y. Nazir VIII, 1, 57a and Y. Yevamot XI, 7, 12b.

The following quotations of statements by Rava belong also to this new period when he knew the keviya in advance.

1. B. Beitsah 6a:

אמר רבא מת ביום ראשון יתעסקו בו עממין, מת ביום שני יתעסקו בו ישראל.

2. B. Beitsah 5b:

רבא אמר אף מתקנת רבן יוחנן בן זכאי ואילך ביצה אסורה

3. B. Beitsah 17a :

אמר רבא, מניה אדם עירובי תבשילין מיום טוב לחבירו ומתנה

Maimonides wrote in H.K.H. V: 3 that the period of the empirical calendar by observation lasted until the time of Abaye and Rava, apparently Abaye and Rava included. This is coherent with his ruling in Hilkhhot Yom Tov VI: 11, 12 and 14, according which the dictum 3 of Rava belongs to the first period of the empirical calendar. R' Zerahia ha-Levi on the Rif Beitsah (p. 3a of the Rif, top) has a similar position on the dictum 2. By contrast Meiri in Beit ha-Behirah on B. Sanhedrin 13b writes that Abaye and Rava belong already to the period of the fixed calendar. Ran, on Rif Beitsah (p. 9b top of the Rif) writes also that Rava knew the fixing of the moon.

⁸⁹ Before this period, even when the dehiya *lo DU Rosh* was already in use, Pesah could still occur on any day; this was of course also the case before the institution of the rule *lo DU Rosh*, see Mishna Pesahim VII: 9.

⁹⁰ In his capacity as head of the Academy of Tiberias, Rabbi Yose seems to have played a major role, whereas the role of the Patriarch Hillel was probably formal and honorary.

and the rule *lo DU Rosh* implies now *lo BD Pesah* and Tisha be-Av, and *lo BZ Purim*. Pessah and Tisha be-Av could still fall on Friday and Purim on Wednesday.⁹¹

7. *Rabbi Yose in Yerushalmi Megilah*. – Yerushalmi Megilah IV, 1, 75a. says:

הוא התקין שתהא אשה חופפת וסורקת ק ודם טהרתה ג' ימים, רבי יוסה בשם רבי ינאי, רבי בא בר כהן בשם רבי חיניא כדי לשבת ולשני ימים טובים של גליות.

He (Ezra) decided that a woman should wash her head and comb out her hair not more than three days before her purification. Rabbi Yose in the name of Rabbi Yanay and...: in order to allow her to wash before Sabbath and to purify herself on Monday evening after the two festivals days of the Diaspora.

We can deduce from this passage that after the fixed calendar was established, Israel never experienced two consecutive festival days, even in the case of Rosh Hashanah. In other words Rosh Hashanah had only one day in Israel after the fixed calendar was established. We have also here the first mention of the Hebrew expression designating the two festival days of the Diaspora. This enactment is so important in Rabbi Yose's eyes that he accepts a maximum delay of three days between the washing and the purification in the Diaspora and even in Israel to take into account the case of Sabbath followed by two festival days, although this case does not even occur in Israel but only in the Diaspora. Still, Rosh Hashanah could fall on Sunday.⁹²

8. *Rav Huna bar Abin*. -- Babli Rosh Hashanah 21a states:

שלא לי רב הונא בר אבין לרבא, כד חזית דמשכה
תקופת טבת עד שיתסר בניסן, עברה לההיא שתא
ולא תחוש לה

Rav⁹³ Huna bar Abin sent to Rava: when you see that the winter season is prolonging itself until the sixteenth of Nissan, intercalate that year and do not worry [about contradictory opinions, according to Rashi, or about the two other signs of maturity, according to the Tossafot].

An essential condition necessary to create a fixed luni-solar calendar is to define an intercalation rule to determine regular and leap years constituted from twelve or thirteen lunar months. This is not the only passage to address this subject, but the particular qualities of Rav Huna bar Abin and Rava gives a special importance to it. As for Rava, we already know that he, despite being the head of Babylonian Jewry, was closely involved with the institution of a fixed Jewish calendar, and that he was

⁹¹ Tossafot Rid (R' Isaiah ben Mali Di Trani, c. 1200-c. 1260) on B. Megila 4b, have used this passage in Y. Megilah to prove that the dehiya A was introduced much later than the two dehiyot *DU*. Maharsha on B. Pessahim 71a and Arukh le-Ner on B. Sukkah 42a accept also that the dehiya A was a late decision.

⁹² The ruling of Rabbi Yose is contrary to that of Rav Hisda and Rav Yémar, who ruled that this delay of three days is excessive; according to them, the woman should wash and purify herself the night after the festival days.

⁹³ This Amora has played an important role in Palestine. He was also a member of the council of intercalation. By virtue of his position, he certainly had the title of Rabbi.

apparently consulted or informed for all important items. Rav Huna bar Abin is a Palestinian Amora of the fourth century of Babylonian origin. He studied with Rav Joseph⁹⁴ in Babylonia and later went to Palestine, where he was the pupil of Rabbi Jeremiah in Tiberias. He was a friend of Rabbi Yose and Rabbi Yonah. He remained in Palestine, even at the worst period during the repression of Gallus and Ursicinus in 351-352 C.E., when he had to hide himself in a cave.⁹⁵ He lived from around 300 until 365-370 C.E., and he seems to have played an active role in the creation of the fixed calendar together with Rabbi Yose.⁹⁶ Indeed, it is of special importance that he was a member of the council of the sanctification of the month,⁹⁷ which explains the passage above. Because of Rav Huna's special position we can consider that his rule was the practical rule in use, while other concurrent rules were merely suggestions.

Rashi's interpretation – that the object of worry is about contradictory opinions – could well have discovered the true meaning. Concerning the significance of this message, I do not think it was intended to obtain Rava's opinion in response, but was instead the message, sent probably during the repression of Gallus, of someone fearing the worst for the future of the Jewish calendar and of the intercalation council sending a practical rule to his Babylonian colleagues in case communication became impossible. The existence of such an intercalation rule implies that the Metonic nineteen-year cycle of intercalation was not yet instituted in Hillel's calendar.

The exact significance of this passage has often been discussed. Rabbinical Rishonim discussed the meaning of “until the sixteenth of Nissan.” According to Rashi⁹⁸ and Maimonides,⁹⁹ we intercalate only if the equinox occurs on the sixteenth of Nissan; according to others, such as Tossafot,¹⁰⁰ Rabbi Abraham bar Hiya,¹⁰¹ and Rabbenu Hananel,¹⁰² we intercalate only if the equinox occurs on the seventeenth of Nissan.

9. *Ravina*. – Babli Arahim 9b says:

מתקיף לה רבינא, והאיכא יומא דשעי, ויומא
דתלתין שני

Ravina objected: But there exists one day [made up] of hours and one day [completed] in thirty years.

Ravina, a companion of R' Ashi,¹⁰³ was a Babylonian Amora of the fourth and beginning of the fifth century. He studied with Rava,¹⁰⁴ which indicates that he was born

⁹⁴ Y. Sukkah 3:4 and Y. Yoma 7:2.

⁹⁵ Y. Pesahim 1:5.

⁹⁶ Y. Sukkah 4:3.

⁹⁷ Y. Sukkah 2:5.

⁹⁸ B. Rosh Hashanah 21a in Rashi.

⁹⁹ Hilkhoh Kiddush ha Hodesh 4:2.

¹⁰⁰ B. Rosh Hashanah 21a: Tossafot “*ki hazit*.”

¹⁰¹ Sefer ha-Ibbur, book 3 chap. 5.

¹⁰² B. Rosh Hashanah 21a.

¹⁰³ He considered himself, modestly, as his pupil and colleague. Babli Erubin 63b.

¹⁰⁴ Babli Baba Batra 16b.

about 330 C.E. According to two sources, less reliable than the Letter of Sherira Gaon, he died in 422 C.E., six years before R' Ashi's death.¹⁰⁵ In his position as pupil of Rava, he probably learned calendrical data from him. This passage could inform us that the length of the synodical lunation used in the calendar of Hillel was 29d 12h 44m, which differs from the lunation of our modern calendar. This value could have been reached in two stages. In the first stage, the lunation lasted only 29d 12h 40 m. In one year of twelve lunar months, these minutes¹⁰⁶ amount to eight hours, and after three years, they amount to one day, which was called the "day of the hours," or alternatively as the "day of three years."

In a second stage, they added 4 m or 72 *halakim*. After thirty years of twelve lunar months, the calculators of the calendar get $360 \times 4 = 1440$ m. This additional day could have been named "day of *halakim*," but they called it, probably later, the "day of thirty years."

10. B. Pesahim 58b.

חל להיות בשבת כחל להיות בשני בשבת דברי רבי ישמעאל...

The Braita was probably written in a world where Pessah could occur on any day and Rashi is then correct when he writes: ...ולא מילתא היא שהרי על פי הראייה היו מקדשין...

But later at the time of Abaye and Rava, the world had changed, and Pesah could no longer occur on BD. Therefore, they likely understood the text according to this new meaning and understood that it records בשני בשבת because it cannot be בשבת בראשון.

11. Rav Yemar in Babli Niddah 67b.

ורב יימר אמר אפילו שכן אמרינן לבר מאישה חופפת באחד בשבת וטובלת בחמישי בשבת , דלמוצאי שני ימים טובים של ראש השנה שלאחר השבת ליתא ¹⁰⁷ דאפשר דחופפת בלילה וטובלת בלילה . דרש מרימר הלכה כרב חסדא וכדמפרש רב יימר.

Rav Yemar said: the principle to fix the maximum accepted delay between the washing of her hair and the purification, according to the extreme case that can be met is valid except for the case of the two days of Rosh Hashanah following Sabbath, where the delay of three days is too important, while it is possible for her to wash and purify herself the night following the festival days.

¹⁰⁵ *Sefer ha Keritot*, R' Samson ben Isaac (Chinon, France) and Seder *Tanaim ve Amoraim* in *Mahsor Vitry*, Nuremberg, 1923, pg 483.

¹⁰⁶ The 40 minutes

¹⁰⁷ This word means that Rav Yemar did not accept the case of Sabbath followed by the two days of Rosh Hashanah as an acceptable interval between washing and purification, because it is too long. One cannot interpret it as meaning this case does not occur, because then R' Yemar should also consider the case of the two days of Rosh Hashanah preceding Sabbath, which still occurs today.

We see that in about 432 C.E.,¹⁰⁸ seventy four years after the introduction of the fixed calendar by Hillel the Patriarch, by testimony of the Talmud, Rosh Hashanah could still fall on Sunday.

4. The Institution of a Fixed Calendar

According to a responsum of R' Hay Gaon, written in 992 C.E. and mentioned by Rabbi Abraham bar Hiya,¹⁰⁹ the fixed calendar was instituted in 670 S.E. (358/359 C.E),¹¹⁰ by Hillel II, the Patriarch. Maimonides does not mention Hillel II, but he writes in *Hilkhot Kiddush ha-Hodesh* (Laws of the Sanctification of the New Moon) 5:3, that the empirical calendar based on the observation of the new moon remained in use until the days of Abaye and Rava.¹¹¹ By contrast, his contemporary, R' Zerahia ha-Levi, mentions the tradition relative to Hillel, the Patriarch.¹¹² R' Solomon Meiri¹¹³ writes (Babli Sanhedrin 13) that the sanctification was abolished in the time of Abaye and Rava. Nahmanides¹¹⁴ also raises the issue a number of times. In *Sefer ha-Zekhut* on Babli Gittin 43b, he recorded that Hillel the Patriarch established the Jewish calendar according to the calculations that are still in use today. He wrote the same opinion in his commentary on *Sefer ha-Mitzvot*, positive Mitzvah 153. In his commentary on the Rif (R' Isaac ben Jacob Alfassi)¹¹⁵ on Babli Beitzah, Nahmanides recorded that the fixed calendar was established during the life of Rava. Additionally, R' Solomon ben Aderet,¹¹⁶ in his novellae on Babli Sukkah 43b, wrote that the Jewish people knew the fixing of the moon when Hillel, the last Patriarch, established the calculation that is still used today. He considers that Hillel is the son of R' Judah Nessia, the grandson of R' Judah the Saint. These authors are quite imprecise about the genealogy of Hillel the Patriarch, whom they situate correctly at the same time as Abaye and Rava. The difference of about thirty-four years between the beginning of the calculation of a predictable, and probably still semi-empirical, calendar in 325 C.E, and the institution of the fixed calendar in 358/359 C.E., escape them. This article has shown that a calculated and predictable calendar was communicated to Babylonia from about 325 C.E.

What then does the date of 358/359 C.E. represent? In light of the different passages mentioned above related to the evolution of the calendar between the years 325 C.E. and 350-358 C.E., it seems very likely that the calendar calculated around 325 C.E. was still a semi-empirical calendar, calculated each year. It was probably still a flexible calendar like the empirical one, and it is very likely that the Neomenia were still intended to coincide with the first observation of the new moon. In fact, the transition to a fixed calendar required the choice of a Molad (conjunction), the length of

¹⁰⁸ Death of Rav Yemar. ESG, part III, chap 4.

¹⁰⁹ *Sefer ha Ibbur*, book 3, chap 7.

¹¹⁰ This is the only source, although it is second hand.

¹¹¹ At the time of Abaye and Rava, they were no longer sanctifying based on vision.

¹¹² There is great imprecision among all these authors about the genealogy of Hillel II.

¹¹³ Second half of the thirteenth century.

¹¹⁴ Thirteenth century.

¹¹⁵ Eleventh century.

¹¹⁶ Second half of the thirteenth and beginning of the fourteenth century.

a synodical month, and an intercalation rule (to respect the luni-solar character of the Jewish calendar). It also required a shift of about two days of the Neomenia to shift the Neomenia from the day of first visibility of the moon to the day of mean conjunction. It is likely that defining all these elements took about thirty-four years, during which time the calendar evolved from the former semi-empirical calendar to a fixed calendar. Before the knowledge of the Letter of the Resh Galuta (835/836 C.E.),¹¹⁷ it had always been admitted that the Jewish calendar had been completely and definitively fixed in 358/359 C.E. Rare contrary evidence, such as a date in the Letter of Sherira Gaon implying Rosh Hashanah's occurrence on Sunday, was mostly set aside as a copying error. From this letter, we know that the Babylonians were not aware of the complete rules of the calendar, and to know the keviya, they had to receive the information sent from Palestine.¹¹⁸

In conclusion the name of Hillel II, in connection with the institution of the Jewish calendar, is known through one unique and very late rabbinic source, a responsum of R' Hay Gaon mentioned by R' Abraham bar Hiya. As we have demonstrated in this paper the evolution from an empirical to a fixed calendar was progressive and slow and began as soon as the end of the third and not later than the beginning of the fourth century. This "official institution" of the Jewish calendar would represent the final process of the shift of the Neomenia from the theoretical day of the first visibility to the day of the conjunction (*Molad*). The exact role of Hillel II in the institution of the fixed calendar is not clear. It could have been very limited and reduce itself to the simple fact that he was the Patriarch at the epoch of the institution.¹¹⁹

5. Further Evolution of the Fixed Calendar

It is likely that these elements mentioned above, a synodical month, a Molad and an intercalation rules were not adopted at once definitively, but evolved and were subject to research debate and evolution.

1. Rosh Hashanah on Sunday

We know from a passage in B. Sukkah 43b that, in about 325 C.E. (the time of Rabbin), Rosh Hashanah could fall on Sunday. Similarly we know from Y. Megilah I, 2 that later, in about 350 C.E. at the time of R' Yose (Youssa), Purim could fall on Wednesday, implying that when the calendar has become invariable between Purim and Rosh Hashanah can fall on Sunday. We know from a passage in B. Niddah 67b, that at the time of R' Yemar (head of the academy of Sura after R' Ashi, 427-432 C.E.) Rosh Hashanah could still fall on Sunday. We know further from a passage of the epistle of R' Sherira

¹¹⁷ The Letter of the Resh Galuta: see Stern: Calendar and Community, p. 277 for a transcription, a translation and a perfect photocopy. See also Jaffe p. 98 and Sar Shalom p. 27.

¹¹⁸ From the Letter of the Resh Galuta it appears furthermore that the *keviyah* of the years 835/836 was different than in our modern calendar.

¹¹⁹ The main, or at least, one of the main craftsmen of the Jewish calendar and its rules was certainly Rabbi Yose, the colleague of Rabbi Yona. Similarly the Gregorian revolution and the Gregorian calendar are called after Pope Gregory XIII, but the main craftsmen of the revolution were Lilius and Clavius.

Gaon¹²⁰ that in 817 S.E. i.e. 4266 AMI, Purim could still fall on Wednesday¹²¹ and Rosh Hashanah on Sunday. This situation could have continued until the half of the seventh century.

2. The length of the Jewish Lunation

It seems that in the time of Ravina¹²² the length of the Jewish month was 29d 12h 792ch.¹²³

The length of the Jewish lunation adopted in our Jewish calendar is 29d 12h 793h. The date of the introduction of this value of the Jewish lunation is the subject of long discussions and is outside the scope of this article. Stern¹²⁴ considers that the first allusion to a Jewish month of this length appears in a liturgical poem by R' Pinkhas,¹²⁵ which refers to the division of the hour into 1080 parts.

3. The Molad

According to the beginning of the fifth chapter of the Beraita of Samuel, as it appears in our printed text,¹²⁶ the Molad of Tishri 4537 AMI was on Tuesday, September 17, 776 C.E. at 18h i.e. (4) - 0 - 0 instead of the modern value of (4) - 3 - 363; thus a difference of about 3h 20m.

4. The Letter of the Resh Galuta of 4596 AMI¹²⁷

From this letter we know that the fixing of the years 4596 and 4597 AMI was different than in our calendar.

The Molad of Nissan 4596 was thus less than (3) - 13 - 642. Otherwise the Molad of Tishri 4597 would be Zaken and Rosh Hashanah would be delayed to Saturday, September 16. The Molad was probably still in accordance with the Molad of the Beraita of Samuel, near to (3) - 12 - 720.

The Molad (3) - 16 mentioned in the letter of the Resh Galuta was probably a Babylonian approximation deduced from the value of the Almagest (3) - 14 - 1041, by a translation

¹²⁰ Edition Aharon Heyman p. 85, part 3, chap 4.

¹²¹ Adar 4 was this year a Sunday.

¹²² Died in 422 C.E.

¹²³ See B. Arakhim 9b: the day of the hours contributes to 40 minutes, the day of thirty years contributes to 4 minutes, hence a month of 29d 12h 44m, one chelek less than the modern Jewish lunation.

¹²⁴ Calendar And Community, Sacha Stern, Oxford University Press 2001, p. 204.

¹²⁵ Late eighth or early ninth century.

¹²⁶ Based on the edition of R' Nathan Amram, Salonique 1861.

¹²⁷ See note 117. For a transcription of this letter see Stern (2001) pp. 277-283 with a fax-simile of the letter pp.278-279.

from Alexandria to Baghdad. In conclusion, the Molad used by the Palestinians in 4596 was still different than the modern Molad.¹²⁸

Therefore the proposition of Borenstein and Jaffe, according to which the definitive rules of the Jewish calendar were fixed in 4599, seems likely. However, a difference will still remain between the Palestinians who fixed the first Molad in Nissan of year 1 AM1 on (4) – 9 - 0 and the Babylonians now associated with the process, who fixed the first Molad in Tishri of year 2 AM1 on (6) – 14 - 0. This last difference of 642 h, which apparently subsisted between the Molad of the Palestinian council of intercalation and the Molad of the Babylonian scholars would create the dispute of 922-924 between Ben Meir and R' Saadia Gaon. The victory of R' Saadia Gaon, the mightiest, would fix definitively the Molad to its modern value and undermine inevitably and definitively the dominant position of the Palestinian council of the calendar.

¹²⁸ From the Letter of the Resh Galuta, it appears that the *Keviya* of 835/836 C.E. was different than the current one. To justify this difference, Stern (2001, p. 195) thinks that the *Molad Zaken* – the rule of postponement if the Molad occurs after 18h (midday) - was not yet in use in 835/836 C.E., and that it must have been introduced around 840 C.E. or later.

This point of view seems unacceptable for many reasons. First, it seems difficult to imagine that such a rule of which the origin “is as obscure as is its rationale,” –according to Stern (2001, p. 195) would have been introduced so late and, in addition, at a moment when it seems that the Babylonians could already have been associated with the calendar committee and without their objections. Second, I do not see the motivation for such a change. The Jewish religion has always been very conservative and reluctant to institute any change, especially in the rules concerning the fixing the Neomenia of Tishri. It is, both socially and religiously, much easier to accept a change in the Molad, which represents an adaptation to nature, than to accept a change of the rules themselves, which are sanctified by their age. (I did not consider in my argumentation, the rules enumerated in the work of Al Khwarismi (around 824 C.E.) because some doubts have been expressed about its reliability (interpolations), see Stern (2001, p 185).) Regarding the Letter of the Resh Galuta, Stern also thinks that the calendar still had a certain flexibility and was not yet completely fixed (p. 188), that the Molad of four hours is, according to the opinion of Borenstein, a rounded expression of the Molad as calculated today (p. 206), and that the Molad Zaken was not yet observed (p. 196). I view things differently. The problem is to know the purpose of this letter. It was probably not to inform about the *Keviya* of the year because first, the letter does not even mention that this year 4596 A.M. I (*Beharad*) was a leap year and second, the explanation of the Resh Galuta to exclude Pesah on Thursday is doubtful.

Indeed the same situation happens in the current Jewish calendar. The content of this letter, with its emphasis on the necessity of unity, supports the idea that this letter is a justification against critics. My conviction is that the Resh Galuta did not know the Molad used by the Palestinians. I think, following Jaffe, that the Molad used by the Palestinians was about three and a third hours before 4 a.m. (about 0h 40m in the morning, about 3-12-720). Therefore, according to the modern rules, the year 4596 must be defective (383 days and Pesah on Tuesday). The most probable explanation of the letter of the Resh Galuta is that someone influential and acquainted with the *Almagest* had the knowledge of the conjunction (according to the *Almagest*, which had just been translated around 830 C.E.). This conjunction is 3 – 14 – 1041 (*Almagest* expressed in Jewish Time).

Translated from Alexandria to Baghdad, we derive about 3 – 16, which corresponds to the four hours mentioned by the Resh Galuta. In other words, the contradictor of the Resh Galuta asks why the year is not abundant (385 days) and the Resh Galuta tries, as he can, to justify the *Keviya* sent from Palestine, more for unity than by conviction. It is very likely that parallel to this letter, the Resh Galuta was asking the Palestinian Council for explanations and directed their attention to the problem raised by the *Almagest*. This could be the origin of a meeting in Palestine between the Palestine calendar committee and Babylonian scholars, leading to the adoption of a new Molad based on the *Almagest*.

4596 AM1	835 C.E.	Tishri 1	Nissan 1
385 days		Saturday, August 28 Molad (6)-22-660	
	836 C.E.		Thursday, March 23 Molad (3)-15-811 Molad Zaken if Molad \geq (3)-13-642
4597 AM1		Saturday, Sept. 16 Molad (5)-20-169 Molad Zaken	

Table 1: The situation according to our modern calendar.

4596 AM1	835 C.E.	Tishri 1	Nissan 1
383 days			
	836 C.E.		Tuesday, March 21
4597 AM1		Thursday, Sept. 14	

Table 2: The data According to the Letter of the Resh Galuta.

6. Conclusions

The history of the Jewish calendar in the Talmudic period consists of two stages: the period of the empirical and sighting calendar, and afterwards the period of the fixed calendar. We have successfully sketched the history of the first period through the Talmudic literature. We tried to gather quotations connected to the calendar and to classify them historically, an endeavor which seems to have been neglected previously.

The sighting calendar seems to have undergone serious changes. As soon as the council of intercalation decided not to fix Rosh Hashanah on *DU*, they were obliged to take liberties with the observation calendar, and had to introduce elements of calculation in order to acquire certain flexibility regarding the testimonies so as to pilot the calendar. The available elements demonstrate that since the beginning of the fourth century, the calculation played an increasingly great role in the determination of the calendar. It seems that the council of the calendar was calculating several months in advance. Therefore in the case of Rav Safra the council of the calendar had already made its decision several months before he journeyed.

This trend probably increased around the beginning of the fourth century, when according to Rav Hisda,¹²⁹ the council of intercalation decided to let Elul definitively defective. They then had to act on Av or even on Tamouz in order to prevent Rosh Hashanah from occurring on *DU*. Though the calendar were still formally a calendar of observation, communicated month per month, it became increasingly more calculated.

It was always accepted, until recently, that the evolution from the empirical calendar to the fixed calendar was clear cut with the fixed calendar immediately adopting its definitive form. This evolution had been attributed to different parallel reasons: the situation of crisis, the political instability, the war situation between the Roman Empire and the dynasty of the Persian Sassanides, the difficulty of communications and also anti-Jewish persecution, briefly “the persecution theory”.¹³⁰ Historians have demonstrated that there is no evidence of Roman persecutions in the third and fourth centuries in Palestine. Similarly the theory of the persecution by decrees of the Christian Imperial authorities against the Jewish calendar seems unsubstantiated: there is no external evidence of either Christian or Roman legal sources of Imperial prohibition against Patriarchal calendar reckoning.¹³¹ The conclusions of the present study, based on the study of Talmudic passages connected with the calendar, are concordant: the evolution of the Jewish calendar was progressive and slow; it began already at the very beginning of the fourth century, much before the time of the litigious persecutions. This slow evolution does not seem to be the consequence of persecutions. Stern¹³² has examined different reasons which could have worked towards this evolution like the scientific progress theory and the unity calendar theory. I would add the following reasons:

- The will to achieve some predictability of the calendar.
- The will to pilot the calendar in order to implement the rule *Lo DU Rosh* and *Ellul and Adar defective*.
- The awareness that the empirical calendar could not satisfy this objective without crude manipulations.

However, I think that it would be a little short to forget completely the persecutions which are mentioned by allusion several times in the Talmud, under the pretext of the absence of external evidence. I would suggest that, even if we accept that the persecutions in the fourth century in Palestine were exceptional and short and could not have justified the evolution towards a fixed calendar, the concretization of this natural evolution by the communication in advance, before Tishri, of the calendar of the year to Babylonia was achieved at the occasion of a persecution and a danger of calendar’s disruption. Moreover, such a special situation was an excellent pretext and justification for the institution of this change. The institution of new dispositions, as soon as they had some publicity, was certainly not an easy thing and would otherwise have raised objections.

¹²⁹ If my understanding is correct; see remarks 46 and 47.

¹³⁰ Stern (2001) p. 212.

¹³¹ Stern (2001) pp. 216-217.

¹³² Stern (2001) pp. 211-237.

The second period of the fixed calendar is still very important in the study of the history of the Jewish calendar. Many hold the fixed calendar, i.e. our modern calendar, to have been definitively fixed in 358/359, when Hillel the Patriarch introduced the fixed calendar. We prove through Talmudic evidence that the calendar still differed from ours in about 430 C.E., in the time of Rav Yemar. Bornstein¹³³ and Jaffe¹³⁴ have devoted their lives to studying the development of the fixed calendar. Bornstein based his theory on several documents in the Cairo *Genizah*, whose importance he recognized. They have shown that the Jewish calendar took a definitive form only in the mid-ninth century and it was definitively fixed after the dispute between Ben Meir and Saadia Gaon in 922. The history of the Jewish calendar is still very fragmentary and restricted and still incomplete. We have addressed only some justified data, which is sufficient to prove the exactness of the evolution theory of Bornstein. The difficulty of the reconstitution of this history stems from the fact that the council of intercalation of the calendar worked in the greatest secrecy and its decisions were accepted in Palestine and Babylonia. Very few documents are still available to cast some light on the subject.

Although some of their conclusions must be slightly shaded because of new elements,¹³⁵ the core of their work and their main conclusions remain authoritative in spite of attempts to undermine their theories.

These elements of the history of the Jewish calendar during the end of the observation period and during the beginning of the period of the fixed calendar are still unknown to the overwhelming majority of the intellectual community and to most of the rabbis. Some rabbis refuse for “imaginary” ideological reasons to consider any element which could delay the moment of the definitive implementation of the fixed calendar.

R' Casher, in the 13th part of *Torah Shelemah* has examined with great erudition all the aspects of the Jewish calendar, included the theory of Bornstein, but he fights it with all his strength, and not always with intellectual honesty. Indeed we have seen that there is already Talmudic evidence that the calendar still differed from our calendar in about 430 C.E., and Rosh Hashanah could still occur on Sunday. Apparently he refuses the principle of an evolution of the fixed calendar because it could undermine his theoretical and legal position. Indeed, the evolution of the Jewish fixed calendar during the fifth century, which can be proved by Talmudic references and which was recognized by Tossafot Rid,¹³⁶ is a sufficient reason to justify a further evolution of the Jewish calendar without the intervening of a Sanhedrin.

II. The Observation and the Calculated Calendars: The Rabbinical Point of View

¹³³ Bornstein, Hayim Yehiel, 1845-1928.

¹³⁴ Jaffe, Tsevi Hirsch, 1853-1927.

¹³⁵ For example the different tombstones of Zohar cannot be explained according to the Talmudic calendar and it must be accepted that the Jewish community of Zohar used a calendar which could differ from the Talmudic calendar. For more details about the tombstones of Zohar, see Stern (2001) p. 146.

¹³⁶ See *infra* notes 205, 206 and 207.

The rabbinical position is important because any further evolution of the Jewish calendar will depend on it. The rabbis from the Gaonic period onwards had no idea at all of the evolution of the Jewish calendar after 358-359 C.E. They were convinced that the fixed calendar, from its origin onwards, was exactly the same as it is today, and that it had been definitively and completely enacted in 358/359 C.E. The exact connection between the calendar of observation and the fixed calendar is not very clear to them, and they gave different explanations to the transition between the two.

1. About the Cause of the Transition.

The only reference to the date of the enactment of the fixed calendar was provided by a quotation in Sefer ha-Ibbur¹³⁷ of a responsum of R' Hay Gaon, which mentioned that Rabbi Hillel ben Judah established the fixed calendar in 670 S.E. It is important to understand the reason for this transition, because it can help us understand the rabbinical position on the future of the calendar.

Maimonides writes in Hilkhot Kiddush ha-Hodesh V: 3 that this fixed calendar was introduced at the end of the period of the sages of the Talmud, at the time of Abaye and Rava, when Israel was destroyed and no fixed Court remained. This expression seems to correspond to the disappearance of the Sanhedrin, or at least the interruption of its regular sessions and the end of its regular work.

Nahmanides has argued in his glosses on Sefer ha-Mitsvot that the Sanhedrin lost its prerogatives already 40 years before the destruction of the temple.¹³⁸ Nahmanides suggests the causes of the transition were the disappearance of the Patriarchate and the danger of the imminent disappearance of the institution of the ordination.¹³⁹ Nahmanides added that the Patriarch Hillel feared the disappearing of all the Jewish festivals without this fixed calendar. At that time, they celebrated all the festivals together in Palestine and in Babylonia, and this predictable¹⁴⁰ calendar was acclaimed by all.

Rabbi Zerahia ha-Levi suggested the calendar was introduced at this epoch because of a variety of obstacles: the Diaspora, the dispersion, the difficulty of communication, the difficulty of finding witnesses who could join the Court, and the difficulty of sending messengers to communicate the fixation of the month.

This trend had developed from the beginning of the fourth century onward, and the fixed calendar of 358/359 was this irreversible movement's finishing touch. The explanation of

¹³⁷ Filipowski, London 1851, p. 97.

¹³⁸ See also Mishna Sotah IX: 11: משבטלה סנהדרין בטל השיר במשתאות

¹³⁹ In fact 358/359 does not correspond to the end of the Patriarchate nor of the Sanhedrin and the ordained rabbi. Hillel was followed by Rabban Gamaliel, Rabban Judah Nesiya IV and Rabban Gamaliel batraah (the last), who was dismissed under the order of the emperor Theodosius II in 415 C.E. Furthermore the passage in B. Baba Kama 15b: אמר קבעו לי זימנא דאזלינא לארעא דישראל קבעינן ליה ואי לא אזיל משמתינן ליה proves that there were still courts in Palestine, or at least one Court of ordained rabbis able to judge cases with penal aspects (קנסות), recognized in Babylonia in the fifth century much later than the year 358/359.

¹⁴⁰ This adjective seems to summarize correctly the following sentence of Nahmanides:

וראה תיקון הכל בחשבון זה אין מקדים ואין מאחר ושהדבר יותר מוסכם ומקובל על העם בדעתם המועדות בקביעות מאין שיבוש ושינוי...

R' Zerahia ha-Levi seems the most likely between these opinions, Maimonides' and Nahmanides' explanations are less convincing, since we know the Patriarchate was abolished only in 415 C.E., 57 years later, and that the years 358/359 were a relatively quiet period, after the repression of Gallus during the short reign of Julianus, which had given the Jews much hope for the future. It is unlikely that the Sanhedrin was abolished at this time, and similarly, there was no reason to fear the disappearance of the institution of the ordination of the rabbis at that precise moment.

2. The Observation Calendar and the Fixed Calendar.

The rabbis, in their explanation of the transition from the sighting calendar to the fixed calendar, had to consider two contradictory passages in the Talmud, one stating that it is an obligation to sanctify the new month according to the vision of the new moon,¹⁴¹ and another stating the contrary, that one is not obligated to sanctify the new month via seeing the new moon.¹⁴²

Sefer ha-Mitsvot.¹⁴³

Maimonides wrote in Sefer ha-Mitsvot that the calendar is based upon the vision of the new crescent in order to fix the beginning of the month, and on the observation of the vernal equinox in order to determine the intercalation of the years. These operations, he suggested, required the existence of the High Court of Israel and must be performed in Israel.¹⁴⁴ The calendar of observation had vanished due to the disappearance of the High Court, just as sacrifices had ended after the temple's destruction. Today the calendar must be calculated and promulgated in Israel by expert rabbis i.e. ordained rabbis.¹⁴⁵ In an

¹⁴¹ B. Rosh Hashanah 20a.

¹⁴² B. Arachim 9b.

¹⁴³ Positive law 153.

¹⁴⁴ This opinion that the fixed calendar must be proclaimed in Israel by an ordained rabbi was already championed by Rabbi Abiathar ben Elijah ha-Cohen (c. 1040-1110) the last official Palestinian Gaon from 1081 onwards. The academy of Jerusalem was transferred to Tyre in 1071 following the conquest of Jerusalem. He mentioned in the Megilat Abiathar that his father gathered Israel in the academy of Tyre and nominated him as Gaon two years before his death. On the year of his death, R' Elijah went to Haifa to sanctify the year, to confirm the *Gaonout* and the *Semikha*. He writes also that the Rosh Yeshiva must sanctify the year and indicate if it is a regular or an intercalated year. Those who base their views on calculation, must rely on the Gaon. On p. 473, lines 10-14 we read:

אבל סמיכת הכל שיקדש ראש הסנהדרין שהוא ראש הישיבה ויקבענה אחרי אותו החשבון אם מעוברת אם פשוטה, וכל העושין על אותו החשבון צריכין הן במצות התורה כאשר צוה יי ביד משה איש האל"ם לסמוך על דברי גאון החבורה ואין להימין ולהשמאל ממנו שנאמר אלה מועדי יי אשר תקראו אותם, וכל שהן עושין בכל שנה ושנה בכל גליות ישראל צריכין הן לחשוב כי... מפיו הם עושין ואם אינם עושין כן אינם יוצאים ידי חובתן .

Similarly, each year in the Diaspora, they must think that they act according to his formal sanctification. See Megilat Abiathar, Schechter JQR Vol. XIV (1901-1902) pp 449-474. Maimonides' opinion is based clearly on this Palestinian tradition. We see thus that the Gaon, who had taken refuge outside Israel, must ordain his son in Israel and he must sanctify each New Year in Israel.

¹⁴⁵ See also Klein, Samuel (1886-1940), Rabbi and professor of history and Geography at the Hebrew University, in Toldot ha-yshuv ha-yehudi be-Erets-Yisrael, Tel-Aviv 1935, pp 100-101. He notes the position of R' Abiathar who ascertains that the promulgation of the Jewish calendar is the prerogative of the Palestinian ordained Gaon. He notes also the similarity of the position of Maimonides who writes that

emergency, when there are no ordained rabbis present in Israel, ordained Rabbis in Israel can exceptionally promulgate months abroad. Maimonides adds that if there were no Jewish population in Israel and no ordained rabbis in Israel nor abroad, the Jewish calendar would lose all its legitimacy. In other words, the legitimacy of the modern calendar requires a Court of ordained rabbis in Israel.

Nahmanides ad locum has objected: We have had no ordained rabbis for many years, so how does the calendar still work? He felt obliged to create the fiction that R' Hillel sanctified all the months and intercalated the years in advance until the coming of Elijah the prophet.¹⁴⁶ This solution certainly contradicts Maimonides, who rules¹⁴⁷ that we cannot proclaim intercalated years in advance.

Later rabbis have tried to justify Maimonides' position and the present situation without ordained Rabbis. Indeed Nahmanides' objection is so obvious that Maimonides could hardly have lost sight of the problem. R' Jacob Berav¹⁴⁸ explained that today, in the absence of ordained rabbis, the Jewish population has the power to re-establish the institution of the ordination, so that it is as if we have ordained Rabbis today. R' Herzog,¹⁴⁹ the late chief rabbi of Israel, has written along similar lines. These two rabbis seek to justify their views using the end of the passage from Sefer ha-Mitsvot, which mentions only Jewish inhabitants, but not any more the Court of Israel or its rabbis. R' Abraham Allegre¹⁵⁰ tries to deduce from the same passage that today we do not need ordained rabbis at all—only the presence of Jews in Israel. This seems, however, to contradict the beginning of the text of Maimonides:

ודע שחשבון זה שנמנה אותו היום ונדע בו ראשי חדשים והמועדים אי אפשר לעשותו אלא בארץ ישראל לבד ובעת הצורך ובהעדר החכמים מארץ ישראל אז אפשר לבית דין הסמוך בארץ ישראל שיעבר השנים ויקבע חדשים בחוצה לארץ כמו שעשה רבי עקיבא כמו שהתבאר בתלמוד...

Therefore, the two explanations mentioned above not only seem far-fetched, but also seem to contradict the principles enunciated in the beginning of the passage of Sefer ha-Mitsvot by Maimonides himself. The true explanation of this passage of Sefer ha-Mitsvot

the calculation of the Jewish calendar outside of Israel gets its legitimacy only by the fact that there are in Israel scholars knowing the "Sod ha-Ibbur."

¹⁴⁶ This idea that the present calendar is valid until the coming of the Messiah is already mentioned in a responsum of R' Hay Gaon, the son of R' Nahshon Gaon, Gaon in Sura in about 886-896, not to be confused with R' Hay Gaon, the son of Sherira Gaon, Gaon in Sura from 968 until 1006. Borenstein, *Hatekufah* 14-15, p. 362. This responsum is also quoted in an article of Rahamim Sar Shalom in *Sinai* vol 138, Nisan-Sivan 5766. This theory of Nahmanides of the sanctification in advance of all the forthcoming months and years until the coming of the Messiah (or variants) seems far-fetched. It had nevertheless a tremendous success and was acclaimed by nearly all his followers; namely R' Samuel ha-Sardi in *Sefer ha-Terumot*, Ran in his commentaries on the Rif in B. Sanhedrin 11a and 11b, B. Rosh Hashanah 25a and B. Sukkah 43a, Ysraeli in *Yessod Olam* Book IV, chap 9, last lines of p. 16b and p. 16c.

¹⁴⁷ *Hilkhot Kiddush ha-Hodesh* IV: 13.

¹⁴⁸ *Kuntras ha-Semikha*: paragraph beginning with: זהו מה שהשיב הרמב"ן אבל דברי הרמב"ם תמהים ואי אפשר שנאמר שנעלם ממנו הקושיא הזאת...

¹⁴⁹ שו"ת בדיני אורח חיים, כרך ב' מאת מרן הגאון רבי יצחק אייזיק הלוי הרצוג סימן ע"ז עמוד שנ"ט

¹⁵⁰ *Sefer ha-Mitsvot*, ad locum, commentary Lev Sameah.

is probably the explanation given by Borenstein.¹⁵¹ Contrary to the affirmation of Nahmanides,¹⁵² ordained rabbis did not disappear in the generation following the Patriarch Hillel, but they subsisted in Palestine until the end of the twelfth century or the very beginning of the thirteenth century.¹⁵³ Borenstein brings evidence of the Gaonic period,¹⁵⁴ but there is even evidence in the Halakhot¹⁵⁵ of the Rif¹⁵⁶ and in the Hibbur of Maimonides¹⁵⁷ that there were still ordained rabbis in Israel in their time. These rabbis were judging and imposing penalties, about which the Babylonian rabbis were incompetent.¹⁵⁸ Maimonides found no difficulty in this text, because ordained rabbis still worked in Israel in his time.¹⁵⁹ Only later, when there were no longer ordained rabbis in Israel – and when the existence of such ordained rabbis during the period from the fourth century until Maimonides' time, was forgotten – was the whole problem raised. There is

¹⁵¹ Hatkufah, book 4, 5679, pp. 394-426. On the huge and encyclopedic Internet site of Judaic studies Daat of Prof. Yehuda Eisenberg, <http://www.daat.ac.il/daat.html>, there is an article, on which Eng. Y Loewinger fetched my attention: <http://www.daat.ac.il/data/kitveyet/hatkufa/mishpat2-4.htm> משפט הסמיכה וקורותיה. This text is anonymous. It appears, upon examination, to be verbatim the article of Borenstein in Hatkufa.

¹⁵² On Sefer ha-Mitsvot ad locum.

¹⁵³ See Sefer ha-yishuv, Vol. 2, S. Assaf and L. Mayer, Jerusalem 1944, Introduction p. 40,

ספר הישוב, כרך שני, מימי כיבוש ארץ ישראל על ידי הערבים עד מסעי הצלב, ש. אסף ול. מאיר.

R' Abiathar ben Elijah recovered the Gaonout after the destitution of David ben Daniel, but he had to take refuge in Tripoli (Syria), because of the advance of the Crusaders. He was the last official Gaon of Palestine, and died in 1109. He was followed as the head of the Yeshiva by his brother Solomon ben Elijah. The Yeshiva was then transplanted to Damascus and it continued to exist for about another hundred years until the beginning of the thirteenth century. It was still called ארץ הצבי. Its leaders still claimed to bear the original rabbinic ordination, סמיכה, allowing them to judge penal cases. Through regular trips to Palestine, they could ordain their disciples and proclaim the calendar. This institution would disappear at the beginning of the thirteenth century. When Maimonides wrote his Sefer ha-Mitsvot he still considered with confidence the existence of ordained Rabbis but later when he wrote his Hibbur, he changed his mind because he had already a foreboding about the future of this institution.

¹⁵⁴ Aptowitz, Victor (1871-1942) has examined the same problem in his book: מחקרים בספרות הגאונים, Jerusalem 1941. The 5th chapter of this book is indeed entitled: דיני קנסות בתשובות הגאונים. He took issue with Borenstein, and argued that Borenstein had based his theory on some Gaonic responsa, neglecting divergent responsa. He challenged Borenstein's conclusions and ascertained that the Rif and Rambam referred to the prerogatives of the Palestinians at the time of the Talmud. I think that Aptowitz unduly criticized Borenstein. There was a constant rivalry between Palestine and Babylonia about the precedence and the influence of the two centers. Many Gaonim considered their Palestinian colleagues with contempt and condescension and could not admit that rabbis of lesser importance could have greater prerogatives. Therefore, the negative documents, those neglected by Borenstein, do not prove anything other than the extant rivalry. On the other hand, the documents which Borenstein considered are sufficient to prove that there were some Babylonian Gaonim who recognized the prerogatives claimed by the Palestinian Gaonim. Borenstein's theory seems correct, and Aptowitz's criticism unfounded. Despite his dependence on the traditions of the Babylonian Gaonim, Maimonides seems to have been influenced by the Palestinian traditions (there was still a strong Palestinian community in Fostat in his days), and he accepted that the Palestinian ordained rabbis had some prerogatives above the Babylonian rabbis.

¹⁵⁵ Halakhot of the Rif p. 6b on B. Baba Kama 15b.

¹⁵⁶ Rabbi Issac ben Jacob ha-Cohen (1013-Lucena 1103).

¹⁵⁷ Hilkhhot Sanhedrin V : 17. מנהג הישיבות בחוצה לארץ אף על פי שאין גובין שם קנס מנדין אותו עד שיפייס לבעל דינו או שיעלה עמו לדין לארץ ישראל.....

More evidence is to be found in Rambam, Hilkhhot Hoveel u-Mazik IV: 16.

¹⁵⁸ Aptowitz wanted to explain that they were only referring to the period of the Talmud. We have nevertheless seen above that Aptowitz's arguments against Borenstein seem finally very weak.

¹⁵⁹ In fact, they were no longer living in Israel, but in Syria, though they journeyed regularly to Israel in order to ordain their disciples and proclaim the calendar.

no justification for Nahmanides' objection and for his artificial solution: Apparently Nahmanides did not note the change of Maimonides' position in *Hilkhot Kiddush ha-Hodesh* with regard to *Sefer ha-Mitsvot*, or he did not accept it and felt we still needed both conditions today: ordained rabbis acting in Israel. Since these conditions are no longer fulfilled, his fictitious solution became necessary.

Hilkhot Kiddush ha-Hodesh.

Maimonides recorded in *Hilkhot Kiddush ha-Hodesh*¹⁶⁰ that when there is no Sanhedrin we fix the months and we intercalate the years according to the present calendar. He added¹⁶¹ that the effective fixation of the month is performed by the fixation of the Israeli inhabitants. Here, Maimonides no longer referred to the necessity of ordained rabbis acting in Israel. He referred, instead, only to the existence Jewish inhabitants of Israel. The contradiction between this text and the text of *Sefer ha-Mitsvot* is evident,¹⁶² but none of his commentators raised it.¹⁶³ I propose the explanation that when *Hilkhot Kiddush ha-Hodesh* was redacted, at the end of the redaction of the *Hibbur*, in about 1178, he had changed his mind and did no longer require ordained rabbis for the promulgation in Israel of the calendar. This change of mind is justifiable, because we mainly require experts to examine witnesses, not for the performance of the calendar calculations. This change of mind must be connected with Maimonides' change of appreciation of the future of the institution of the ordination of the rabbis in Israel. The Palestinian rabbis and their Yeshiva had to take refuge in Syria, Tyre, or Damascus, because of the creation of the Latin Kingdom of Jerusalem. They had to journey to Israel in order to ordain their disciples and to proclaim the calendar. Maimonides must have understood that the institution was dying out. In his epistle to the sages of Lunel,¹⁶⁴ Maimonides adopted a very pessimistic appreciation to the health of the communities in the area, among which the ordained rabbis had taken refuge. He must have changed his mind and adopted the new formulation.

In *Hilkhot Kiddush ha-Hodesh* V: 2 he adds a new element to his formulation in *Sefer ha-Mitsvot*: the principle that "The calendar of observation is connected to the existence of the Sanhedrin but in its absence one must obligatory work with the calculated calendar." This was already exposed in *Sefer ha-Mitsvot* but now it became a *Halakha le-Moshe mi Sinai*:

ודבר זה הלכה למשה מסיני הוא, שבזמן שיש סנהדרין קובעין על פי הראייה ובזמן שאין שם סנהדרין קובעין על פי החשבון הזה שאנו מחשבין בו היום ואין נזקקין לראייה.

¹⁶⁰ H.K.H. IV: 1.

¹⁶¹ H.K.H. IV: 13.

¹⁶² However, it was not noted by Borenstein.

¹⁶³ Only R' Yehiel Michael Halevi Epstein in *Arukh ha-Shulhan ha-Atid, Hilkhot Kiddush ha-Hodesh*, ed. Mossad ha-Rav Kook, p. 148, proposed to understand from the text of the *Hibbur* that we do not need ordained rabbis for that purpose, but he had to admit that this was not the meaning of the text of *Sefer ha-Mitsvot*.

¹⁶⁴

איגרות הרמב"ם, מהדורת יצחק שילת, כרך ב, עמוד תקנ"ה, תקנ"ט.

While Maimonides' position in the precedent paragraph¹⁶⁵ and in Sefer ha-Mitsvot appeared to be his own understanding of the history of the transition from a calendar of observation to a fixed one, the present formulation is much more binding and claims more authority, because a *Halakha le Moshe mi-Sinai* precludes any discussion.¹⁶⁶

It seems that Maimonides never thought a true *Halakha le-Moshe mi-Sinai* was at play, *stricto sensu*. Indeed, Maimonides wrote¹⁶⁷ about the Tekufa of Adda and the consecutive average length of the Jewish year in our calculated calendar that it is more correct and nearer to the truth than the rough value adopted by Samuel of 365.25 days. Maimonides was thus aware that the modern Jewish calendar was not exact. Similarly, Maimonides was well aware that the Molad occurred slightly later than the mean astronomical conjunction; in his day the delay was 57 minutes.¹⁶⁸ It seems unconceivable that the use of a calendar based on an approximated value of the length of the solar year and of the synodical lunation would constitute a *Halakha le-Moshe mi-Sinai*.¹⁶⁹ The proposition of Maimonides must probably be understood within the context of a quotation of R' Isaac ben Barukh, mentioned by R' Abraham bar Hiya:¹⁷⁰

כל זמן שביהמ"ק היה קיים עושים מועדיהם בכל ימי השבוע והיו פעמים סומכין על העיבור ופעמים על הראייה. וכן היו מעברין את השנה כפי הנראה להם,¹⁷¹ עד שהיו עושים שתי שנים ושלוש מעוברות זו אחר זו ולא היו נזהרין מבד"ו פסח ולא מגה"ז עצרת ולא משאר הסימנים עד זמן הגלות. ואנו ראויים לומר שכל החשבון הזה אשר אנו חושבים היום קבלה היא בידינו ותקנה וסיג שסייגו לנו רבותינו כאשר נראה לסייג, ואנו שומרים אותו ומחזיקים אותו כאילו היה נאמר מהר סיני, כי כן אנו חייבים לשמור כל תקנתם כשמירתנו המצוות הנתונות על הר סיני.

Similarly, we read in Yessod Olam,¹⁷²

...ונתפשט זה בכל ישראל וקבלו כאילו מהר סיני ואין לסור ממנו עד שיבוא מורה צדק...

Therefore it seems necessary to understand the principle enunciated by Maimonides according to the following words of R' Hay Gaon, quoted by R' Abraham bar Hiya:¹⁷³

¹⁶⁵ H.K.H. V : 1.

¹⁶⁶ It is much more than a tradition originating from Moses, because all the talmudic laws were already taught to Moses. It has a special status and cannot be contested with logical argumentation.

¹⁶⁷ H.K.H. X: 6 and 7.

¹⁶⁸ Ajdler, J. *Hilkhot Kiddush ha-Hodesh al pi ha-Rambam* pp. 176-178

¹⁶⁹ However in his commentary on Mishna Rosh Hashanah II : 6 he wrote that the calendar's calculation that we use today is the beginning of the rules of intercalation that G-d had transmitted to Moses on the Sinai. But this does not mean that it has the status of *Halakha le-Moshe mi-Sinai*; finally it is told that all the novellae were already said to Moses: אפילו מה שתלמיד ותיק עתיד להורות לפני רבו כבר נאמר למשה מסיני Y. Peah II, 6, 17a, (13a) ; Y. Megila IV, 1, 74d, (28a) ; Y. Hagiga I, 8, 76d, (7b).

It is also possible that in his youth, when he wrote his commentary on the Mishna, he was not yet aware of the approximation of the Jewish lunation and of the length of the mean Jewish year.

¹⁷⁰ Sefer ha-Ibbur, Book 2, chap 8, p. 62, Filipowski, London 1851.

¹⁷¹ Thus the Sanhedrin can decide without appeal and with complete autonomy to calculate the calendar.

¹⁷² Book IV, last lines of chapter 6.

¹⁷³ Sefer ha-Ibbur Book III, chap 9, p. 97. Rabbi Hay Gaon had no tradition; he supposed that Moses taught the rules of the ibbur. In another responsum (*Ozar ha-Gaonim*, tshuvot Rosh Hashanah 21b) R' Hay Gaon wrote: "...ה"ה...ממשה ע"ה. אמיתת הדבר היא שהעיבור שבידינו הוא קבלה משה ע"ה. In fact, this is only his opinion and it is certainly not a *Halakha le-Moshe mi-Sinai*.

וכך אני אומר כי משה רבנו למד את ישראל עיקרו של הסוד הזה והגיד להם...
ואע"פ שנתן להם הסוד הזה הזהירם שכל זמן שסנהדרין קיימה יש להם לשנות¹⁷⁴ מן המסורת להקדים ולאחר
אלא מיהו שאין מתרחקים מן התקופה ולא אם שמגיע אחר שנה או שנתים אל סדר החשבון כהיה דתניא... ..

R' Hay Gaon writes וכך אני אומר. He has no personal tradition which allows him to invoke a *Halakha le-Moshe mi-Sinai*, and he supposes that Moses taught Israel only the general principles, but not the details. He adds that although Moses taught them these principles, he told them that each time when there is a Sanhedrin extant they can deviate from this calculation and fix the month on a day preceding or following the result of the mean calculation. We find here the great ideas of the text of Maimonides under examination, but also some important differences. Especially: the faculty, but apparently not the obligation, of the Sanhedrin to introduce a different calculation than the mean calculation.

R' Abraham ibn Ezra¹⁷⁵ suggested that Moses' reluctance to explain how to fix the years and the month proves that he relied on the decision of the High Court (which had full autonomy). However, he added, they had a tradition to intercalate 7 years in all 19 years.

The reference in this matter to the *Halakha le-Moshe mi-Sinai* was widely known, probably because of R' Saadia Gaon who first used the concept.¹⁷⁶ Maimonides opposed this thesis;¹⁷⁷ however he used the same terminology, albeit within other contexts.

The signification of this text of Maimonides, which invokes *Halakha le-Moshe mi-Sinai*, is that it is evident as if it came from Moses from the Mount Sinai.¹⁷⁸ It considers as an evidence that we fix the calendar on the basis of the observation of the moon when there is a Sanhedrin, but, in the absence of a Sanhedrin, we proceed by calculation on the basis of our fixed calendar.

This calendar is based upon an approximate value of the solar year. It is better than the rough value adopted by the Julian calendar, but it is still not perfect. As Maimonides observed a quantifiable shift of the Jewish year regarding the solar year, he likely would not have objected to a slight modification, which would allow for its improvement.

¹⁷⁴ Again, the Sanhedrin has full autonomy and must not be greater than the former ones as generally required.

¹⁷⁵ Commentary on Exodus XII: 2.

¹⁷⁶ See commentary of R' Behaya on Exodus, Bo.

¹⁷⁷ Commentary on Mishna Rosh Hashanah II: 6.

¹⁷⁸ We have another reference where Maimonides used the terminology of *Halakha le-Moshe mi-Sinai* in a case where obviously it is a *derabanan*. In *Hilkhos Matanot Aniyim* VI: 5 he writes:
והלכה למשה מסיני שיהיו מפרישים בארץ עמו ומואב מעשר עני בשביעית. Kessef Mishneh ad locum remarked that we must necessarily understand that it is not a true *Halakha le-Moshe*, because he ruled explicitly in *Hilkhos Terumot* I: 1 that it is a decision of the first Rabbis. R' Samson of Sens and Rosh on *Mishna Yadayim* IV: 3 made a similar remark: It is like a *Halakha le-Moshe mi-Sinai*. In the present case the *Halakha* is still weaker, because it is not mentioned in the Talmud. It is not a rule promulgated by the Rabbis, but it simply corresponds to Maimonides' convictions. It is evident as if it was a *Halakha le-Moshe mi-Sinai*. It is interesting to note that in his introduction to the *Seder Zerayim*, Rambam already mentioned "Amon u-Moav Measrin" among the different instances of *Halakha le-Moshe mi-Sinai*.

Maimonides is not bound by the rigidity of Nahmanides' system, in which the calendar was fixed in advance, despite the interdiction to sanctify months in advance, even if one is allowed to calculate the intercalation in advance.

I propose an additional proof that Maimonides did not postulate the absolute rigidity of the rules of the fixation of the calendar on the basis of rules definitively fixed by a tradition going back to Moses on Mount Sinai. Maimonides delineated two methods: the calendar of observation when there is a Sanhedrin and a calculated calendar if there is none.

But we cannot be certain that these two methods of calculations are defined in full detail, as they would be if these methods were really defined and imposed from Sinai. Indeed, although Maimonides was certainly unaware of the different changes and adaptations confronting the calculated calendar between the fourth and the tenth century, he was well aware of the numerous modifications of the rules of fixing the calendar by observation. These rules followed rabbinic enactments, principally by Rabbi Johanan ben Zakkai and by Rabbi Johanan (generally introduced by Maimonides in his code, which became an integral part of the law exposed by him), and the different discussions and doubts subsisting about their application as the "frightening of the witnesses." This implies that the detailed conditions of application of the calendar by sight cannot be *Halakha le-Moshe mi-Sinai*.

Therefore, in the same way that Maimonides considered the general principle of the calendar of observation, he also considered the principle of a calculated calendar without forbidding any necessary improvements down the line, especially in order to better correspond with the solar year, "to be nearer to the truth and the astronomical observations than before."¹⁷⁹ The true meaning of Maimonides' opinion is the following: "It is evident, as if it emanated from Mount Sinai, that the Jewish calendar is fixed according to the principle of the observation of the moon when there is a Sanhedrin and according to the principle a calculated 'luni-solar' calendar, in the absence of a Sanhedrin. The details of these procedures are fixed by the Sages."

Once we accept that Maimonides' proposition in H.K.H. V: 2 is a general formulation of principle and does not concern the execution details, which are subject to modification if necessary, we can still understand these two general principles as strict *Halakha le-Moshe mi-Sinai*, as is the understanding of some rabbis. But then, Maimonides would not only contradict his predecessors R' Hay Gaon and R' Isaac ben Barukh mentioned above, who championed the full autonomy of the Sanhedrin in these matters, but also Nahmanides, who argued that we cannot invent a *Halakha le-Moshe mi-Sinai* which is not mentioned in the Talmud. This seems to be a very strong argument indeed.

Therefore, as mentioned above, the principle that we use the observation calendar in the Sanhedrin's presence and the fixed calendar in its absence is, according to Maimonides a principle *evident* as a *Halakha le-Moshe mi-Sinai*, but the details of these two calendars are fixed by the sages.

¹⁷⁹ This is a paraphrase of H.K.H. X, 6.

This problem of *Halakha le-Moshe mi-Sinai* was raised again in a query addressed to R' Solomon ben Aderet:¹⁸⁰ “Where did Maimonides find this principle that today, when there is no Sanhedrin, we rest on the present calendar, is a *Halakha le-Moshe mi-Sinai*?¹⁸¹ I don't think that the tradition reported in the name of Rabban Gamaliel¹⁸² of Yavneh: אבא כך מקובלני מבית אבי אבא can be considered as a *Halakha le-Moshe mi-Sinai*. Although this tradition is exact,¹⁸³ I do not think that we call it a *Halakha le-Moshe mi-Sinai*.”

The interlocutor of Rashbah proposes thus as origin of this *Halakha le-Moshe mi-Sinai*, the tradition of Rabban Gamaliel that the lunar month is not less than 29d 12h 793p,¹⁸⁴ but he contested that it be called a Mosaic tradition, because it was only a tradition from Rabban Gamaliel the Elder. In his answer Rashbah stated that he still considered it a *Halakha le-Moshe mi-Sinai*.¹⁸⁵ He added that the calculated calendar always had precedence, even when sight-based calendars were used.

I have found an interesting text from the end of the eighteenth century, postulating the same ideas above, that the details of our calendar are not *Halakha le-Moshe mi-Sinai* and that it is even possible to improve it. The author¹⁸⁶ was described by R' Zadok ha-Kohen from Lublin¹⁸⁷ as:

“הרב הגדול מהר"ר דוד ז"ל בעהמ"ח חומת ירושלים, אב"ד שערשאב”

This text,¹⁸⁸ called מגילת טענו"ת begins as follows:

ובו יבואר איך שדעת רוב¹⁸⁹ החכמים שחשבון שאנו מחשבין אין כל פרטיו הלכה למשה מסיני ושברוב השנים נתברר כי החשבון צריך תיקון¹⁹⁰ הן התקופות הן המולדות ושאין אנו יוצאים כלל ידי חובות המועדים אם לא בתיקונים.

¹⁸⁰ Responsa of Rashbah, part 4, 254. I thank engineer Loewinger for providing me with a copy of this responsum.

¹⁸¹ When there is no Sanhedrin we use the fixed calendar known today.

¹⁸² B. Rosh Hashanah 25a.

¹⁸³ The lunar month is indeed 29d 12h 793p according to this tradition.

¹⁸⁴ In fact this tradition is connected to the length of the lunar month and precedes the calculated calendar.

It is also likely that the original text was 29d 12h and 2/3h without mention of the 793 *halakim*.

Considering the complete text as original, it was possible to consider that it concerned the rules of the calendar. But even though, this tradition began with Rabban Gamaliel the elder and therefore this tradition doesn't seem to be a *Halakha le-Moshe mi-Sinai*.

¹⁸⁵ This answer seems very weak. Rashbah forgets that his teacher, Nahmanides, has explicitly written that it is not a *Halakha le-Moshe mi-Sinai*.

¹⁸⁶ He was the author of glosses on Sh. Ar. O. H. called *Sefer Homot Yerushalayim*. In Aliot Eliyahou, ed. Levin-Epstein p. 46-47 it tells about his visit to the Gaon of Vilna. The discussion was certainly related to the calendar arguments of the visitor but the data of this book do not allow understanding the subject of the meeting and what was really said by both sides.

¹⁸⁷ R' Zadoc ha-Cohen (1823-1900): *Sefer ha-Zikhronot, Kuntras ha-Taanot*. R' Zadoc copied this text and wrote a long contradictory text against it.

¹⁸⁸ This text deals mainly with a passage in Y. Sukkah V, 8, 55d about the punishment of the Mishmar of Yehoyariv, explaining that it was not possible to suppress it and reduce the number of Mishmarot to 23.

¹⁸⁹ Most of the Rabbis have accepted the theory of Ramban and therefore they consider indeed that the use of the fixed calendar is not a *Halakha le-Moshe mi-Sinai*.

R' Zadok ha-Cohen who rejects the different arguments of this text,¹⁹¹ does nevertheless not react on this statement.

R' Abraham Karelitz¹⁹² has written the following commentary about Hilkhot Kiddush ha-Hodesh V: 2: 'ודבר זה הלכה למשה מסיני וכו'.

ובעיקר חשבון שלנו שכתב הר"מ שהוא הלכה למשה מסיני אין הכוונה שנמסרו פרטותיו של חשבון שלנו בהלכה. אלא נמסר שרשות לחכמים לעשות חשבון קבוע שעל פיו יסודרו השנים ויתאימו שנות החמה ושנות הלבנה וע"פ זה קבע הלל וב"ד את חשבוננו אבל לא נמנע לקבוע חשבון אחר שגם על פיו יסודרו שנות החמה והלבנה וכדאמר שמואל ר"ה כ' ב' יכילנא לתקוני לכולה גולה ואם חשבון הלל מקובל מסיני מה אנו צריכין לשמואל בזה, או"ח ר"ה סוף סימן קמ'.

This is an original position: Our fixed calendar does not enjoy the status of a *Halakha le-Moshe mi-Sinai*, so we are allowed and even encouraged to improve it. Indeed, if this calendar did have the status of a *Halakha le-Moshe mi-Sinai*, how could Samuel have dared to propose another calendar?¹⁹³

III. The future of the Jewish Calendar.

1. The Accepted Ideas in Orthodox Judaism.

Today the generally accepted position of Jewish orthodoxy, about the Jewish calendar, is the following:

1. It is a *Halakha le-Moshe mi-Sinai*, a tradition dating back to Moses on Mount Sinai that the Jewish calendar is fixed by observation when there is a Sanhedrin, and by calculation, according to our present rules, when there is no Sanhedrin.
2. The present calendar was established by the Patriarch Hillel in 358/359 C.E., a little after the passing of Rava (352 C.E.), because of the disappearance of ordained Rabbis, or according to another opinion, because of the disappearance of the Sanhedrin or due also to persecutions. The Patriarch Hillel instituted the calendar and sanctified all new moons until the coming of Elijah the Prophet in advance.
3. This institution must be considered as a decision taken by the High Court after a vote. It could be removed only after a new vote made by a more numerous and a more important court. This could only happen after the coming of Elijah.
4. It is generally accepted that the re-establishment of the Sanhedrin, which is correlated to the restoration of the rabbinic ordination, will necessarily be coupled with the withdrawal of the present fixed calendar and the return to the observation

¹⁹⁰ Rambam was already aware that the Molad did not coincide with the mean conjunction and that the Tekufa of Adda did not coincide with the mean equinox. He did not know however exactly at which speed the shift would worsen. In the eighteenth century R' Raphael ha-Levi from Hanover again noted the problem, but R' David, the author of "*Homot Yerushalayim*" is the first to champion corrections.

¹⁹¹ *The Megilat Taanot*.

¹⁹² 1878-1953. He is generally known by his book's title: *Hazon Ish*.

¹⁹³ See B. Rosh Hashanah 20b and B. Hulin 95b.

calendar. Whether the coming of the Messiah precedes¹⁹⁴ or follows¹⁹⁵ the re-establishment of the rabbinical ordination and the Sanhedrin is still disputed.

These different propositions constitute a hybrid and contradictory system, since it combines contradictory opinions.

Nahmanides countered the first proposition (that of Maimonides) with the argument that we cannot invoke a *Halakha le Moshe mi-Sinai*, a tradition going back to the Mount Sinai, in a matter which is even not mentioned in the Talmud. Nahmanides' objection seems very strong, but it is important to remember that Maimonides was not the first to invoke a *Halakha le-Moshe mi-Sinai* in the matter. Rabbi Saadia Gaon, followed by R' Hananel and later R' Behaya,¹⁹⁶ championed the character of *Halakha le-Moshe mi-Sinai* of the Jewish fixed calendar in use today. Nahmanides contradicts also Maimonides on the role of the Sanhedrin. According to him the critical point is not the existence of the Sanhedrin but the existence of ordained rabbis. Their divergence turns on the future: Does the re-establishment of ordained rabbis imply the return to the sight-based calendar? According to Nahmanides the answer is yes, but this answer lacks any practical consequence due to another limitation imposed by Nahmanides that the fixed calendar applies until Elijah comes.

The second proposition is the opinion of Nahmanides, to which Maimonides objects, and rejects the principle of sanctification in advance. Maimonides considers, still today, a *de-facto* sanctification of the months¹⁹⁷ by Israel's Jewish inhabitants.

The third proposition is a consequence of the second. It matches Nahmanides' view, though the latter did not explicitly mention it. Ramban recorded simply that the Patriarch Hillel sanctified the months according to our calendar until the coming of Elijah. Ramban was compelled to imagine the fiction of the sanctification of the future months because he required, even for the fixed calendar, sanctification in Israel by ordained Rabbis. This principle, that the enactment of the Patriarch Hillel must be considered as a decision of the Sanhedrin, was enunciated by R' Jacob Berav,¹⁹⁸ who seemed to accept both contradictory opinions of Rambam and Ramban: the principle of the sanctification of the months of our modern calendar by the inhabitants of Israel,¹⁹⁹ and also the principle that it is impossible to go back to a calendar of observation before the arrival of Elijah²⁰⁰ even if the re-establishing a Sanhedrin

¹⁹⁴ R' Hananel on B. Rosh Hashanah 20b wrote explicitly that the Sanhedrin follows the coming of the liberator. Nahmanides on Sefer ha-Mitsvot ad locum recorded that Hillel sanctified the months (and years) until the coming of Elijah; afterwards we will return to the observation calendar. This seems to imply that the Sanhedrin will be re-established after the coming of Elijah. Rashi, in B. Yoma 80a, writes that the re-establishment of the Sanhedrin follows the reconstruction of the Temple.

¹⁹⁵ Maimonides in his commentary on the Mishna Sanhedrin I: 3 and in Hilkhos Sanhedrin IV: 11.

¹⁹⁶ Commentary of R' Behaya on the Torah, Mossad ha-Rav Kook, Parashat Bo.

¹⁹⁷ Albeit calculated according to our calendar's rules.

¹⁹⁸ See קונטרס הסמיכה לרבינו יעקב בירב והשגות הרלב"ה בשו"ת מהרלב"ה Venice 1565. The text was transcribed in חידוש הסנהדרין במדינתנו המחודשת, י.ל. הכהן מימון, מוסד הרב קוק תשכ"ז

¹⁹⁹ According to Rambam.

²⁰⁰ According to Nahmanides. R' Jacob Berav cited three arguments to prove that one cannot go back to the observation calendar at the occasion of an early re-establishing of the ordination: 1) the discordance

seems possible before. He wanted to re-establish the ordination in his days but he also wanted, at any price, to eliminate the problem of the coming back to the calendar by observation that was required by R' Levi ben Haviv.²⁰¹

The fourth proposition is a deduction of the literal wording of Maimonides in *Hilkhot Kiddush ha-Hodesh V: 2*. It is also explicitly expressed in the gloss of Nahmanides on *Sefer ha-Mitsvot ad locum*, where he wrote that Hillel sanctified all the months until the coming of Elijah and then “*We will come back to the observation calendar with the High and saint Court, amen! May it be soon in our days!*”

However the former authorities espoused different views, and R' Hay Gaon²⁰² considered the Sanhedrin to have full autonomy to choose the rules to apply to the calendar; that was also the position of R' Abraham ben Ezra.²⁰³

2. Are we Allowed to Improve the Calendar of Hillel?

After presenting Jaffe's solution, which he called full of genius, to improve the calendar of Hillel by changing the order of the intercalated years from time to time in order to get a better correspondence with the solar year, Rabbi Menahem Casher²⁰⁴ concluded this is impossible, “because our calendar was established by Hillel who sanctified the months in advance until the coming of the savior; therefore we are not allowed to change it until the coming back of our judges as before.” This corresponds to the position of Nahmanides on *Sefer ha-Mitsvot*.

Nahmanides' theory is quite weak. It neglects the evolution of the Jewish calendar after the institution of the fixed calendar, which, we have seen, can be deduced from the Talmud. Even those who still oppose this evolution must at least admit that *dehiya A* was not yet enacted in about 427-432 C.E during the reign in Sura of Rav Yemar.²⁰⁵ Similarly, *Tossafot Rid*²⁰⁶ recorded that *dehiya A* was a later enactment. He based his position on the statement of Rabbi Yose in *Y. Megilah*,²⁰⁷ which corresponds to the rules of Hillel's calendar. In other words, those who reject any idea of later evolution of the

between Israel and the Diaspora (Makhaloket) 2) the institution of Hillel cannot be changed before the Messiah 3) we need a Sanhedrin. The three conditions could be fulfilled only after the coming of the Messiah.

²⁰¹ Rabbi Levi ben Haviv affirmed that if we could re-establish the *Semikha*, the rabbis' ordination, the institution of the fixed calendar would end. He understood that, according to Nahmanides, one cannot re-establish the ordination before the coming of Elijah.

²⁰² See above note 174.

²⁰³ Ex. XII : 2.

²⁰⁴ Torah Shelema, book 13, p. 121.

²⁰⁵ B. Niddah 67b. Y. Megilah IV, 1, 75a provide evidence of this.

²⁰⁶ B. Megilah 4b.

²⁰⁷ Y. Megilah I, 2, 70b. He seems to be the only Rishon to make this observation. If we remember that he was also the only one to give a correct explanation to the statement of Rav Safra in B. Pessahim 52a (see in Tradition 38, 2004, my article: Rav Safra and the second Festival Day), we can see that he had a very sharp critical sense. In a purely methodological method, the evidence provided by this reference can be countered by the argument: תני ושייר. The two former references of note 205 provide stronger evidence.

fixed calendar of Hillel must at least accept that the calendar of Hillel was not yet definitive and had to undergo *dehiya A* in a later stage. R' Casher accepted the two former proofs, but he did not take them into consideration.²⁰⁸ His objections against the possibility of improving the Jewish calendar have no real basis.

As soon as we accept—and there is no other solution than to accept—that the calendar of Hillel was not definitive in 358/359, the whole theory of sanctifying months in advance until the coming of Elijah must be considered with reservation, and R' Casher's denial of any possible improvement in the future of the Jewish calendar disappears. Similarly it makes no sense to consider that the present calendar would be a *Halakha la Moshe mi Sinai* and therefore immutable.

We return to Maimonides' principles, and apparently there is no reason to forbid an improvement of the calendar, especially if it is insignificant, in order to fit the true solar year and to avoid a shift of the Jewish Year from the solar year.

On the contrary, we have seen that Hazon Ish has understood in the words of Maimonides that we are allowed and perhaps even encouraged to improve the calendar of Hillel. This is an important conclusion, because the problem of the shift of the Jewish calendar from the solar year is becoming worrisome, as we explained in a former article "The Gregorian Revolution of the Jewish Calendar". It will need a practical solution sooner or later. It was important to find a theoretical justification, which could be acceptable to all the trends of Judaism, even the most conservative. It is clear that the implementation of any slight improvement of the Jewish calendar requires the existence of a central and authoritative rabbinical council. The Jewish people cannot afford a new schism. Hopefully, in the not too distant future, we will see the emergence of an authoritative and respected chief-rabbinate, independent from the political streams, in accordance with the hopes that the first chief-Rabbis of Israel had raised.

3. Will We Return to the Observation Calendar with the Re-establishment of the Sanhedrin?

1. The Position of Nahmanides

Nahmanides explicitly wrote that there is no *Halakha le-Moshe mi-Sinai* involved in the process of the calendar. Nevertheless, both the sighting and the fixed calendar required ordained rabbis operating in Israel. The passage of the empirical to the fixed calendar was caused by the disappearance of the ordained rabbis. As soon as this cause disappears, we would expect to return to the situation prevalent before. According to Nahmanides, the fixed calendar is only a provisory, intermediary and emergency solution.

2. The Position of Maimonides

²⁰⁸ He accuses Borenstein of intellectual lack of honesty in the treatment of the sources, but in fact the argument can also be turned back against him, since his memory is selective and he forgets unfavorable elements that he mentioned before.

As we have seen above, Maimonides' wording must not be taken in a strict sense. There is no question of a strictly *Halakha le-Moshe mi-Sinai*, and therefore the argument of authority cannot be invoked in this matter. It seems that Rambam did not issue a ruling on the calendar's future, but he espoused his view on the calendar based on his own interpretation of history. We can infer that he was personally persuaded that the re-establishment of the Sanhedrin implies a return to the observation calendar.

In fact we can distinguish in Maimonides' ruling three layers:

1. Generally, Maimonides' ruling is the result of his own understanding of the Talmudic discussion and his selection from divergent opinions. He ruled without any justification, without appeal²⁰⁹ and without mentioning the name of the Talmudic authority followed.
2. He offered his opinion on problems unsolved or not directly considered in the Talmud; his opinion was based on personal reasoning and he writes then in such cases: *נראה לי* and *ונראין לי הדברים, ויראה לי* or similar.²¹⁰
3. In our particular case he addressed a subject which was not raised at all in the Talmud, and he used the expression of *Halakha le-Moshe mi-Sinai*. We have seen that this expression expresses only the strength of his conviction, but must not be understood strictly. It seems logical especially in this particular case that he should remain cautious and not rule for the future, but should only express his opinion. Indeed, as he never presented a personal opinion in the form of an anonym ruling we must conclude that this statement is not a ruling.

Indeed Rambam was cautious when ruling for the future on matters where there was no clear position in the Talmud. This principle was enunciated by him in *Hilkhot Melakhim XII: 2*:

וכל אלו הדברים וכיוצא בהן לא ידע אדם איך יהיו עד שיהיו שדברים שתומין הן אצל הנביאים , גם החכמים אין להם קבלה בדברים אלו, אלא לפי הכרע הפסוקים ולפיכך יש להם מחלוקת בדברים אלו...

Thus, even if he mentions his own opinion explicitly, he still remains very cautious when it relates to the future.

²⁰⁹ See the letter of Maimonides to R' Pinkhas ha-Dayan of Alexandria in *Iguerot ha-Rambam*, Isaac Shailat, 1988, vol. 2, p. 445 where he recorded that he regretted not citing the reference of each of his rulings in his big "Hibbur". He intended to write a second volume, in which he would cite the references according to the order of the Hibbur. But he stated in the letter on several occasions that he felt weak and therefore the project was not concretized. This letter was written in Hebrew, because R' Pinhas was of Provençal origin and could not read Arabic. The letter is very important, because it addresses important principles of the Hibbur and rules with methodological rules used in the "second root" at the beginning of *Sefer ha-Mitsvot*. Rambam knew this letter and quoted it partially in his gloss on *Sefer ha-Mitsvot*.

²¹⁰ In the same letter, p. 443, he recorded that he never wrote his own reasoning without telling it. לא היה לך לומר כן אלא אלו היו בחיבור דברים שהוצאתי אותן בפלפולי ומדעתי, וכתבתי אותם סתם, ולא הבאתי עליהן ראיה, וזה לא עשיתי אותו מעולם. גלה און חכמתך ודע, שכל הדברים הסתם שבו תלמוד הוא בפרוש, בבלי או בירושלמי, או מספרא וספרי, או משנה ערוכה, או תוספתא. על אלו סמכתי ומהן חיברתי. ודבר שהוא מתשובת הגאונים אומר בפרוש, הורו הגאונים או תקנת אחרונים היא וכו', וכיוצא בזה. ודבר שהוא מפלפולי אומר בפרוש 'ראה לי שהדבר כך וכך', או אני אומר, 'מכאן אתה למד שהדבר כך וכך'.

We suggest that Rambam did not explicitly rule about the status of the future calendar when the Sanhedrin will be re-established. But it was probably his opinion that we should return to the observation calendar. We must imagine that he had written ונראה לי.²¹¹ If we compare his position with R' Hay Gaon's, we must conclude that he probably let himself be carried away by his astronomical enthusiasm for the observation calendar, because of his nearly perfect astronomical method of prediction of the visibility of the new moon. R' Hay Gaon²¹² adopted a completely different approach, based on the traditional calculation of astronomical mean movements. Only when there is a Sanhedrin, can this system (though it is not compulsory) be under broken and replaced by the observation calendar or even by another system, at the discretion of the Sanhedrin. This principle fits better the principle of autonomy defined by the Talmud.²¹³

3. The Opinion of Rambam about the Return to the Calendar of Vision.

Let us examine what represents the return to the sighting calendar that Maimonides could have imagined. We consider the problem from Maimonides' point of view, or someone living before the nineteenth century, who could not imagine the technical revolution of the last century. According to Maimonides, the Sanhedrin will be re-established before the Messiah,²¹⁴ though this Sanhedrin will not be greater than its predecessors and will lack the strength to rescind the enactments taken before.²¹⁵

1. The return to the sighting calendar also means the return of the problems of uncertainty, doubts and difference between the communities endured by the Babylonians and the Diaspora, including the particular problem of Yom Kippur. It also raises the problem of the proximity of Kippur to Sabbath. Ramban had noted in his gloss on Sefer ha-Mitsvot all the positive²¹⁶ aspects of the fixed calendar, included the advantage of the predictability.²¹⁷
2. To which calendar did Maimonides and Nahmanides consider returning? Certainly they considered the prevalent situation when the transition was made:
 - a) Because the logic of the return rests on this principle.
 - b) Because all the reasons which were at the origin of the different takanot were still present in his time and would remain until the middle of the nineteenth century and the apparition of the telegraph. Even if the reasons disappeared, the takanot must remain until a "greater" Sanhedrin will appear.

²¹¹ He cannot rule anonymously on a matter not examined in the Talmud. Furthermore he probably does not challenge the full authority and autonomy of the Sanhedrin as stated in B. Rosh Hashanah 25a: 'אתם ג' פעמים, אתם אפילו שוגגים, אתם אפילו מזידים, אתם אפילו מוטעים .

²¹² The different responsa available on the subject, written by R' Hay Gaon, were gathered in R' Casher's Torah Shelemah XIII, pp. 24-26.

²¹³ B. Rosh Hashanah 25a. See note 211.

²¹⁴ Hilkhoh Sanhedrin IV: 11 and Mishna Sanhedrin I: 3.

²¹⁵ Hilkhoh Mamrim II: 2 and 3.

²¹⁶ Gloss of Ramban on Sefer ha-Mitsvot ad locum, see note 140. See also Sefer Yessod Olam and R' Joseph Berav in Kountrass ha Semikha. R' Levi ben Haviv criticized R' Jacob Berav for following R' Isaac Israeli, who was, he said, an astronomer but not a Talmudist. In fact he forgot that the argument was already enunciated by Ramban, a great Talmudist.

²¹⁷ See note 140.

3. We should reinstate an observation calendar similar to the calendar in use at the beginning of the fourth century. To implement the *dehiyot*, it will be necessary to accept manipulations of the calendar in order to satisfy contradictory objectives: Follow the observation and the witnesses, carry out the *dehiyot*, and hold the correspondence with the solar year.
4. The Talmudic rules gathered in *Hilkhot Kiddush ha-Hodesh* still raise difficulties in their applications due to internal contradiction and unsolved problems.²¹⁸ These are not academic but real problems.
5. The calendar of observation presents a juridical insecurity since a late testimony can create a theoretical possibility to oblige the High Court to correct “a posteriori” the calendar by changing the first of the current month by one day.²¹⁹
6. Finally this calendar is unpredictable. This is not without important consequences on the civil life in modern world. This calendar would not be acclaimed by the Jewish people.²²⁰

In light of all these problems, and in the absence of any Talmudic tradition on this subject, it seems clear that Maimonides did not rule on the calendar of the future, and the philosophy of the passage of *Hilkhot Melakhim* quoted above offers the best indications how to cautiously apprehend the future.²²¹

²¹⁸ Here are some of these problems, the list is not limitative.

HKH III: 1 and HKH III: 15. The Mefarsh noted a little contradiction.

HKH II: 8 and HKH III: 15-16. Ritva noted an unsolvable contradiction. Therefore if the witnesses come after Mincha there is a doubt about Tishri 1: according to HKH II: 8, Tishri 1 is the second day.

according to HKH III: 16, Tishri 1 is the first day.

Rashi also contradicted himself on the subject: Rashi in B. Rosh Hashanah stated that Tishri 1 is the second day but in B. Menachot 100b he stated that it is the first day. Tsafnat Paneah championed this second opinion of Rashi. I thank engineer Loewinger for providing me a copy of the related page of *Tsafnat Paneah* of R' Joseph Rozin (1858-1936), the “Rogachover”.

There is also a contradiction between HKH II: 8 and HKH II: 9.

Maimonides doubted whether the High Court could achieve *Ibbur le-Tsoreh* i.e. make the month full despite a testimony of the moon’s vision in its proper time on the eve of the 30th day. Why does he not say that one can obtain the same result by delaying the procedure of examination and applying HKH II: 8?

²¹⁹ See *Hilkhot Kiddush ha-Hodesh* III: 15 and 16.

²²⁰ See note 140. Ranban wrote that the people acclaimed the new fixed calendar because of its quality of uniformity and predictability. For the same reasons, such a reinstatement of the observation calendar would not be acclaimed by the people. This is probably the main reason why it is not likely that we will come back to an observation calendar.

²²¹ It must be noted that in the case of a remoter future the problem is much easier. Indeed if we consider that the calendar is not a *Halakha le-Moshe mi-Sinai*, as championed in this paper, then it is a *derabanan*, and according to the dispositions of *Hilkhot Mamrim* II: 2 and 3, this Sanhedrin, that would exist or be created after the coming of the Messiah, greater than the former ones, will have the strength to rescind the rules of the calendar and adopt any satisfactory system.

I am surprised by the certainty of different authors that the High Court (Sanhedrin) that will work after the construction of the third Temple and the coming of the Messiah will work with the calendar of observation. They all champion unanimously the idea that the calendar will be based on the observation of the lunar crescent. I am even more surprised since we have proven above that any High Court with the prerogative of Sanhedrin has a complete autonomy in matters of calendar. This special post-messianic Sanhedrin, having the status of greater than the former Courts, will certainly control the calendar and even have the power to rescind all the former enactments, the *takanot* with a determined cause and the rules *derabanan*. Therefore,

we can hardly guess what will happen. These authors' certainty is surprising. I refer to R' Shai Valter in *Maayanot ha-Yeshua* n° 111, Roy Hoffman in *Sikhot ha-Shavua shel Habad* n° 742 and R' Israel Rosen in *Thumin* IV, 1984.

R' Shai Valter recorded, with much certainty, that the calendar will be a calendar by lunar observation without any *dehiyot*. As mentioned above, the Sanhedrin will have the free choice of the method. Let us follow Valter and consider that this High Court will choose to reinstate the calendar of vision; it seems logical that one should return to the calendar at the stage prevailing when it was abandoned. The High Court would then have to decide whether it accepts the *dehiyot* or not. It has the strength to rescind them, but there is no certitude that it will. It is not certain that the existence of the fridge and electricity is a sufficient reason to consider that the cause of these *takanot* has disappeared. Maybe the delay of burial is still a reason to behold these *dehiyot*. The possible suppression of the *dehiyot* and the suppression of the fixed distance between Rosh Hashanah and the former Pessah are not problem free. They raise the questions of Arava on Sabbath, Purim on Sabbath and accessorially Tisha be-Av on Friday. But they also raise other problems:

1. Should we accept the witnesses after Mincha? Apparently no, if there is a Temple.
2. This would raise the difficulties in the fixation of Tishri 1.
3. Will we behold the rule that Ellul is defective or will we let the whole nation, except the town of Jerusalem, in the expectation and doubt whether Rosh Hashanah falls on Ellul 30 or 31. Will they hold the two days of Rosh Hashanah for tradition or doubt?
4. We have also noted above all the application problems that are still pending in *Hilkhot Kiddush ha-Hodesh*.

Even if the High Court chooses to reinstate the calendar of observation it would still have to decide whether it values the *dehiyot* or not. The only advantage of the suppression of the *dehiyot* would be the suppression of all the problems of manipulation of the calendar. But returning to the observation calendar would raise many difficulties and it would not be acclaimed by the Jewish people who would consider it as a regression. Therefore I doubt whether the Sanhedrin would make such a choice.

R' Israel Rozen has examined the problems of the announcement of the fixations of the month to the Diaspora by Radio. At the end of the article, he concluded by the following surprising statement: *ויום טוב שני של גלויות שריר וקים*, *the second festival day will remain in application in the Diaspora*, even after the return to the sight-based calendar! Contemporary Rabbis have adopted opposing positions. The late Rabbi and Professor E. Wiesenberg, of London felt that the return to a sight-based calendar would allow the suppression of the second festival day of the Diaspora. Similarly R' Hayim Hirschensohn (1857-1935) in his responsa *Malki Bakodesh* championed the return to a sight-based calendar under the authority of the Chief-Rabbinat of Israel elevated to the rank of the Sanhedrin in order to give a satisfactory answer to the weak observance of the second festival days in America before the second war. See *ספר מלכי בצדק* Vol IV, Hoboken, N. J. 1923, pp. 88-136.

R' Rozen's opinion seems to be a hasty and false judgment. In fact the second festival day is a *takanah* taken by Rabbi Yose after the communication, in advance, to Babylonia of the *keviya* of the coming year in case the political conditions would prevent this communication. The cause of this *takana* disappeared completely in the ninth century, when the communities were able to calculate the calendar independently of any communication from Israel. Therefore this Sanhedrin "greater than its predecessors" will have the strength to rescind this *takanah*. This Sanhedrin would have the power to suppress the second festival days even without coming back to a sighting calendar. The two festivals days were already considered a burden in Babylonia (see B. Rosh Hashanah 20b), where Samuel says that he can establish an independent calendar and solve the problem of the Diaspora. Today, there is an emergency to solve this problem. The second festival day is held with less and less understanding by the humble people, now that they are constantly in contact with Israeli expatriates. These Israelis, whether unjustly (in contradiction with the Halakha) take advantage of their alleged Israeli status or, if they are entitled to do so, they do not apply the halakhik rules concerning the behavior of travelers among foreign communities in order to avoid visible differences and consecutive disputes or incomprehension.

a. Conclusion

We have tried to understand the history of the Jewish calendar and the transition from the observation stage to the fixed calendar through Talmudic quotations. We find indirect indications in the Talmud about this evolution, but they were only exploited by R' Isaiah ben Mali Di Trani, who was the only *Rishon*²²² to note that *Dehiya A* (the postponement preventing Rosh Hashanah from occurring on Sunday) was a late enactment. But we find very little information in the Talmud about the beginning of the fixed calendar, and even less information about the data on which it is based.²²³ In such a situation—the absence of the theoretical data about an important if not the most important element of Judaism—the most important rabbis felt obliged to build up their own theory based on their own interpretation of the elements of the calendar's history available to them.

-- R' Saadia Gaon considered the fixed calendar to have the absolute priority and to have always existed since the time of Moses.

-- R' Hay Gaon considered the fixed calendar a tradition dating back to Moses, but the Sanhedrin had the full autonomy to follow it or to deviate from it.

-- R' Abraham ibn Ezra considered that the High Court of each generation had full autonomy provided that it intercalated 7 years out of 19 years.

-- Maimonides considered the observation calendar obligatory, except during the periods without a Sanhedrin, where the fixed calendar applies. He required only that the calculated calendar be proclaimed in Israel.

-- Nahmanides took exception with this position; he ascertains that the sighting calendar depends only on the existence of ordained rabbis. He further opposed Maimonides' use of the concept of *Halakha le-Moshe mi-Sinai* to characterize the rules of both the observation and the fixed calendar, in a matter not mentioned at all in the Talmud. He required ordained rabbis acting in Israel and therefore created the theory of the prior sanctification of all the months and the years until the coming of Elijah.

-- Rashba considered, in contradiction with his teacher Nahmanides, the fixed calendar to indeed be in the character of a *halakha le-Moshe mi-Sinai*. Furthermore, even during the periods of use of the sighting calendar, he considered the underlying calculated calendar to hold precedence.

In fact there is no Talmudic data dealing with the subject, and the generally accepted opinions in Orthodox Judaism are a mixing of contradictory opinions taken from Maimonides and Nahmanides.

But the opinions of these rabbis are still pure assumptions, representing their conviction based on the historical data available to them and on their interpretation of history. These opinions cannot be considered halakhik rulings based on the teaching of the *Tana'im* and *Amora'im* of the Talmud.

²²² Rabbis living between the eleventh century and the sixteenth century, after the Gaonim and before the Aharonim.

²²³ It is however believed that the statement by Ravina in B. Arakhim 9b relates to the length of the lunar month in the calendar of Hillel, of 29d 12h 792 halakim, see supra.

Therefore it seems that the accepted opinion is incorrect and there should be no objection in the near future to improve the Jewish calendar in order to bring it in harmony with the solar year.

We have also addressed the problem of the structure of the Jewish calendar in a more remote future, after the re-establishment of the Sanhedrin.

These last considerations have a utopian character and are beyond the normal scholarly preoccupations. The only reason to examine this problem thoroughly is the recent publication by Rahamim Sar-Shalom in *Sinaï* vol. 138, Nissan-Sivan 5766 of the article "האם נשוב לקדש חודשים עפ"י הראייה?" and the quasi unanimous rejection of its conclusions among a specialized group of reflection of personalities on Internet who visibly confuse rabbinical opinions and theories with rabbinical ruling and, more specifically, Maimonides' personal opinion with Halakha. We champion the thesis that there is no Talmudic element that allows addressing the problem, and all the deductions made from rabbinical opinions have no halakhik basic. In other words, I think that there is no rabbinical answer to this question, and there are in no way reasons to oppose vehemently the conclusions of Sar-Shalom, according to whom, the coming back to an empirical calendar based on the sighting of the new moon would not be acclaimed by the Jewish people.²²⁴

²²⁴ See notes 140 and 216.