

J. Jean Ajdler

J. Jean Ajdler holds an MS in civil engineering from the Free University of Brussels and is a civil and structural engineer. He writes about medieval Jewish astronomy, the history of the Jewish calendar, and Talmudic metrology.

RAV SAFRA AND THE SECOND FESTIVAL DAY: LESSONS ABOUT THE EVOLUTION OF THE JEWISH CALENDAR

In *Bavli Pesachim* (51b), there occurs the following passage:

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 (*lo avidna*) [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 (*be-yishuv*) it is forbidden (*assur*), but in the desert (*be-midbar*), it is allowed (*mutar*).

I. CLASSICAL EXEGESIS

This passage was the object of many interpretations examined below, none of which is entirely satisfactory. The interpretive impulse arises from the passage's brevity and the absence of precision of the expressions *lo avidna*, *assur*, and *mutar*. According to some commentators, these expressions address the performance of work, while for others they address the observance of the festival days (with their obligations and prohibitions). The oldest interpreters considered that this passage referred to the observance of the second festival day during travel from Babylonia to Palestine. Later interpretations understood that the passage referred to the performance of forbidden work on the second festival day during travel from Palestine to Babylonia. The following subsections discuss the various interpretations of this passage.

A. Rav Safra Was on His Way from Babylonia to Palestine

1. *Interpretation.* Rabbenu Hananel¹ explains the passage as follows:

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“When I want to come up from Babylonia, where we observe two festival days, to Palestine, where they observe only one festival day, in a [Jewish] population I observe only one festival day;² but in the desert of Palestine [where I am alone without other Jews], how should I behave? Rabbi Abba answered him: this was the ruling of Rabbi Ammi. Among a Jewish population it is forbidden [to observe the second festival day], but in the desert it is allowed.”³

Rabbi Eliezer ben Nathan⁴ gives approximately the same explanation as Rabbenu Hananel.⁵

2. Difficulties with This Interpretation. This explanation raises very serious difficulties. First, in *Bavli Pesahim* (51b), just before the passage about Rav Safra, occurs the following passage: “The one who goes from a place where they do (*osin*) to a place where they do not perform (*en osin*) work.” The verb *osin* means to perform work and does not mean to observe the second day of the festival.⁶

Second, even if one is not allowed to distinguish oneself because of the fear of dispute, why should one not be allowed to respect discreetly the second festival day according to the opinion of Rava? Rava has indeed said that the fact of walking idly (as opposed to walking with a purpose) is not to be considered a singularity because there are always idle people in the streets and the market. Abaye, on the contrary, considers this situation to be a singularity but, in the case of someone going from a place where one does not work to a place where one does work, he accepts such a singularity. As Rav Safra makes reference to the risk of dispute, he obviously refers to Rava.

Third, the interpretation given for *be-yishuv assur, be-midbar mutar* is not acceptable. In the desert, one is not allowed to observe the second festival day.⁷ One is either obliged⁸ or forbidden⁹ to observe a second day, but certainly one is not merely allowed.

Finally, it may only be a coincidence, but the following page of the Talmud (*Bavli Pesahim* 52b) discusses the travel of Rav Safra¹⁰ from Palestine to Babylonia.¹¹

Probably because of these difficulties, the later commentaries have not followed this approach and have considered that Rav Safra was traveling from Palestine to Babylonia.

B. Rav Safra Was on His Way from Palestine to Babylonia (or similarly from Near Babylonia to Far Babylonia)

1. Interpretations.

(a) *Rashi*.¹² Rashi is very concise. He writes: “In public he does not per-

form any work because of the risk of dispute, as they refrain from any work.”
(b) *Tosafot*. *Tosafot* explain in the name of R. Tam: “Rav Safra is living in Babylonia in a place where the envoys of *Tishri* and *Nisan* arrive before the festival day and he observes only one festival day. He is now leaving for a place where the envoys of *Tishri* do not arrive and they observe two festival days. How should he behave in the desert?”¹³

Tosafot also explain in the name of R. Tam: “Not as Rashi¹⁴ writes that Rav Safra was a specialist in the calendar¹⁵ because it is anyhow forbidden as I have explained; but he was living in a place where the envoys arrive in time in *Tishri* and *Nisan* and he was leaving now in *Nisan* for a place where they do not arrive in *Tishri* and Jews must therefore always observe two festival days¹⁶ as we say in *Bavli Rosh ha-Shana* (21b). How must he behave in the desert?”¹⁷

(c) *Sefer ha-Yashar*. Rabbenu Tam explains, in *Sefer ha-Yashar*, that Rav Safra was accustomed to traveling from Palestine to Babylonia and he asked how he should behave in Babylonia before reaching a Jewish community insofar as he intends to go back to Palestine.¹⁸

(d) *Piskei ha-Rid on Bavli Pesachim 51b-52a*.¹⁹ According to this interpretation, the fixed calendar was already in existence during the days of Rav Safra (beginning of the fourth century), but it was not yet widely known. The population of Babylonia did not yet know the exact date of the festival days and observed two days. How should R. Safra behave in the desert of Babylonia?

(e) *Rabbi Zerahya ha-Levi*.²⁰ He says, “The one who is descending from Palestine is forbidden to perform any work on the second festival day among a Jewish population, even if he intends to come back, because this important custom has extended itself to all of the Diaspora and one is not allowed to transgress it; but in the desert it is allowed (to fail to observe the second festival day) even if one does not intend to come back, as long as one does not reach a [Jewish] population, because one has not yet received the obligation to be like that population. But as soon as one reaches a [Jewish] population and he does not intend to go back, he becomes like them and he is no longer allowed to perform any work, even in the desert.”

(f) *Rabbi Yom Tov ben Abraham Ishbili*.²¹ He mentions the opinion of R. Tam: “Even in the time of the envoys, I knew the fixing of the moon, because today we all know the fixing of the moon and they (the Rabbis) decided that one should observe two festival days, as R. Tam explained.” He then mentions the opinion of Rabbi Zerahya ha-Levi and agrees with him.

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(g) *Rabbenu Nissim ben Ruben Gerondi*.²² According to Rabbenu Nissim, “We have concluded in the Gemara that Rav Safra knew the fixing of the moon but among a [Jewish] population it is forbidden to perform work on the second festival day, and Rav Safra was traveling from Israel to Babylonia and he certainly intended to come back, because otherwise, as soon he reached Babylonia, without any doubt, even in the desert, he was already forbidden to perform any work. . . .” Compare the difference between Rabbenu Nissim and Rabbis Zerahya and Meiri.

(h) *Rabbi Solomon ben Menahem Meiri*.²³ Rabbi Solomon, in *Bet ha-Behira* on *Pesahim*, explains: “When he goes from Palestine to Babylonia, he is forbidden to perform any work on the second festival day because it is the custom of the whole Diaspora . . . but in the desert he is allowed even if he does not intend to go back, because he has not yet reached a [Jewish] population and he is not yet definitively among them to be like them.”

Rabbi Dr. Sacha Stern²⁴ considers the explanation of *Tosafot* to be farfetched. But it is not, because *Tosafot* do not attribute to Rav Safra any special calendar activity or knowledge and they must then explain the nature of Rav Safra’s superiority with respect to the other people with whom he does not want to dispute. Rav Safra cannot run faster and further than the envoys. Therefore, the only possibility is that Rav Safra walks in *Nisan*, before Passover, from an area reached by the envoys before the beginning of the festival, both in *Tishri* and *Nisan*,²⁵ to an area beyond the reach of the calendar envoys in *Tishri*.²⁶ Thus, in our passage, the query concerns only the second festival day and the eighth festival day of Passover.²⁷ The explanation of *Tosafot* does not contradict Rashi’s, but must be considered as more elaborated. *Tosafot* do not necessarily say that Rav Safra lives in Babylonia, but that he can live even there at the limit of the area reached by the envoys. In any case, according to these explanations, the query does not concern Rav Safra specifically—rather, any person living in Israel or even in Babylonia in the area reached by the envoys before *Sukkot* and Passover and reaching himself this place in *Nisan* before Passover. Stern²⁸ explains that Rav Safra lived in a place in Babylonia beyond the reach of the calendar envoys but nevertheless, he was able to know (or rather to *predict*) when the new moon had been declared in Palestine. On this basis, he sought to be exempted from the observance of the second festival day because to him, the date of the festival was certain. This explanation seems still more farfetched than the former one and does not explain on which basis R. Safra could predict the Neomenia (fixing of the new

moon).²⁹ On the contrary, this hypothesis seems to be impossible. Likewise, all the above explanations are far from convincing.

II. HISTORICAL CONTEXT

This section introduces the historical context of the Rav Safra passage by describing the relevant biographical elements of the pertinent protagonists. This context is helpful to narrow the possible dates of the Rav Safra event and to help us better understand the passage. The dates of birth and death of the protagonists are unknown, but we can estimate their life spans through other historical elements.

A. Rav Safra

Rav Safra was a Babylonian *amora* who spent much time in Palestine. He was a businessman who traveled frequently between Babylonia and Palestine, especially during the leadership of Rabba and Rav Joseph.³⁰ In Palestine, he was not afforded the title of Rabbi, but he was nevertheless considered to be a scholar and was exempt from paying taxes for thirteen years due to the intervention of Rabbi Abahu.³¹

At a later date, Rav Safra became friendly with Abaye³² and Rava. Rava honored him and considered him to be an important personality.³³ Rava even commissioned him to oversee the progress of the sacrifice of a calf offered by Ifra Hormuz, the Queen Mother, the mother of King Shapur II.³⁴

When Rav Safra died, Abaye, the head of the academy, ordered the reluctant sages to give Rav Safra a funeral with all the respect due to a sage because each day in the academy his citations were mentioned.³⁵ (Abaye's reign lasted from 325 C.E. until 338 C.E.)

Rav Safra left behind an impression of honesty and the verse of Psalms 15:2, "And the one who speaks truth in his heart," was applied to him.³⁶

B. Rabbi Abba

Rabbi Abba was a Palestinian *amora*, born and educated in Babylonia. He was a pupil of Rav Huna³⁷ and of Rav Yehuda.³⁸ Like his elder fellow, Rabbi Zeira,³⁹ he left Babylonia for Palestine despite the objections of his teachers.⁴⁰ When Rav Huna died (in 297 C.E.) and his coffin was brought to Palestine, Rabbi Abba was already a noted scholar in the academy of Tiberias and he eulogized him.⁴¹

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C. Rabbi Ammi bar Nathan

Rabbi Ammi bar Nathan was a Palestinian *amora* of the second generation with exceptional longevity. He was probably of Babylonian origin, like his friend Rabbi Assi, and he probably learned under Rav (died 247 C.E.).⁴² In Palestine, he learned under both Rabbi Oshaya⁴³ and Rabbi Johanan.⁴⁴ After the death of Rabbi Johanan and of R. Elazar ben Pedat in the same year (279 C.E.), R. Ammi became the head of the academy of Tiberias. As long as Rav Huna, head of the yeshiva of Sura, was still alive, Rabbi Ammi and Rabbi Assi remained subject to his authority.⁴⁵ After the death of Rav Huna (297 C.E.), Rabbi Ammi was considered to be the leading authority of his generation. Rav Nahman bar Jacob (died c. 320 C.E.) and Rava (died 352 C.E.) addressed halakhic inquiries to him.⁴⁶ After him, Rabbi Yose and Rabbi Yona headed the academy of Tiberias.

Based on all these elements, we can narrow the dating of the lives of the above three scholars. I propose the following conjectural dates:

Rav Safra: c.260 C.E. – c.330 C.E.

Rabbi Abba: c.255 C.E. – c.325 C.E.

Rabbi Ammi: c.227 C.E. – c.310–315 C.E.

As a consequence, the Rav Safra passage seems to occur before 325 C.E. The rest of this article confirms this dating even more strongly.

III. TRANSITION FROM AN EMPIRICAL TO A FIXED CALENDAR BASED ON TALMUDIC PASSAGES

The chronological classification⁴⁷ of the following passages shows that the transition from the empirical calendar to a fixed calendar was much more progressive and less clear-cut than currently believed. The examination of this evolution allows us to understand the context of Rav Safra's query. It also shows that before the institution of a fixed calendar in 358 C.E., an early version of a precalculated calendar was communicated to Babylonia from approximately 325 C.E. In fact, even before 325 C.E., the calendar committee of Tiberias was using calculations and sets of rules to establish the Neomenia at the expense of the traditional empirical observations.

A. Before 323 C.E.

1. Rabbi. During the life of Rabbi (also called Rabbi Judah ha-Nasi or Judah the Saint, died 225 C.E.), the Sanhedrin became less strict than before concerning the examination of the witnesses of the new moon

(and therefore less strict in declaring a new month). For example, in *Bavli Rosh ha-Shana* (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.⁴⁸ 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).⁴⁹ The purpose of this rule was to help those people who were out of reach of the calendar envoys in observing the true holidays, together with the Palestinians.

2. *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: 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 (*Bavli Rosh ha-Shana* 20a):

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 the Sabbath].

Before this time, all weekdays were suitable for *Rosh ha-Shana*.⁵⁰ Now, Wednesday and Friday were no longer suitable, requiring some manipulations⁵¹ of the testimony by the witnesses (*Bavli Rosh Hashanah* 20a):

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 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.⁵² Ultimately, we find in the Talmud three to five cases in which *Elul* was not defective,⁵³ and all of these cases correspond to this period. The Babylonians were really embarrassed,⁵⁴ not pleased, contrary to the assertion of Ulla.

3. *Another decision of Rabbi Johanan*. Another decision of Rabbi Johanan was a decree obliging those areas reached by the envoys of *Nisan* but beyond the reach of the envoys of *Tishri* (because of two days of travel difference, one day due to *Rosh ha-Shana*—only one day in the place of the calendar committee—and another day for *Yom Kippur*) to observe two festival days even in *Nisan*.⁵⁵

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4. *Rabbi Yose. Yerushalmi Sanhedrin* (5:3) says:

Rabbi Yose said: for example, someone as me, who never prayed *Musaf* on *Rosh Hodesh* when (*min de*) he didn't know the exact day of the new moon.⁵⁶

From the context, we see that R. Yose must be Rabbi Yose bar Hanina, an important pupil and colleague of Rabbi Johanan. 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 does not pray *Musaf* before the proclamation in case the Neomenia would be postponed to the next day. This decision seems to be the only acceptable stance for someone living in Tiberias. But why R. Yose more than anyone else?

I believe that the original meaning of this passage is that Rabbi Yose did not want to pray *Musaf* 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 the increasingly numerous cases of manipulation of the calendar, and its significance was forgotten over time.

5. *Rabbi Simon. Yerushalmi Sukka* (4:5) says:

Rabbi Simon ordered those in charge of the calculations (*de-mehashvin*): pay attention and do not place either *Rosh ha-Shana* on the Sabbath or *Hoshanna Rabba* on the Sabbath. But if you are squeezed, then place *Rosh ha-Shana* on the Sabbath, but do not place *Hoshanna Rabba* on the Sabbath.

R. Simon (also known as Rabbi Simon 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, who 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 around 310 C.E. The word "*de-mehashvin*" 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.

B. Around 323 - 325 C.E.

1. *Era of Rabba and Rav Joseph. Bavli Sukka* (43b) provides:

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 Rabba and Rav Joseph, before 323 C.E. (as we know that Rav Joseph died in 323 C.E.). At this time, in Babylonia, the Jewish people did not yet know 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. On the contrary, people living in Palestine knew the exact day of the Neomenia before the fifteenth day of each month.⁵⁷

2. *Bar Hedyā*. In *Bavli Sukka* (43b), we find:

When Bar Hedyā came back to Babylonia, he said that *Hoshanna Rabba* does not occur on the Sabbath.⁵⁸

We know that Bar Hedyā came back to Babylonia when R. Joseph was still alive,⁵⁹ henceforth in 323 C.E. or slightly earlier.

3. *Rava*. *Bavli Hulin* (101b) says:

[After a discussion without a convincing conclusion between Abayē 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 the Sabbath. Later, when Ravin and all the travelers came back to Babylonia, they confirmed [the interpretation] of Rava.

We can date this event precisely. The *Letter of Sherira Gaon*⁶⁰ mentions that after Rabba and Rav Joseph (predecessors of Abayē 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 and those Babylonian Rabbis in Palestine, such as Ravin and Rav Dimi, returned to Babylonia. Rav Joseph died in 323 C.E. and Abayē was appointed in 325 C.E., the same year that the Council of Nicaea decided, *inter alia*, to separate itself completely from the Jewish calendar by defining new rules for the fixation of Easter to not occur at the same time as Passover. It is very probable that all these events are connected. This event (the sending of the coded message) seems to occur after the death of Rav Joseph and before the return of Ravin, around 325 C.E.

The Talmud reveals that Rava was accustomed to fast on *Yom Kippur* for two days.⁶¹ Based on this fact, it is apparent that Rava, contrary to Abayē, understands in advance that *Yom Kippur* will occur on the Sabbath and that he will not have to fast for two days. Necessarily,

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the council of the calendar had already decided long before that *Yom Kippur* would occur on the Sabbath.

This situation also provides additional evidence that the council of Tiberias calculated the calendar in advance. This is evidence of one of the first communications to the Babylonian academies of advance calendric information.⁶²

4. *Bavli Arakhin* (9b). This passage provides:

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 a Babylonian and was completely outside the calendar committee, he was consulted on the subject. This evolution necessarily occurred in the beginning of Abaye's reign.

5. *Ravin. Bavli Sukka* (43b) provides:

When Ravin and all the travelers came back to Babylonia, they said that *Hoshanna Rabba* may occur on the Sabbath.⁶³

As discussed above, Ravin returned to Babylonia in about 325 C.E. It appears that the problem of *Rosh ha-Shana* occurring on Sunday was a subject of discussion and that the council was hesitant about a solution. It seems that at first, the council decided not to accept *Rosh ha-Shana* 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 Abaye, *Rosh ha-Shana* could still occur on Sunday: in *Bavli Ta'anit* (29b), we see that the ninth of *Av* could occur on Friday.⁶⁴

C. After 325 C.E.

1. *Rav Zeira II*. In *Bavli Betsa* (4b), it says:

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 is often done, with his famous predecessor, Rabbi Zeira I, the Palestinian *amora* of the former generation and elder colleague of R. Abba, who lived in the second half of the third century and probably the first years of the fourth century and had a long life (*Bavli Megilla* 28a).

Rav Zeira II was a Babylonian *amora*, having spent some time in Palestine. He must have come back to Babylonia in about 323 C.E. because he was then both the colleague of Abaye and Rava and a candidate for the direction of the Academy of Pumbedita together with Abaye (who will be appointed), Rava, and Rabba bar Matna.⁶⁵

Apparently, after 325 C.E., the Babylonian academies began receiving advance information about the year's calendar, and they therefore 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: now, the academies know for a relatively longer period, probably one year in advance, the length of each month and consequently the date of each Neomenia.

The contradiction between this passage and the passage in *Bavli Sukka* (43b), mentioned above, has embarrassed commentators such as *Tosafot*. R. Solomon ben Aderet,⁶⁶ in his *Novellae* on *Bavli Sukka* (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,⁶⁷ grandson of Rabbi Judah the Saint."

2. *Rabbi Yose in Yerushalmi Eruvin*. The end of chapter 3 of *Yerushalmi Eruvin* says:

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.

This passage seems to happen at the beginning of Rabbi Yose's leadership, around 325-330 C.E. There is a parallel passage in *Bavli Betsa* (4b):

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

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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 understood as long as people believed that the institution of a fixed calendar allowed the Diaspora to calculate the calendar 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 imposes upon the Diaspora the observance of the second festival days on the grounds that new persecutions could place them once more in the situation of not knowing the fixing of the moon.⁶⁸ This passage provides evidence that the Diaspora was not able to calculate the calendar by itself. Each year, the Palestinians sent the Diaspora the data about the calendar for the next year. This circumstance indicates the fragility of the Jewish calendar. The only practical improvement upon the empirical calendar was that the envoys had to come only once a year instead of at least twice a year. In the case of crisis or persecutions, envoys could even come only once every few years. More important was the fact that the envoys could already travel at the beginning of the year well before the month of *Elul*, as they used to do before. This status confused the authorities and the enemies of Jews, 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, the reason for observing two festival days could have been considered to have disappeared. However, the observation of the two festival days was already so entrenched, that it was too late to consider removing it, and the Babylonians did not seriously consider doing so.

3. *Rabbi Yose in Yerushalmi Megilla. Yerushalmi Megilla* (1:2) says:

Rabbi Yose said: *Purim* may not occur on Monday or on the Sabbath. If it occurs on Monday, then the big fast [*Yom Kippur*] occurs on Sunday and if it occurs on the 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. From *Purim* until the day after *Yom Kippur*, there are exactly twenty-nine weeks. Consequently, the number of days between Passover and *Rosh ha-Shana* is also fixed. It is not possible 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 C.E. Nevertheless, it is likely that the decision to

have a fixed number of days between Passover and *Rosh ha-Shana* must have been made very early because it responded to the motivation to be able to inform the Diaspora easily. In any case, we see that the occurrence of *Rosh ha-Shana* on Sunday was not a great concern.⁶⁹

4. *Rav Huna bar Avin. Bavli Rosh ha-Shana* (21a) states:

Rav⁷⁰ Huna bar Avin sent to Rava: when you see that the winter season is prolonging itself until the sixteenth of *Nisan*, intercalate that year and do not worry [about contradictory opinions, according to Rashi, or about the two other signs of maturity, according to *Tosafot*].

An essential condition necessary to create a fixed lunisolar calendar is to define an intercalation rule to determine regular and leap years constituted from twelve or thirteen lunar months. This passage is not the only one to address this subject, but the particular quality of Rav Huna and Rava gives a special importance to it. As for Rava, we already know that despite being the head of Babylonian Jewry, he was closely involved with the institution of a fixed Jewish calendar and that he was apparently consulted or informed for all important items. Rav Huna bar Avin is a Palestinian *amora* of the fourth century of Babylonian origin. He learned under Rav Joseph⁷¹ 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 Yona. 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.⁷² 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.⁷³ Indeed, it is of special importance that he was a member of the council of the sanctification of the month,⁷⁴ 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 mere suggestions.

Rashi's interpretation—that the object of worry is about contradictory opinions—could well be the true meaning. Concerning the significance of this message, I do not think it was intended to obtain Rava's opinion in response, but it was the message of someone fearing the worst for the future of the Jewish calendar and of the intercalation council and sending a practical rule to his Babylonian colleagues in case communication would become 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.

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The exact significance of this passage has often been discussed at two levels. Rabbinical *rishonim* discussed the meaning of “until the sixteenth of *Nisan*.” According to Rashi⁷⁵ and Maimonides,⁷⁶ we intercalate only if the equinox occurs on the sixteenth of *Nisan*; according to others, such as *Tosafot*,⁷⁷ Savasorda (Rabbi Abraham bar Hiya),⁷⁸ and Rabbenu Hananel,⁷⁹ we intercalate only if the equinox occurs on the seventeenth of *Nisan*.

A second problem often discussed is whether the *tekufa* (the mean vernal equinox) was the *tekufa* of Samuel, the *tekufa* of Rabbi Adda, or another *tekufa*. It must have been a mean equinox and not, as some claim, a true equinox. A true equinox is the passage at the vernal or autumnal point of the true sun, while a mean equinox is the passage at these points of the mean sun. True vernal equinox occurs two days before mean vernal equinox and true autumnal equinox occurs two days after mean autumnal equinox. Some have claimed that the *tekufa* of Adda coincided well with true vernal equinox in the fourth century and that this *tekufa* was already in use at the institution of the calendar of Hillel.⁸⁰ I consider these assumptions to be false and that this rule, without doubt, involved a mean equinox. In *Bavli Sanhedrin* (13b), the Talmud seems concerned with the position of *Sukkot*—that the occurrence of the twenty-first of *Tishri* should be in the autumn—and with the position of Passover—that the occurrence of the sixteenth of *Nisan* should be in the spring. This occurrence can be reached only by applying the intercalation rule to a mean equinox. Indeed, if we apply an intercalation rule to the spring equinox, then the rule concerning the position of *Sukkot* with respect to the true autumnal equinox cannot be respected.

It can be further demonstrated that the view that this was the mean equinox was the view of all Jewish calendar specialists throughout Jewish history. For example, *Tosafot* in *Bavli Sanhedrin* (13a⁸¹; 13b⁸²) consider the mean *tekufa* of Samuel.

Maimonides thinks that the rule of *shitsar* (the sixteenth day of *Nisan*—see the Talmudic text above) was applied with the *tekufa* of Rabbi Adda,⁸³ and he considers this *tekufa* as a mean equinox.⁸⁴ R. Judah ha-Levi⁸⁵ considers that the *tekufa* of Rabbi Adda coincides well with the observation of Al-Battani.⁸⁶ This cocurrence implies that Judah ha-Levi compares the *tekufa* of Adda of Sunday, September 16, 882 at 21h 0min 23sec Jerusalem mean time with the mean equinox of Al-Battani. The true equinox of Al-Battani occurred on September 19, 882 at 1h 15min ar-Raqua mean time, and the mean equinox was then on September 17, 882 at 0h 42min Jerusalem mean time.⁸⁷ In the

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Baraita of Samuel, an observed autumnal equinox is mentioned on Tuesday, September 17, 776, at 16 h J.M.T.⁸⁸ This time was obviously a mean equinox, as the true equinox was on Thursday, September 19, 776 at 8h 51m Jerusalem mean time, with the mean equinox on September 17, 776 at 8h 51 min. The precision was fairly good (a difference of about seven hours). In his famous book *Yesod Olam*,⁸⁹ the fourteenth-century Jewish astronomer Isaac Israeli writes that it is the mean vernal equinox that is considered for the fixing of Passover.

5. *Ravina. Bavli Arakhin* (9b) says:

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

Ravina, a companion of R. Ashi,⁹⁰ was a Babylonian *amora* of the fourth and beginning of the fifth century. He learned under Rava,⁹¹ which indicates that he was born 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.⁹² In his position as pupil of Rava, he 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 is different than 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 minutes amount to eight hours, and after three years, they amount to one day, which was called the "day of the hours." It alternatively could have been called 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 $360 \times 4 = 1440m$. This additional day could have been named "day of *halakim*," but they named it, probably later, the "day of thirty years."

IV. THE QUERY OF R. SAFRA TO R. ABBA

As already noted, the Talmudic passage about Rav Safra's query to Rav Abba implies that Rav Safra had a particular status, which distinguished him from other people traveling from Palestine to Babylonia. The date of the event discussed in the passage must be around 310 C.E., and surely not later than around 325 C.E. The hypothesis that at the time of this passage, the Jewish people are still under a purely empirical calendar, based only on the observation of the new moon, is not satisfactory.

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I propose an original and sustainable solution that solves the different issues raised in this article. Officially, the Jewish people were still under the regime of an empirical calendar communicated, most likely month-by-month, in Palestine and perhaps at longer intervals in Babylonia. Nevertheless, the calendar committee of the academy of Tiberias was already calculating the calendar several months in advance and was neglecting the empirical observation of the new moon. Therefore, the members of the council, those of the academy of Tiberias, and all the scholars close to it (like Rav Safra) were aware of the results of the committee's calculations and knew the fixing of the moon in advance.

As already mentioned above, what "fixing of the moon in advance" means has evolved. When Rav Safra says that he knows the fixing of the moon, he means that he knows the complete structure of the *year* and the length of its months in advance. On the contrary, people living in Palestine still know the fixing of the moon each *month* with a certain delay, because by the 14th of each month, they are informed of the exact day of the Neomenia.⁹³ The members of the council therefore knew the calendar in advance before it was made official.

If this hypothesis is correct, there is evidence of the first period when the calendar, still semi-empirical and perhaps still flexible, was calculated with the knowledge of the Palestinian scholars but without the knowledge of the rest of the population, and probably also without the knowledge of the Babylonian academies. At this stage, the Babylonians were still observing two festival days out of doubt. This state explains how Rav Safra could know the fixing of the new moon when he was traveling to Babylonia.

Almost all of the different commentaries about the Talmudic passage about Rav Safra depart from a false hypothesis: they each assume that the calendar was still empirical, based on the actual 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 to the calendar envoys. The different commentaries discussed above were obliged to find judicious situations to justify how Rav Safra could know the true holidays, although he was among the people who did not know. Rather, the better explanation imputes advance calendric knowledge to Rav Safra. Therefore, we can also conclude that the explanation given by *Piskei ha-Rid* was not far from the truth.

VI. THE DATE OF THE INSTITUTION OF A FIXED CALENDAR

According to a responsum of R. Hai Gaon, written in 992 C.E. and mentioned by Rabbi Abraham bar Hiya,⁹⁴ the fixed calendar was instituted in 670 S.E. (Selucid Era=*Minyan Shtarot*, 358/359 C.E.),⁹⁵ 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.⁹⁶ By contrast, his contemporary, R. Zerahya ha-Levi, mentions the tradition relative to Hillel the Patriarch.⁹⁷ R. Solomon Meiri⁹⁸ writes (*Bavli Sanhedrin* 13) that the sanctification was abolished in the time of Abaye and Rava. Nahmanides⁹⁹ also raises the issue a number of times. In *Sefer ha-Zekhut* on *Bavli Gittin* (43b), he says that Hillel the Patriarch established the Jewish calendar according to the calculations that are still in use today. He writes the same opinion in his commentary on *Sefer ha-Mitsvot*, positive *Mitsva* 153. In his commentary on the Rif (R. Isaac ben Jacob Alfassi),¹⁰⁰ *Bavli Betsa*, Nahmanides writes that the fixed calendar was established during the life of Rava. Additionally, R. Solomon ben Aderet,¹⁰¹ in his novellae on *Bavli Sukka* (43b), writes that the Jewish people knew the fixing of the moon when Hillel, the last Patriarch, established the calculation that is still used. He considers that Hillel is the son of R. Judah Nesi'a, the grandson of R. Judah the Saint. There is much imprecision among these authors about the genealogy of Hillel the Patriarch,¹⁰² 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. escapes 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? I have proposed¹⁰³ that 358/359 C.E. could represent the date of the official and irreversible institution of the fixed calendar. When officially fixing the calendar, we must keep in mind that R. Sherira Gaon and his son R. Hai Gaon¹⁰⁴ had at their disposal all the still-existing archives of their predecessors. Therefore, this date of 358/359 C.E. deserves consideration. 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

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a semi-empirical calendar, calculated year by 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 requires the choice of a *molad* (conjunction), the length of a synodical month, and an intercalation rule (to respect the lunisolar character of the Jewish calendar). It also requires 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 it took about thirty-four years to define all these elements, 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.), 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*¹⁰⁵ implying *Rosh ha-Shana*'s occurrence on Sunday, was mostly set aside on the grounds of copying error. From Resh Galuta's letter, we know that the Babylonians were not aware of the complete rules of the calendar, and to know the *kevi'a*, they had to receive the information sent from Palestine.¹⁰⁶

In providing a solution to the passage about Rav Safra, this article describes the evolution of the Jewish calendar during the first half of the fourth century, from an empirical calendar to a fixed calendar. We see that the Talmud contains invaluable materials, which have allowed us to describe this evolution in detail. This insight allows us to understand the context of Rav Safra's query and to propose an original supportable interpretation.

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Chronological Table

(Based on the Letter of Sherira Gaon)

Rav's departure to Babylonia	219
Death of Rabbi	225
Nomination of R. Johanan to head of the Academy of Tiberias	240
Death of Rav	247
Death of Samuel	254
Conquest of Nehardea	259
Death of Rabbi Johanan (40 years) and of Rabbi Eleazar	279
Death of R. Huna (40 years)	297
Death of Rav Judah (2 years)	299
Death of Rav Hisda (10 years)	309
Edict of Milano: Equality of rights for Christians	313
Death of Rabba (22 years)	320
First edict against the Jews by Constantine the Great	321
Death of Rav Joseph (2.5 years)	323
Constantine the Great defeats Lucianus	324
Nomination of Abaye at the head of the academy of Pumbedita	325
Council of Nicaea	325
Return to Babylonia of Ravin and Rav Dimi	325
Death of Constantine the Great	337
Death of Abaye (13 years)	338
Constantius defeats his brothers	351
Riots against the Romans	351
Repression by Gallus	352
Death of Rava (14 years)	352
Death of Rav Nahman bar Isaac (4 years)	356
Institution of the Calendar of Hillel	358-359
Death of Constantius	361
Death of Julianus	363
Death of Rav Pappa (19 years)	376
Death of Ravina	422
Death of Rav Ashi (60 years)	427
Death of Rav Yemar (5 years)	432

Dates are given according to the Common Era.

The figures in parentheses represent the length of the reign of the personality considered.

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NOTES

I wish to express my thanks to my daughter-in-law, Jeanne Fromer, SM, Massachusetts Institute of Technology; JD, Harvard Law School, who corrected my English and improved the presentation of the paper.

1. Kairouan, Tunisia; end 10th century—c.1055/56
2. R. Hananel does not mention “because of the fear of dispute” as in our Talmudic text. It is not certain whether he had the same reading as us. Nevertheless, from Nahmanides’ *Milhamot Hashem* on the Rif *Pesahim* 17a, we see that this was indeed the Spanish reading.
3. This exegesis is in accordance with the ruling of R. Tsevi Askenazi (1660-1718) in *Responsa Hakham Tsevi* no. 167. R. Meir Dan Plotzki from Ostow (1867-1928) understood R. Hananel in the same way, see *Even Shelema* on *Sefer Ravan* (Jerusalem, 1975). One could also propose another explanation: Rav Safra does not perform any work on the second festival day in a Jewish settlement but he doubted whether he should perform any work on the second festival day in the desert (of Palestine). Rabbi Ammi answered: among a Jewish population it is forbidden to perform any work, but in the desert it is allowed. However, this exegesis seems unacceptable: Why would he be allowed to perform work in the desert on the second festival day, given that there are more reasons that it should be forbidden? See a similar objection by R. Tsevi Pesah Frank (1873-1960) in *Mikra’ei Kodesh, Pesah* II, p 195.
4. Ravan, early Tosafist, c.1090—c.1170, *Sefer Even ha-Ezer* or *Sefer Ravan*, Prague 1610.
5. Ravan often follows the commentary of R. Hananel. This is the case here but there are minor differences. He writes: “I, who know the fixing of the new moon, and the people of my place hold two days. When I travel to Israel, where they hold only one day, in a Jewish settlement, I do not perform work on the second festival day (or, I do not hold a second festival day) because of the strictness of the place where I am. In the desert, am I allowed to perform any work (or, must I hold a second festival day)? He answered: so did R. Ammi answer—in a Jewish settlement, it is forbidden; in the desert it is allowed. As he asked him about the desert in Israel, we can conclude that in all the places of his land (Babel), it is forbidden.” In his *Shulhan Arukh O.H.* 496, 11, R. Shneur Zalman from Liady rules that a foreigner visiting Israel must hold only one festival day, although there are those who disagree. This ruling, in accordance with responsum 167 of Hakham Tsevi, is attributed to Ravan. Therefore, R. Shneur Zalman understands Ravan according to our interpretation of R. Hananel, without considering the end of the passage. On the other hand, R. Moses Sofer, in his *Novellae* on *Pesahim*, slightly changed Ravan’s text to solve the internal contradiction (he corrected the text and understood: the strictness of the place from where I come), and he explained the text of Ravan according to the explanation given in the second part of note 3.
6. However, the following references support the interpretation of R.

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- Hananel: B. *Kidushin* 31a: “*avidna yoma tava le-rabanan*” and *Bavli Kiddushin* 39b: “*de-avdin lei yom tov*.” Furthermore, R. Hananel writes in the beginning of the passage, “and people of my place hold (*osin*) two festival days.”
7. The decision to observe a second festival day cannot be left to anyone. Only the Wise Men of the Talmud (*amoraim*) can decide to impose the observance of a second festival day.
 8. This is the opinion of R. Nissim; see further in the text.
 9. This is the opinion of R. Zerahya ha-Levi and Meiri; see further in the text.
 10. This travel occurred before 323 C.E. because Rav Joseph, who died in 323 C.E., commented on the talk of Rav Safra.
 11. This remark is not essential and is irrelevant; of course Rav Safra traveled both ways.
 12. Troyes in Champagne (France), 1040-1105.
 13. *Bavli Pesahim* 51b, at the bottom beginning with “*kegon ana*.”
 14. This is not found in our text of Rashi.
 15. And he was using a fixed calendar scheme.
 16. This is the case even in *Nisan*, although they know the true festival day.
 17. *Bavli Sukka* 43a, beginning with “*lo yad'inan*.”
 18. See ch. 263.
 19. Rabbi Isaiah Di Trani the Elder, south of Italy, 13th century.
 20. 12th century, Lunel, south of France in *ha-Maor ha-Katan*.
 21. Saragossa, c.1250-1330.
 22. Barcelona, 14th century.
 23. Perpignan, south of France, 13th century.
 24. S. Stern, *Calendar and Community* (Oxford: Oxford University Press, 2001), 249.
 25. Therefore, he is used to holding only one festival day.
 26. Therefore they must hold two festival days, at the beginning and at the end of Passover, although they know the true festival days.
 27. *Tosafot* might also have considered the case when Rav Safra walks on *Hol ha-Mo'ed Sukkot* from the area reached by the envoys in both *Tishri* and *Nisan*, before the beginning of the festival, to an area reached by them only in *Nisan*. The query might then also concern the ninth day of *Sukkot*.
 28. See note 24.
 29. Of course, Stern supposes that Rav Safra was using a fixed calendar scheme. 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 *Bavli Rosh ha-Shana* 21b), it was intended for the population of Babylonia; here, Rav Safra would use this calendar for himself alone.
 30. *Bavli Pesahim* 52b; *Bavli Bava Kama* 104b; *Bavli Sanhedrin* 41b.
 31. *Bavli Avoda Zara* 4a.
 32. *Bavli Hulin* 110b; *Bavli Eruvin* 45b; *Bavli Betsa* 38b.

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33. *Bavli Bava Batra* 144a.
34. *Bavli Zevahim* 116b.
35. *Bavli Mo'ed Katan* 25a.
36. *Bavli Makkot* 24a.
37. *Bavli Avoda Zara* 6b.
38. *Bavli Hulin* 19b.
39. *Bavli Shabbat* 41a; *Bavli Ketubot* 112a.
40. *Bavli Berakhot* 24b; *Bavli Ketubot* 112a.
41. *Bavli Mo'ed Katan* 25a.
42. *Bavli Nedarim* 40b and 41a. Rabbi Ammi reports in the name of Rav. He was likely Rav's pupil because his friend R. Assi was certainly the pupil of Samuel (*Yerushalmi Eruvin* 6:8).
43. *Yerushalmi Shabbat* 3:5 (at the end).
44. *Bavli Ketubot* 62a; *Bavli Mo'ed Katan* 25b.
45. *Bavli Megilla* 22a.
46. *Bavli Gittin* 63b.
47. I am fully aware of the limits of this method because of the uncertainties about the name of the authors of the different quotations.
48. *Bavli Rosh ha-Shana* 25a. Another version is found in *Yalkut Shimoni*, ch. 191.
49. *Elul*: *Bavli Rosh ha-Shana* 19b and *Yerushalmi Sanhedrin* 1:2; *Adar* (or *Adar II*): *Yerushalmi Sanhedrin* 1:2.
50. *Mishna Shabbat* 15:3 and 19:5, *Mishna Menahot* 11:7 and 11:9, see also commentary of Maimonides on *Menahot* 11:7 and *Bavli Sukka* 43b.
51. 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 concurrence of *Yom Kippur* and the Sabbath.
52. 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.
53. *Bavli Rosh ha-Shana* 21a: the case of R. Nahman; *Bavli Rosh ha-Shana* 21a: the case of Rava; *Bavli Rosh ha-Shana* 20a: the case of Ulla; *Bavli Rosh ha-Shana* 21a: the case of Levi; *Bavli Rosh ha-Shana* 21a: the case of R. Eivu bar Nagadi and R. Hiya bar Abba.
54. 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.
55. *Bavli Rosh ha-Shana* 21a.
56. Stern, 164, translates "*min de*" as "because." According to Stern, R. Yose never prayed *Musaf*, which seems odd and incorrect. How could he not know the fixing of the month in his capacity as an important member of

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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 *Penei Moshe*.

57. *Yerushalmi Sanhedrin* 5:3 (Mishna and beginning of Gemara).
58. And therefore *Rosh ha-Shana* does not occur on Sunday.
59. *Bavli Berakhot* 56b.
60. Part II, ch.3, page 54 in the edition of Heiman.
61. *Bavli Rosh ha-Shana* 21a and *Yerushalmi Halla* 1:1.
62. Maybe it was not the first time, and therefore, Rava was able to understand the coded message, but it could also have been the first time and therefore Abaye could not understand the coded message.
63. Therefore, *Rosh ha-Shana* can occur on Sunday.
64. It is very likely that this passage corresponds already to his reign, after 325 C.E. It is also very likely that the number of days between Passover and *Rosh ha-Shana* was already fixed so that the ninth of *Av* (*Tisha be-Av*) occurs on the same day as Passover and the next *Rosh ha-Shana* occurs two days later.

There is later evidence that during the reign of Rav Yemar (428-432 C.E.) *Rosh ha-Shana* could still occur on Sunday. See *Bavli Nidda* 67b, See Ajdler (see note 103, p. 670). Later evidence confirms that in 506 C.E., *Rosh ha-Shana* still occurred on Sunday. See *Epistle of Sherira Gaon* 3:4 (p. 85, Heiman edition): 4 *Adar* 4267 was a Sunday.
65. *Bavli Horayot* (at the end).
66. Rashba (c.1235-1310 C.E.)
67. R. Judah II Nesi'a. He forgets two generations, R. Judah III (also called Nesi'a II) and R. Gamliel IV. Therefore, the exact sequence is the following: R. Judah I the Saint (? - 225), R. Gamliel III c. (225 - 240), R. Judah II Nesi'a I c. (240 - 270), R. Gamliel IV c. (270 - 300), R. Judah III (Nesi'a II) c. (300 - 330), and finally R. Hillel II c. (330 - 365).
68. The expression "second festival days of the Diaspora" was created by Rabbi Yose. *Yerushalmi Megilla* 4:5.
69. In his capacity as head of the academy of Tiberias, Rabbi Yose seems to have played a major role, when the role of the Patriarch Hillel was probably formal and honorary.
70. 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.
71. *Yerushalmi Sukka* 3:4 and *Yerushalmi Yoma* 7:2.
72. *Yerushalmi Pesachim* 1:5.
73. *Yerushalmi Sukka* 4:3.
74. *Yerushalmi Sukka* 2:5.
75. *Bavli Rosh ha-Shana* 21a in Rashi.
76. *Hilkhot Kiddush ha-Hodesh* 4:2.
77. *Bavli Rosh ha-Shana* 21a: *Tosafot* "ki hazit."
78. *Sefer ha-Ibbur*, book 3, ch. 5.
79. *Bavli Rosh ha-Shana* 21a.
80. Yakov Loewinger, *Does an Astronomical Explanation Exist About the Moment When the Jewish Calendar Started* (Tel Aviv: Bar Ilan University

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- Weekly, Parashat va-Ethanan* Issue, 1998).
81. *Tosafot* beginning with “*Tet zayin lifnei ha-Pesah.*”
 82. *Tosafot* beginning with “*Shemor.*”
 83. *Hilkhot Kiddush ha-Hodesh* 10:6.
 84. *Hilkhot Kiddush ha-Hodesh* 10:7.
 85. *Sefer ha-Kuzari*, book 4, chap 29.
 86. Al Battani, *Opus Astronomicum* (Milan: Pubblicazioni Del Reale Osservatorio Di Brera, 1903), 42; 210.
 87. We do not consider the difference between the mean time of Al Battani and modern mean time, which amounts to about a quarter of an hour.
 88. Z.M. Jaffé, *Korot Heshbon ha-Ibbur* (Jerusalem: Darom, 1931).
 89. Book 4, ch. 2, page 3, column 2.
 90. He considered himself, modestly, as his pupil and colleague. *Bavli Eruvin* 63b.
 91. *Bavli Bava Batra* 16b.
 92. R. Samson ben Isaac, *Sefer ha-Keritot* (Cremona: 1558); R. Samson ben Isaac, *Seder Tanaim ve-Amoraim in Mahzor Vitry* (Nuremberg: 1923), 483.
 93. See note 57.
 94. *Sefer ha-Ibbur*, book 3, ch. 7.
 95. This is the only source, although it is second-hand.
 96. This probably means that at the time of Abaye and Rava, they were no longer sanctifying by vision.
 97. There is great imprecision among all these authors about the genealogy of Hillel II. See footnote 61.
 98. C. second half of the thirteenth century.
 99. Thirteenth century.
 100. Eleventh century.
 101. Second half of the thirteenth and beginning of the fourteenth century.
 102. The Letter of the Exilarch of 835/836 C.E. See Stern, 277, for a transcription, translation, and a perfect photocopy.
 103. J. Jean Ajdler, *Hilkhot Kiddush ha-Hodesh al-pi ha-Rambam* (Jerusalem: Sifriyati, 1996), 696.
 104. Rabbi Sherira Gaon (906-1006) and Rabbi Hai Gaon (939-1038).
 105. See footnote 58.
 106. From the *Letter of the Resh Galuta*, it appears that the *kevi'a* of 835/836 C.E. was different than the current one. To justify this difference, Stern (p. 195) thinks that the *molad zaken*—the 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 such a rule of which the origin “is as obscure as is its rationale,” according to Stern (195). See nevertheless in Ajdler (673), for an investigation about its origin, which would have been introduced so late and 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 the work of Al Khwarismi [around 824 C.E.] because some doubts have been expressed about its reliability [interpolations]. Stern, 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 (188), that the *molad* of four hours is a rounded expression of the *molad* as calculated today (206), and that the *molad zaken* was not yet observed (196). I view things differently. The problem is to know the purpose of this letter. It was probably not to inform about the *kevi'a* 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 (see note 88 supra), that the *molad* used by the Palestinians was about three and a half 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 *kevi'a* 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*. Apparently, the Babylonians did not round off the conjunction of the *Almagest* in the same manner as the Palestinians and this would have finally led to the clash of 922 C.E., the famous dispute between Ben Meir and Saadya Gaon (Stern, 264). One of the disputed subjects between Ben Meir and Saadya Gaon was the legitimacy of the authority of the Palestinians. Ben Meir asserted the Palestinian monopoly over calendar decisions, while Saadya Gaon rejected this authority and advocated autonomy. In this respect, it is interesting to mention the position of Maimonides, which uniquely and strangely enough, espouses the Palestinian thesis. Maimonides writes twice—*Hilkhot Kiddush ha-Hodesh* 5:13 and *Sefer ha-Mitsvot*, positive law 153—that current calculation does not sanctify the Neomenia or the festival; it is only a way to know

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the days that the Palestinians have sanctified. In other words, the sanctification of the holidays remains their prerogative; we have only the advantage of knowing their calculations, but we are not instrumental in the fixing of the months. He seems to give this notion a nearly theological meaning and considers that, even nowadays, when we know the calculation, the Jewish calendar is conditioned by the Jewish presence in Palestine. Such a theory can only derive from a Palestinian source, but Saadya Gaon had fewer scruples.