COMMENTS

Yehudah (Leo) Levi, Comments on J. Jean Ajdler's Article, "Talmudic Metrology II: The Mile as a Measure of Time" (*B.D.D.* 20, May 2008, pp.5-37)

Unfortunately, I do not have sufficient free time to go over this extremely broad and thorough article. However, I did note, near the beginning (p.11), a statement that requires attention, because it relates very critically to the accepted duration of *mehalakh mil* (MM), which has a number of practical halakhic applications.

All the early authorities, with one possible exception, take this duration to be 22.5 minutes (e.g. Rashi and R. Hananel) or 24 minutes (Rambam). Yet the value accepted in practice is 18 minutes. This, by itself, is exceedingly strange. What is the source of this large discrepancy?

The one authority that seems to contradict the above consensus is R. Yisrael Isserlein, author of *Terumat HaDeshen*. In two places (¶123 and 167) he specifies MM as 0.3 hours (= 18 minutes?), and this value is brought in the *Shulhan Arukh*[1] and by Rema.[2] This represents a double difficulty. Not only does R. Yisrael casually contradict all the earlier authorities; it is his solitary opinion that is just as casually adopted by both authors of the *Shulhan Arukh*.

Before approaching our puzzle, let us review the talmudic basis for fixing the duration of MM. The basis is a *baraita*[3] in which R. Yehudah states:

> The thickness of the firmament (= the twilight period) is 1/10 of the day; this follows from the fact that an ordinary person walks 40 miles in a day; [of these] from daybreak to sunrise, four miles; from sunset to star appearance (= total night) four miles. Hence, the thickness of the firmament is 1/10 of the day.

[The words in square brackets are added in accordance with the classical commentators, Rashi and Rabeinu Hananel.] From this statement it follows that the average person walks 32 miles from sunrise to sunset. From the context, it is evident that reference is to a day at the equinox, i.e. 12 hours. The reader will readily conclude that a MM equals 22.5 minutes.

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1   *Orah Chaim* 459:2; *Beit Yosef* there brings it in his name.
2   *Orah Chaim* 261:1.
3   *Pesahim* 94a.

Now we are ready to solve our puzzle. We note that many of the early authorities, including *Terumat HaDeshen*, defined the "talmudic hour" as 1/12 of the day at the equinox, measured from the break of dawn to the appearance of the stars – a period lasting 15 hours in our terms (see note at the end of the Appendix). Consequently, each "talmudic hour" has 75 minutes. See the Appendix for references for this definition of the "talmudic hour."

Now, the apparent difficulty in the words of *Terumat HaDeshen* vanishes: his 0.3 "hours" is not 18 minutes, but is indeed 22.5 minutes, and he is in full agreement with the early authorities. Consequently, too, the 0.3 "hours" of the *Shulhan Arukh* (1 and 2) refer to "talmudic hours," and last 22.5 minutes.

I first published the above conclusion, that we know of not a single early authority supporting the 18-minute MM, in the halakhic yearbook *No'am*,[4] and then in my *Jewish Chrononomy* (1967) and subsequent *Halakhic Times*.[5]

In fact, R. Ajdler cites the above sources (pp. 34-35); but he concludes that *Terumat HaDeshen* and *Shulhan Arukh* accept the 18-minute MM. This leads to the following major difficulties:

1. It leaves us with the exceedingly strange double puzzle above.
2. It requires him to assume that, when referring to daybreak and nightfall, *Terumat HaDeshen* really means sunrise and sunset, with the implied severe halakhic confusion.

Appendix

The "Talmudic Hour"

That the term "0.3 hour" as used by *Terumat HaDeshen* refers to "talmudic hours" (of 75 minutes each), we find explicitly in the book *Leket Yosher* edited by his pupil, R. Yosef ben R. Moshe.[6] We present here the text exactly, with brackets as in the original.

> ושיעור מצה שיניחנה בלא עסק, רביעית משעה וחלק עשרים לכל היותר בחום בינונית,
> ואם הניח יותר אז הוה חמץ. [מצאתי בקונטרס בשם הגאון ז״ל, דעשר פרסאות שהוא מ׳
> מילין, הם מהלך אדם בינוני ביום בינוני, מעלות השחר עד צאת הכוכבים, כדאיתא פ׳ מי
> שהיה טמא (פסחים צג), ויום בינוני י״ב שעות בדרך זה, ולפי חשבון הללו יגיע שיעור
> הלוך מיל לשיעור הכתוב כאן בפנים.]

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4   *No'am,* 5: 213-49 (1962).
5   Yehudah (Leo) Levi, *Halakhic Times* (Jerusalem, 1992, 2000) [Heb.].
6   *Leket Yosher*, *Orah Chaim* – p. 79 in the Freimann ed. (Berlin, 1903).

Briefly in English:

> Setting the one-mile-walk limit on matzah-dough equal to "0.3 hour" is based on the fact that the average person walks 40 miles from break of dawn to the appearance of the stars on the average day, which is 12 hours from daybreak to star appearance, as stated in Tractate *Pesahim* 93.

It is interesting to note that in a desperate effort to resolve the above difficulty, R. Ya'akov Reisher (1670-1734), a major talmudic authority,[7] suggested this explanation of the *Terumat HaDeshen*'s position, without having seen the above statement of *Leket Yosher*, which had not been published at the time.

Other early authorities defining the "talmudic hour" as 1/12 of the day, measured from the break of dawn to the appearance of the stars – a period lasting 15 hours in our terms – are Ramban, Rashba, and Meiri, when they define the time of *pelag-minhah*. The Talmud[8] states this point in time to be 10.75 "hours" in the day, i.e. 1.25 "hours" before the end of the day. Ramban[9] says that this occurs 1/6 MM before sunset, clearly implying that the 12 "hours" run from daybreak to star appearance. Incidentally, a simple calculation shows that his numbers also lead to 0.3 talmudic hours corresponding to 22.5 minutes. We find the same statement by Rashba.[10] R. Aharon HaLevi[11] also writes that "sunset occurs at 10.8 hours [of the day]." See R. Menachem HaMeiri[12] for a somewhat similar statement.

N.B. In connection with specifying times of prayers and reading *Shema'* etc., some authorities use a "halakhic hour," which is defined as 1/12 of that particular day.

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7   *Chok Ya'akov*, *Orah Chaim* ¶459:10.
8   *Berakhot* 26b.
9   *Torat HaAdam, Avelut Yeshanah*, ¶105.
10 *Hidushey Rashba*, *Berakhot* 2b.
11 *Hidushey Reah* on RYF, *Berakhot* 4 – p. 66 in the Blau edition (New York, 1957).
12 *Beit HaBechirah, Berakhot* 27a, s.v. *me-achar.*

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I noted also, in the introductory summary on p. 5, that nearly all the historical authorities considered that 1 mile = 22.5 minutes. On p. 34, I noted that R. Reicher and the *Gra* explained that the 18m of *Terumat ha-Deshen* must be considered in long temporary hours corresponding to 18 x (40/32) = 22.5 m. In other words, R. Reisher and the *Gra* consider that *Shulhan Arukh* and Rema misunderstood *Terumat ha-Deshen* and erred.

However, using different responsa of *Terumat ha-Deshen*, I. 121 and 109 and its parallels in *Leket Yosher*, it appears that it is possible to check with good precision the way of counting the time schedule of the days of R. Isserlein. It appears that what R. Isserlein calls *alot ha-shahar* is in fact sunrise, and what he calls *tzeit ha-kokhavim* is in fact sunset. This of course is most surprising! It appears that he counts the hours of the day from sunrise until sunset. Thus, if he were to use temporary hours he would use short temporary hours between sunrise and sunset, and not – as is generally believed – between daybreak and dusk.

But in fact he does not know the temporary hours and he uses them exceptionally, in responsum 1, on the basis of a remembrance of a *tosafot* (that we do not have and which he learned in his youth) in order to justify early acceptance of the Sabbath. Apparently, in his country, the temporary hours were no longer used. This is in fact strange, because at the same period the Almanach of Regiomontanus was still given in temporary hours.

Thus, in conclusion, it appears that R. Isserlein considered that, on the day of equinox, the traveler walks 40 miles between sunrise and sunset, during 12 equinoctial hours, and 1 mile = 18 minutes equinoctial. R. Reisher and the *Gra* were incorrect, and R. Karo and Rema were right.

But, as I noted, it was probably the result of happenstance since, normally, R. Karo would have reached the same conclusion as R. Reisher. He was probably not able to check the time schedule of *Terumat ha-Deshen*.

Still, in the 16th century, R. Mordehai Jaffe in Levush adopted a mile of 18m. This value will become more and more used:

17th century: R. Jacob Faraggi of Alexandria in responsum 6 and R. Abraham Pimentel in *Minhat Cohen*.

18th century: R. Jacob Emden in his Siddur (*Kabbalat Shabbat*).

19th century: Hatam Sofer on *Shulhan Arukh*, *Orah Hayim* 89, after proving 22.5m. at the end relies on *Kaftor Vaferah* and adopts 18m. R. Jacob of Lissa in *Derekh ha-Hayim* (*Kabbalat Shabbat*); *Arukh ha-Shulhan Orah Hayim* 261, 3; *Mishna Berura* and *Biur Halakha* on *Orah Hayim* 261.2

But most of the people who today use the value of 1 mile = 18 minutes cannot explain the origin of this value.