

Shabbat Chapel Minyan  
The Prayer for Dew and Rain and the Jewish Calendar  
Alan Shuchat  
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Our daily siddur (p. 144) that starting with December 4<sup>th</sup>, we begin saying the prayer for *tal u-matar* (dew & rain) in the Maariv service and continue until Pesach. For Shaharit (p. 39) it says to begin on December 5<sup>th</sup>. So we did this a few days ago (Dan posted it on the wall in the Chapel). This suggests the question:

Why is the secular calendar mentioned at all in the siddur?

We are used to seeing references to the Jewish calendar and to Jewish holidays, e.g., we say *mashiv ha-ruach u-morid ha gashem* between Shemini Atzeret and Pesach.

A 1985 article by Rabbis Arnold and Daniel Lasker<sup>1</sup> discusses the history of the *tal u-matar* prayer in detail and there are various references to it on the Internet<sup>2</sup>. These sources are not in complete agreement with each other.

In Israel they start to say this prayer on the 7<sup>th</sup> of Heshvan, which at least is on the Jewish calendar but is nowhere near December 4<sup>th</sup>. Siddurim for the Diaspora vary. For example, our siddur says that if the Jewish year is divisible by 4 then we start a day later. The Koren siddur says to start a day later if the next secular year is a leap year. Some siddurim don't say anything about starting a day later, and some say to start on December 4<sup>th</sup> for Shaharit, not December 5<sup>th</sup>. Some older siddurim say to start a day earlier. And some just say to say *tal u-matar* in winter as opposed to summer, without giving dates.

So why do we use the secular calendar for this prayer and  
why are there differences in the date?

The Mishnah says that in the land of Israel they begin the prayer 15 days after Sukkot but in Babylonia they begin it 60 days after the autumnal equinox, which is called the *tekufah Tishrei*. The difference between the dates for Israel and Babylonia is apparently based on different climate conditions and the need for rain at different times. The 3<sup>rd</sup> century C.E. amora Samuel ruled that the Babylonian practice should be followed throughout the Diaspora. The autumnal equinox comes around Sept 23<sup>rd</sup>, at a specific time of day; the time and date can vary by a little. The 60<sup>th</sup> day from then would be around November 22<sup>nd</sup>. So how do we get to December 4<sup>th</sup>?

The *tekufah* is a solar event, not a lunar one, and occurs at a different date each year on the Jewish calendar. Our secular calendar is solar, with a year of about 365 days. The Muslim calendar is lunar, 11 days shorter with a year of about 354 days. The Jewish

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<sup>1</sup> The Strange Case of December 4: A Liturgical Problem, *Conservative Judaism*, Vol. 38(1), Fall 1985.

<sup>2</sup> For example, see [http://www.lookstein.org/articles/veten\\_tal.htm](http://www.lookstein.org/articles/veten_tal.htm).

calendar is a combination of solar and lunar and its length varies from year to year.

Samuel gave the solar year as being 365 1/4 days long. The Julian calendar instituted by Julius Caesar in 46 B.C.E. also used a year of 365 1/4 days. The extra 1/4 day is the reason for having a leap year every 4 years, to keep the calendar in step with the seasons. The Julian calendar was later adopted by the Catholic Church.

But the actual solar year is a little less than 365 1/4 days (about 11 minutes less). About every 128 years the difference adds up to 1 day, i.e., the calendar loses a day relative to the apparent movement of the sun. By the late 16th century, the calendar was about 10 days behind the sun. This was important to the Church because it used the calendar to calculate the date of Easter, which occurs on the Sunday after the 1<sup>st</sup> full moon after the vernal equinox. The equinox was calculated from the calendar rather than observed in the sky. If there were no correction to the calendar, Easter would fall later and later relative to the sun and eventually would no longer be a spring holiday. The Church's solution was to change from the Julian to the Gregorian calendar.

By contrast, Pesach occurs at the full moon in Nisan. Nisan falls 11 days earlier each year because the solar year is about 11 days longer than the lunar year. To keep Pesach from falling earlier and earlier relative to the seasons we add a month, an extra Adar, every 2 or 3 years. The Muslim calendar doesn't add a month, which is why Ramadan can occur in all seasons.

In 1582, Pope Gregory XIII dropped 10 days from the calendar to reestablish the relation between Easter and the vernal equinox, going directly from October 5<sup>th</sup> to October 15<sup>th</sup> so the calendar could catch up to the sun.<sup>3</sup> He also modified the calculation of leap years to reduce the error in the calendar so that it would lose 1 day every 3300 years, not every 128. We use the Gregorian calendar as the secular calendar today.

The Protestant and Orthodox countries were slow to accept the Gregorian calendar. The British Empire waited until 1752. The Russian revolution began on November 7, 1917 but is called the October Revolution because it was only October 25<sup>th</sup> in the Russian Empire. After the revolution Russia made the change, and by then the difference had increased to 13 days. Pre-revolutionary birth, marriage, and death records in Russia were usually dated in both calendars.

Samuel's calendar is in step with the Julian calendar, not the Gregorian. It calculates the *tekufah*, rather than observing the *tekufah* in the sky, and uses these calculations to determine the date for beginning *tal u-matar*. The move from observation to calculation in determining the calendar was apparently gradual, extending over centuries. According to the Lasker article, the *tekufah* occurred on September 24<sup>th</sup> in Samuel's time (3<sup>rd</sup> century CE) and so occurs every September 24<sup>th</sup> on the Julian calendar. At that time, the Julian calendar was in step with the sun. Since 1900 the difference between it and the

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<sup>3</sup> There is a wonderful little book about this for children and adults by Abner Shimony, *Tibaldo and the Hole in the Calendar* (Springer, 1997).

Gregorian calendar has been 13 days. Counting 60 days forward and adding 13 gives December 5<sup>th</sup>. The Maariv of that day is the evening before, December 4<sup>th</sup>.

Because of the extra  $1/4$  day (in  $365 \frac{1}{4}$ ), the *tekufah* occurs 6 hours later each year. Every fourth year it occurs after dark, which is the next day on the Jewish calendar. That adds 1 day to the calculations, so that year we should start *tal u-matar* with Maariv on December 5<sup>th</sup>. This occurred last year, 5772 (2011), and will next occur in 5776 (2015). It always happens when the Jewish year is divisible by 4, which happens when the next secular year is divisible by 4.

Finally, the Gregorian calendar dropped the leap year in 3 of every 4 century years to keep the calendar better synchronized with the sun. A century year is a leap year precisely when it is divisible by 400, e.g., 2000 was a leap year and 2100 will not be.<sup>4</sup> When there is no leap year, the Gregorian date advances by one more day over the Julian date. So in 1900, the date for starting *tal u-matar* changed from December 3/4 to December 4/5. It didn't advance in 2000 but in 2100 it will advance again, to December 5/6. Then we will need to change the directions in the siddur!

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<sup>4</sup> So the Koren siddur will not be correct in December, 2099.