

## OUT OF THIS WORLD

*Keeping Halacha in space*

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### **Spacing In**

*A recent news article reported that Virgin Galactic announced their first commercial spaceflight, planned for later this year, establishing a precedent for other companies eager to send flights outside of Earth's orbit. This will no doubt have halachic ramifications and here we will examine some of those.*

### **One Giant Leap for... Shabbos**

Shortly after Neil Armstrong took "one small step for man" during the first manned lunar mission in 1969, *halachic* issues related to space travel were already under discussion in the *sefer HaAdam Al HaYareach (Man on the Moon)*, written by Rabbi Menachem Kasher. Years later, Rav Shlomo Zalman

Auerbach reviewed a *halachic* discussion regarding the observance of Shabbos in outer space, but then advised not to print it since, in his words, those who travel to outer space are not seeking *halachic* guidance.[1]

However, all this changed in 2002, when the Israeli astronaut Ilan Ramon asked Rabbi Zvi Konikov of Satellite Beach, Florida, how —and when — to observe Shabbos in outer space.[2]

### **All in a Day's Work?**

Whatever our plans, before we begin discussing Shabbos observance in outer space, we must first attempt to define the *halachic* day. Indeed, this would be of benefit for the overwhelming majority of my readers, who happen to reside along with me on Planet Earth.

Is a day a period of 24 hours? As such, do the rising and setting of the sun mark the boundaries of the day, but not define it? Or, perhaps, do the rising and setting of the sun define a day? This differentiation is relevant for an astronaut orbiting the earth; he may experience 16 sunsets in a 24-hour period! Accordingly, does he pray the evening prayers 16 times in 24 hours? The distinction is also important for someone in the polar region where the sun may be visible for months at a time; is that time period considered one long day?

Rabbi Eliezer Ashkenazi[3] elaborates on how to understand the days, as described in the Torah in the beginning of *Bereishis*. The Torah describes the creation of the earth, including the first "day," which

transpired prior to the creation of the sun. In the context of this discussion, Rabbi Ashkenazi writes that one who finds himself in the polar region should observe Shabbos after seven rotations of the earth, even though he did not experience seven sunsets.

The Talmud in *Maseches Chagigah*[4] quotes Rav Yehuda in the name of Rav, who said that one of the ten things that were created on the first day of creation was the measure of day and night. *Rashi* explains that this is referring to the 24 hours between the two of them, meaning between day and night. *Divrei Yatziv*[5] writes that the words of *Rashi* lend support to the opinion that in the polar region a day is defined as the passage of 24 hours, even without a real day or night. However, *Divrei Yatziv* then writes that this seems to be a subject of dispute between various *Midrashim*, raising the question of whether days or years actually occur in the absence of movement of heavenly bodies to delineate time.

*Radal*[6] suggests that perhaps one who is in the polar region should not count every 24 hours as a day, but that only an actual sunset marks a day. This would mean that a “day” can continue for many months. As support for this position, he cites the *Midrash* that the sun stood still for Yehoshua[7] so that he would not transgress the Shabbos. This implies that even though more than 24 hours passed from the start of the sixth day, it was not considered Shabbos since the sun did not actually set.[8] Rabbi Halperin[9] points out that according to this reasoning, the passage of months could take many years; this would have a profound effect on the observance of holidays in those neighborhoods!

### **So, Do We Call it a Day?**

We are still left with the question regarding an astronaut who is revolving around the earth and experiencing 16 sunsets in a 24-hour period. Does he count each sunset as the end of another day, or only each period of 24 hours?

We find in the Talmud *Shabbos* [10] that Rav Huna said: One who is traveling in the desert and does not know which day is Shabbos counts

six

days and observes the seventh. In a further discussion, we are told that such a

person may only perform work that is necessary to maintain his life; this is equally true of the six days as of the seventh, which he observes as his Shabbos. His Shabbos is only distinct because that is when he recites *Kiddush* and *Havdalah*. *Rashi* comments that *Kiddush* and *Havdalah* on the seventh day are only recited as a remembrance— so that he should not forget the concept of Shabbos.

Based on this passage in the Talmud, Rav Yaakov Emden[11]

writes that one who is in the Arctic or Antarctic region, where the polar day or night lasts for many weeks, should count days of 24 hours from the time he

arrived there; he should then observe each seventh day as Shabbos.

Similarly,

he writes that a traveler who circumscribes the globe should observe every seventh day as Shabbos.[12] Only

when returning to the original point of departure is one to cease his personal

count and to revert to observing Shabbos on the same day as the members of that

community. According to Rav Emden, there is an “individual” Shabbos, which each

person counts, and an absolute and universal Shabbos, which is in accord with

the day of Shabbos in Eretz Yisrael.

It would seem that according to Rav Yaakov Emden’s position,[13] the

Talmud’s instruction that a traveler should count six days and observe the seventh is a true observance of Shabbos, while according to *Rashi*, it is only an observance to remind

one of Shabbos.[14]

### **On a Wing and a Prayer:**

This brings us to another question:

If every period of 24 hours constitutes a day for the purpose of the observance

of Shabbos — which is dependent on the passage of seven days — is this also

true regarding prayer? The daily prayers are ordered according to the times of

day; we have morning prayers, afternoon prayers, and evening prayers. One who

experiences a day without these phenomena (of morning, afternoon, and evening)

may not be obligated in these prayers. Nevertheless, he ought to observe these

as a remembrance,[15] just

as a traveler is to recite *Kiddush* as a remembrance, as *Rashi* writes.

### **Zoning In and Out:**

Rabbi Halperin argues that Torah life is predicated on a day of approximately 24 hours; thus, he says that it is not likely that *halachah* would require someone to pray the three daily prayers 16 times in a 24-hour period, even if he experiences that many sunrises and sunsets within that amount of time. Similarly, Rabbi Halperin rejects the idea that one who is traveling in outer space should observe Shabbos according to the area he is over at that time, since that would result in a “Shabbos day” that begins and ends in a matter of minutes as he flies in, out of, and back into a “Shabbos zone.”

It is worth pointing out that this last argument is not specific to one who is in outer space. Even one who is traveling the globe on a super-fast train would be traveling in and out of Shabbos. It would seem absurd to say that such a person need *not* observe Shabbos at the same time as the stationary residents of the towns he is passing through. However, one may still question whether one who is quite a distance from the earth is considered as if he is located in the area of Planet Earth over which he finds himself.[16]

According to Rabbi Halperin, the entire concept of days and months does not apply in outer space. Thus, strictly speaking, neither Shabbos nor *tefillah* would be obligatory in outer space. Nonetheless, he maintains that bound observances would remain an obligation as a remembrance, just as they obligate a desert traveler.

### **Back Down to Earth**

*All*

*these lines of argument are speculative; there seems to be no clear halachic ruling regarding these matters. One thing is clear: Space travel should not be undertaken for trivial reasons, especially when Shabbos is part of the schedule.*

*Maadanei Shlomo* 2016 edition, p. 164-5

[2]

*Kovetz Or Yisroel* (Vol. 29) published Rabbi Konikov's letter on the topic, along with responsa from Rabbi Kenig, Rabbi Levi Yitzchok Halperin, Rabbi Tzinner, and Rabbi Yitzchok Shechter. (Rabbi Halperin wrote a more lengthy work on this topic published under the title *Im Esak Shamayim*.

Rabbi

Shechter subsequently included a lengthier version of his response in his *Shu"t*

*Yashiv Yitzchok* (6:5).)

[3]

*Maaseh Hashem, Maaseh Bereishis* 3

[4]

12a

[5]

*O.C.* 1: 108

[6]

in his commentary on *Pirkei De'Rabbi Eliezer* (52: fn 1)

[7]

*Yehoshua* 10:12-13

[8]

*Radal* himself offers that we may distinguish between a case where the entire world did not experience an advance of the sun, and one where only the polar region did not observe a sunset.

[9]

*Im Esak* (fn 15)

[10]

69b

[11]

*Mor U'Ketziyah* 344

[12]

and not regard any dateline

[13]

Supports for the position of Rav Yaakov Emden can be found in a response of the *Radvaz* (*Shu"t Radvaz* 1: 76) who wrote that the counting of days for Shabbos is an individual count. This, he writes, is why the Talmud states that a traveler makes his own count, and how it is that different parts of the globe observe different days of Shabbos.

[14]

See *Divrei Yatziv*, who makes a similar point, and the words of Rabbi Shechter in *Ohr Yisroel* (*ibid* p.41).

[15]

See the words of Rabbi Shechter in *Ohr Yisroel* (*ibid* p.56).

[16]

Should one argue in the negative, it would then be necessary to ascertain the exact distance from Planet Earth that frees him from his earthly ties.