

HALACHIC AND HASHKAFIC ISSUES IN CONTEMPORARY SOCIETY

156 - HALACHA IN EXTREME PLACES

PART 2 - 'SUNRISE, SUNSET' - MITZVOT IN POLAR REGIONS

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A] DAY AND NIGHT IN THE POLAR REGIONS

Most of the inhabited land mass on Earth is in the Northern Hemisphere. As such, the lands to the far north of the planet - the Arctic - were known and explored far earlier than those in the far south.¹ It has always been known that, as one travels north, the length of day and night become more extreme - long days in the summer and long nights in the winter. Once one crosses the Arctic Circle, there are some periods of the year when the sun never rises and some when it never sets. As one moves towards the Pole this becomes more extreme, and much of the year is constant light or constant dark. In fact, at the Pole, the cycle of sunrise and sunset lasts a whole year:

Spring equinox - Sunrise
 Summer Solstice - Noon
 Autumn Equinox - Sunset
 Winter Solstice - Midnight

It is a myth however that there is 6 months of total dark and 6 of total light. In fact there are many months in which there is 'twilight'. There are various definitions of twilight:

Civil Twilight

Sun is 6 degrees below the horizon - Normal outdoor activities are difficult. Time for car headlights.

Nautical Twilight

Sun is 12 degrees below the horizon - Sea horizon is difficult to discern.

Astronomical Twilight

Sun is 18 degrees below the horizon - Total darkness in the sky.



At the North Pole sunset is on Sept 25, Civil Twilight lasts until Oct 8, and Nautical Twilight lasts until Nov 13 when Astronomical Twilight begins. This lasts until Jan 29 when Nautical Twilight returns. So the period of COMPLETE darkness in winter is in fact around only 11 weeks.² Nevertheless, there are 6 months when the sun is above the horizon and 6 months when it is below.

The Arctic Circle is an imaginary line at 66.5 degrees North. On this line the sun is above the horizon for 24 hours. The Arctic Circle passes through seven countries - USA, Greenland, Canada, Russia, Norway, Sweden, and Finland. Iceland has a tiny region - less than one square km - inside the Arctic Circle.

1. There was a long standing theory that there must be an unknown continent in the south - *Terra Australis Incognita*. The Antarctic Circle was only crossed (by Captain Cook) in 1773 and the land mass of Antarctica was first spotted in 1820. The great age of Antarctic exploration - of Shackleton, Amundsen and Scott - did not begin until the early 20th Century.
 2. See <https://www.livescience.com/32814-arctic-daylight-darkness-myth-equinox.html>

B] HALACHIC ISSUE ARISING IN THE POLAR REGIONS

Given the enormous fluctuation in times of light and dark, the main halachic issues³ arising will relate to time bound mitzvot, including:

- Times of davening shacharit, mincha and ma'ariv.
- Times for the beginning and end of Shabbat and fast days⁴.
- Times for performance of mitzvot which must be by day - mila, lulav, shofar.
- Times for performance of mitzvot which must be at night - matza.

Also, we need to differentiate between two different regions:

- The areas where there still is a daily actual sunrise and sunset, but there may not be full light or dark for some of the year. There will be an actual sunrise/sunset for 365 days a year in all places below the Arctic Circle. Even above the Arctic Circle, there will still be daily sunrise/sunset for much of the year until one approaches the Pole. As mentioned above, at the actual Pole there is only one sunrise and one sunset per year.
- Areas which, for at least some of the year, there is no actual daily sunrise/sunset at all.

C] 5 HALACHIC APPROACHES: 1 - HALACHIC TIME DOES NOT EXIST AT ALL!

- One halachic approach states that daily sunrise and sunset are the basic units of halachic time. Once they cease, there is effectively no halachic time and thus all time related and dependant mitzvot will cease. This approach has not achieved halachic acceptance, but is at least entertained by some poskim.⁵ This would mean that:
 - there are no obligatory time-bound⁶ prayers, including shemone esrei and shema.
 - one could not observe Shabbat and the Chagim.
 - a woman could not count 7 neki'im.
 - one could not count 8 days to perform a brit.
- This would hold true in any location and on any date on which there was no actual sunrise/sunset. As soon as there was an actual sunrise/sunset, no matter how extreme, normal mitzvot would resume.

1. The notion that a Jew ... in the polar areas is exempt from even some *mizvot* has been branded far-fetched or worse by a number of rabbinic writers. Indeed, one can readily empathize with that reaction and, despite the fact that the alternative theses that have been advanced seem to be at least as far-fetched, this writer would not have the temerity to advance that thesis without at least minimal support. Support for this view is found in the writings of an anonymous scholar quoted by R. Joseph Mashash, *Teshuvot Mayim Hayyim, Orach Hayyim*, no. 111. Rabbi Mashash reports that he was shown a manuscript authored by an unnamed scholar described as "one of the sages of the generation." That scholar is certain that persons finding themselves in such locales are exempt from Sabbath observance "because the Torah predicated the matter upon days, as it is written 'six days shall you labor and on the seventh you shall rest' (Exodus 34:21). Unless otherwise specified, "days" are composed of twenty-four hours. Since [in the polar regions] there are no days, there is no *Shabbat* there." Although Rabbi Mashash cites this view only to disagree with it, this writer finds the thesis advanced by this anonymous scholar to be entirely cogent and finds it instructive that neither Rabbi Mashash nor any other scholar has advanced evidence to counter that view.

Mitzvot in the Polar Regions and In Earth Orbit, Rabbi J. David Bleich⁷, Contemporary Halachic Problems, Vol 5 Chap 3,

D] 2: THE HALACHIC 'DAY' ALWAYS RUNS FROM ONE SUNSET TO THE NEXT

2. עֲשֵׂה יְרַח לְמוֹעֲדִים שְׁמֶשׁ יָדַע מְבוֹאָו:

תהלים קד:יט

3. עֲשֵׂה יְרַח לְמוֹעֲדִים שְׁמֶשׁ יָדַע מְבוֹאָו - ... רבי שילא איש כפר תמרנה בשם ר' יוחנן: ... מכאן שאין מונין ללבנה א"כ שקעה חמה

פסיקתא רבתי (איש שלום) פיסקא טו - החודש

Chazal in Pesikta Rabbati learn from this that no calendrical calculation for the moon (eg Rosh Chodesh) can be made until the sun has actually set. Before that, it will always remain the previous day.

3. See *Mitzvot in the Polar Regions and In Earth Orbit*, Rabbi J. David Bleich, Contemporary Halachic Problems, Vol 5 Chap 3, available at https://www.sefaria.org/Contemporary_Halakhic_Problems%2C_Vol_V%2C_Chapter_III_Mizvot_in_the_Polar_Regions_and_in_Earth_Orbit.81-86?lang=bi&with=all&lang2=bi

4. Note, lehavdil, that Moslems living in very northern locations (there is a significant community in Scandinavia) must work these issues out with regards to Ramadan.

5. Kol Yehuda 2:20; Teshuvot Divrei Yatziv, 118:11; Nachalat Ya'akov 4

6. One could of course, and should, still pray, just not the set time-bound services.

7. Rabbi Bleich brings other support for this thesis, including readings of various midrashim. Since it has not been accepted by the poskim, we will not elaborate further in this shiur. See Rabbi Bleich's article for more details.

- Some poskim⁸ conclude from this that the halachic day may only be calculated with reference to actual sunsets. Thus, once gets sufficiently north that the sun does not set⁹ at all, whatever halachic 'day' one is then in will continue for many days, weeks or months until the next actual sunset.
- At the actual Pole, where the sun rises ONCE a year in March and sets ONCE a year in September, the halachic 'day' will last twelve months and a 'day' will effectively last one whole year. After 6 years without Shabbat, the entire 7th year will be Shabbat.

4. וַיִּדְם הַשֶּׁמֶשׁ וַיִּרְחַח עֲמֹד עַד-יָקֹם גּוֹי אֲיִבּוֹ הַלֹּא-הָיָה כְּתוּבָה עַל-סֵפֶר הַיְשָׁר וַיַּעֲמֹד הַשֶּׁמֶשׁ בְּחִצֵּי הַשָּׁמַיִם וְלֹא-אָצַץ לָבוֹא בַּיּוֹם תָּמִים:

יהושע ייג

Yehoshua made the sun stand still in the battle of the Ayalon during the conquest of Canaan.

5. מִיּוֹם שֶׁנִּבְרָאוּ שָׁמַיִם וָאָרֶץ הִיָּרַח וְהַכּוֹכָבִים וְהַמְּזֻלוֹת עוֹלִין לְהָאִיר עַל הָאָרֶץ, וְאֵינָן מְעַרְעְוּ זֶה עִם זֶה, עַד שֶׁבָּא יְהוֹשֻׁעַ וַעֲשָׂה מַלְחָמָתוֹן שָׁל יִשְׂרָאֵל. וְעָרַב שַׁבַּת הַיְתָה, וְרָאָה יְהוֹשֻׁעַ בְּצַרְתּוֹן שָׁל יִשְׂרָאֵל שֶׁלֹּא יִחְלְלוּ אֶת הַשַּׁבָּת. וְעוֹד שָׁרָאָה חֲרֻטוֹמִים הָאֲמֹרִים כּוֹבְשֵׁין בְּמִזְלוֹת בָּאִים עַל יִשְׂרָאֵל. מָה עָשָׂה יְהוֹשֻׁעַ, פָּשַׁט יָדוֹ לְאוֹר הַשֶּׁמֶשׁ וְלְאוֹר הַיָּרֵחַ וְלְאוֹר הַכּוֹכָבִים, וְהִזְכִּיר עֲלֵיהֶם אֶת הַשֵּׁם, וַעֲמָדוֹ כֹּל אֶחָד וְאֶחָד שְׁלֹשִׁים וָשֵׁשׁ שָׁעוֹת עַד מוֹצָאֵי שַׁבָּת, שֶׁנֶּאֱמַר [יהושע י, יג] וַיִּדְם הַשֶּׁמֶשׁ וַיִּרְחַח עֲמֹד עַד יָקֹם גּוֹי אֲיִבּוֹ.

פרקי דרבי אליעזר פרק נב

Pirkei d'R. Eliezer understands that it was Friday afternoon and Yehoshua stopped the sun from setting for many hours so that Shabbat would not come in and the battle could be concluded¹⁰. Some commentators see this as an indication that the day will extend as long as the sun is physically in the sky¹¹.

6. רבי נחמן בשם רבי מנא - מעשה ניסין נעשו באותו היום. ערב שבת היתה ונתכנסו כל העיירות להספידו ואשירוניה תמני עשרה כנישן ואחתונייה לבית שריי. ותלה לון יומא עד שהיה כל אחד ואחד מגיע לביתו וממלא לו חבית של מים ומדליק לו את הנר. כיון ששקעה החמה קרא הגבר! שרון מציקין, אמרין דילמא דחללין שבתא. יצתה בת קול ואמרה להן כל מי שלא נתעצל בהספדו של רבי יהא מבושר לחיי העולם הבא בר מן קצרא. כיון דשמע כן סליק ליה לאיגרא וטלק גרמיה ומית. נפק בת קלא ואמרה ואפילו קצרא

תלמוד ירושלמי (וילנא) מסכת כלאים פרק ט הלכה ג

The Talmud Yerushalmi records that Rabbi Yehuda Hanasi died on a Friday and his funeral took during the whole day. A miracle caused the day to lengthen so that people could get back to prepare for Shabbat. Soon after Shabbat came in, the cockerel crowed¹² since it thought that the morning was approaching! The people were concerned that they had in fact broken Shabbat. A bat kol informed them that (almost) all those involved in the funeral had a place in Olam HaBa! But does this mean that they had in principle broken Shabbat or not¹³?

E] 3: THE HALACHIC 'DAY' ALWAYS LASTS 24 HOURS BUT WE CAN'T KNOW FROM WHEN

7. א ההולך במדבר ואינו יודע מתי הוא שבת, מונה שבעה ימים מיום שנתן אל לבו שכחתו ומקדש השביעי בקידוש והבדלה. ואם יש לו ממה להתפרנס, אסור לו לעשות מלאכה כלל עד שיכלה מה שיש לו, ואז יעשה מלאכה בכל יום, אפילו ביום שמקדש בו כדי פרנסתו מצומצמת. ומותר לילך בו בכל יום, אפילו ביום שמקדש בו.
ב היה יודע מנין יום שיצא בו, כגון שיועד שהיום יום רביעי או יום חמישי ליציאתו, אבל אינו יודע באיזה יום יצא, מותר לעשות מלאכה כל מה שירצה ביום שמיני ליציאתו שביום כזה יצא מביתו, דבדאי לא יצא בשבת. וכן ביום ט"ו, וביום כ"ב, וכן לעולם.

שולחן ערוך אורח חיים הלכות שבת סימן שמד

The issue of travel in the far north is not mentioned explicitly in Chazal, the Rishonim or even in Shulchan Aruch. However, all of these classic sources deal with the question of someone lost in the desert who loses track of the days.

8. Rabbi Bleich attributes this view (or one similar) to the Munkatcher Rov - Minchat Elazar 4:42, and other poskim.
9. According to this, in areas where there is no halachic night according to Rabbeinu Tam, the day may also not end. This would entirely wreck the Jewish calendar, even in England, where there is no Rabbeinu Tam nightfall for weeks in the summer. Would they all count as the same day according to Rabbeinu Tam?
10. There is a parallel midrash relating to the last Friday of Moshe's life when he had to write multiple sifrei Torah before Shabbat.
11. However, the midrash clearly states that ALL the constellations stood still, indicating that time stopped and not just the sun. There are many theories as to what was the actual event of the stopping of the sun. One recent academic theory was that it could have been the total eclipse in October 1207 BCE. (The traditional Jewish date for the miracle is not for off this - 3 Tammuz 2488 - 1273 BCE.) For an explanation and critique of that theory see <https://mosaicmagazine.com/observation/history-ideas/2017/11/no-the-book-of-joshua-does-not-tell-of-a-rare-solar-eclipse/>
12. The mefarshim read this in different ways. Some understand that time was simply suspended artificially but as soon as the miracle ended, time returned to its normal 'position'. Others understand that the extra hours were permanently added into time but the cockerel's internal circadian rhythm did not register the change.
13. Did the extra sunlight actually lengthen the day, meaning that a halachic day lasts as long as the sun is in the sky? Alternatively, did time continue as normal (hence the premature crow of the cockerel) and the halachic day actually moved to Shabbat, even though it was still light. Nevertheless, the people received an 'exemption' due to the mitzva of attending the hespedim for Rabbi.

They are to count 6 days from when they forget and then make 'keep Shabbat'¹⁴ ie make kiddush¹⁵, on the seventh. In fact, they must refrain from unnecessary melacha on all the days, in case they could be Shabbat. Nevertheless they must be logical. If they knew how many days they had been on the road, but just forgot when they left, they can do any melacha on day 8,15,22 etc, since they know that they did not leave on Shabbat!

8. וע' צמור וקליעה צחותם שנוסעים תחת קוטב שהיום מתארך חודש, וז' חדשים, ויש שזה חדשים. יש למנות וא"ו ימים של כ"ד שעות שלנו

שערי תשובה סימן שמד ס"ק א'

The commentary *Sha'arei Teshuva*¹⁶ on this halacha quotes R. Yaakov Emden (18C Germany) in the *Mor U'ketzia*. He appears to rule that, if one is in a place where the sun does not rise or set for months on end, one should count 6 days of 24 hours and then keep the 7th day as Shabbat.

9. צ"ע איך ינהגו היושבים או נוסעים במדינות הסמוכות לקוטב, שלפי רוב הקורבה מתארך היום. יש שיהיה חודש או שני חדשים יום אחד, וכן יותר עד שימצא מקום יתארך היום חצי שנה, וכן הלילה חצי שנה. ותחת הקוטב לא יש יום ולילה כלל אלא כל השנה כולה הוא בין השמשות שם לפי שאין באותו מקום עלית ושקיעת השמש, כי המשוה הוא אופקם. א"כ כיצד יעשו שם שבת? ונ"ל שיש למנות שם שבעה ימים שוים של כ"ד שעות שוות שלנו, ומחשב מיום שהגיע לשם. מונה הימים בשעות ומקדש שביעי כדרך שזכר לעיל להולך במדבר.

מור וקציעה סימן שמד

R. Yaakov Emden assumed (mistakenly) that there is NO day or night at the poles - only twilight. But that may not be relevant to his psak. He rules that Shabbat should be kept after counting 6¹⁷ 'weekdays' of 24 hours, just as in the case of the desert. The implication is that, as in the case of the desert, the traveler may have to keep Shabbat on every other day too as a safek!

This will of course mean that different travellers could be staying in the Arctic¹⁸ and keeping Shabbat on different days.¹⁹ The actual objective time of Shabbat is lost and a more subjective and somewhat 'arbitrary' time is kept.

10. אפ"ל במדינה אחת עצמה, יכול להשתנות השבת לעוברים ושבים. כי ההולך ונוסע ממזרח למערב ומקיף הכדור הארצי, ימצא בשונו למקום שיצא משם, מפסיד יום אחד בחשבונו. והנוסע ומקיף הארץ ממערב, מוצא בחזירתו למקומו הראשון הרויח יום במספר ימי שנה. נמצאו זה וזה מחולקים בשבת שלהם מבני המדינה שיצאו ממנה ושבו אליה. ששלשתן אינם שוים במנין, לכל אחד שבת בפני עצמו. אעפ"כ בשונו למקומו, על כרחו הוא נמשך אחר אנשי המקום שפגע שם, אין לו לשבות אלא אותו שבת של בני אותו מקום. מ"מ במדבר שאין שם ישוב קהל מישראל, השבת נמשך ונקבע על פי עובר אורח, כפי הדרך שבא לשם, אם ממזרח, או ממערב. ולפי מה שמוצא בחשבונו עושה שם שבת, והוא שבת שלו ממש לכל דבריו. אלא שהשבת הגמור האמיתי המוחלט, ודאי אינו אלא בארץ הקדושה, שעליה נתייסדו כל מצות התורה (כמ"ש הכוזרי (ב"ח-כ) ורמב"ן עה"ת (ויקרא יח:כה)) בעצם וראשונה, גם המצות שאינן תלויות בארץ, מ"מ עיקרן על ארץ ישראל נצטוו.

מור וקציעה סימן שמד

In fact, the ruling of R. Emden immediately before this refers to issues concerning the dateline. He observes that travellers can gain or lose a day, depending on their direction of travel. While 'en route', they keep Shabbat based on their count, but once they arrive in a Jewish town, they must fall in with the local minhag. Even though they could have been keeping different Shabbatot while in transit, this subjectivity is acceptable since the only place where there is a truly objective halachic framework is Eretz Yisrael. He invokes the famous idea that mitzvot are in fact only fully applicable in Eretz Yisrael!

As such, the ruling of R. Emden is not based directly on the case of the person lost in the desert²⁰, but on an understanding of the underlying subjective or 'local' nature of Shabbat times. In a situation where there is an irresolvable doubt²¹ as to how to calculate time²², the precedent of the desert will answer the halachic problem.

14. As a rabbinic takana so that the person will not forget what Shabbat is.

15. There is a debate in poskim as to whether he davens Shabbat or weekday tefillot, and whether he wears tefillin on his 'Shabbat'.

16. Printed in the standard Shulchan Aruch and Mishna Berura. The author was R. Chaim Mordechai Margulies, early 19C Dubna, Russia.

17. Note that the Chida (Machazit Beracha 344:4) reads the *Mor U'ketzia* differently. He understands that R. Emden rules that, after one arrives at a place where there is no sunset, one continues counting from that day of arrival periods of 24 hours until one reaches Shabbat, and then keeps Shabbat for 24 hours. This approach is accepted by R. Betzalel Stern and fits with the 'logical' approach we see in the halacha relating to the desert.

18. This is not just at the Pole. R. Emden applies this psak whenever the 'normal' pattern of sunrise/sunset is lost. It is not clear what the boundary will be, but presumably this applies at least on some Shabbatot once one crosses the Arctic Circle.

19. Rabbi Bleich points out that the *Mor U'ketzia* chose not to rule that, since the North Pole has no 'normal' sunrise/sunset pattern, it should have its own 'local time' based on 24 hours calculations, rather than sunrise/sunset. We will see that this is the position of the Ben Ish Chai.

20. He counts actual sunrise/sunset days and not random 24 hours periods.

21. This could also be connected to R. Emden's (incorrect) assumption that the Pole was in permanent twilight. This is of course the classic irresolvable doubt as to halachic time.

22. It seems clear that there is still a halachic concept of 'time' at the Pole, otherwise there would be no Shabbat at all! The problem is that we do not know how to calculate it. As to whether there is any halachic concept of 'time' in space, see Part 3.

5 – י"ל שם סימן אחר יש לו. דשם השמש מקיף מכל הדי רוחות כל כ"ד שעות. א"כ יודע שכל הקפה א' שתעשה השמש ידע שהוא יום אחד. וא"כ אם יבוא לשם לפי חשבונו ציוס א' ידע שהקפה השביעית שתעשה השמש הוא יום שבת. ואף על גב שזמן שחרית וערבית שלו לא ידע. ועי"ז לא ידע ג"כ מתי זמן כניסת ויציאת שבת. והאיך יתנהג? אם כפי תושבי אייראפא או כפי תושבי אמעריקא? והרי ידוע שב' מדינות הללו אחת מונחת על פני כדור הארץ מלד א' והאחרת ממולה ממש מתחתיה. וא"כ כשמקדשין בשבת באייראפא הוא תחלת עש"ק באמעריקא. וכשמדליין צמ"ש באייראפא הוא שחרית יום שבת באמעריקא. ואם זה האדם שבא סמוך לנארד-פאל שרואה שמש בגבורתה עם תושבי אייראפא וגם עם תושבי אמעריקא מתי יתחיל ומתי יסיים שבת שלו שם? גם נאמר שנותנין עליו חומרות וקולות במקום שיאלא משם. עדיין יש להסתפק הכי יכול לידע מתי יתחיל ערבית ושחרית של מקום שיאלא משם?

6 – י"ל דגם שש זה אפשר ללדד בשיחשוב למפרע ע"פ אוהר נכונה באיזה שעה הוא. למשל שיבא שם בשעה ו' שעל אוהר שלו. והוא לפי חשבונו שעה ו' לאחר חלות יום א'. יחשוב עוד ה' פעמים כ"ד שעות או ה' הקפות השמש עד נקודה הביא. ואז יתחיל למנות ולשבות שבתו כ"ד שעות. ועכ"פ נ"ל שאם עשה אז מלאכה אינו חייב מיתה ולא חטאת דלא עדיף ממי שהלך במדבר ואינו יודע מתי שבת (כשבת טע): ולפ"ז אם יהיו שם צ' אנשים א' מאמעריקא וא' מאייראפא כ"א ישמור שבתו לפי המקום שיאלא משם ואין חיוב סקילה וחטאת לשום א' מהן מדאין חייבים בן רק מדרבנן.

7 – עוד נ"ל שרשאים להתפלל שחרית וערבית ולומר 'מעריב ערבים' ו'יולר אורי' אף על גב שלהן לילה כיום יאיר. אפ"ה הן לפי מקומן אומרים כך. אבל במדינות לפוגיות כעירנו וכדומה עדיין לא ידענו מתי זמן ליאת וק"ש. והקצ"ה יאיר עינינו במאור תורתו לשמור ולעשות ולקיים מצותיו חוקותיו ותורתיו

תפארת ישראל - בועז מסכת ברכות פרק א אות ג

The Tiferet Yisrael (19C Danzig) takes a different position to that of Rav Yaakov Emden. He notes that the halachic problems begin well before one reaches the Pole. Even in Danzig and Copenhagen there is very little dark in the summer months. Also, he notes that people (Jews?²⁴) do sail towards the Pole for whale-hunting!

The Tiferet Yisrael does not quote R. Ya'akov Emden but he does note, correctly, that the situation at the Pole is not one of constant twilight but actually that the sun rises in March and sets in September. In summer the sun simply circles the sky and never sets.²⁵ His halachic position is as follows:

- In extreme areas where there is no sunrise/sunset, the halachic day is indeed 24 hours²⁶ and is measured by one whole 360 degree rotation of the sun around the sky.
- After 6 such circuits, the seventh will be Shabbat.
- Unlike R. Yaakov Emden, he does not subscribe to a 'subjective' Shabbat based on when each traveller arrives and counts for themselves. Rather, there is an objective 24 period of Shabbat measured by the rotations of the sun²⁷.
- However, he accepts that this does not answer the question of when the day actually begins! At what point in the 360 degree rotation of the sun should we say that the cycle begins again²⁸?
- He acknowledges that Eastern longitudes (Europe) start Shabbat earlier than Western (America), but concepts of East and West become meaningless at the poles²⁹. Therefore, he rules³⁰ that visitors to the Pole should stick to the time zones of the place that they departed³¹ from. He acknowledges that this will mean that if there are two Jews together at the Pole, one of whom departed from America and one from Europe, they will bring in and take out Shabbat at totally different times!
- He seems to also rule that the Shabbat observance will in any event be rabbinic³².
- For tefilla, he rules that one should daven shacharit and ma'ariv without reference to the light and dark but, again, according to the location one came from.
- However he has no solution for the zman of Keriat Shema and tzitzit - *misheyakir* - the time at which there is enough light to differentiate the blue and white of the tzitzit. For that, he appeals for divine enlightenment!

14. וְיִקְרָא אֶלְקִים לְאוֹר לַיּוֹם וְלַחֹשֶׁךְ קָרָא לַלַּיְלָה וַיְהִי־עֶרֶב וַיְהִי־בֹקֶר יוֹם אֶחָד:

בראשית א:ה

Apparently, the Torah defines a halachic day by reference to light and dark, evening and morning - ie the sun.

24. For the unlikely interface between Jews and whale-hunting see <https://www.thejcc.com/judaism/features/was-there-room-for-whales-in-the-ark-1.446403>. Apparently, the method for manufacturing candles from sperm whale heads was discovered in 1748 by a Sefardi Jew from Rhode Island - Jacob Rodrigues Rivera.

25. At the summer solstice the sun circles the sky at maximum height of 23.5 degrees. As one moves away from the Pole, and later in the summer, the swing of the sun around the sky dips towards the horizon. As such, even though there is no actual sunrise and sunset, there is a lower and upper point of the sun in the sky.

26. This basic position is also taken by the Chida, *Machazik Berakha* 344:4; *Sha'arei Teshuvah, Orach Hayyim* 344:1; *Sefer ha-Brit*, I, *Ma'amar* 4, chap. 10; *Teshuvot Rav Pe' alim*, II, *Sod Yesharim*, no. 4; *Kaf ha-Hayyim, Orach Chayyim* 344:2; R. Yechiel Michal Tukachinsky, *Bein ha-Shemashot* (Jerusalem, 5789), p. 55; R. Ovadiah Hedaya, *Teshuvot Yaskil Avdi*, VIII, *Orach Chayyim*, no. 22, sec. 9:7; R. Chaim Zimmerman, *Agan ha-Sohar* (New York, 5715), p. 437; R. Betzalel Stern, *Ahalekh be-Amitekha* (Jerusalem, 5752), 30:16; and other quoted by Rabbi Bleich.

27. Rabbi Bleich observes that the Chazon Ish and R. Tukachinsky take the same position in principle.

28. Once one moves south or closer to the equinox, there is a rise and fall in the sun's path across the sky which could be used to measure the polar 'day'.

29. There is no 'time zone' at the pole. One could walk in a tight circle around the point of the Pole and cross through every time zone in the world in 10 seconds!

30. Note a similar position taken in polar explorations - "There is no permanent human presence at the North Pole and no particular time zone has been assigned. Polar expeditions may use any time zone that is convenient, such as Greenwich Mean Time, or the time zone of the country from which they departed." - from https://en.wikipedia.org/wiki/North_Pole

31. See below for clarification of the different halachic positions on this.

32. He seems here to be drawing from the parallel of the desert scenario. Would this mean that the Tiferet Yisrael would also required the polar visitor to refrain from melacha on every day on the basis that it could be Shabbat?

15. (יג) ויהי ערב ויהי בקר יום שלישי. בשלשה ימים אלו הזכיר ערב וצקר ולא היו שם מאורות שיהיו מחייבין הערב והצקר, כי שקיעת האור הוא הערב וזריחתו הוא הצקר. אמנם הזכיר בשלשתם ערב וצקר ולא כלפי האור אלא כלפי הגלגל שהוא חוזר ומתגלגל זו. כי כל חלק מחלקי הרקיע כשהוא עולה הוא לו 'צקר' וכששוקע הוא לו 'ערב'. אך מיום רביעי ואילך שנצטוו המאורות הזכיר ערב וצקר כלפי האור.

[רבינו] בחיי בראשית איג

Rabbeinu Bachya points out that, since the sun was not put into position in the heavens until day 4, the measure of time for the first three days was the rotation of the celestial bodies across the sky; in our terms, the rotation of the earth on its axis. 'Erev' is the sinking of any giving celestial body and 'morning' is its rising. Thus one rotation would be one day.

- This will also make the Tiferet Yisrael's system workable (subject to weather conditions) in the winter when there is no sun at all³³. One 'day' will be measured by one full rotation of any given celestial body.
- The Tiferet Yisrael rules that halachic times at the Pole should be taken from a 'nominal' location. Halachic opinions on this include:

F1] ISRAEL TIME

Some poskim³⁴ suggest that the relevant zmanim for polar regions should be those of Israel.

F2] NEAREST 'NORMAL' LOCATION

Some poskim³⁵ suggest that the relevant zmanim for polar regions should be set as those of the nearest location where the relevant required halachic phenomena actual occur. That would mean that sunset, sunrise, dawn (*alot hashacha*) and nightfall (*tzet hachochavim*) are the times of such actual occurrence in the nearest place.

F3] NEAREST INHABITED LOCATION

Others suggest that the relevant zmanim for polar regions should be set as those of the nearest inhabited location. It is not clear if this should be measured by human habitation or Jewish community. There is evidence that, in the 19th Century, the Jewish communities in Scandinavia kept the zmanim for Hamburg, the nearest major Jewish community, for fast days.

F4] POINT OF DEPARTURE

Some poskim suggest that the relevant zmanim for polar regions should be those of the traveler's point of departure. This could mean that different visitors will be keeping different zmanim, as indicated in the Tiferet Yisrael.

F5] PRIMARY RESIDENCE

Some poskim suggest that the relevant zmanim for polar regions should be those of the traveler's primary residence. Again, this could mean that different visitors will be keeping different zmanim, as indicated in the Tiferet Yisrael.³⁶

Within the basic 24-hour system of the Tiferet Yisrael, there are a number of other halachic approaches³⁷ that have been suggested. These will determine the day and night not based on a nominal location elsewhere, but upon the actual location. They include:

F6] DAY AND NIGHT ARE MEASURED BY THE RELATIVE MOVEMENT OF THE SUN

R. Moshe Sternbuch³⁸ rules that the day changes at precisely the moment that the sun reaches its most 'distant' point and begins to draw closer. This will mean that the halachic day begins as the sun begins to move upwards and halachic night will begin as it begins to move downwards. At the pole itself where the sun rises in March and sets in September, there will be days when halachic 'day' or 'night' last no more than a split second and the 24 hour period will be 99.99% day/night.

33. However, it will not help in approximately 6 weeks of polar twilight in March and October when there is no sun, but also no visible stars.

34. Shu't Divrei Yatziv OC 108:11

35. Rabbi Bleich brings different opinions and suggestions, including that of Professor Cyril Domb.

36. Interestingly, Col. Ilan Ramon on the space shuttle Columbia was advised to keep the halachic zmanim of Houston TX, although his point of disembarkation has Cape Canaveral FL. In fact, he chose to keep Jerusalem time - his main residence. See Part 3.

37. See <https://www.dansdeals.com/points-travel/trip-notes/guest-post-halachic-zmanim-polar-regions-kosher-antarctica-cruise/>

38. Mo'adim U'zmanim 2:155.

According to this approach, in the summer, when the sun does not set, each new halachic day ends and begins when the sun is at its lowest point in the sky, usually around midnight. This is when Shabbat would begin on Friday and end on Saturday night. One could only fulfill mitzvot relating to the day (e.g. Shacharit) but not mitzvot that may only be performed at night (e.g. night time Shema). In the winter, when the sun is below the horizon, the new halachic day begins when the sun is closest to the horizon (usually around noon). In Polar regions, on a day in the winter when it remains completely dark with no sunlight for 24 hours, one could perform night mitzvot but not day mitzvot, since there is no daylight.³⁹

F7] DAY AND NIGHT ARE 12 HOURS EACH

- Halachic night and day will span twelve fixed hours each, similar to night and day at the equator. The midpoint of Halachic night will coincide with solar midnight and the midpoint of halachic day will coincide with solar noon.⁴⁰ In this approach, when the sun is above the horizon for 24 hours, or it is completely dark for 24 hours, 6am is considered sunrise and 6pm is considered sunset. In the “morning”, one wears tallit and tefillin, davens Shacharit and performs day mitzvot. Shabbat begins 18 minutes before 6:00 pm on Friday. Shabbat ends on Saturday evening at 7:12 pm, 72 minutes after the “replacement sunset” of 6pm. At this time, one could say the evening Shema.⁴¹

- Alternatively, halachic night and day will span twelve fixed hours each, with the beginning of halachic night coinciding with solar midnight and the beginning of halachic day coinciding with solar noon.⁴²

G] 5: JEWS SHOULD NOT LIVE AT THE POLES!

In a letter written in 1886 by Rabbi Simcha ha-Levi Bamberger to his son that is published in the former's responsa, *Shu't Zecher Simcha*, # 30. Rabbi Bamberger's son was considering a trip to Norway for some business purpose and consulted his father regarding the appropriateness of the psak of an unnamed Norwegian rabbi with regard to keeping Shabbat. After discussing the problem and offering his own opinion, Rav Bamberger⁴³ concludes: “However, all this is [theoretical] halacha but in practice my inclination is: Why should a person, even during weekdays, place himself in a state of doubt with regard to reading the *Shema* and prayer? At the minimum, do not remain in that country on *Shabbat* [where] there is doubt with regard to what to do. Nothing prevents God from bestowing blessing and success wherever your feet tread for good.”

16. תנא מרי בר בריה דרב הונא בריה דרבי ירמיה בר אבא: אל יפטר אדם מחבירו אלא מתוך דבר הלכה, שמתוך כך זוכרהו. כי הא דרב כהנא אלויה לרב שימי בר אשי מפום נהרא עד בי צניתא דבבל; כי מטא להתם, אמר ליה: ... מאי דכתיב (ירמיהו ב'ו) בְּאֶרֶץ [אשר] לֹא-עָבַר בָּהּ אִישׁ וְלֹא-יָשֵׁב אָדָם נֶשֶׁם! וכי מאחר דלא עבר היאך ישוב! אלא לומר לך: כל ארץ שגזר עליה אדם הראשון לישוב - נתישבה, וכל ארץ שלא גזר עליה אדם הראשון לישוב - לא נתישבה.

ברכות לא.

The Gemara indicates that there is a halachic component to the apparently aggadic statement that one should only live in a land which Adam HaRishon decreed should be inhabited.

R. Bamberger reads this as a halachic prohibition on living in a place where mitzvot may not be properly observed. One should seek out ways to keep mitzvot, and not to avoid them.

17. ולכן אין ליהודי לגור בקביעות שמה

ש"ת מועדים וזמנים ב"קנה

Rav Sternbuch clearly rules that Jews should not be living (permanently) in places which raise such problematic issues!

- For those that must visit in such places, they should of course consult with a Rav. The clearest practical halachic guidelines I have found are by the Star K⁴⁴. Rav Heinemann of Star K recommends as follows:

- Below the Arctic Circle: Summer - bring in Shabbat after plag hamincha on Friday (9.42pm in Anchorage). Say night Shema at the darkest time of the night - (1.55am in Anchorage) or 72 minutes after sunset (12.55am) if needed. - Shabbat goes out at chatzot halayla (2.02am in Anchorage). Havdala on Sunday morning!
- Winter - Sunset is 3.40 in Anchorage. Shabbat come in at pmt but twilight is very long so Shabbat goes out 89 minutes after sunset - at 5.09pm. Earliest time for Shacharit in Anchorage is 9am.
- Above the Arctic Circle one should be machmir for all shitot, including both Rav Sternbuch, the Ben Ish Chai and the views that one goes by the time of the community that one normally resides in. See the article for details. It really is incredibly complicated!!!

39. See <https://www.star-k.org/articles/kashrus-kurrents/515/when-does-one-pray-when-there-is-no-day/>

40. Ben Ish Chai in *Shu't Rav Pa'alim* - Sod Yesharim 2:4; Lubavitcher Rebbe in *Igrot Kodosh* Volume 2 page 94, *Torat Menachem* 5746 Vol 2 page 847.

41. See <https://www.star-k.org/articles/kashrus-kurrents/515/when-does-one-pray-when-there-is-no-day/>

42. Another way of reading the Lubavitcher Rebbe *ibid*.

43. R. Chaim Volozhiner also took the position that Jews should not visit such areas.

44. See note 40.