

Halakhah and Scientific Method

Ever since the seventeenth century, information yielded through the scientific method has been primarily induced from large masses of specific observations. The increasing number of observations that comprise modern scientific studies allow them to be analyzed with greater vigor, promising to point out irrelevant situations and factors that may have clouded our perception. In determining the effectiveness of a drug, for example, the general state of health of an individual in specific observations could easily influence conclusions based on studying a small group of patients. These factors, however, should not sway results of studying a large well-chosen data base—which was unavailable to observers during times gone by.

This study examines how halakhah responds to information whose credibility rests on the underlying principles of the scientific method, but is disharmonious with talmudic assertions.¹ The discussion focuses on the halakhic literature relating to three issues where the disparity emerges boldly and raises practical concerns. In each case, there is no “safe” alternative, i.e., no stringent approach which will “cover all bases,” thus demanding a clearly formulated position.

I. *Mezizah bi-Shabbat*

Mezizah is the suctioning of blood from the circumcision wound after the foreskin is cut and the underlying mucous membrane is pulled back to expose the glans. The Talmud (*Shabbat* 133b) indicates that *mezizah* is performed for health reasons. In codifying this, Rambam writes, “. . . the membrane is sucked until the blood is drawn from the depths of the

wound so he [i.e., the baby] should not come to danger. He who does not perform the suction is to be dismissed. . . .”² Yet, modern medical techniques imply that there is no health benefit to *mezizah*.³ Under normal circumstances, this difference between talmudic and modern science has no practical implications. However, a problem arises whenever a circumcision is performed on Shabbat. Generally, drawing blood is a violation of the Shabbat.⁴ Nevertheless, the prohibitions of Shabbat are usually waived to accommodate the act of circumcision, and the need to respond to life endangering situations. It follows that talmudic “science” demands performing *mezizah* even on Shabbat because it considers the lack of *mezizah* dangerous to the baby’s health while the results of modern science would lead one to consider it as *hilul Shabbat*. Halakhic literature argues in favor of doing *mezizah* on Shabbat, but the way it deals with the scientific data differs from one source to the next.

Rabbi Avraham Bornstein, the famous Rebbe of Sochachov, argued, as did others preceding him, that *mezizah* is an integral part of circumcision. Therefore, it should be maintained in its original form, i.e., intense oral suctioning, despite contemporary thought which maintained that this method was of no therapeutic value. It follows that had Rabbi Bornstein interpreted the Talmud as suggesting that *mezizah* is entirely therapeutic, perhaps the science of the times would have swayed his ruling. Indeed, in certain situations, the Sochachover Rebbe did restrict the practice of *mezizah* on Shabbat, out of concern for the approach of contemporary science.⁵

On the other end of the spectrum, Rabbi Abraham Isaac Hakohen Kook argued eloquently in favor of the supremacy of talmudic information over that of science. Modern science can at best provide an opinion that is worth considering and, in halakhic terms, can at most generate a *safek*. However, it cannot undermine opinions of Hāzal. Indeed, even the status of *safek* can only be achieved when modern science does not contradict Hāzal’s information, but claims that, due to change in climate and location, our observations differ from those of the Talmud. Rabbi Kook argues that modern science cannot assure us that omitting *mezizah* will have no harmful long-term effect on the child. On the other hand, writing with divine guidance, Hāzal state that omitting *mezizah* is dangerous. In such matters, the halakhah always yields to the more cautious view, no matter how scientifically unpopular it is.⁶

Rabbi Kook bases his skepticism of scientific opinion on the history of science and the nature of the scientific method. History has proven that scientific positions are frequently re-evaluated and abandoned. This view is supported by Hāzal’s ruling (*Yoma* 83a) that allows a patient to eat on Yom Kippur if he feels his life would be endangered by fasting, despite a doctor’s certain assurances to the contrary. Allowing the patient to follow his intuition indicates that science is viewed with caution and, in

cases where life is at stake, halakhah adopts the more cautious approach. Accordingly, Rabbi Kook explains the talmudic text adducing biblical proof for the right of a doctor to minister to the sick: ורפא ירפא: מכאן שניתן רשות לרופא לרפאות (Berakhot 60a). He suggests that no doctor would need biblical dispensation would he be effecting cures with certainty. However, treating people with inaccurate scientific and medical knowledge requires and indeed receives the Torah's encouragement.

It would appear that Rabbi Kook's view on this matter is heavily rooted in Ramban's thinking. Ramban seriously questions the results of inductive reasoning, a cornerstone of the scientific method.⁷ These results are not backed by the rigor of deductive logic. On the other hand, Ramban does appreciate that natural science was part of God's revelation to Moshe and other *hakhmei ha-mesorah*, which is otherwise recorded in hidden form within the Torah.⁸ Finally, Ramban, following the *Kuzari* (III:41), posits that *Hazal* learned and made their rulings with "heavenly assistance" (סיעתא דשמיא).⁹ One may well assume that this divine guidance would extend to parts of natural science, especially when they are being accessed for direct bearing on halakhah.

II. *Halanat ha-Met*

In May 1772, the Duke of Mecklenburg in Germany ordered that all burials be postponed for three days to prevent burying one who was mistakenly certified as dead. Many thought that the policy, recommended on medical grounds, should be adopted as halakhah. Their argument was based on the Mishnah (*Sanhedrin* 46a) that rules that one may postpone burial simply to provide a more respectful interment, e.g., in order to bring shrouds. Surely it follows that the fear of burying someone alive would overrule the prohibition against postponing burial.¹⁰

In the nineteenth century, both the *Hatam Sofer* and the *Maharam Schick* rejected this argument, demanding same-day burials whenever possible. The latter focused on the weakness of scientific information, as Rabbi Kook argued in the following century regarding *mezizah*, while the former defended the absolute truth of talmudic science.¹¹ However, *Hatam Sofer* did so in a novel manner. He suggested that the halakhic determination of death, as well as the talmudic understanding of all natural phenomena, may come from one of three sources: the written biblical text, the oral traditions from Sinai, or the tradition of earlier scientists. Even if *Hazal* were working with the observations of earlier thinkers, halakhah may continue to operate with those assumptions. The proof for this unusual assertion comes from a talmudic discussion (*Shab-*

bat 85a) of the prohibitions of growing two plants in close enough proximity to nourish one another:

וקים להו לרבנן דחמשא בשיתא לא ינקי מהדדי. ומנלן דהא דקים להו לרבנן (דחמשא בשיתא) מילתא היא דא"ר חייא בר אבא א"ר יוחנן מאי דכתיב לא תסיג גבול רעך [אשר גבלו ראשונים] גבול שגבלו ראשונים לא תסיג. מאי גבלו ראשונים אמר רבי שמואל בר נחמני אמר רבי יונתן (מאי) דכתיב אלה בני שעיר החזירי יושבי הארץ אטו כולי עלמא יושבי רקיע נינהו אלא שהיו בקיאיין בישובה של ארץ שהיו אומרים מלא קנה זה לזית מלא קנה זה לגפנים מלא קנה זה לתאנים. וחזירי שמרידחים את הארץ. וחזירי אמר רב פפא שהיו טועמין את הארץ כחזירא. רב אחא בר יעקב אמר חזירי שנעשו בני חזירין מנכסיהן.

And the Rabbis ascertained that five [species sown] in six [handbreadths square] do not draw [sustenance] from each other. And how do we know that that which the Rabbis ascertain is of consequence? For R. Hīyya b. Abba said in R. Joḥanan's name: What is meant by *Thou shalt not remove thy neighbor's landmark, which they of old have set*? The landmark which they of old have set thou shalt not encroach upon. What landmarks did they of old set? R. Samuel b. Naḥmani said in R. Joḥanan's name, [Even] as it is written, *These are the sons of Seir the Horite, the inhabitants of the earth*: are then the whole world inhabitants of heaven? But it means that they were thoroughly versed in the cultivation of the earth. For they used to say, This complete [measuring] rod [of land is fit] for olives, this complete [measuring] rod [is fit] for vines, this complete [measuring] rod for figs. And *Horite* [*hori*] implies that they smelled [*merihin*] the earth. And *Hivite* [*hiwi*]? Said R. Papa: [It teaches] that they tasted the earth like a serpent [*hiwya*]. R. Aḥa b. Jacob said: *Horite* [*hori*] implies that they become free [*horin*] from [the cares of] their property.

The minimum crop spacing required by Jewish law was based on the information Ḥazal had from earlier experts. Ḥazal even associated a biblical verse with their approach: “*Thou shalt not remove thy neighbor's landmark, which they of old have set*” (Deuteronomy 2:12). Ḥatam Sofer understood that this passage indicates that the information of early experts may be operative in halakhah, long after it has been “forgotten” by contemporary experts.

III. Talmudic Therapies

How do we relate to the many medications and therapies listed in the Talmud?¹² One could argue that the prohibition of “*thou shalt not stand idly by while your brother's blood is shed*,” and the *mizvah* to return a lost object (Leviticus 15:16) which, according to some authorities, obligates us to cure another's illness, would insist that we at least try Ḥazal's therapeutic suggestions. Indeed, some authorities advocate prescribing some of the talmudic remedies even today.¹³ Nevertheless, many other

authorities rule that we must ignore these texts. They fear that should the Talmud's protocol prove ineffective, it would lead to a general lack of trust and respect for Ḥazal.¹⁴

Hundreds of years ago, this question became the focal point for the broader issue of reconciling Ḥazal's observations with contemporary science. R. Abraham b. Maimonides discussed this in a passage which has become a general introduction to aggadic literature:

דע כי אתה חייב לדעת כל מי שירצה להעמיד דעת ידועה ולישא פני אומרה ולקבל דעתו בלי עיון והבנה לענין אותו דעת אם אמת אתה אם לא שזה מן הדעות הרעות. והוא נאסר מדרך התורה וגם מדרך השכל ואינו ראוי מדרך השכל מפני שהוא מתחייב גרעון וחסרון בהתבוננות מה שצריך להאמין בו. ומדרך התורה מפני שנוטה מדרך האמת ונוטה מעל קו הישר. אמר השי"ת לא תשא פני דל ולא תהדר פני גדול בצדק תשפוט וגו'. ואמר לא תכירו פנים במשפט וגו'. ואין הפרש לקבלת אותו דעת להעמידה בלא ראייה. או בין שנאמין לאומרה ונשא לו פנים ונטען לו, כי האמת אתו בלא ספק מפני שהוא אדם גדול בהימן וכלכל ודרדע שכל זה אינו ראייה אבל אסור. ולפי הקדמה זו לא נתחייב פני גדול מעלת חכמי התלמוד ותבונתם לשלימות תכונתם בפי התורה ובדקדוקיה ויושר אמריה בביאור כלליה ופרטיה. שנטען להם ונעמיד דעתם בכל אמריהם ברפואות ובחכמת הטבע והתבונה. ולהאמין אותן כאשר נאמין אותן בפי התורה שתכלית חכמתה בידם. ולהם נמסרה להורותם לבני אדם בענין שנאמר על פי התורה אשר יורוך וגו'. אתה רואה החכמים במה שלא נתברר להם מדרך סברתם ומשאם ומתנם אומרים האלהים. אלו אמרה יהושע בן נון לא צייתי ליה. כלומר לא הייתי מאמין בו ואע"פ שהוא נביא כיון שאין בידו יכולת להודיע הענין בכוונה מדרך הסברה והמשא והמתן והדרכים שבהם ניתן התלמוד להדרש. ודי בזה ראייה ומופת ולא נעניין להם עוד כיון שאנחנו מוצאים להם אומרים שלא נתאמת ולא נתקיימו בגמרא דברי הרפואות. ובענין אבן תקומה שאמרו שמונע להפיל הנפלים שלא נתאמת. וכיצא בזה ענינים רבים שדברו בפרק שמונה שרצים במסכת שבת וכו'. ובמקומות אחרים דברים שבחנו אותם הבודחים ונשמעו ביניהם וסמכו הם עליהם ולא יודה על אמתת עיון רופה אמתי ולא שבל.¹⁵

. . . The great stature of the wise men of the Talmud, and the complete understanding they have in all of Torah's principles and all her details, does not demand of us to defend their statements concerning medicine and natural science, or to accept those statements as we accept their interpretations of Torah. . . . (free summary)

Proof for R. Abraham's contention that Ḥazal's science is nothing more than the science of the times, may be forthcoming from a talmudic discussion (*Pesahim* 94b) in which Ḥazal concede to the prevalent secular approach:

חכמי ישראל אומרים ביום חמה מהלכת למטה מן הרקיע ובלילה למעלה מן הרקיע וחכמי אומות העולם אומרים ביום חמה מהלכת למטה מן הרקיע ובלילה למטה מן הרקיע. א"ר ונראין מדבריהן מדברינו שביום מעינות צונגין ובלילה רותחין.

The Sages of Israel maintain: The sun travels beneath the sky by day and above the sky at night; while the Sages of the nations of the world maintain: It travels beneath the sky by day and below the earth at night. Said Rabbi: And their view is preferable to ours, for the wells are cold by day but warm at night.

Earlier, R. Sherira Gaon had expressed a similar view:

צריכין אנן למימר לכון דרבנן לאו אסותא אינון ומילין בעלמא דחזונון בומניהון וכחוד
 חד קצירא אמרונון ולא דברי מצוה אינון דילכך לא תסמכון על אלן אסותא וליכא
 דעביד מינהון מידעם אלא בתר דמבדיק וידע מחמת רופאים בקיאים דהויא מילתא
 לא מעיקא לה וליכא דלית נפשי' לידי סכנה. . . .

Our sages were not physicians. They only recommend that which their experience had proved helpful; and their advice in these fields is by no means law. We must therefore not rely on medicines mentioned in the Talmud. Only he may use them who has them examined and confirmed by experienced physicians and who has the assurance that at least they can do no harm.¹⁶

Rabbenu Tam interprets Ḥazal's concession to contemporary sources, in the previously cited argument over the sun's path, as merely a verbal victory for the Gentile wise men. However, Ḥazal did maintain that their view of the sun's path was correct, as indicated by the Shabbat morning prayer, where *ובוקע חלוני רקיע*, "He opens the sky's windows" is an apt description of sunrise. Apparently, Rabbenu Tam did not accept Ḥazal's willingness to concede to outside sources on an issue of natural phenomena.¹⁷

Conclusion

The Talmud (*Avodah Zarah* 28a) states that R. Yoḥanan learned of a cure from a *matranuta*, a Roman aristocrat. Clearly Ḥazal did accept information of natural phenomena from outside the narrow confines of strictly Jewish tradition. This led R. David Friedman (Karlener) to formulate the hypothesis that Ḥazal had two sources of knowledge of natural law, either *halakhah le-Mosheh mi-Sinai* or *hokhmat ha-zeman*, contemporary science.¹⁸

Following this model and summarizing the approaches mentioned herein, we can suggest that, for halakhic purposes, one must categorize talmudic information, according to its sources, in the following manner:

(1) Some information is clearly revealed from Sinai and will always be a part of halakhic decision-making irrespective of considerations advanced by modern science. An example of this category are the laws of *trefut*.¹⁹

(2) Some information is seemingly purely *hokhmat ha-zeman*, apparently gleaned from contemporary sources. One can trace two schools of thought throughout halakhic literature, differing in the weight they attach to this information. Understanding the limitations of the methods of contemporary scientific method, one school accepts the weakness and inherent flexibility of this type of information; while another school

extends divine concern for, and Hāzal's divine assistance in, formulating halakhah to scientific statements which generated halakhah.

(3) The Hātam Sofer suggests a third category of knowledge, i.e., information from observations of natural phenomena which, although limited by the tools of the time, became part of halakhah at *Matan Torah* in a non-negotiable manner. The knowledge may not have been revealed by God; but we were directed, early on, to incorporate the science of that time into halakhah, without flexibility.

In commenting on the first category of revealed information, the Hāzon Ish gives us insight into the third category as well. He claims that God is in a constant state of revelation to man, through both Torah and natural phenomena. Clearly, at Sinai, He determined a level of revelation vis-a-vis Torah knowledge which all Jews received. After that, throughout time, He reveals Himself through the *hokhmat ha-Torah* via the insights of the *hakhmei ha-mesorah*.²⁰ Similarly, explains the Hāzon Ish, God is constantly revealing to us new forms of scientific information. It follows that already at Sinai God may have chosen the degree of revelation through nature that would be operative in certain areas of halakhah for all generations to come.

NOTES

1. Discrepancy between information in the Talmud and information yielded through technological advances in physical observations will not be discussed in this study.
2. *Hil. Milah* II:32. Jacob ha-Gozer (c. 1215), *Zikhron Berit la-Rishonim*, writes that intense suctioning increases the blood flow thereby preventing internal clotting. See also *Tiferet Yisra'el, Shabbat* XIX:2.
3. The large numbers of hospital circumcisions performed without *mezizah* and without noticeable negative repercussions argue against its medical efficacy.
4. See *Shabbat* 107a; Rambam, *Hil. Shabbat* VIII:7; *Shulhan 'Arukh, Orah Hayyim* 316:8.
5. See *Avnei Nezer, Yoreh De'ah* #338.
6. See his *Da'at Kohen*, #140. See also *Maharam Schick, Orah Hayyim*, #152; *Hātam Sofer, Yoreh De'ah*, #175.
7. See Ramban, *Hullin* 42a.
8. See Ramban's introduction to his *Commentary on the Torah*.
9. See his commentary on *Bava Batra* 12a; *Commentary on the Torah, Deuteronomy* 17:11.
10. See R. Zevi Hirsch Chajes, *Maharaz Hayot, Nazir* 4b; R. Reuven Margoliot, *Margoliot ha-Yam, Sanhedrin* 78a, #5.
11. See *She'elot u-Teshuvot Maharam Schick, Yoreh De'ah*, #244; *She'elot u-Teshuvot Hātam Sofer, Yoreh De'ah*, #338.
12. See, for example, those presented in *Shabbat* 109b–111a.
13. See R. Hayyim David Halevi, "Kashruto shel Terufot Home'apatiyot bi-Pesah," *Tehumin* 3 (1982): 71.
14. See, for example, *Sedei Hemed, Ma'arekhet "Resh,"* #54; R. Shlomoh Luria, *Yam Shel Shlomoh, Hullin* VIII:12.
15. This text is often published as an introduction to *'En Ya'akov*.

16. *Ozar ha-Ge'onim*, Gittin 68b, s.v. "le-dama"; translation and identification of authorship by Immanuel Jakobovits, *Jewish Medical Ethics* (New York, 1959), xxxviii.
17. See *Shitah Mekubezet*, Ketubot 3a, s.v. *mai ka'amar lehu*.
18. See the letter he wrote quoted in R. Pirutinsky, *Sefer ha-Berit* (New York, 1972), 264:7:11.
19. See *She'elot u-Teshuvot ha-Rashba* 1:98; *She'elot u-Teshuvot Rivash*, #447; Rambam, *Hil. Shehitah* X:12–13.
20. See *Hazon Ish*, *Even ha-'Ezer* 27:3.