LAWRENCE KAPLAN

TORAH U-MADDA IN THE THOUGHT OF RABBI SAMSON RAPHAEL HIRSCH

This paper examines the relationship between Torah and the natural sciences in the thought of Rabbi Samson Raphael Hirsch based on the full range of his writings, including two letters only recently published and an important essay that has been almost universally overlooked. The key issue to be discussed is Rabbi Hirsch's stance regarding the following two questions, which in truth constitute two sides of the same coin. First, does our commitment to the divinely revealed nature of the Torah and the divinely grounded authority of the Sages commit us to the acceptance of particular scientific theories apparently propounded either in the Scriptures or in rabbinic writings? Second, does that same commitment conversely rule out our accepting new scientific theories that would seem to be in conflict with those selfsame, apparently Scriptural or rabbinic scientific theories or with fundamental dogmatic or theological assertations?

Rabbi Hirsch's stance regarding these two related questions is examined in the broader context of his view concerning the nature and purpose of the Torah, and his position on the fundamental educational question as to the advisability of exposing young students to the achievements and accomplishments of general culture — even if some aspects of that culture may be antipathetic to traditional Jewish beliefs and values. In particular, Rabbi Hirsch's often bold statements regarding such specific scientific issues as geocentric versus heliocentric astronomical theories, spontaneous generation, the age of the earth, and the origin of the species will be cited and discussed. It will be argued, in conclusion, that Rabbi Hirsch's observations on the relationship between Torah and the natural sciences still possess great significance today, and may indeed serve as a valuable resource for our own reflections on this subject.

"Torah U-Madda" in the title of this article refers both to the term *"Torah u-Madda"* as it appears in Rabbi Hirsch's writings and to the concept of *Torah u-Madda* (that is, Torah and science — specifically the natural sciences), as it is expounded in his thought. The article's goal is thus twofold, philological and substantive. I believe that even the philological first part of my article has a modest, but not entirely insignificant, substantive implication — modest, because the implication is negative in nature; not entirely insignificant, because even negative implications are at times not lacking in value. Of primary

importance, however, is the substantive second part, for, as I shall seek to show, Rabbi Hirsch's substantive observations on the concept of Torah and the natural sciences still possess great significance today, and indeed may serve as a valuable resource for our own reflections about this subject.

I

In his essay, "Torah U-Madda Revisited: The Editor's Introduction," in the inaugural issue of Yeshiva University's *Torah U-Madda Journal*, Rabbi Jacob J. Schacter, the Journal's editor, discusses among other things the origin of the term *"Torah u-Madda"* to connote the combination of Torah and secular studies or general knowledge. Schacter notes that the origin of the term is obscure, and points to a letter written in 1915 by the then newly-appointed President of the Rabbinical College of America (the forerunner of Yeshiva University), Rabbi Bernard Revel, for its earliest documented use. In this letter, addressed by Rabbi Revel to Rabbi Avraham Alpertstein, Rabbi Revel describes his position as *"mashgiakh al limmudei ha-Torah ve-ha-Madda."*[1] Similarly, Rabbi Norman Lamm, the current President of Yeshiva University and one of the leading exponents of the philosophy of *Torah u-Madda* today, in his discussion of the term's origin, points to that very same letter.[2]

As both Rabbis Schacter and Lamm indicate, the term generally used throughout the Middle Ages and into the modern era to designate the combination of Torah and general knowledge was *"Torah ve-Hokhmah."* Beginning in the 19th century, under the influence of the teachings of Rabbi Samson Raphael Hirsch, the term *"Torah im Derekh Eretz,"* whose origins are of course rabbinic, but whose original rabbinic meaning isn't entirely clear, became the preferred term for designating the above mentioned combination, without entirely displacing *"Torah ve-Hokhmah."* The term *"Torah u-Madda,"* by contrast, would appear to be a product of the 20th century.[3] In truth, however, the earliest appearance of the term *"Torah u-Madda"* can be pushed back at least 70 years prior to the date suggested by Rabbis Schacter and Lamm.

Scholars have noted that Rabbi Samson Raphael Hirsch, whose name and person, as already indicated, are immortally linked with the philosophy of *"Torah im Derekh Eretz,"* never used that term in his two major early works, *The Nineteen Letters of Ben Uziel* (*Iggerot Tzafun*) and *Horeb*. They point to a Hebrew responsum he wrote in 1844, condemning the Braunschweig assembly of Reform rabbis of that same year, for his earliest documented use of the term, and further note that Rabbi Hirsch only began using that term on a regular basis when he became rabbi of Frankfurt's Orthodox community in 1851.[4]

The 1844 responsum, first published in 1845 in *Torat ha-Kenaot*, a collection of Orthodox opinions relating to the Braunschweig conference, has been republished several times,[5] and its importance has been duly noted and underscored by several distinguished scholars. Thus, Professor Jacob Katz, the leading scholar of Orthodoxy in the modern era, points out that "Hirsch's response is exceptional in its length, style, and approach to the problem under consideration."[6] Unlike the other respondents in *Torat ha-Kenaot*, whose approaches are purely negative, as if strongly worded condemnations of the Reformers and their activities could suffice to halt the breakdown of traditional Judaism, Rabbi Hirsch, in Katz's words, "evolved a positive program for the reconstruction of Judaism."[7] This positive program, in Rabbi Hirsch's view, must encompass the three traditional areas of Torah, *Avodah*, and *Gemilut Hasadim*. While Rabbi Hirsch's comments regarding all these three areas are of the greatest interest, we need here only cite his comments relating to the area of Torah.

> ואם התקדשנו איש את נפשו ואיש את ביתו יחדיו, נביט לענין כללנו, לתורה ולעבודה ולגמילות חסדים אשר בעבוריהם נועדו יחד בברית עם וחבלי אחוה. לתורה תחלה, איה איפוא בית למודיה, למודי התורה והחכמה והיראה לקטנים, למודי התורה והחכמה והיראה לגדולים, בתי לימוד למלמדי התורה לקטנינו ולגדולינו אים? הישיבות חדלו, וכל הבא ללמוד תורה מקרן זוית יקחה, אין לו מנהל ומורה דרך לרוות צמאו במים חיים ממעיני קודש יצאו, להדריכו על מי מנוחות ולהציל נפשו מבארות נכריות, באר חפרוהו שרי התורה במחוקק במשענותם איננו, איש מנחל בדרכו ישתה המים הרעים, על כן ירימו ראש ושם שמים מתחלל. על כן נשובה נבנה בתים לתורה ולחכמה וליראה יחדיו, להיות אצילי ישראל יודעי התורה לשמה מלאי מצות כרמון חכמים יודעי בינה לעתים. ואל תיראו לתורה מפני החכמה, כי תראו חכמים בעיניהם התנכרו לתורה, — חכמה האמתית אוהבת התורה ועזר כנגדה, עקב חכמת האמת ענוה ועקב ענוה יראה, והיראה מפתח ושומר לפתחי שער התורה. — ובתי לימוד למלמדי בני ישראל תורה ודרך ארץ, אשר בהשגת שניהם כאחד תעלה ארוכה לכל מכותינו. מה יעשו בנינו שלא יחטאו אם לא נשית לב לשנות נעוריהם לתתם ביד מורים ישרי לב יראי ה' מביני תורה ומדע לאמיתתם לגדלם לתורה ולדרך ארץ יחדיו, אשר רק יגיעת שניהם תשבית עון הדור. ומאין לנו מורים כלבנו אם לא נשית לב לבנות בתים ללימוד מלמדים לחינוך מורים אשר עד עתה כמעט בקרי הלכנו עם הענין הרב הזה. — ובתי תלמוד תורה ודרך ארץ לחינוך נעורינו על כולם, הלא נדע נאמנה כל עיר וכל מושב שאין שם בית תלמוד תורה ודרך ארץ יחדיו לא תנצל מחרם הזמן. על כן נקומה יחדיו לבנות בתים לתורה לגדולים ולקטנים, כי אז יש תקוה לאחריתנו ותקומה מכשלון דורנו.

In accordance with the aim of this section of the article, I wish to limit myself to two terminological observations. First, as noted above, while scholars have pointed to this text for Rabbi Hirsch's earliest use of the term *"Torah im Derekh*

Eretz" to signify the combination of Torah and general knowledge, in truth he uses three different terms to signify that combination: *"Torah ve-Derekh Eretz"* (four times); *"Torah ve-Hokhmah"* (three times); and *"Torah u-Madda"* (once). It is quite clear from this passage that Rabbi Hirsch considers these three terms to be equivalent, and he consequently shifts back and forth between them indiscriminately.

Second, as the careful reader of Rabbi Hirsch's text or of my above paragraph may already have noticed, despite the claims of historians, Rabbi Hirsch never *once* in this cited passage uses the term *"Torah im Derekh Eretz."* Rather, as we have indicated immediately above, the term he does use four times is *"Torah ve-Derekh Eretz."* Presumably, his use of the connectives *"ve"* in the phrase *"Torah ve-Hokhmah"* and *"u"* in the phrase *"Torah u-Madda"* led to a similar use on his part of the connective *"ve"* when writing here of the connection between Torah and *Derekh Eretz*. Such an explanation, so we believe, can account for his use in this passage of the phrase *"Torah ve-Derekh Eretz"* instead of *"Torah im Derekh Eretz."* Only later in his writings, when he finally settled on the term *"Derekh Eretz"* to signify general culture and knowledge, did he also settle on the term *"Torah im Derekh Eretz,"* in accordance with the rabbinic dictum *"Yafeh Talmud Torah im Derekh Eretz,"*[8] although even in his later writings one finds him using the term *"Torah und Derekh Eretz"* on rare occasions.[9]

In addition to whatever intrinsic interest the above philological observations may possess, they also bear, as suggested above, a modest substantive implication. Scholars identified with the ideology of *Torah u-Madda* have often tried to base substantive distinctions between that ideology and that of *Torah im Derekh Eretz* on terminological grounds. That is, they have either differentiated between *Derekh Eretz* and *Madda* or between the connectives *"u"* and *"im."*[10] The fact that Rabbi Hirsch in the above-cited major programmatic statement used the terms *"Torah ve-Derekh Eretz," "Torah ve-Hokhmah,"* and *"Torah u-Madda"* as equivalents, coupled with the fact that in his writings in general he shifted between *"Torah im Derekh Eretz"* and *"Torah ve-Derekh Eretz,"* render untenable any such terminologically grounded distinctions between the two above mentioned ideologies. This is of course not to deny the existence of significant substantive distinctions between the two ideologies. It is, however, to assert that if there are such distinctions they will have to be established solely on the basis of the actual content of the two ideologies. In this important task of either confirming or disproving the existence of such distinctions there can be no terminological shortcuts.

II

I now turn to the second and more important part of this paper, an examination of the concept of *Torah u-Madda*, that is, Torah and science, specifically the natural sciences, in the thought of Rabbi Hirsch.

Readers may wonder at the need for such an examination. After all, they may query, has not the subject of Torah and science been both extensively and intensively canvassed by a whole host of authors on a wide variety of platforms? And, similarly, has not Rabbi Hirsch's ideology of *Torah im Derekh Eretz* in all its facets received a great deal of discussion and analysis, much of it of outstanding quality? How is it then that there is no adequate analysis of Rabbi Hirsch's view on the question of Torah and science?

The truth is that there already exists a number of fine discussions concerning Rabbi Hirsch's stance on this matter. To take just two examples: Eliezer Stern in the first chapter of his posthumously published doctoral dissertation, *Ishim ve-Kivvunim: Perakim be-Toldot ha-Ideal ha-Hinukhi shel "Torah im Derekh Eretz,"* makes several insightful remarks on this subject,[11] as does Moshe Arend in his essay, *"Torah im Derekh Eretz be-Mishnatam shel Dovrei Yahadut Germanya ha-Haredit lifnei ha-Shoah."*[12] If I have anything to add to the observations of these very fine scholars, it is certainly not because of any greater insight on my part. However, two key texts of Rabbi Hirsch deal with this subject. The first, his two letters on *aggada* to Rabbi Hile Wechsler, was not published until 1976.[13] The second, his essay "The Educational Value of Judaism," was first written in 1873 for enclosure with the official invitations for the annual graduation exercises of his educational institutions. Unlike similar such essays, it was not reprinted in Rabbi Hirsch's *Gesammelte Schriften*, and was only published in 1937 in Vol. 7 of the journal *Nachalas Zvi*; it was never translated into Hebrew, and, while recently translated into English and included in vol. 7 of Rabbi Hirsch's *Collected Writings*,[14] it still does not appear to be known to most Hirschian scholars — much less to general readers. To return to the two examples cited above: Eliezer Stern, whose thesis was written in 1970, discussed Rabbi Hirsch's essay "The Educational Value of Judaism" — the only such discussion of which I am aware — but, of course, could not take into account Rabbi Hirsch's two letters on *aggada* which appeared six years later,[15] while Moshe Arend, whose essay was written some time between 1985 and 1987, commendably cited Rabbi Hirsch's letters on *aggada*, but did not refer to and was apparently unaware of his essay, "The Educational Value of Judaism."[16] If this present examination of Rabbi Hirsch's views on Torah and science possesses any merit, then, it is because it is the first such examination, to the best of my knowledge, to make use of both these important texts.[17]

The key issue I wish to discuss is Rabbi Hirsch's stance regarding the following two questions, which in truth constitute two sides of the same coin. First, does our commitment to the divinely revealed nature of the Torah and to the divinely grounded authority of the Sages commit us to the acceptance of particular scientific theories apparently propounded either in the Scriptures or in rabbinic writings? Second, does that same commitment conversely rule out our accepting new scientific theories that would seem to be in conflict with those selfsame, apparently Scriptural or rabbinic scientific theories or with fundamental dogmatic or theological assertions?

A.

Rabbi Hirsch's answer to the first question flows from his fundamental conception of the nature and purpose of the Torah. Indeed, it is striking that Rabbi Hirsch in his first published statement setting forth this conception already alludes, if only in passing, to the issue of the Torah as a source of scientific knowledge. Thus, in Letter Two of that enduring classic, *Nineteen Letters on Judaism*, the 28-year-old Rabbi Hirsch, writing under the pseudonym Ben Uziel, states:

> Before we open it [the Torah], however, let us consider how to read it. As a subject for philological or antiquarian research? *As corroboration for antediluvian or geological hypotheses?* [emphasis added] In the expectation of finding revelations of esoteric mysteries? Certainly not! As *Jews* we will read this book, as a book tendered to us by God in order that we learn from it about ourselves, what we are and what we should be during our earthly existence. We will read it as Torah — literally "instruction" — directing and guiding us within God's world and among humanity, making our inner self come alive.[18]

We may note in passing that this passage has significant implications for Rabbi Hirsch's view of Kabbalah. Flowing from his view that the Torah ought not to be read with the expectation of finding therein "revelations of esoteric mysteries," Rabbi Hirsch, as the noted Hirschian scholar Rabbi Shelomo Danziger has recently observed, "was opposed to all theological speculations about divinity (mystical as well as philosophical)."[19] If then, as he states in Letter Eighteen of the *Nineteen Letters*, for Rabbi Hirsch the Kabbalah is "an invaluable repository of the spirit of *Tanach* and Talmud,"[20] it is only in the sense that the Kabbalah, as Rabbi Danziger goes on to state, is a "rhetorical and metaphorical [form of learning] designed to suggest the betterment and spiritual

elevation of man as he strives, through his acts, to draw nearer to God," only in the sense that it contains "midrashic, metaphorical suggestions to man about his duties."[21]

Here, however, our concern is with the implications of Rabbi Hirsch's comment that the Torah ought not to be read "as corroboration for antediluvian or geological hypotheses." In the rest of the *Nineteen Letters* Rabbi Hirsch does not spell out what those implications might be. However, in an important footnote to his essay "Ethical Training in the Classroom," Rabbi Hirsch, while not referring specifically to any "antediluvian or geological hypotheses," does spell out with considerable force, clarity, and eloquence, the *negative* implications that his view regarding the nature and purpose of the Torah carries for the issue of the Torah as a source of scientific knowledge.

> Jewish scholarship has never regarded the Bible as a textbook of physical or even abstract doctrines. In its view the main emphasis of the Bible is always on the ethical and social structure and development of life on earth; that is, on the observance of laws through which the momentous events of our nation's history are converted from abstract truths into concrete convictions. That is why Jewish scholarship regards the Bible as speaking consistently in "human language;" the Bible does not describe things in terms of objective truths known only to God, but in terms of human understanding, which is, after all, the basis for human language and expression. It would have been inconceivable that the the Bible should have intended, for example, Joshua's command, "O sun stand still" as implying a biblical dogma confirming or denying the existence of a solar system. The Bible uses human language when it speaks of the "rising and setting of the sun" and not of the rotation of the earth, just as Copernicus, Kepler, and other such scientists, in their words and writings, spoke of the rising and setting of the sun without thereby contradicting truths they had derived from their own scientific conclusions. *Leshon benei adam*, "human language," which is also the language of the Bible, describes the processes and phenomena of nature in terms of the impression they make on the human senses, without thereby meaning to prejudice, in any manner, the findings of scientific research.[22]

The above statement, while as already indicated, made with considerable force, clarity, and eloquence, taken by itself may seem uncontroversial and unexceptional. Certainly — so readers will no doubt reflect to themselves — it is hard to imagine that by the mid-19th century any Orthodox rabbinic authority would continue to claim that belief in the divinely revealed nature of the Bible carried along with it the requirement that one believe in a geocentric

astronomical system. The truth, however, is more complex. For, as a number of studies of the reception of the Copernican theory among Jewish scholars down to the mid-19th century have shown, their general response to that theory was negative, precisely because heliocentrism appeared to contradict Scripture.[23] Indeed, if one focuses on outstanding rabbinic figures, Rabbi Hirsch appears to be the first such figure after R. Yosef Shelomo Delmedigo (Yashar of Candia) in the 17th century to unambiguously approve of the Copernican thesis. Such leading rabbinic figures of the 18th century or the early to mid-19th century who discussed the issue of heliocentric as opposed to geocentric systems, such as Rabbis David Nieto, Yaakov Emden, Yonatan Eibeschutz, Pinhas Horowitz, Moshe Sofer, and Meir Leib Malbim, either rejected Copernicus' heliocentric system entirely or adopted a skeptical and highly guarded attitude to it, and, in its stead, adopted Ptolemaic or Tychonian geocentric systems or assumed an agnostic pose.[24] And, again, the reason for these figures' reservations about the Copernican system or their outright rejection of it was because it appeared to contradict Scripture. Against this background, Rabbi Hirsch's unambiguous severance of the Gordian knot linking Scripture with astronomy and, more important, his clear and forthright methodological claim that Scripture should not be seen as a source of scientific knowledge, constitute a bold and progressive position for a leading and unimpeachably Orthodox rabbinic authority to propound.

Even more controversial and revelatory of the full implications of Rabbi Hirsch's position are his two letters on *aggada* to Rabbi Hile Wechsler, first published, as indicated above, in 1976.[25] As the editor of these letters, Professor Mordecai Breuer correctly notes: "These letters are of great value and significance, insofar as they combine to form a fundamental article in which Rabbi Hirsch sets forth his views regarding the place of rabbinic *aggadot* in the complex of Jewish beliefs and opinions, and the educational consequences that flow therefrom."[26] That Rabbi Hirsch was himself aware of the letters' importance is indicated by the fact that while he generally did not have copies made for himself of the many letters and responsa he wrote to Rabbi Wechsler, here he made certain that complete copies of both letters were made, most probably by a member of Rabbi Hirsch's household,[27] according to Professor Breuer.

In these letters Rabbi Hirsch develops and expands on a view that he had already set forth briefly in his introduction to *Horeb*, namely that the rabbinic *aggada* is not binding, inasmuch as it is merely an expression of the views of individual rabbis, and it only deserves recognition to the extent that it is consonant with the teachings of Halakhah.[28] In developing this position in his letters to Rabbi Wechsler, Rabbi Hirsch adopts a two-track approach for

dealing with problematic rabbinic *aggadot*, an approach already espoused by many prominent *Geonim* and *Rishonim*.[29] Rabbi Hirsch's first track limits the authority of the *aggada* as a whole by maintaining that the *aggadot*, unlike the received Halakhot, were not revealed at Sinai but, rather, are only "opinions (*sevara*) and conjecture (*umdana*)" (pp. 4, 6, 12). Consequently, we are not obliged to accept the *aggadot* unconditionally, but are to accept only those "which agree with clear and firmly established truth ... or with reason, or with an authentic, received tradition" (p. 5). His second track, which essentially complements the first track despite a measure of tension between them, affirms that the *aggada* as a whole is a profound and exalted source of wisdom and ethics, and argues that the many problematic *aggadot* should not be taken literally but, rather, must be understood symbolically or allegorically (pp. 4-5).

While these contentions of Rabbi Hirsch concerning *aggada* have attracted — and deservedly so — a fair amount of attention and discussion in the scholarly literature,[30] insufficient attention has been paid to his views on rabbinic science set forth in those very same letters.

Rabbi Hirsch addresses himself to a question posed by Rabbi Wechsler regarding statements of the Sages that contradict current findings in the natural sciences. His first response, which I will expand upon later, is that many current scientific views, despite the air of certainty with which they are set forth, in truth, are often merely tentative hypotheses which are liable to be disproved by further research. "Therefore, if we come across opinions in the writings of earlier authorities which are in opposition to current [scientific] hypotheses, we should not be overly hasty in concluding that they [the views of the earlier authorities] are false and that the current views possess certain truth" (p. 10).

His fundamental response, however, is to deny that the Sages possess any special authority in the realm of the natural sciences. "The Sages, of blessed memory, were scholars of the divine religion, and they were the recipients, transmitters, and teachers of God's statutes, commandments, and judgments. They were not experts in the areas of natural science, astronomy, and medicine, except to the extent necessary for knowing and observing the Torah, and there is no indication that their scientific knowledge was revealed to them at Sinai" (p. 10). Rabbi Hirsch goes on to say that just as contemporary scholars, no matter how outstanding, cannot master all scientific disciplines and must, perforce, rely on specialists when dealing with disciplines outside their areas of competence, so too the Sages, whenever they had need of scientific knowledge, relied on the foremost scientific authorities of their day. In support of his claim that the statements of the Sages regarding scientific matters are not authoritative, Rabbi Hirsch cites the famous passage from *Pesahim* 94b where the Sages, after debating with gentile scholars regarding a particular

astronomical matter, concede that the view of the gentile scholars is to be preferred (p. 11).

As an example of his approach, Rabbi Hirsch cites the discussion of the Sages regarding the halakhic status of a mouse which is part flesh and part earth (*Mishnah Hullin* 9:6 [and *Commentary on the Mishnah* of Maimonides, ad. loc.] and *Sanhedrin* 91a). He points out that the existence of such a creature was attested to by the famous Roman naturalist, Pliny. It is therefore not surprising that the Sages should rely on his preeminent authority, even if in the light of current scientific knowledge such a creature is clearly mythical. Moreover, Rabbi Hirsch continues, this approach can shed light on many perplexing rabbinic statements which otherwise are liable to be made into fit subjects for mockery and scorn. For example, the Sages observe that "the spine of a man after seven years turns into a snake, but only if he will not bow down during the recitation of the blessing of *modim*" ["We give thanks unto Thee"] (*Bava Kamma* 16a) — certainly, on the face of it, a most peculiar statement. But, as Rabbi Hirsch indicates, the notion that after a number of years the spine of a person is liable to turn into a snake was again attested to by Pliny, on the basis of many "reliable sources." The Sages, thus, adopted Pliny's "empirical" observation, and used it to teach a religious lesson on the importance of gratitude. Consequently, Rabbi Hirsch concludes, his view that the Sages in discussing scientific matters were, in point of fact, relying on the best scientific authorities of their day, rather than diminishing their stature actually turns out to enhance it! (pp. 10-11).[31]

Rabbi Hirsch's position has a distinguished pedigree. Already Maimonides in the *Guide*, in speaking of astronomy, states: "Do not ask of me to show that everything they [the Sages] have said concerning astronomical matters conforms to the way things really are. For at that time mathematics was imperfect. They did not speak about [these matters] as transmitters of dicta of the prophets, but rather because in those times they were men of knowledge in these fields or because they heard these dicta from the men of knowledge who lived in those times" (*Guide* 3:14). Moreover, in support of his position in another context (*Guide* 2:8), Maimonides cites the talmudic passage from *Pesahim* 94b later cited by Rabbi Hirsch. And while Maimonides speaks only about astronomy, the logic of his position, as Professor David Berger has observed,[32] takes in all the sciences. And, indeed, Maimonides' son, Abraham Maimonides, in a statement that may well have served as a model for the position of Rabbi Hirsch, made explicit what had been implicit in his father's statements. Thus, in his "Essay on the *Derashot* of the Sages," he writes: "We are not obligated ... to argue on behalf of the rabbis and uphold their views expressed in all their medical, scientific, and astronomical statements, [or to

believe] them the way we believe them with respect to the Torah, whose consummate wisdom was in their hands."[33] This view of Maimonides *père* and *fils* was subsequently adopted by other distinguished rabbinic authorities.[34]

At the same time, this Maimonidean "family" position regarding the non-authoritative status of the scientific statements of the Sages was hotly contested by many outstanding rabbinic scholars and thinkers, both in the Middle Ages and in modern times, and even forms a subject for debate in our own day.[35] This is not the place for an analysis of the views of those who rejected — or, indeed, those who continue to reject — the Maimonidean position. What is significant for our purposes is that given the stature, particularly within the ambit of Ashkenazic society and culture, of those among his rabbinic predecessors who defended the authority of the scientific statements of the Sages, Rabbi Hirsch's unambiguous and unequivocal espousal of the Maimonidean position stands out as a bold and progressive position. Certainly Rabbi Hirsch's interlocutor, Rabbi Wechsler, was — to put it mildly — not very happy with what Rabbi Hirsch had to say.[36]

In concluding this part of the discussion, we should take note of the difference between Rabbi Hirsch's treatment of problematic biblical statements that apparently contradict modern scientific knowledge, and his treatment of similarly problematic rabbinic statements. Since Rabbi Hirsch, needless to say, accepted the authoritative and divinely inspired nature of the Bible, all contradictions between biblical statements and firmly established modern scientific knowledge are and can only be, in his view, *apparent* contradictions resulting from the fact that the Torah speaks in "human language." However, Rabbi Hirsch, as we have seen, did not attribute such divinely based authority to the scientific pronouncements of the Sages. Therefore, contradictions between such pronouncements and firmly established modern scientific knowledge are *real* contradictions to be resolved in favor of modern scientific knowledge, and the existence of these contradictions in the first place is to be accounted for by the fact that in making these pronouncements the Sages relied on the best scientific knowledge of their day, knowledge that in many instances has been superseded and made obsolete by the advances of science over the ages. At the same time, we should also take note of the fundamental fact that, for Rabbi Hirsch, neither the Bible nor rabbinic writings have as their purpose the imparting of scientific knowledge. Rather, to return to the *Nineteen Letters*, both bodies of writing are to be read as *Torah*, as "instruction ... directing and guiding us within God's world and among humanity, making our inner self come alive."

B.

I now turn to the second question raised earlier: Does our commitment to the divinely revealed nature of the Torah and to the divinely grounded authority of the Sages rule out, in Rabbi Hirsch's view, our accepting new scientific theories that would seem to be in conflict either with particular scientific theories apparently propounded either in Scripture or the writings of the Sages or with fundamental dogmatic or theological assertions? The first part of this second question has, of course, already been answered. If we are not bound to accept a geocentric astronomical system, despite its apparently being propounded in Scripture, we are free to accept a heliocentric one on the basis of our best current scientific knowledge. If we do not have to believe in the existence of animals that are part flesh and part earth, the existence of which animals would clearly allow for the possibility of spontaneous generation, despite the fact that the halakhic status of such animals is discussed by the Sages, we are free to accept contemporary theories regarding the generation of animals that reject the possibility of spontaneous generation, again on the basis of current scientific knowledge.

More difficult to answer is the second part of the second question concerning the religious acceptability of contemporary scientific theories that appear to be in conflict with fundamental dogmatic or theological assertions. Here we finally return to, and indeed go beyond, the "antideluvian or geological hypotheses" raised in the *Nineteen Letters*. Specifically, are we allowed, on the basis of current geological theories, to accept a date for the age of the earth considerably older than that apparently propounded in the Bible? Even more problematic, are we allowed to accept an evolutionary account of the origin of the species on the basis of current paleontological and biological theories? Or is such an evolutionary account in complete and irreconcilable conflict with Judaism's fundamental religious teaching that God created the heavens and the earth and all their host?

The first thing that needs to be said, contrary to what one will find in almost all scholarly treatments of Rabbi Hirsch, is that in his unfortunately little-known essay "The Educational Value of Judaism," he both addresses and answers these questions. What does he say?

Before we present Rabbi Hirsch's answers, let us again start with fundamentals, this time with Rabbi Hirsch's stance concerning the fundamental question as to the educational necessity of exposing young students to the achievements and accomplishments of general culture, even if some aspects of that culture may be antipathetic to traditional Jewish beliefs and values. In a number of essays Rabbi Hirsch warns of the dangers inherent in seeking to

isolate one's students or children from contact with modern culture. True, as he states in one essay, there are alien influences at work in modern culture: academic "theology," "Oriental philology," the philosophy of materialism, and the "science of Judaism,"[37] but those who, frightened by these alien influences, "would like to isolate their disciples by limiting their studies to the sacred writings of Judaism ... fail to see that such complete isolation is not possible and that allowing their students to remain in ignorance of other subjects will only serve to make their fears come true."[38] As he explains:

> Only to those not initiated in them will the alien influences appear as gigantic, revolutionary discoveries. Only students familiar with these influences will be able to see them in their proper perspective and with all their limitations, so that they will no longer stand in awe of them. Conversely, any knowledge that is deliberately kept from students during their years of study will confront them all the more powerfully in their later lives, which are molded by these alien influences.[39]

Rabbi Hirsch's statement in the above-cited essay may give the impression that his only reason for exposing students to the teachings of modern culture is prophylactic, a type of *"Da mah she-tashiv,"* "Know how to answer the heretic." This is not the case. In another essay he again writes of the dangers involved in attempting "to safeguard our children from contact with the scholarly and scientific endeavours of the rest of mankind."[40] He initially denounces such an attempt as "perverse," because it will only result in one's children succumbing to the alien influences of modern culture later in life.[41] This, of course, is the prophylactic theme we encountered just above. But he also denounces such an attempt as "criminal," insofar as it departs from the path of the Sages who taught us "that it is God Who has given of His own wisdom to mortals,"[42] and insofar as "contempt for everything that is not specifically Jewish, for all other human arts and sciences" is "based on ignorance and untruth."[43] Rather, a parent must educate his child *al pi darko* "according to the course his life will take when he is grown."[44] This means that one must:

> ... educate him to be a Jew, ... to love and observe his Judaism together with the clear light of general human culture and knowledge, ... to love, to value, and to revere Judaism ... and Jewish wisdom and scholarship ... in its relationship to the totality of secular wisdom and scholarship,... [and] to discern the true value of secular wisdom and scholarship by measuring it against the standard of the divinely given truths of Judaism.[45]

Only in this way will the child appreciate "that the knowledge offered by Judaism is the original source of all that is genuinely true, good, and pure in

secular wisdom, and that secular learning is merely a preliminary, a road leading to the ultimate, more widespread dissemination of the truths of Judaism."[46] In sum, Rabbi Hirsch concludes, it is the parent's task to "open [the] child's eyes to genuine thorough knowledge in *both* fields of study" [emphasis in original], for it is precisely thereby that one teaches him "to love and cherish Judaism and Jewish knowledge all the more."[47] Here we see that in Rabbi Hirsch's view one should expose one's students or children to modern culture not merely for prophylactic purposes, but in order to enable them to develop a *critical appreciation* of that culture, accepting what is "genuinely true, good, and pure in secular wisdom," while rejecting all false, harmful, and impure alien influences at work in modern culture.[48]

In his letter to Rabbi Hile Wechsler, as we have already seen briefly above, Rabbi Hirsch advocates taking the same approach with respect to natural sciences, "which in our days have progressed tenfold on the scale of knowledge as compared to earlier generations" (p. 9). Thus, he writes:

> We already have a path clearly set out before us as to how to save our students from dangerous stumbling blocks. We should not keep them from serious study of these sciences. On the contrary, we should teach these subjects in an adequate and intelligent fashion. For it is only the multitude who have no knowledge and understanding of the methodologies of the sciences who believe all the pronouncements in which our contemporaries take pride, as if our generation is the generation of [true] wisdom and the entire nature of things in heaven and earth has been revealed to contemporary scholars, who from their high perch look down condescendingly upon all previous generations. But a person who has a proper knowledge and understanding of scientific methodology will know and understand that certainly contemporary scholars can take genuine pride in the many discoveries they have made based upon firm empirical foundations and carefully tested and verified observations of which previous generations had been unaware. However [they will also know and understand that] most of the speculations and superstructures built upon these firm scientific premises are highly doubtful, inconsistent one with another, and lacking any firm foundation, and [that] every day a new speculation is put forward, and that speculative theories that people will acclaim on one day as being the absolute and undeniable truth, on the very next day will be shown to be doubtful and unlikely. (pp. 9-10)

In the above statement Rabbi Hirsch clearly and unapologetically points to the genuine achievements of modern science, while at the same time stressing the

need to carefully distinguish between firmly established scientific theories on the one hand and dubious speculations on the other, despite the air of spurious certainty with which the latter are so often propounded. I wish to note and emphasize that Rabbi Hirsch's position should be sharply differentiated from the viewpoint adopted by various other prominent Orthodox rabbis, active in the early modern or modern eras, who argued that *all* new scientific theories were merely speculative and lacked any probative weight.[49] Such a viewpoint, in practically all cases, rather than being a carefully considered judgment stemming from any serious study of modern science and modern scientific method, appears to have been an *ad hoc* apologetic device for insulating Judaism from the need for any genuine confrontation with the claims and discoveries of modern science. Rabbi Hirsch was, I would argue, too familiar with the genuine achievements of the science of his day to simply dismiss them in such a cavalier and disingenuous fashon.[50]

We are almost ready to present Rabbi Hirsch's position regarding the age of the earth and evolution, but before we can do so we must take note of yet another distinction that he draws in his discussions concerning modern science. For just as it is important, in Rabbi Hirsch's view, to distinguish between firmly established scientific theories and tentative, often dubious hypotheses, so it is even more important, in his view, to distinguish between genuine science and philosophical systems supposedly erected on scientific foundations, but in truth lacking all validity. Here Rabbi Hirsch has in mind, first and foremost, modern philosophic materialism, which "denies the existence of a free-willed personal God and the freedom of the human will."[51] This modern materialism pretends to be derived from an examination of the laws of nature, presents itself "under the guise of scholarly research," and presumptuously seeks to wrap itself in the prestige that — justifiably — accrues to modern scientific achievements, but in actuality consists of naught but "impudent manipulations of thought," "fantasy and supposition," and, above all, sheer and barefaced "lies."[52] Indeed, as Rabbi Hirsch forcefully contends, "each discovery in the natural sciences," rather than giving support to a materialist conception of man and nature, "only confirms the fundamental truth first set forth by Judaism: There can be no thought without a thinker, no order without a regulator, no culture without a creative spirit, no world without God, and no man without the gift of a free-willed morality."[53]

Many modern scholars have taken note of Rabbi Hirsch's optimistic attitude regarding modern culture, and some have criticized him for displaying an unfortunate naiveté and even blindness to the more negative and corrosive aspects of that culture. The truth, however, is that this optimistic spirit primarily pervades his earlier works, written in the 1830s and '40s, a time when humanism

and idealism were still the central features characterizing the surrounding culture. With the waning of these features and the concomitant rise to cultural predominance of various materialistic philosophies in the latter half of the 19th century, many of Rabbi Hirsch's later essays assume a more critical and even pessimistic tone. But at the same time, as we have seen, this more critical and pessimistic attitude never led Rabbi Hirsch to dismiss the genuine achievements of modern culture, particularly in the realm of the natural sciences.

We are — finally — in a position to appreciate Rabbi Hirsch's views regarding the religious acceptability of geological theories which proposed dates for the age of the earth considerably older than the date apparently proposed in the Bible and of evolutionary accounts of the origin of the species. To anticipate my conclusions: Rabbi Hirsch was very wary and suspicious of the various geological and evolutionary theories of his day, first, because, from a scientific viewpoint, such theories were exceptionally tentative and speculative, and consequently highly dubious in his view, and second, and even more importantly, because precisely such theories were being used as the primary scientific props for materialist philosophies of nature. At the same time, he did not rule out *in principle* Judaism's eventual acceptance of such theories, provided first that they could be firmly grounded in solid empirical data, and, again even more importantly, provided second that the suggested laws governing the processes being propounded by those theories would have God as their author. Since, however, as we have seen, for Rabbi Hirsch all natural laws have God as their author almost by definition, what this means is that Judaism in principle is willing to accept any well grounded scientific theory *qua scientific theory* — as opposed to any philosophic conclusions that may be allegedly derived therefrom — and will view such a theory from within its own religious perspective. With these general conclusions in mind, let us examine in detail Rabbi Hirsch's remarks, first about current geological theories and then about current evolutionary theories.

In his review essay, "Nature and the Bible as Seen from the Materialistic Viewpoint," Rabbi Hirsch is extremely critical of scientific attempts to determine the age of the earth, let alone the age of the universe. As he observes:

> All we know about the earth is its surface, and ... the relationship of this surface ... to the whole mass of our planet is something like the relationship of the membrane that surrounds an egg yolk to the egg in its entirety.... Could such a superficial knowledge ... enable us to form a judgment ... not only on the origins ... of the membrane itself, but also on the origins ... of the "egg-planet" as a whole ... and the entire universe? For instance, from the forces and elements that we observe operating on earth today, and from the length of time which these forces require for

> generating change today, people draw conclusions with doctrinaire self-assurance about the age of the earth.... Quite aside from the possible influences of extra-terrestrial forces ... and aside from the influence of a creative, almighty, extra-worldly power ... might there not be, deep within the interior of the earth, elements and forces still unknown to us? Might these unknown forces have such power that ... when the earth was taking shape, they were able to effect within only a moment what the influences operating on the earth's surface today could only accomplish over millions of centuries (a time frame with which these [geological theories] are satisfied)?[54]

While, in the above-cited passage, Rabbi Hirsch, to say the least, is highly skeptical about the very feasibility of all the attempts of his day to determine the age of the earth on the basis of geological considerations, he does not say there whether such determinations are religiously objectionable *per se*. He does, however, address this latter issue in his exceptionally important later essay, "The Educational Value of Judaism," where, while maintaining his skepticism about the scientific validity of current geological theories, he clearly states that if these theories were to someday be more than "mere hypothesis," they need not be rejected by Judaism on religious grounds, as long as such theories would not deny that "every beginning is from God" (a denial, we may add, that for Rabbi Hirsch such scientific theories *qua* scientific theories are not and cannot be in a position to make). As he states:

> Judaism is not frightened even by the hundreds of thousands and millions of years which the geological theory of the earth's development bandies about so freely. Judaism would have nothing to fear from that theory even if it were based on something more than mere hypothesis, on the still unproven presumption that the forces we see at work in our world today are the same as those that were in existence, with the same degree of potency, when the world was first created. Our Rabbis ... discuss (*Midrash Rabbah* 9; Tractate *Haggigah* 16a) the possibility that earlier worlds were brought into existence and subsequently destroyed by the Creator before He made our own earth in its present form and order. However, the Rabbis never made the acceptance or rejection of this and similar possibilities an article of faith binding on all Jews. They were willing to live with any theory that did not reject the basic truth that "every beginning is from God."[55]

Even bolder than his stance on the age of the earth, which after all was partially anticipated by Rabbi Israel Lipschutz's famous (and, in some extreme

Orthodox circles, still controversial) discussion of this issue in his classic commentary on the Mishnah, *Tiferet Yisrael*,[56] is Rabbi Hirsch's position on the issue of evolution, a position for which he had no predecessors and, perhaps even more significantly, very few successors. Indeed, to the best of my knowledge, Rabbi Hirsch was the only leading Orthodox rabbi of the 19th century to discuss the issue of evolution, and, beyond that, one of the few major Orthodox rabbinic thinkers of the entire modern era down to our own day who was willing to publicly declare that an evolutionary account of the origin of the species, if detached from all materialistic accretions, is in principle in accord with fundamental Jewish beliefs. It is striking and unfortunate that in the many discussions about the religious acceptability of evolution from an Orthodox Jewish standpoint only the important comments of Rav Kook are cited time and time again,[57] while the bold views of Rabbi Hirsch on this matter, which are of equal or almost equal importance, go unmentioned and indeed appear to be almost completely unknown. Let me then cite Rabbi Hirsch's statement on this issue, also taken from his essay, "The Educational Value of Judaism." Because of the significance of the issue the statement addresses, and because the statement contains in brief all the major motifs of Rabbi Hirsch's thought on the relationship between Judaism and the natural sciences we examined earlier, we will cite it in full, despite its length.

> Whether or not man is able to find an adequate or correct explanation for the natural laws governing any phenomenon of nature does not alter his moral calling. What Judaism does consider vitally important is the acceptance of the premise that all the host of heaven move only in accordance with the laws of the one, sole God. But whether we view these laws from the Ptolemaic or Copernican vantage point is a matter of total indifference to the purely moral objectives of Judaism. Judaism has never made a credo of these or similar notions.
>
> This will never change, not even if the latest scientific notion that the genesis of all the multitude of organic forms on earth can be traced back to one single, most primitive, primeval form of life should ever appear to be anything more than what it is today, a vague hypothesis still unsupported by fact. Even if this notion were to gain complete acceptance by the scientific world, Jewish thought, unlike the reasoning of the high priest of that notion, would nonetheless never summon us to revere a still extant representative of this primal form as the supposed ancestor of us all. Rather, Judaism in that case would call upon its adherents to give even greater reverence than ever before to the one, sole God Who, in His boundless creative wisdom and eternal omnipotence, needed to bring into

> existence no more than one single amorphous nucleus and one single law of "adaptation and heredity" in order to bring forth, from what seemed chaos but was in fact a very definite order, the infinite variety of species we know today, each with its unique characteristics that set it apart from all other creatures. This would be nothing but the actualization of the law of *le-mino*, the "law of the species" with which God began His work of creation. This law of *le-mino*, upon which Judaism places such great emphasis in order to impress upon its adherents that all of organic life is subject to Divine laws, can accommodate even this "theory of the origin of species."[58]

This clear and forceful comment speaks for itself, but a few observations may be in order.

First, it is striking how Rabbi Hirsch glides from the debate regarding the Ptolemaic versus the Copernican astronomical theories to the debate regarding the validity of the Darwinian theory of the origin of the species. For certainly, in Rabbi Hirsch's day, if any "notion" had gained "complete acceptance by the scientific world," if any theory was considered to be — and rightfully so — firmly grounded in fact, it was the heliocentric system, first proposed by Copernicus, later refined by Kepler, shown by Newton to fit perfectly into the three laws of motion and the law of universal gravitation, and supported by such striking and impressive discoveries as the existence and orbits of Neptune and Pluto, the aberration of starlight, and stellar parallax. And yet Rabbi Hirsch almost appears to bracket together the Copernican "vantage point" with the theory of the evolution of the species, which theory, in Rabbi Hirsch's view, in contrast to the heiliocentric system, is "a vague hypothesis still unsupported by fact," or, as he states even more damningly later on in his discussion, "a speculative illusion."[59] We would suggest that Rabbi Hirsch, when writing this passage, may have remembered that when Copernicus first proposed his theory it too was not very well grounded, and was in many circles viewed merely as a convenient mathematical hypothesis that did not necessarily reflect the real movement of the heavens. More importantly, he may have reflected upon the folly of the church's condemnation of Galileo, and how that condemnation, in retrospect, gravely damaged the cause of religion. While Rabbi Hirsch was — at best — highly skeptical about the theory of evolution, we would suggest that he did not wish to paint Judaism into a corner by condemning that theory as religiously unacceptable, lest it too one day receive the same type of solid scientific substantiation as that received by the Copernican theory, and Judaism find itself in the same embarrassing position as the church with reference to Galileo.

Second, while, in this passage, Rabbi Hirsch, clearly proclaims that the theory of evolution is religiously acceptable in principle, he deliberately goes out of his way to equally clearly condemn the materialist gloss placed on that theory by Darwin. That is, the theory stripped of its materialist accretions is religiously acceptable, but the theory as presented by Darwin himself was unacceptable, insofar as it was being used to support a materialist conception of the universe.

Third, we should note that not only does Rabbi Hirsch state that the theory of evolution, if stripped of its materialist accretions, is religiously acceptable, but he goes so far as to suggest that the theory if viewed in the proper religious light might serve as powerful witness to the divine "creative wisdom and eternal omnipotence," and thereby lead to "even greater reverence than ever before to the one, sole God."

Fourth, for Rabbi Hirsch the potential religious problem posed by evolution is *not* "evolution vs. creation." In his view, the challenge to the religious conception of creation was posed not by evolution, but by the materialist doctrine of the eternity of matter.[60] Rather, if evolution is religiously problematic it is because of the potential threat it poses to "the ancient Jewish law of *le-mino*." However, Rabbi Hirsch resolves this potential conflict by insightfully suggesting that it is religiously irrelevant whether the species were directly created by God or are the product of the law of adaptation and heredity, since that law itself has God as its author. Indeed, as Rabbi Hirsch goes on to say, precisely the perspective that the species in their present form are the product of a long process of natural development can help us to understand the rationale behind the Torah's laws prohibiting "outside inteference [with] this normal development of the species."[61] Thus, as Rabbi Hirsch concludes, "These prohibitions will remain in force even if the scientific theory [of evolution] should someday turn out to be more than a speculative illusion."[62]

With our presentation of Rabbi Hirsch's view of evolution we have come to the end of our discussion. It is certainly tempting to speculate what position Rabbi Hirsch would adopt nowadays regarding the current geological theories as regards the age of the earth and current evolutionary theories. Would he adopt a more positive attitude toward current scientific estimates of the age of the earth, based as they are on the process of radioactive decay, a process that would seem to be immune to all known environmental factors, no matter how extreme? Would he perhaps accept the fact of evolution, given its nigh universal acceptance in the scientific community, but adopt an agnostic posture toward its precise mechanism, which is still the subject of often heated debate? But tempting as it is to speculate about such questions, it is equally pointless. For what is important is not what Rabbi Hirsch would say today about these issues if he were among us, but the guidance his methodology provides *us* in grappling

with these issues and others like them. And, here, Rabbi Hirsch's position is clear. We are not bound by apparently outmoded scientific theories presented by the Sages, though we should be cautious and and respectful and not reject them hastily. While we should be properly skeptical as regards new scientific theories, we are not in principle religiously barred from accepting any scientific theory *qua* scientific theory. We should always remember that "Judaism does not fear the advances of science; in fact it rejoices in them and hails them with high hopes for the future."[63] At the same time, we must always be on guard to distinguish between the genuine advances and discoveries of science and materialist philosophies supposedly based on those discoveries, but in truth lacking all firm ground. Above all, the discovery of new scientific laws should lead us to ever greater reverence for the divine author of those laws. We can do no better than to conclude with these incisive, brave, and inspiring words of Rabbi Hirsch.

> Even a materialist approach to the study of nature that denies the existence of God will have to perceive its objective study as a realm of laws which it should take pride and joy in finding beneath the cover of the phenomena under investigation. No matter how vehemently the adherents of this approach may deny His existence, the Giver of the laws which they are attempting to trace by scientific methods is the indispensable presupposition for their intellectual endeavors. With each new success in their work, with every advance toward the goal that they regard as their ultimate scientific triumph in their endeavor to help trace the infinite variety of phenomena to the unity of one law, they only contribute one more building block to the temple of Him Whose existence their mouth has denied, to the temple of the one, sole God Whose thoughts fill the universe and "in Whose temple all His creations proclaim His glory."[64]

NOTES

* It should be noted that while *madda* in the term *"Torah u-Madda"* in the writings of Rabbi Hirsch refers to general scholarship, this article, when discussing the concept of *Torah u-Madda* in the thought of Rabbi Hirsch, refers to *madda* in the narrower sense of the natural sciences.

1 J. Schacter, *Torah U-Madda Journal* 1, (1989), pp. 10-11.

2 N. Lamm, *Torah U-Madda: The Encounter of Religious Learning and Worldly Knowledge in the Jewish Tradition* (Northvale, New Jersey: Jason Aronson, 1990), pp. 11-12.

3 Schacter, "Torah U-Madda Revisited," pp. 10 and 20 (n. 38); Lamm, *Torah U-Madda*, pp. 10-12.

4 See, for example, Mordecai Breuer, "Perakim mi-Tokh Biographiah," *Ha-Rav Shimshom Raphael Hirsch: Mishnato ve-Shittato*, ed. Yonah Immanuel (New York–Jerusalem: Feldheim, 1962), pp. 20, 34 [Henceforth: *Ha-Rav Hirsch*].

5 See Jacob Katz, "Sources of Orthodox Trends," *The Role of Religion in Modern Jewish History*," ed. Jacob Katz (Cambridge, Mass.: Association of Jewish Studies, 1975), pp. 40-48; *Ha-Rav Hirsch*, pp. 323-335; *Sefer Shemesh Marpei*, ed. Eliyahu Klugman (New York: Mesorah, 1992), pp. 188-196.

6 Katz, "Sources of Orthodox Trends," p. 29.

7 Ibid., p. 30.

8 The earliest reference of Rabbi Hirsch to the ideal of *Torah im Derekh Eretz* that I have located is in a letter, written in about 1849 to R. Moshe Leib Engel, regarding the tasks and responsibilities of a communal rabbi. See *Shemesh Marpei*, pp. 224-225. Note how, in the letter, Rabbi Hirsch refers both to the rabbinic adage of "Yafeh Talmud Torah im Derekh Eretz" and to "Keter ha-Torah ve-Derekh Eretz".

9 See, for example, "Our Mission," *The Collected Writings* 7 (New York–Jerusalem: Feldheim, 1992), p. 173. Note that on the previous page Rabbi Hirsch speaks of *Talmud Torah im Derekh Eretz*.

10 See, for example, Lamm, *Torah U-Madda* (above, n. 2), pp. 132.

11 Edited by Mordecai Breuer (Ramat-Gan: Bar-Ilan University, 1987), pp. 50-53.

12 *Torah im Derekh Eretz*, ed. Mordecai Breuer (Ramat-Gan: Bar-Ilan University, 1987), pp. 145-146.

13 Mordecai Breuer, "Ma'amar ha-Rav Hirsch al Aggadot Hazal," *Ha-ma'ayan*, 17:2, (1976), pp. 1-16; translated into English by Joseph Munk, *L'Eylah* (April 1989), pp. 30-35. All translations from this essay are my own.

14 *Collected Writings* 7, pp. 245-275. For the bibliographical information contained in my text, see the editor's preface to the essay followed by an English translation of an introduction to the essay written by Rabbi Dr. Joseph Breuer which accompanied the essay's appearance in *Nachalas Zvi*. (I am particularly indebted to the late and much revered Rav of Kahal Adath Jeschurun, Rabbi Simon Schwab, who, in a memorable phone conversation several years ago, first called this essay to my attention and alerted me to its importance.)

15 Stern, *Ishim ve-Kivvunim* (above, n. 11), p. 52.

16 Arend, "Torah im Derekh Eretz," (above n. 12), p. 145.

17 It is worth noting that Noah Rosenbloom, in his discussion of Rabbi Hirsch's attitude to the natural sciences, does not cite either of these two texts. See Noah Rosenbloom, *Tradition in an Age of Reform: The Religious Philosophy of Samson Raphael Hirsch* (Philadelphia: Jewish Publication Society, 1976), pp. 362-388. While Rosenbloom, whose book appeared in 1976, could not have been aware of Rabbi Hirsch's letters to Rabbi Hile Wechsler, which first appeared in *Ha-ma'ayan* that same year, he could, of course, have known about Rabbi Hirsch's essay "The Educational Value of Judaism," despite its rather obscure provenance. In any event, the unfortunate fact that Rosenbloom's discussion, for whatever reasons, takes neither of these essays into account greatly limits its usefulness. Even more unfortunate, these texts are not cited in the exceptionally extensive and useful collection of primary sources on Halakhah and the sciences contained in Chapter 21 ("Makhloket Hakhamim u-Madd'anim") of *Ha-Makhloket be-Halakhah*, ed. Haninah Ben-Menahem *et al.* (Jerusalem, 1994), pp. 967-1070, nor are they discussed or even mentioned in Shalom Rosenberg's important study

and anthology, *Torah u-Madda be-Hagut ha-Yehudit he-Hadashah* (Jerusalem: Misrad ha-Hinukh ve-ha-Tarbut, 1988).

18 *The Nineteen Letters*, translated by Joseph Elias (New York-Jerusalem: Feldheim, 1995), p. 15.

19 Shlemo Danziger, "Rediscovering the Hirschian Legacy," *Jewish Action* 56:4, (1996), 22.

20 *Nineteen Letters*, p. 267.

21 Ibid., p. 22. For further discussion and debate regarding this matter, see the exchange between Rabbi Danziger and Rabbi Joseph Elias in "Hirschians Debate the True Meaning of Hirsch," *Jewish Action* 57:1, 1996, 61-63 (Elias) and 62-66 (Danziger). The position of Danziger appears — to this reader at least — to be the more convincing.

22 *Collected Writings* 7, p. 57.

23 See André Neher, "Copernicus in the Hebraic Literature from the Sixteenth to the Eighteenth Century," *Journal of the History of Ideas* 38, (1977), pp. 211-226; Rabbi Menahem M. Kasher, "Ha-Eretz o ha-Shemesh Mercaz ha-Olam," *Talpiyyot* 2:3-4, (1946), pp. 402-410; and, above all, Michael Panitz, "New Heavens and a New Earth: Seventeenth- to Nineteenth-Century Responses to the New Astronomy," *Conservative Judaism* 40:2, (1987-88), pp. 28-42.

24 This list was compiled from the articles of Panitz and Kasher cited in the previous note. It should be noted that both Kasher and Neher seek to gloss over the strong Jewish opposition to the heliocentric theory of Copernicus. Thus, for example, Hakham David Nieto pungently characterizes Copernicus' theory as *"piggul hu lo yeratzeh"* (Lev. 7:18). A quick glance at the standard translations of this verse shows that *piggul* is variously translated as "offensive" or "abhorrent" or "an abomination," not exactly a compliment. Neher, however — incredibly — translates the phrase as "it is a sacrifice which cannot be accepted on the altar"! On the basis of this exceedingly weak, inaccurate, and misleading translation, Neher, while of course conceding that Nieto rejected the heliocentric theory, describes that rejection as "respectful." (I should also mention that Neher appears unaware of the rejection of the theory on the parts of Rabbis Emden, Eibeschutz, and Sofer.) Rabbi Kasher, for his part, ignores altogether Nieto's sharp rejection of the Copernican thesis and, rather misleadingly, only quotes an earlier statement of Nieto that a person who accepts this thesis is not to be considered a heretic. In a similar manner, Rabbi Kasher, by quoting selectively from Rabbi Jacob Emden, gives the — again misleading — impression that Emden supported the heliocentric thesis, while, in fact, though Emden cited biblical and rabbinic evidence both in favor of and against this thesis, he finally favored the geocentric thesis, since, in his view, it had the clear preponderance of textual support. Let me finally mention in this connection that none of the Jewish scholars in the 18th and early 19th centuries, cited by both Kasher and Neher, who did support the heliocentric thesis, were outstanding rabbinic authorities. In contrast to the clearly apologetic presentations of Neher and Kasher, Panitz's discussion stands out as objective, nuanced, and balanced. The only major 18th-century rabbinic opponent of the heliocentric thesis overlooked by Panitz is Rabbi Yonatan Eibeschutz.

David Ruderman, in his excellent and pioneering study, *Jewish Thought and Scientific Discovery in Early Modern Europe* (New Haven and London: Yale, 1995), pp. 261-262, describes the noted late 17th-and early 18th-century rabbinic authority, Rabbi Judah Briel, as a supporter of the heliocentric thesis. This, however, is not the case. What Briel does argue is that the new astronomy supports the original rabbinic position that "the sphere is fixed and its star revolves" (*Pesahim* 94b). Ruderman believes that the affirmation of this astronomic claim is tantamount to the affirmation of the heliocentric thesis. But, as Panitz clearly and conclusively demonstrates in his article, these are two separate astronomical issues.

25 "Ma'amar ha-Rav Hirsch" (above, n. 13). Regarding the controversial nature of these letters, I believe the following may be of interest. In my memorable phone conversation with Rabbi Schwab, referred to in n. 14, our conversation at one point turned to the recent important collection of writings of Rabbi Hirsch, *Shemesh Marpei*, edited by Rabbi Eliyahu Klugman and published by Rabbi Schwab himself (above, n. 5). I took the opportunity to express my surprise that these two letters of Rabbi Hirsch to Rabbi Wechsler were not included in the volume, which purports to include all of Rabbi Hirsch's major Hebrew writings, published and unpublished. Rabbi Schwab replied — and I am citing him practically verbatim — "Yes, you are correct. The editor [Rabbi Klugman] consulted with me, and I advised him not to publish them. I told him that the letters are controversial and likely to be misunderstood, and that his publishing them would just bring him unnecessary grief (*tzoros*)."

26 "Ma'amar ha-Rav Hirsch," n. 12 p. 1.

27 Ibid., p. 1.

28 *Horeb*, translated into English by Dayan I. Grunfeld (London: Soncino, 1962), p. clviii. It is striking that, as Professor Breuer points out ("Ma'amar ha-Rav Hirsch," p. 2), this introduction is not to be found in the Hebrew translation of *Horeb*. See above, n. 25.

29 See Marc Saperstein, *Decoding the Rabbis* (Cambridge, Mass.: Harvard, 1980), Ch. 1; and "Aggada," *Encyclopedia Talmudit*, Vol. 1 (2nd edn.), p. 132.

30 See Michael K. Silber, "The Emergence of Ultra-Orthodoxy: The Invention of a Tradition," *The Uses of Tradition: Jewish Continuity in the Modern Era*, ed. Jack Wertheimer (New York and London: Jewish Theological Seminary, 1992), p. 60, n. 76; Lawrence Kaplan, "The Hazon Ish: Haredi Critic of Traditional Orthodoxy," *The Uses of Tradition*, pp. 167-168, n. 67; *idem*, "Daas Torah: A Modern Conception of Rabbinic Authority," *Rabbinic Authority and Personal Autonomy*, ed. Moshe Sokol (Northvale, New Jersey: Jason Aronson, 1992), pp. 24-25, n. 36; Shelomo Danziger "Rediscovering the Hirschian Legacy," *Jewish Action* (above, n. 19), pp. 21-23, and the exchange between Rabbis Elias and Danziger, "Hirschians Debate the True Meaning of Hirsch," *Jewish Action* (above, n. 19), pp. 63-65 (Elias) and 61-62 (Danziger). Once again, Danziger's sober analysis is more convincing than the rather strained apologetics of Elias.

31 One may wonder whether Rabbi Hirsch confronts the full range of difficulties raised by the problematic and possibly outdated scientific knowledge of the Sages. The talmudic statement about the spine of a man turning into a snake is clearly aggadic. And while it is true, of course, that the discussion concerning animals that are part flesh and part earth is halakhic in character, since in point of fact there are no such animals their halakhic status is moot, and the fact that this halakhic discussion is based on incorrect scientific information has no halakhic consequences. What, however, about the more difficult issue of a situation where a halakhic determination concerning *real* creatures is apparently based on incorrect scientific information, in which situation the correct scientific information would apparently lead to a different halakhic determination? I refer, for example, to the halakhic permission to kill lice on the Sabbath, which, according to the standard authorities, is based on the fact that lice come into existence from excrement or rotting fruit, and the like. To the best of my knowledge, Rabbi Hirsch does not, unfortunately, discuss this or similar questions, and one would very much like to know how he would have dealt with them. For discussions concerning the specific case of the halakhic status of lice, as well as the more general issue, see Ruderman, *Jewish Thought and Scientific Discovery*, above., n. 24, Ch. 9 ("Science and Jewish Law"); and the relevant sources in Ch. 21 of *Ha-Makhloket be-Halakhah* (above n. 17). It is worth noting that the practical halakhic issue of killing lice on the Sabbath, as well as the moot halakhic issue of

the status of animals that are part flesh and part earth, as well as the aggadic talmudic dictum regarding a person's spine turning into a snake, all revolve around the scientific question of the spontaneous generation of living creatures from inanimate matter. (Editorial note. Some of these topics are discussed in articles by S. Sternberg and Z. Low in BDD 4.)

32 See the private communication of Berger cited in David Ruderman, *Jewish Thought and Scientific Discovery*, (above n. 24) p. 31, n. 49.

33 Abraham Maimonides "Ma'amar al Derashot Hazal," in *Milhamot Hashem*, ed. Reuben Margoliot (Jerusalem, 1953), p. 84, as translated by David Berger, "Judaism and General Culture in Medieval and Modern Times" (forthcoming).

34 For a large selection of medieval discussions regarding the astronomical passage in *Pesahim* 94b, see Isadore Twersky, "Joseph Ibn Caspi: Portrait of a Medieval Jewish Intellectual," *Studies in Medieval Jewish History and Literature* (Cambridge, Mass.: Harvard, 1979), p. 256, n. 52. See the discussion of the entire issue in Ruderman, *Jewish Thought and Scientific Discovery* (above n. 24) *passim*; and the relevant sources in Ch. 21 of *Ha-Makhloket be-Halakhah* (above, n. 17).

35 See the references in the previous note.

36 Rabbi Wechsler's side of this correspondence may be found in his *Devar Azharah le-Yisrael*, edited with an introduction, notes, and appendices by Rivka Horwitz (Jerusalem: Dinur Center, 1991), Appendix B.

37 "Hazak ve-Nithazek," *Collected Writings* 8, pp. 320-321.

38 Ibid., pp. 321-322.

39 Ibid., p. 322. See aslo "A Classic Principle of Jewish Education," *Collected Writings* 7, pp. 291-292.

40 "Hanokh la-Na'ar al pi Darko," *Collected Writings* 7, p. 415.

41 Ibid., p. 416.

42 Ibid., p. 416.

43 Ibid., p. 415. Cf. Rav Kook's impassioned exclamation: "That narrowness of vision which causes one to view everything that is outside the bounds of one's own people, even if it be outside the bounds of Israel, as naught but ugliness and impurity is one of the worst kinds of darkness which completely demolishes the entire edifice of spiritual good for whose light every noble soul yearns" (*Orot ha-Kodesh* IV, 405).

44 Ibid., p. 411.

45 Ibid., p. 416.

46 Ibid., pp. 416-417.

47 Ibid., p. 417.

48 See also "The Relevance of Secular Studies to Jewish Education," *Collected Writings* 7, pp. 81-100, where Rabbi Hirsch vigorously rejects the views of "certain proponents of Jewish studies" who argue that secular studies are "a sacrifice of time and energy that should be devoted to things Jewish," a sacrifice that can be sanctioned only "as a concession to the demands of the present day" (p. 82), or on account of "their practical utility and necessity" (p. 89), and argues, to the contrary, that "a good secular education can give our young substantial new insights, added dimensions that will enrich their religious training" (p. 89), and that "any knowledge that serves to enrich the intellect in any manner will also enhance our insights into the philosophy of Judaism" (p. 90). It is true that this essay, like others in Vol. 7 of the *Collected Writings*, was, to cite Rabbi Joseph Breuer, "a scholarly essay prepared by Rabbi Hirsch for enclosure with the official invitations for the annual graduation exercises of his educational institutions,...and had as its purpose to acquaint a larger non-Jewish audience

with the nature of the Jewish day school and other Jewish institutions" (pp. xiv. and 245); but while this fact can account for certain nuances of style or emphasis in these essays, no one can or should deny that the sentiments expressed therein reflect the firmly and passionately held views of Rabbi Hirsch. Thus, while one may legitimately argue that given his non-Jewish audience, Rabbi Hirsch, in "The Relevance of Secular Studies to Jewish Education," somewhat downplays the possible dangers involved in secular education (dangers to which he adverts in "Hazak ve-Nithazek," "A Classic Principle of Jewish Education," and "Hanokh la-Na'ar") Rabbi Hirsch's contention in that essay that secular studies, if taught properly, have intrinsic value, clearly articulates a deeply-held conviction.

49 See, for example, the views of Rabbis Emden and Sofer, discused in Panitz, *New Heavens and a New Earth* (above n. 23) p. 30 (Emden) and 34-35 (Sofer); and Rabbis Judah Briel, Solomon Aviad Sar Shalom Basilea, and David Nieto, discussed in Ruderman, *Jewish Thought and Scientific Discovery* (above n. 24) pp. 261-264 (Briel and Basilea) and 323-324 (Nieto).

50 In this connection, see the thoughtful and judicious comments of Milon Sprecher in "Divrei Hazal ve-Yediot Mada'iyot, *BDD* 2 (Winter, 1996), p. 22. Sprecher's excellent article addresses many of the same issues discussed here, and, though he does not mention Rabbi Hirsch, addresses them, I would dare say, in a Hirschian spirit.

51 "Hazak ve-Nithazek," n. 37 p. 321.

52 "A Classic Principle of Jewish Education," n. 39 p. 292.

53 "The Educational Value of Judaism," p. 261.

54 *Collected Writings* 8, pp. 299-300.

55 *Collected Writings* 7, p. 265. (Regarding the methodological problems involved in using this essay to determine Rabbi Hirsch's views, see above, n. 48).

56 "Derush Or Hayyim," printed as an appendix to *Tiferet Yisrael* on *Seder Nezikin.*

57 See. for example, Rosenberg, *Torah* u-*Madda*, (above n. 17) pp. 46-57, 151-164.

58 *Collected Writings* 7, pp. 263-264. In light of this clear-cut statement of Rabbi Hirsch, it is difficult to understand how Rabbi Joseph Elias, in his edition of the *Nineteen Letters*, p. 317, can state so categorically that, in Rabbi Hirsch's view, the theory of evolution is "incompatible with Torah teachings." It should be noted that Rabbi Elias, unlike the various scholars to whom I referred in notes 16 and 17, is aware of the essay and just four pages earlier (p. 313) refers to its publication in *Nachalas Zvi.*

59 Ibid., p. 264.

60 See "Nature and the Bible," pp. 297-298; and "Hazak ve-Nithazek," (above n. 37) p. 321. The materialist "theory of the earth's origins that is diametrically opposed to the Jewish view of creation," which Rabbi Hirsch so vigorously condemns in "Hazak ve-Nithazek," is again *not* the "theory of the origin of the species," but the theory of the eternity of matter.

61 "The Educational Value of Judaism," p. 264.

62 Ibid., p. 264. Noah Rosenbloom, who, as we pointed out (above n. 17), is unaware of this essay, correctly senses that the main challenge that the theory of evolution would pose to Rabbi Hirsch is its apparent contradiction to "das grosse le-mino-Gesetz." See Rosenbloom, op. cit., pp. 362-264. But as we have just seen, Rabbi Hirsch explicitly says that the theory of evolution would not and does not contradict that "great law," and that to assume that it does consitutes an example of the genetic fallacy.

63 "The Educational Value of Judaism," p. 257.

64 "Ethical Training in the Classroom," p. 58. Cf. "The Relevance of Secular Studies to Jewish Education," p. 87. This statement, though it overlaps with the one cited in the text, also deserves to be quoted in full, on account of its importance and eloquence.

> Judaism knows that even a natural scientist who denies the existence of God actually confirms His existence with every new insight he gains from an idea, a mechanism, or a law of nature he observes in the course of his research. He may insist there is no God, but his own discoveries attest to the existence of one God Who embodied His thoughts in the particular phenomena observed by the scientist, and Who made the substances and forces operative in these phenomena subject to His Law. Truly, a scientist who denies the existence of God actually confirms His existence whenever he sets out to study particular phenomena in order to abstract from them the concepts and laws that govern nature and history. The teachings of Judaism have nothing to fear from science.

Particularly noteworthy in this context is the mention of history alongside nature.

NEW BOOK

הוצאת
אוניברסיטת
בר-אילן
BAR-ILAN
UNIVERSITY
PRESS

THESE ARE THE NAMES

Studies in Jewish Onomastics

edited by
A. Demsky • J.A. Reif • J. Tabory

A collection of papers on the subject of Jewish names by internationally-known scholars, researching Jewish names in various communities from Biblical to modern times. These articles are based on lectures given at the first international conference on Jewish Onomastics held at Bar-Ilan University.

158 + עב pp. Hardcover, 1997

For further information please contact
Bar-Ilan University Press, Ramat-Gan 52900
Tel. 972-3-5318401 Fax. 972-3-5353446