# THE RECEPTIVITY OF JEWISH THOUGHT TO THE NEW ASTRONOMY OF THE SIXTEENTH AND SEVENTEENTH CENTURIES: THE CASE OF ABRAHAM b. HANANIAH YAGEL\*

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To readers of the Bible living at the opening of the seventeenth century, Isaiah's words, "for behold, I create new heavens and a new earth," were sure to evoke a sensation of wonder and exhilaration. For in no other age than in this blessed one had God revealed more of his marvelous secrets regarding heaven and earth. New lands, new peoples, new cultures, and new stars testified anew to the vastness and multifariousness of the divine creation. Yet at the same time the dramatic discoveries seemed to puncture the absolute certainty that "there is nothing new under the sun." To the sensitive observer, such revelations must have undermined the comforting security he previously held in nature's constancy and predictability. To reconcile novelty with continuity, to accommodate the new with the familiar and understandable experience of the past constituted a fundamental philosophical and theological problem of the age.

- \* In honor of the late Moses David Cassuto who wrote the important entry on Abraham b. Hananiah Yagel, Encyclopaedia Jud@ica, 7, Berlin 1931, pp. 70-71.
- Isaiah 65, 17,
- Ecclesiastes 1:9.
- 3 See for example: I.B. Cohen, La découverte du nouveau monde et la transformation de l'idée de la nature, La science au seizième siècle, Paris 1960, pp. 189-210. D.F. Lach, Asia in the Making of Europe, 1-2 (in 5). Chicago 1965-77 to date, R.S. Westfall, Science and Religion in Seventeenth Century England, Ann Arbor 1973.

For Jews who witnessed the momentous changes affecting their physical and cultural landscape, the challenges of the newly expanding universe were just as compelling to them as to anyone else. Like Christians, they had allied their own theology too long with so wrong a theory of the origin and structure of the universe; like Christians, they now were forced to reread and rethink their consecrated affirmations in the light of contradictory empirical evidence; and like Christians, they undoubtedly required ingenious hermeneutical devices to adjust their traditional responses to the newly accumulating information regarding unexplored lands and skies. And with the ascendancy of Copernicus' heliocentric theory, they also faced a revolutionary thesis for which they hardly had time to prepare.

While the receptivity of general European thought to the scientific revolution of the late sixteenth and seventeenth centuries had been studied systematically and comprehensively, no similar investigation has yet been undertaken with respect to Jewish thought. Such an inquiry into Jewish sources would be important both in assessing the awareness of Jews to the literature and technology of the new discoveries and in evaluating the ability of Jewish traditional culture to assimilate new and contradictory data and assumptions about the physical world. Furthermore, such an examination would offer a comparative perspective in which to view the Christian community's adaptation to scientific novelty and change. The only well-researched Jewish figures to have displayed considerable familiarity with the new astronomy were

- This is not the place to cite numerous bibliographical references, but see generally: T.S. Kuhn, The Copernican Revolution, Planetary Astronomy in the Development of Western Thought, Cambridge, Mass. 1957; idem, The Structure of Scientific Revolutions, Chicago 1962, A. Koyre, From the Closed World to the Infinite Universe, Baltimore 1957; K. Schölder, Erspringe und Probleme der Bibelkritik in 17 Jahrhundert, Munich 1966; Westfall, Science and Religion (above n. 3); A. Funkenstein, apud R.S. Westman (ed.), The Dialectical Preparation for Scientific Revolutions, The Copernican Achievement, Berkeley-Los Angeles-London 1975, pp. 165-203, A.R. Hall, The Scientific Revolution 1500-1800, London 1934; E.A. Burtt, The Metaphysical Foundations of Modern Physical Science (rev. ed.), London 1932; B. Willey, The Seventeenth Century Background, London 1934
- 5 The one exception is: A. Neher, Copernicus in the Hebraic Literature from the Sixteenth to the Eighteenth Century. *Journal of the History of Ideas* 38 (1977), pp. 211–26. On Neher's premature evaluation, see below.

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David Gans (1541–1613)\* and Joseph Solomon Delmedigo (1591–1655).' Both had the unusual good fortune of being associated personally with the astronomical revolution. Gans knew Brahe and Kepler; Delmedigo was a student of Galileo. Both were cognizant of Copernicus' new theories and wrote about them in Hebrew; Delmedigo even accepted the Copernican cosmology without reservation. Judging from so small a sampling, one might be tempted to conclude that Jewish thinkers were more open-minded and culturally progressive than some of their Christian counterparts in accepting the assumptions of the new astronomy. Such a hasty conclusion is unwarranted however, given the current lack of documentation.'

The writings of Abraham b. Hananiah Yagel, an Italian Jew and contemporary of Gans and Delmedigo, supply additional evidence regarding Jewish responses to the new astronomical findings. Yagel's testimony is significant since, unlike the other two, he seems to have had no personal contact with any of the scientific luminaries of his day. Furthermore, his primary interest and

- On Gans' astronomical writings, see: A.Neher, David Gans (1541-1613) disciple du Maharal de Prague, assistant de Tycho Brahe et de Jean Kepler, Paris 1974; G. Alter, Two Renaissance Astronomers: David Gans and Joseph Delmedigo. Rozpravy Cëskoslovenské Akademie Věd Ročník 68 (1958), Răda MPV, sešit 2, 77 pp.
- 7 On Delmedigo, see: I. Barzilay, Yoseph Shlomo Delmedigo, Yashar of Candia, His Life, Works and Times, Leiden 1974, especially pp. 150ff. On the general involvement of Jews in astronomy in the lifteenth century and later, see. B. Goldstein, The Hebrew Astronomical Tradition: New Sources, Isis 72 (1981), pp. 237-51; idem, The Survival of Arabic Astronomy in Hebrew, Journal for the History of Arabic Science 3 (1979), pp. 31-39 (especially pp. 38-39).
- 8 I am referring to the conclusion drawn by Neher, *David Gans* (above n. 6), pp. 27lff. idem, Copernicus in the Hebraic Literature (above n. 5).
- Yagel apparently was born in Monselice, Italy in 1553, as he indicates in a letter he composed in 1613 on reaching the age of sixty (Ms. Moscow Günzberg 129, n. 67). He was living in San Martino as late as 1623 (see the same collection, letter to Hanamah Rieti, fol. 171ff.). Other autobiographical facts are found in his Gei Hizzayon, Alexandria 1897. See also: D. Ruderman, Three Contemporary Perceptions of a Polish Wunderkind of the Seventeenth Century, Association for Jewish Studies Review 4 (1979), pp. 143–63; idem, Unicorns, Great Beasts and the Marvelous Variety of Things in Nature in the Thinking of Abraham b. Hananiah Yagel, a paper delivered at a Symposium on Jewish Thought in the Seventeenth Century, Harvard University, March 21–24, 1982, to be published by Harvard University Press; Y. Dan, Ha-sippur ha-ivri bi-mei ha-beinayim, Jerusalem 1974, pp. 202–21; S. Maybaum, Abraham Jagel's Katechimus Lekachtob, Berlin 1892; C. Roth, The Jews in the Renaissance, Philadelphia 1959, pp. 53, 105, 330–31

new within the framework of a traditional Jewish theology.<sup>12</sup> both his considerable knowledge as well as his capacity to accommodate the writings, especially the Beit Ya'ar ha-Levanon and Be'er Sheva, illuminate non-Jewish literature and wrote extensively on a wide variety of fields. His cessful moneylending career," nevertheless, he read broadly in Jewish and difficulties of earning a living and, especially, with the burdens of an unsuchis reading of books. Preoccupied for a considerable part of his life with the information he acquired on the scientific discoveries came exclusively from expertise lay in natural history and medicine rather than astronomy." The

the most dramatic support for the Copernican hypothesis. response to a new astronomical theory on comets, openly challenging the telescope, the most significant technical discovery of his generation, offering Aristotelian cosmogony. The second is his response to the discovery of the eries of his day, I have chosen two examples from his writings. The first is his To illustrate Yagel's awareness of and reaction to the astronomical discov-

with its Arabic translation. On the Centiloquium, see: M. Steinschneider, Die hebraeiattributed to either Ptolemy or Hermes Trismegistus. The introduction to Yagel's combelow. He also composed (or at least, planned to compose) a commentary on the sixteenth century, see the numerous references to it? L. Thorndike, A History of Magic and schen Vebersetzungen des Mittelalters 2, Berlin 1893, pp. 527-29. On its currency in the nomical works and also claims to have compared the Greek version of the Centiloquium 101a-101b. In the introduction, Yagel claims to be familiar with Ptolemy's other astro-Centiloquium (ס' המאה הכללי), a collection of one hundred astrological aphorisms. chaps. 96, 97; Be'er Sheva, chaps. 2, 3, 4, 16, 17, 18, 19, and the two chapters discussed compositions. See especially: Beir Ya'ar ha-Levanon, 1, chap. 6; 2, chaps. 21, 25, 26; 4 corns (above n. 9). Discussions on astronomical subjects are scattered throughout his two On Yagel's knowledge of natural history and medicine, see especially: Ruderman, Uni-Yagel's familiarity with Ptolemy's Quadripartitum and Cardano's commentary on it, see Yatural Science 1-8, New York 1929-41, vol. 6, index, Ptolemy, Centiloguium Foi mentary (entitled Perimegadim) is extant and is located in Ms. Oxford-Bodl. 1303, fols

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- On this, see especially his Gei Hizzavon (above n. 9).
- 5 = These Hebrew compositions are found in manuscript, Ms. Oxford-Bodl, 1303-1306

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century was that of Aristotle. Aristotle had described the origin of comets in comets." The theory on comets dominant from antiquity until the sixteenth his Meteorology:14 In his Be'er Sheva, Yagel devoted a relatively long chapter to the subject of

exhaltation. This and the greater part of the air which is continuous with cause of scattered shooting stars. Now when as a result of the upper catch fire, wherever it is suitably constituted, which we maintain is the and below it are carried round the earth by the movement of the circular all that lies beneath the celestial revolutions, is composed of a hot dry which is neither so very strong as to cause a rapid and widespread motion there impinges upon a suitable condensation a fiery principle revolution: as it is carried round its movement, it frequently causes it to We have laid down that the outer part of the terrestrial world, that is, of coincides with it an exhaltation from below of suitable consistency; yet strong enough and widespread enough; and when besides there conflagration, nor so feeble as to be quickly extinguished, but which is then a comet is produced, its exact form depending on the form taken by the exhaltation.

realm of transient motion in a straight line toward the center and of matter is eternal, circular, and not subject to change and decay, and a terrestrial rested on the basic distinction between a perfect celestial realm, where motion as transitory phenomena, it was impossible for Aristotle to locate them in the Inextricably related to Aristotle's view of the universe, his theory of comets theory thus required challenging Aristotle's entire cosmology. For that when ignited by that motion. To challenge such a well established cometary from the earth, carried around by the motion of the sky and catching fire celestial realm; he was obliged to define them as fiery exhaltations, rising continuously subject to change and decay. Since comets were clearly observed

- 4 5 Ms. Oxford-Bodl. 1306; Be'er Sheva, Chap. 15, fols. 48a-53b
- Aristotle, Meteorology, I. 7. I have used the translation of; H.D.P. Lee, Cambridge Mass Europe (Diss.), Yale University, New Haven 1978, pp. 7-10; C.D. Hellman, The Comet of 1952; also quoted and discussed in J.L. Jervis, Cometary Theory in Fifteenth-Century 1577: Its Place in the History of Astronomy, New York 1944 (reprinted: 1971), pp. 16ff
- 5 Jervis, pp. 9-10.

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ticated tools of calculation and observation.16 launched by a swelling number of astronomers now armed with more sophismuch at the heart of the new assault against the Aristotelian universe, reason, cometary theory in the sixteenth and seventeenth centuries was very

and failed to provide calculations of such observations.18 the moon but unfortunately failed to conduct daily observations of a comet the method of parallaxes to determine whether comets were above or below therefore indicating that they were located farther away. He further proposed celestial phenomena since they appeared to move more slowly than the moon earthly vapors since vapors could not rise so far nor burn so long as to account argued that comets he had observed from Milan could not be formed of sixteenth century and he was cited by numerous authors. In his two massive for the appearance of the comets. He suggested instead that comets were encyclopedias of knowledge, De Subtilitate and De Rerum Varietate, Cardano over two hundred works on medicine, mathematics, physics, philosophy, religion, and music. Multiple editions of his works appeared throughout the chairs of medicine at the Universities of Pavia and Bologna and composed was a distinguished physician and natural scientist who held prestigious comets was the Italian scholar, Girolamo Cardano (1501-1576).17 Cardano One of the earliest of this group to contest openly the Aristotelian view of

best when the air becomes dry and when there are winds. They thus function the sun's rays shine through the comet giving the appearance of a beard or a globes formed in the sky and illuminated by the sun. According to Cardano, tail. Like other bodies in the sky, comets are usually invisible. They are seen Indeed, he concluded with the equally erroneous view that comets were

17 On Cardano, see generally: G. Gliozzi, Cardano, Dizionario biografico degli Italiani 19 This is discussed amply in the works of Jervis and Hellman mentioned in n. 14, above

n. 14), pp. 91-96; Jervis (above n. 14), pp. 198-99. A parallax is the apparent displace-G. Cardano, Opera Omnia 3, Lyon 1963 (reprinted: New York-London, 1967), p. 420 (De Céard, La nature et les prodiges. L'insolite au XVIe siècle, en France, Geneva 1977, pp the earth or due to its being observed from the earth instead of the sun. ment of a celestial body due to its being observed from the surface instead of the center of Subtilitate, Book 4), pp. 1-2, 274-76 (De Rerum Varietate, Books 1, 14); Hellman, (above Renaissance, Paris 1973, pp. 67-81; Thorndike, History (above n. 10), vol. 5, pp. 563-79 229-51; J.-C. Margolin, Analogie et causalité chez Jérome Cardan, Sciences de la 64-67, where earlier bibliography is mentioned. See also the long chapter on him in J Rome 1976, pp. 758-63; Gliozzi, Dictionary of Scientific Biography, 3 New York 1971, pp

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parallax measurement later followed up so successfully by Tycho and openly deny the Aristotelian doctrine and at least offered the suggestion of phisticated by comparison with later cometary descriptions of the comet of and many others, Cardano's description of comets appears somewhat unsoobservations and computations later supplied by Tycho Brahe (1546-1601) as portents of dryness, corruption, famine, and death. Lacking the necessary 1577 and those of the early seventeenth century. Nevertheless, Cardano did

authority constitutes the most original part of Yagel's composition and the support from the latter two authorities already was available to Yagel in smallness, motion, orbit and duration ...," he discovered "proof and support regarding their [the comets] composition, location, appearance, largeness or opening of his chapter.21 However, upon examining "the words of the wise was familiar with Aristotle's stand on comets, defining it precisely at the impressed by them than by any of the other sources he had consulted.20 He carefully Cardano's writings on the subject and apparently was more of comets over that of Aristotle. most revealing testimony on why this Jewish author preferred Cardano's view his thesis and Yagel added it at his own initiative. Such appeal to Jewish Cardano's own arguments, especially the latter's commentary on Ptolemy's and from the words of Ptolemy and Abī I-Ridjāl [=Aben Ragel]." The for some of his arguments from the words of our great sages of sacred memory great doctor of his generation Girolamo Cardano, whose opinion is different Qadripartitum.13 But of course, Cardano was unaware of rabbinic support for When Yagel sat down to write his own treatise on comets he had read

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See the references in the previous note. For Cardano's importance, see Hellman, p. 92: Jervis, p. 198.

מדקות הפילוסופיא אמ׳.... Yagel, fol 48b: ונאם׳ שהחכם גארדאונו הנ"ל כספרו מהדברי המתחלפי גם כספרו

<sup>21</sup> 22 Yagel, fol. 48a.

בסבת הויתם מקומם ומראיתן גודלם או קוטנם תנועתם סיכובם ומשך זמן המשכם על הארץ... ומצאתי ראיה וסמך לקצת דכריו מדכרי חכמינו ז"ל ודכרי טולום׳ או אלי ]' רז"ל.... Yagel, fol. 48b: הרום הרופא גדול בדורו ירולמי גארדאנו שרוח אחרת אתו...

Ridjal's writings independently of Cardano. See: Ruderman, Three Contemporary Quadripartital constructionis, Basel 1554, pp. 150-56. I used the edition in the National Hieronymi Cardani. In Cl. Ptolemaei Pelusiensis IIII de astrorum iudicijs, ut vulgò vocant Perceptions (above n. 9), p. 157 n. 49, 50. Library of the History of Medicine, Bethesda, Maryland. Yagel was familiar with Abī l-

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Before turning to Yagel's treatment of Cardano's cometary theory, the entire relationship between the two writers needs to be considered more fully. For indeed Yagel was indebted to Cardano for much more than simply his views on comets. He quoted him on other occasions and appears to have relied on his views on divination, monsters and bizarre fauna. Most importantly, Cardano's De Subtilitate and De Rerum Varietate seem to have offered Yagel appropriate models to emulate when composing his own analogous Hebrew compositions. Both men were fascinated by the wonders of nature, the occult, the new discoveries in astronomy and geography, and both men approached science from a profoundly religious orientation. Yagel was too eclectic a reader to rely excessively on only one author. Nevertheless, among the wide variety of sixteenth-century writers he did consult, Cardano's broad intellectual plan as well as his specific views on individual topics unquestionably left a lasting impression on Yagel.

Yagel, however, still was capable of disagreeing with his Italian mentor, especially when the latter's views appeared to contradict what for Yagel constituted well-established truth. Such was the case regarding Cardano's emphatic rejection of Aristotles's doctrine of the four elements. Since Cardano's position on comets seems to have placed him in an analogous position in disapproving of Aristotle, a position with which Yagel nevertheless sided, it would be useful first to consider Cardano's theory of the elements and Yagel's evaluation of it. Why in the case of the elements did Yagel reject Cardano's novel departure from Aristotle but in the case of comets, he unhesitantly accepted it?

Yagel opens his discussion of the elements with unrestrained praise for the Bolognese doctor:

In the days of our fathers, one wise man arose from among the Christian scholars who held the opinion that the elements were three. His name was Girolamo Cardano, a philosopher, astronomer and great physician who on the basis of the wonderous strength of his wisdom and the

written words in his many books cannot be dismissed so that his name be forgotten. For behold in his book...he concluded that the elements were three and they were earth, water, and air. And he did not mention fire, saying that fire is never an element in the universe except the heat from the sun. And since the sun heats especially the most upper region of the air, the ancients thus considered that a fourth element, derived from fire, is located there, a view which is not his view......

How Cardano arrived at such a view need not concern us here. What is more important is Yagel's reaction to Cardano's theory. After summarizing it completely, Yagel seems to admire the logic of the argument. Although predisposed to maintain his belief in the four elements, Yagel readily admits that even a false assumption can yield correct conclusions.<sup>27</sup> But in this case, good logic is not enough when confronting the weight and time-honored authority of all previous generations:

What further justification is needed when every sect of scholars, ancients and moderns, [accept the thesis of four elements] and the matter is publicized in the world and everyone has accepted [the reality of the four elements] as a primary proposition? If the natural philosophers built their entire philosophies on them [on the theory of the four elements]; if the doctors who came after them established and inquired regarding changing compositions on the basis of the truthfulness of the four elements; if the astronomers similarly assumed their reality.... Also the rabbis of sacred memory mentioned the four elements in an accepted and publicized manner for anyone..., thus who are we to enlarge upon a matter which even schoolchildren know and anyone who disputes this fact is like one who disputes the senses and that accepted by all authorities? For these wise men did not count the four elements as kinds of mixtures so that we might consider whether to

Consult the aforementioned articles of Ruderman (above n. 9). In addition to the quotations of Cardano cited by Yagel (mentioned in Ruderman, Three Contemporary Perceptions, p. 156 n. 46), he also quotes Cardano's commentary on Ptolemy in: Be'er Sheva, chap. 19.

<sup>25</sup> Cardano, Opera Omnia (above n. 18), pp. 7-8 (De Rerum Varietate, 1, chap, 2). Yagel's discussion of the elements is found in Be'er Sheva. Ms. Oxford-Bodl. 1306, chap. 10, fols 36a-38a.

בימי אבותינו קם חכם אחד מחכמי הנוצרי שהיה בדעתו שהיסודות שלשה.: Yagel, fol. 36a בימי אבותינו קם חכם אחד מחכמי הנוצרי שהיה בדעתו שם האיש ירולמו קארדאנו פילוסוף תוכן ורופא גדול שעל פליאת עז חכמותיו ודבריו הנכתבי בספדיו הרבים אין להשליכו מנגד לבל יזכר ויפקד שמר. והנה בספרה... גמר אומר... שהיסודות שלשה והם הארץ והמים והאויר. ולא זכר יסוד האש ואמר שאין יסוד האש כלל בעולם לבד שמימות מהשמש ושמפני כי השמש מחמם ביותר החלק הגבוה מהאויר על כן יחסו הראשוני החמימות מהשמש ושמפני כי השמש מחמם ביותר החלק הגבוה מהאויר על כן יחסו הראשוני וחשבו ששם יסוד רביעי מהאש. מה שאינו לפי ידיעתנו ...

<sup>27</sup> Yagel, fol. 37a: באופן שמהקדמה כוזבת הוליד תולדות אמתיות

increase or decrease them but rather they established by observable proof that there are four, no less and no more.38

Yagel's emphatic rejection of Cardano's position in the name of a universal community of scholars — natural philosophers, doctors, astronomers, rabbis? and even recent kabbalistic authorities? — leaves no doubt about the limits his traditional thinking imposed upon him when considering unusually novel and even logically coherent ideas. Since Yagel could discover no precedent for Cardano's unique position among any authority nor any apparent deficiency in the previous Aristotelian doctrine, he ultimately could not accept it.

Such a rejection of Cardano's theory about elements makes Yagel's ready acceptance of Cardano's novel departure from Aristotle regarding comets all the more intriguing. As in the case of Cardano's view on the elements, Yagel familiarized himself with Cardano's cometary theory by consulting both **pe** Subtilitate and De Rerum Varietate. He carefully summarizes from these two works Cardano's major points regarding the location, composition and motion of comets and his subsequent rejection of Aristotle's theory. The longevity of comets and their triple motion preclude the possibility of their being earthly vapors. The comet's tail is formed by sunlight. Because the

- מה נצדק עם הבריות שכל כחות החכמים הראשוני והאחרוני ונתפרסם. 376. -376. אם אחבר בעולם וכל אחד למושכל ראשון קבל וקיים על עצמו מציאות הארבעה יסודות. אם הפילוסופי הטבעיים בנו כל פלוסופותם עליהם אם הרופאים הבאים אחריהם יסדו ודרשו על המוגים המתחלפי בשום תחלה להקדמה אמתית את ארבעת היסודות. אם חכמי האצטגנני הניחו גם הם מציאותם... גם רז"ל במדרש" זכרו את היסודות הארבעה על האופן המקובל והמפורסם גם הם מציאותם... גם רז"ל במדרש" זכרו את היסודות הארבעה על האופן המקובל והמפורסם אצל הכל .. ומה לנו להארין בדבר שאפ" תנוקות של בית רבן יודע" אותו וכל מי שיחלוק על הדבר כאילו חולק על החוש ועל המוסכם מכל כתות החכמ" כלם כ"לא מנו החכמים האלו ארבעה הדבר כאילו חולק על החוש ועל המוסכם מכל כתות החכמ" כלם כ"לא מנו החכמים האלו ארבעה יסודות כמיני פטומים שנוכל לעמוד עליהם לרבותם או למעטם אלא הוכיחו במופת נראה שהם ארבעה לא פחות ולא יותר.
- 29 Yagel, fol. 375: אמרו במדרש סיני רבה פ׳ י״ב ד״א למה ג׳ מיני עולה ואחד לחטאת כנגד. מדב הקב״ה.... ארבעה טבעים שברא מהם הקב״ה....
- Ci. Funkenstein, (above n. 4), pp. 165-66.
- See above n. 1

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comet's own light does not allow sunlight to permeate it unhindered nor is it dense enough to reflect light, it is like neither the moon nor the stars but possesses an intermediate nature between the two. He describes the comet's motion in full — its proclivity to appear close to the north pole in a place distant from the sun's rays; the fact that comet tails point away from the sun; its occurrence at dusk and at midnight, in summer rather than winter; and the conditions of dryness, famine, and death following its apparition.<sup>33</sup>

Besides these two works, Cardano also presented his views in his commentary on Ptolemy's Quadripartitum, where he demonstrated how Ptolemy's view supported his own and contradicted that of Aristotle. Yagel had access to Cardano's commentary as well, and he copied or paraphrased major portions of it. In fact, the largest part of Yagel's composition constitutes a presentation of a substantial part of this commentary. Here Yagel summarizes Cardano's discussion of the three different kinds of comets, his description of comets seen in the days of Josephus and Charles Martel, and the specific influence exerted by the various planets on comets emerging in close proximity to them.<sup>35</sup>

At this point, pausing on the last subject, Yagel inserts a section on the planetary influence on comets, unrelated to Cardano's commentary. He claims to quote from a work written by the Italian astrologer, Cecco D'Ascoli (1269–1327). Cecco's writing on comets was clearly undistinguished and the discussion presented by Yagel is located nowhere in the works of this writer. Cecco is best remembered for composing a small didactic poem, L'acerba, which includes a small section on comets. The Venetian edition of this poem, printed in 1560, includes a commentary written by an Italian, Niccolò Masetti, who lived in the fifteenth century. Yagel had access to this work

- Yagel, Be'er Sheva, fols. 48b-50b.Yagel, fols. 50b-53a which para
- 4 Yagel, fols. 50b-53a which paraphrases Cardano's commentary (above n. 23), pp 150-56.
- 35 Yagel, fol. 50b.
- 36 •n Cecco, see: G. Sart•n, Introduction to the History of Science 1-5 (in 3), Washington D. C. 1927-48, vol. 3, pp. 643-45; Thorndike, History (above n. 10), vol. 2, pp. 948-68; Hellman (above n. 14), p. 56; Jervis, p. 29.
- L'acerba, Lo illustro poeta Cecho d'Ascoli: con el momento novamente trovato, et nobilmente historiato: revisto: emendato: et da molto incorrectione extirpato... Nicolaus Massettus mutinem ad lectorum, Venice 1560, fols. 13b-15a. I used the edition of the National Library of the History of Medicine, Bethesda, Md.

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source from which he quoted. colorful narrative, Yagel provided a useful digression related to the main uted the commentary to Cecco D'Ascoli.18 Apparently impressed by Masetti's with its commentary, translated the latter almost word for word, and attrib-

appeared."40 substantiated by scholars regarding the origin of the Christian and Moslem nevertheless recalls: "The matter [of comets' portending religious change] is trated these remarks with numerous examples of comets, especially those occasionally his own reactions to this information." Cardano amply illusing the Magi at Christ's birth. Yagel delicately passes over the event but portending religious change. He mentioned especially the comets accompanymovement. Yagel discusses each of these factors following Cardano, inserting relation to the twelve astrological 'houses' in the sky, shape, duration, and the other planets, location in relation to the four parts of the sky, location in light, location, relation to the place from which it is seen on earth, relation to ten general factors in making such prognostications: the comet's size, type cal prognostication based on the observation of comets. Cardano had listed faiths and that of the Heretics [=Protestant reformers] who have recently Yagel then faithfully reproduces Cardano's lengthy discussion of astrologic

burg in 1489. Summarizing and condensing the end of Leopold's chapter on appearance, depending upon its location in the sky at an individual's birth.42 comets, Yagel describes the precise astrological consequences of a comet's one more digression on astrological prognostication - nativities of those Leopold of Austria's Compilatio de astrorum scientia, first published in Augsborn during the appearance of comets." His major source for this section is Before returning to the heart of Cardano's argument, Yagel allows himself

resolve the central question of the debate between Aristotle and Cardano. As Having supplied sufficient astrological data on comets, Yagel still must

- Yagel, fols. 50b-51a.
- Cardano (above n. 23), pp. 153-55, Yagel, fols. 51a-52a
- 38 39 .ונתאמת הזכר אל החוקרים כנסיון כחדוש אמונות הנוצרי / Cardano, p. 155, Yagel, fol. 52a.
- והישמעאלים והמינים אשר מקרוב באו....
- 42
- vol. 2, p. 996, Hellman, pp. 54-55; Jervis, (above n. 14), p. 32 of Congress, Washington, D. C. On Leopold's cometary theory, see Sarton (above n. 36) Augsburg 1489, fols. 41a-44a. I used the edition in the rare book collection of the Library Compilatio Leupoldi ducatus Austrie filij de astrorum scientia Decem continens tractatuns.

**%** 4

## The Case of Abraham b. Hananiah Yagel

no's bold departure from Aristotle? on Aristotle's Meteorology." In his presentation, Albertus summarizes and supporters, Albertus Magnus. As in the case of his other sources, Yagel so firmly the brunt of Albertus' caustic demonstrations in support of Cardauled, despite the fact that he was a great wise man and philosopher in his affirm every view of the ancient philosophers whom he disputed and ridicwell, from our side, to present other proofs and other rebuttals in order to vapor, gradually rising and igniting at the uppermost region of the air." But his words are, as we said, that it [the comet] is a warm, dense and dry earthly lifetime: Constantinus, Avicenna, Algazel, Anaxagoras, Democritus, the paraphrasesand condenses Albertus' major views taken from his commentary the remainder of his treatise to a detailed summary of one of Aristotle's major if to allow Aristotle one more hearing before closing the issue, Yagel devotes generation committed to the truth." What then encouraged Yagel to resist argument Albertus can make and for the proofs he brought, we are able as remains unconvinced: "But you, nice reader, know and believe that for every despite the comprehensiveness of Albertus' stinging arguments, Yagel Albertus Magnus negated them one by one and in conclusion the essence of carefully describes the essence of Albertus' rebuttal and summarizes: "For 'Pythagoreans', Hypocrites of Chios, John of Damascus, and Seneca." Yagel rebuts all the major opponents of Aristotle's position known during Albertus'

nian...: 'Regarding meteors [zikin], earthquakes, thunder, winds, and appears correct to me after seeing [the words] of Samuel the Babylofollow Aristotle's view and method, nevertheless I wrote this view, for it If it [Cardano's view] is against the opinion of wise philosophers who

- 44 43 Yagel, fols. 53a-53b.
- n. 14), pp. 34–36. consulted. See also: Thorndike, History (above n. 10), vol. 2, pp. 517-92; Jervis (above Latin Treatises on Comets Between 1238 and 1368 A.D., Chicago 1950, pp. 62-76, which I Albertus Magnus' treatise on comets has been translated into English by L. Thorndike,
- 45 קיטור ארצי עב חם ויבש העולה מעט מעט ומתלהב בחלק העליוני מהאויר. Yagel, fol. 53b : ואלבירטו הגדול בטלם אחת לאחת וגמר אומר וכלל דבריו כמו שאמרנו שהוא
- 8 נוכל מצרם להביא ראיות אחרות ובטולים אחרים כנגדם ולקיים כל דעת ודעת מהאנשי׳ הפילוסופי׳ ואתה קורא נעים דע והאמן כי גם לכל הדברי׳ אשר ידבר אלמירטו והראיות שהביא: Fol. 53b הזקני האלה שחלק ולעג עליהם אעפי שעל האמת חכם גדול ופילוסוף בדורו היה...

engender a condition of dryness, famine and earthly destruction." the Equator. When he suggested that the world would be destroyed if a come! explaining their origin. "For there is no doubt that he had learned much star in the heavens; that is why Samuel acknowledged his ignorance in comet, and since Samuel "was a great wise man in the science of astrology," comets is usually below the pole but if they enter the vicinity of the pole, they Pole becomes stationary since the pole is stationary. Thus the motion of most comets move in the direction of the North Pole (the location of Orion) from never passes through the constellation of Orion, he simply was stating that Samuel had no idea what it was. Furthermore, when he taught that a comet gathering place of light rays from the stars and assumes no definable form is totally consistent with Cardano's position; since the comet is only the he would not have asked: What is it?" \*\* But, Yagel explains, Samuel's answer hundred years and if he had been inclined to accept his [=Aristotle's] words. wisdom from the writing of the Greeks who had preceded him by some five Yagel assumed that comets could be neither an earthly creation nor a fixed crossed over Orion, he was indicating that a comet moving past the North Yagel proceeds to explain that Samuel's kokhava de-shavit can only refer to a

The reference is from B.T. Berakhot 58b.

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However forced Yagel's exegesis of Samuel's words might appear, they seem to have provided him with sufficient support for Cardano's position. Cardano adequately had demonstrated to him the insurmountable problems related to Aristotle's theory. He also had seen how Cardano had recruited Ptolemy and Abī l-Ridjāl to his side. All he needed was a familiar rabbinic precursor whose view seemed to approximate that of Cardano, and this he found in Samuel. And if any lingering doubt remained about the reliability of this novel approach, he always could take comfort in the fact than even Samuel never fully understood the nature of the comet: "... for we are not haughty enough to believe that we better understood what Samuel of sacred memory understood for the secret things are to God...."

Of all the inventions of the seventeenth century, Galileo's telescope certainly was the most important, and of all the publications of that era, his Sidereus

## 50 Yagel, Fol. 53b; ולא גבה לבנו להאמין שהבינו בה יותר ממה שהבין שמואל ז"ל כי הנסתרות לה' אלוקר'....

(above n. 7), pp. 162-63; J. Fünn (ed.), Ha-Carmel 6 (1867), pp. 342-44, who openly theory, see: David Gans, Nehmad ve-Naim, Jessnitz 1743, Sha'ar 12, fols. 79b-80b, who Sinai 76 (1975), pp. 36-46; idem, Ha-Rabbanut be-Italyah bi-tekufat ha-Renesans, Jerusa-On the same general question of the receptivity of traditional Jewish thought to new by I. Twersky, Joseph ibn Kaspi, Portrait of a Medieval Jewish Intellectual, Studies in reconciling the Rabbis with the new astronomy, see: Neher, David Gans, pp. 304ff.; Samuel. For a similar example of exegesis of a Rabbinic passage (B.T. Pesahim 94b), Isaac Cardoza (Philosophia Libera, Venice 1673, p. 210), and David Gans (referred to in still supports it; Joseph Delmedigo, Sefer Elim, Amsterdam 1679, pp. 431-33; Barzilay lem 1979, chap. 5. For other contemporary Jewish opinions on Aristotle's cometary Uniqueness of the Jewish People During the Period of the Renaissance (Hebrew) cultural configurations in the Renaissance period, see: R. Bonfil, Expressions of the Medieval Jewish History and Literature, Cambridge, Mass.-London 1979, p. 256 n. 52. 190-96. For earlier exegesis on the same passage, see the numerous references collected Travels in the World of the Old Testament, Studies... to Prof. M.A. Beek. Assen 1974, pp idem, L'exégèse biblique juive face à Copernic au XVIème et au XVIIème siècles. Neher, David Gans [above n. 6], pp. 274-75), also mention the astronomical passage of

<sup>...</sup> ואם הוא נגד דעת החכמיי הפילוסופים הנמשכי׳ אחר דעת אריסטו ושיטתו: 47 Yagel, fol. 49b... ואם הוא נגד דעת החכמיי הפילוסופים הנמשכי׳ אחר דעת אריסטו ושיטתו: 47 הזועות ועל והדעת הזה כתבתי כי הוא ישר בעיני בראותי של שמואל הבכלי... על הזיקון אמר שמואל כוכבא הרעמי׳ ועל הרוחות ועל הברקים אומר ברוך שכחו מלא עולם מאי זיקון אמר דשביט דלא דשביט ואמר שמואל נהירי לי שבילי דרקייעא כשבילי דנהרדעא לבד מכוכבא דשביט דלא דשביט ואמר שמואל נהירי לי שבילי דרקייעא כשבילי דנהרדעא לבד מכוכבא דשביט דלא ידענא מאי ניהו וגמירי דלא עבר כסלא ואי עבר כסלא חרב עלמא והא קא חזינן דעבר זיריה הוא דעבר ואתחזי כדעבר ...

שאין ספק כי לבו ראה הרבה חכמה ודעת בדברי היוני׳ שקדמוהו סביב לת׳ק׳ (305 : Yagel. fol. 50b.) שנה ואלו היה רוחו נוטה לדבריו לא אמר מאי ניהו

Yagel, fel. 50

Nuncius undoubtedly generated the most enthusiasm.<sup>51</sup> Printed in Venice in 1610 in a limited edition of five hundred copies, it instantly became a best seller. The full title of the work already conveyed its fever of excitement:

The Starry Messenger, revealing great, unusual and remarkable spectacles, opening these to the consideration of every man, and especially of philosophers and astronomers;... with the aid of a spyglass lately invented by him, in the surface of the moon, in innumerable fixed stars, in nebulae and above all in four planets, swiftly revolving around Jupiter... and known to no one before the Author recently perceived them and decided they should be named the Medicean Stars.

Galileo, in a crisp engaging style, announced to his countrymen the remarkable revelation of peering through his lead tube fitted with two glass lenses, and focusing on the surface of the moon, the constellations of Orion, Taurus, the Pleiades, the Milky Way and the planets of Jupiter. The impact on European culture was almost instantaneous. The spyglass soon stirred the imagination of poets, prose writers, philosophers and theologians to new heights and especially to a greater awareness of the vastness of the universe and the minuteness of man.

This sensation was shared also by Abraham Yagel. He opens a small chapter of his *Beit Ya'ar ha-Levanon* on the subject of Galileo's discovery the following manner:

Our words were sincere, that in every generation things will be revealed to humanity which never were imagined by the ancients...for behold you have seen among the fruits of the earth and the animals of the forest what we wrote in previous chapters of our composition, and also now in this chapter you shall truly see that my witness that is in heaven and my work that is on high? will appear regarding the words of a wise Gentile

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man who in our day found several stars from the nebula which the ancients never saw and he placed their signs and their markings in a book and also spoke of the appearances seen on the moon and not in puzzles but the true opinion and what are the analogous figures to the human face [seen] from above....

Paraphrasing the Talmud's praise of Samuel, Yagel could not contain his intense admiration for the man: "The paths of the Heavens are as familiar to him as the streets of Florence where he dwells."

Yagel's Hebrew report on the Starry Messenger was composed probably only a short time after the book first appeared. 35 Yagel was not the only Jew to describe Galileo's findings with the aid of the telescope; Joseph Delmedigo had heard of the instrument and even had looked through it on numerous occasions under the supervision and guidance of Galileo himself. But Yagel's chapter still is of historical interest as the spontaneous reaction of a Jew who first learned of the spectacular disclosure by reading simply Galileo's book. We may appreciate more fully Yagel's general response to the novelty of scientific discovery by focusing on his report of the most significant discovery of his day.

What most impressed Yagel about Galileo's report was the construction of the telescope itself and its manifold uses. His first inclination was to understate the novelty of the instrument by locating precursors within Jewish cultural history. His search yielded two other analogous inventions. He describes the first: "That is found in the words of our Rabbis of blessed memory in the [Talmudic tractate] Eruvin, regarding the same tube that was in the hand of Rabban Gamaliel, which allowed him to see as far as 2,000 cubits

See especially M. Nicolson, Science and Irragination, Ithaca, N.Y. 1956, chap. 1: The Telescope and Imagination, S. Drake, Discoveries and Opinions of Galileo, Garden City, N.Y. 1957, which includes a translation of the Sidereus Nuncius which I consulted; E. McMullin (ed.), Galileo, Man of Science, New York 1967, E. Cochrane, Florence in the Forgotten Centuries 1529–1800, Chicago-London 1973, pp. 165ff. On the problem of the name of the instrument Galileo used, see: E. Rosen, The Naming of the Telescope, New York 1947

Paraphrasing Job 16:19.

<sup>53</sup> Yagel, Beit Ya'ar ha-Levanon, Ms. Oxford-Bodl. 1305, chap. 98, fols. 226b-227b. The passage is found on fol. 226a: אשר לא: passage is found on fol. 226a: שערום הראשונים... והנה בפירות הארץ וחיתו יער ראה ראית מה שכתבנו בפרקי מאמרינו שערום הראשונים... הכל הואה תראה כי יבא עדי בשמים וספרי במרומים מדברי איש חכם לועז הקודמים גם עתה בפרק זה ראה תראה כי יבא עדי בשמים וספרי במרומים מדברי איש חכם לועז אשר בימינו מצא כוכבים אחדים מהנבוכי: אשר לא ראו אותם הראשונים ושם בספר אותותיו אשר בימינו מצא כוכבים אחדים מהנבוכי: אשר לא ראו אותם הראשונים ושם בספר אותותיו ומראותי וגם דבר אותם המראות הנראות בלבנה במראה ולא בחידות את הדעת האמיתי ומה הן מראותיו וגם דבר אותם המראות הנראות בלבנה במראה ולא בחידות את הדעת האמיתי ממלעלה.

<sup>54</sup> Yagel, fol. 226a : בהירון ליה שבילי דשמייא כשבילי העיר פיורנצה אשר יושב בה. The chapter is not dated but was probably written close to 1613, the date of ch

<sup>5</sup> The chapter is not dated but was probably written close to 1613, the date of chap. 97, the previous chapter.

<sup>56</sup> See. Barzilay (above n. 7), p. 150; Delmedigo, Sefer Elim (above n. 50), pp. 3\( \textstyle 0 - 01, 417, 432, 433. \)

and now it has been revealed, for there is nothing new under the sun."" as Galileo's spyglass. "And thus this secret of the instrument in which the paths of heaven are seen was covered up, for our forefathers never imagined it taught him how to use an instrument which Yagel considered to be the same that of the ancients and the Jews, especially the Baraita de-Samuel, and who teacher in astronomy, an Arab named Bagdash, whose teaching agreed with betai Donnolo. In the introduction to this work, Donnolo describes his century commentary of the Sefer Yezirah of the Italian Jewish doctor, Shabwithin the Sabbath boundary."37 The second he discovered in the tenth-

beyond its scientific value, the economic and military utility of so useful an to estimate boundaries, fortified cities and towers."" Yagel also noticed, from their eyes. And also this instrument can be used by them in sea passages, capable of seeing the paths of the firmaments and things that were hidden to praise this emissary selected for this, by whose words the moderns are way diminished Yagel's gratitude to Galileo for his 'rediscovery': "For we are But the fact that the instrument already had been discovered by Jews in no

visible to the naked eye.60 of small stars making up the Milky Way, and other clusters never before seen by Galileo through the instrument: the surface of the moon, the cluster tion, and precise directions for its use. He comes to relate briefly what was He then proceeds to describe the materials of the instrument, its construc-

these discoveries on the Aristotelian conception of the universe: Most importantly, Yagel noticeably is aware of the revolutionary impact of

traditional astronomers, forcing them to augment the heavenly spheres For in this [the discovery of new star clusters], he shocked all the

- 57 היה חוך אלפים אמה תחום שבת The reference is to B.T. Eruvin 43b. כי נמצא בדברי רז"ל בעירובין מאותו הקנה שהיה ביד ר"ג שבו היה רואה אם:Yagel, fol. 226b
- 58 Buraita de Samuel mentioned by Donnolo, see: Jewish Encyclopedta 2, New York 1902, p. Commento di Sabbatai Donnolo sul Libro della Creazione, Florence 1880, p. 5. On the Yagel, fol. 227aונתכסה הסוד הזה מהכלי אשר נראים בו שבילי דשמייא מאבותינו לא שערו בו ועתה נתגלה ואין כל חדש תחת השמש See : Shabbethai Donnolo, apud D. Castelli (ed.), ll
- 59 תחומה וערי מכצר ומגדלים. הרקיעים ודברים שהיו מכוסים מנגד עיניהם וגם יהיה הכלי הזה מוכן לידם בהליכות ימים ולשער יועלינו לשבח לאיש עתי מזומן לכך שעל פיו ראה יראה האחרונים שכילי: Yagel, fol. 227a
- 60 Yagel, fols. 227a-227b.

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which was held tenaciously until this day. For in his judgments and arguments against him....\* number have arisen to write libelously against him, presenting counterfor already great authorities of our generation in learning and in For Maimonides wrote in the Guide [1:73] that the senses will deceive us, ciates if one does not answer him with the words of the philosophers arguments he will destroy all of the wisdom of Ptolemy and his assoand totally upsetting the apple cart regarding the theory of the ancients

have remained as a closed book until the present generation."62 "requested to destroy the foundations of learning in astronomy and his words attacked the astronomical structure of Aristotle and Ptolemy. This Arab also that engendered by the Arab astronomer, Al Bitrūjī, who, in his day, openly The commotion Galileo stirred in the intellectual world is parallel for Yagel to

can universe, that Jupiter's moons as celestial bodies are subject to the same appreciate that Galileo's evidence now could be used to confirm the Copernifoundations of astronomy is not apparent from his words. Did he truly universe offer no traces of deviation from the Aristotelian cosmology " to the heliocentric theory; on the contrary, his usual descriptions of the Unlike David Gans and Joseph Delmedigo, Yagel makes no explicit reference revolve around the sun, and that the earth is "a wandering body surpassing laws of motion to bodies observable on earth, that the planets appear to the moon in splendor"? Nowhere in his writing does he mention Copernicus What precisely Yagel had in mind in describing Galileo as a destroyer of the

- 6 שהחושים יכזבו לנו וכבר קמו עמדו גדולי הדור כחכמה ובמנין וכתבו עליו פלסתר והוכיחו ודיניו יהרוס כל חכמת טולומיאו וחבריו אם לא ישיב לו כדברי המדברים. כתב הרב כמורה ילהפוך הקצרה על פיה ממה שהיה דעת הקדמונים אשר אחזו שער צד היום הזה. ובמשפטיו וכזה הרעיש כל חכמי קדם מהאצטגנינים לחייב אותם שירבו גלגלים כמרומים: Yagel, fol. 227b
- 62 Left Mekorot Ivri'im, Korot 4 (1968), pp. 679-90; idem, Al-Bitrüfi on the Principles of Berlin 1893, pp. 550-52; B. Goldstein, Ha-Astronomia Bi-mei Habeinayim R. Yizhak Arama u-Mishnato ha-Pilosofit, Jerusalem-Tel-Aviv 1956, p. 117; M. Steinsch-כדברי האיש המרעיש... אשר גם הו' בקש להרוס יסודי החכמה מהתכונה: Yagel, fol. 227b Astronomy 1-2, New Haven 1971, J. Samsó, Dictionary of Scientific Biography 15, New neider, Die hebraeischen Uebersetzungen des Mittelalters und die Juden als Dolmetscher .האיש המרעיש"ח (נשארו דבריו לדור אחרון כדברי הספר החתום (sec. S. Heller-Wilensky York 1978, pp. 33-36.
- 2 2 Quoted from Galileo by Cochrane (above n. 51), p. 166.
- Compare, for example, his description of the universe in: Be'er Sheva, chaps. 2-4.

### Ξ

Galileo's telescope — suggests the following conclusions. In both cases, A comparison of Yagel's two responses — to Cardano's comet theory and to and compares favorably with that of Yosef Delmedigo, David Gans, Abracharacter of Yagel's scholarship, especially in scientific matters, is apparent rabbinic, kabbalistic, philosophical and magical sources, the encyclopedic notable erudition in medical, botanical and zoological literature, as well as century theorist on comets and reports on Galileo's famous tract only some only cites classical and medieval sources but has read a leading sixteenthture, impressive especially for one who was not a trained astronomer. He not Yagel's reactions reveal a distinct familiarity with current astronomical literathree years after it was first published. When viewed in the context of his ham Portaleone, and other distinguished Jewish scholars of his generation.

Similarly, Galileo's telescope, when viewed as a 'rediscovery' of a previous credible, even against the weighted authority of the Aristotelian tradition. be linked successfully with an earlier Rabbinic statement, the theory is made dominant element of his thinking. When a new theory such as Cardano's can for him but not anxiety. The sanctified authority of Jewish sources still is a minded. The implications of Galileo's findings evoke noticeable discomfort thought to re-orient itself to a new cultural situation while retaining a continof Yagel thus offers an interesting example of the distinct capacity of Jewish comprehensible and more compatible with his own experience. The testimony precedents within Jewish tradition for the discoveries, he makes the new more no way obstruct his ability to admit the new. On the contrary, by locating plausible to Yagel. In the case of this Italian Jew, his religious convictions in invention known to a Jewish authority centuries before, also appears more uous bond with the past Yagel's reaction to scientific novelty is cautiously skeptical but never closed

also was familiar with the writings of Francesco Giuntini, another Italian who chose to describe here. Elsewhere he refers favorably to Giovanni Antonio had presented the Copernican hypothesis in a favorable light.\*\* Theories of Celestial Orbs Agreeing with the Observations of Copernicus. He Magini of Padua, who in 1589 published in Venice a work entitled New Nevertheless, as his sentiment about Galileo confirms, he knew more than he

and also a note of discomfort. How could this Galileo, he writes, so bombastically pronounce the death of the traditional system with so much assurance Apparently, Yagel's silence betrays a lack of confidence in the new theory

associates will not listen to him.67 proclaim: 'I will rule over all in riddles and guileful secrets...' but his is no other that a man precipitous in his work haughtily rising up to foundations of learning followed by all scholars in every generation? He For who is this man who comes after the 'king' who established

other, while all along humanity's vision of God's omniscience and purpose ary duration. Ultimately, Galileo's conclusions will be judged one way or the discomfort and insecurity induced by the new disclosures are only of temporin heaven laughing, for to Him all the mysteries will be revealed." The controversies, in differences of opinion, in the order of all degrees and fields of disclosures of this turbulent era, no matter how startling, are to be understood fulness shall remain firmly intact. learning secret and hidden...for the truth will follow its course and God sits Yagel repeats, "There is nothing new under the sun and what will be will be in from the perspective of an optimistic faith in God's bountiful goodness. So security that God will reveal in due course what He chooses to reveal. The In the end, however, Yagel's annoyance is tempered by a calming sense of

- 65 66 67 See: Beit Ya'ar ha-Levanon, Ms. Oxford-Bodl, 1305, book 4, chap. 35
  - See. Bett Yu'ar ha-Levanon, book 4, chap. 97; Be'er Sheva, chap. 20.
- במלאכתו מתנשא בה לאמור אני אמלוך על כלם בחידות ותעלומי העורמות. כי חביריו לא ישמעו יסודי הידיעות אשר נמשכו אחריו המון כל החכמים שככל דור ודור אין זה כי אם איש מהיר Yagel, Ben Ya'ar ha-Levanon, book 4, fol. 227b: כי מה האדם שיבא אחרי המלך שהקים
- 68 בסדר כל המדרגות והחכמות נסתדות ונעלמות.. והאמת יעשה דרכו ויושב כשמים ישחק כי לו יאין כל חדש תחת השמש ומה שהיה הוא שיהיה במחלוקות בחלופי הדעות:Yagel. iol. 227b נתגלו כל תעלומות

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