



Reviews of the Enoch Seminar 2014.10.14

Jonathan Ben-Dov and Seth L. Sanders, eds., *Ancient Jewish Sciences and the History of Knowledge in Second Temple Literature*. Institute for the Study of the Ancient World. New York: New York University Press, 2014. Pp. 275. ISBN: 978-1-4798-2304-8. Cloth. \$55.

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The topic of Judaism and science is one that has been marked by discussions and publications spanning the medieval and modern periods—from analyses of medieval Jewish alchemy, astrology, and astronomical tables to studies of Jewish scientists and the modern Jewish reception of evolution. However, scholarship has long assumed that science per se did not exist in Jewish texts composed and redacted prior to these eras, leading Annette Yoshiko Reed, a contributor to this collection, to state that this work would have been “difficult to imagine” a mere ten years ago (Reed, 195). As rightly described by editors Jonathan Ben-Dov and Seth L. Sanders, the volume is the first of its kind, bringing some of the most talented scholars in the field together to present their research on early Judaism and science (Ben-Dov and Sanders, 10). Indeed, the essays contained in this welcome collection serve as markers for the recent scholarly focus upon ancient Jewish science, highlighting evidence for scientific interest in the Second Temple period, and presenting compelling points regarding the groundwork laid by early Jewish science for similar rabbinic and later literary expressions.

In these essays, the fruit of a conference held at the Institute for the Study of the Ancient World at New York University, the Jewish sciences encompass astronomy, astrology, cosmography, and physiognomy, as well as the mathematical reckoning central to calendrics. In their introduction, Ben-Dov and Sanders set out the scope of the volume, pointing to the lack of interest in science in the Hebrew Bible, and to the overt admonition against astrology found in Deut. 4:19. With this biblical backdrop in mind, the editors rightly ask how science emerged in early Judaism, who the earliest seekers of such wisdom might have been, and inquire as to the origin, nature and trajectory of the scientific writings they left behind (9–10). Ben-Dov and Sanders also set out to determine to what degree these writings might be classified as Jewish, scientific or both (10). Moreover, they ask, where does the definition of science end and that of prognostic practices such as physiognomy begin (14)?¹ If, for example, we see Jewish astronomy

¹ On this point, the editors are careful to point out that there are no incontrovertible answers to what has been termed the “demarcation problem” of locating the parameters of science. (15)

as a “break” away from the Deuteronomistic astral bans, what might this mean for the scholarly analysis of the causes of such a break (17)?

The next four pieces in this volume focus upon *1 Enoch* 72–82, also known as the *Astronomical Book* (*AB*). In “Enoch and the Beginnings of Jewish Interest in Natural Science,” a reprint of his original 2002 article, Philip Alexander describes what he sees as a Jewish tradition of studying nature, tracing it from the Hebrew Bible through apocalyptic literature. Alexander takes care to establish a working definition of science, which is present “wherever we find a strong interest in understanding how the physical world works” (Alexander, 27). Of great utility is the author’s engagement with the scholarly debate surrounding science and rabbinic thought. Here, he presents both the view of Jacob Neusner that rabbinic discourse is not compatible with science and that of Menachem Fisch that the two do in fact dovetail. Ultimately, however, Alexander finds such argumentation too essentialist and abstract, and points to the wealth of evidence for rabbinic interest in science and nature (28–29).² The evidence that Alexander brings forward for the consonance that existed between rabbinic thought and interest in nature is compelling, spanning works including the Qumran scrolls, the Enochic literature, and *Ber. Rabbah*. Alexander describes sixth-century-BCE Babylonian trade networks that may well have led to knowledge exchanges that filtered through the later Persian context. It is here, he concludes, that Jews cultivated their interest in the natural world and its study.

Alexander’s presentation of a dichotomy between a scientifically-inclined Enochic tradition and Mosaic Judaism is disputed by James VanderKam in the next piece, simply entitled “Enoch’s Science.” Here, the author provides a clear overview of science within the Enochic tradition as well as its transmission history, spanning the Ethiopic and Aramaic traditions. Describing the revelation of scientific information to Enoch in the *AB*, VanderKam sets out to examine questions related to the scientific data found in Enoch so as to better frame the larger issues surrounding the early Jewish sciences (52). To this end, he details the scientific contents of the *AB*, including data related to the sun and moon, cosmic geography, and various cosmic patterns found in the text, including repeated sets of numbers (56–8). VanderKam concludes with the suggestion that the author of the *AB* may well have seen it as a guide for priests requiring instruction in reckoning the dates of new moons, festivals, and other events—the calendrics ultimately stemming from the creation of the cosmos by God (66–7). This move from theory to the idea of technological praxis and time measurement suggests numerous directions for future research.

The next paper is a work of linguistic analysis by Seth L. Sanders entitled “‘I Was Shown Another Calculation’ אחרון אחרון: The Language of Knowledge in Aramaic Enoch and Priestly Hebrew.” In this essay, Sanders illuminates connections between the apocalyptic vision of the *AB* and Priestly writings with similar linguistic features related to the Tabernacle and its mysteries (Ben-Dov and Sanders, 20; Sanders, 85). Here, he analyzes the usage of the Aramaic word *הזה*, to see, used in the *AB* to refer to revelation, which Sanders reads as a passive form of revealed knowledge mediated by otherworldly (i.e., angelic) agency (Sanders, 88). Given the anachronism implied by any attempt to view science and religion (and hence, nature and culture)

² On the evidence for a medieval date for *SY*, see A. Peter Hayman, *Sefer Yesira, Edition, Translation and Text-Critical Commentary* (TSAJ 104; Tübingen: Mohr Siebeck, 2004), 95. This work was published two years after the appearance of the essay by Alexander.

as opposites in early Jewish writings, Sanders asks how we might categorize a “scientific” system as different from a system of law, for example (88)? Here, Sanders offers a solution that eschews such a modern, anachronistic view of science in favor of the ancient creation of scientific knowledge. Knowledge, from the point of view of Enochic science, he suggests, is created by “non-human agency” (88).

The grammatical features highlighted by Sanders in this piece are significant, shedding light on patterns of transmission of scientific knowledge that may be detected in early Jewish literature, and suggesting new ways of approaching questions surrounding *1 En*. These include the question of possible shared editorship between the *AB* and the *Watchers*, as well as the scholarly discussion regarding the identification of Enochic literature as “Mosaic, non-Mosaic, or anti-Mosaic” (97). Pointing to the question of science as a category that may or may not fit the data found in the *AB*, Sanders underscores the problem that “there is simply no rigorous way to tell whether a discipline is science or not” (77). He presents his own operational definition, therefore, as “a system of exact knowledge of the physical world” (79). This is a simple yet useful heuristic, shedding some light on the question of biblical categories bequeathed to early Judaism (80). Sanders engages with the paradox that, due to the presentation of scientific knowledge as revealed wisdom in the *AB*, the material did not generate further scientific pursuits. Nevertheless, when viewed within its ancient context, the text did indeed establish the groundwork for what the author sees as “a different, and quite productive intellectual agenda” (98). The chapter concludes with a return to the concept of “apocalyptic science” as expressed by Taubes, which Sanders suggests opens up a linkage between the sciences in the form of calendar and the political and historical realities surrounding apocalypticism. This, he writes, further illuminates connections between Mesopotamian astronomy and the science found in the *AB*, suggesting an apocalyptic parallel with earlier celestial divination and its portents of earthly political events (98–99).

Loren Stuckenbruck briefly responds to the above works in his contribution, “Philological and Epistemological Remarks on Enoch’s Science: Response to Papers by Seth L. Sanders and James VanderKam.” Here, Stuckenbruck addresses what he sees as Sanders’s casual usage of the term *science*, which he sees as epistemologically problematic in the antique context. Moreover, with respect to Sanders’s analysis of the passive verb in the *AB* for the term “seeing,” which the author accepts as correct, Stuckenbruck nevertheless reframes Enoch as an active agent given his presentation of “everything” to Methuselah (Stuckenbruck, 104). As the author points out, the contribution by VanderKam similarly affirms Enoch as an active participant and observer rather than a passive receiver of revealed wisdom (105–6). Addressing the question as to whether the *AB* might be bracketed as *scientific* or *Jewish*, Stuckenbruck sees the text as Jewish, pointing to its cosmogonic and cosmological emphases. That is to say, the celestial knowledge revealed to Enoch was intended to be temporary, to be supplanted by eternal knowledge in the future with the advent of a “new creation” (107). Indeed, the author’s conclusion invites further questions regarding the epistemological implications of such impermanence for the presence of scientific laws—generally conceived as immutable—in the *AB*.

Turning to the presence of scientific material among the Dead Sea Scrolls in “Ideals of Science: The Infrastructure of Scientific Activity in Apocalyptic Literature and in the Yahad,” Jonathan Ben-Dov analyzes questions related to the intellectual atmosphere, set against the background of wisdom and apocalyptic traditions, that led to the scientific writings found at

Qumran. These include the reasons for the emergence of scientific data in the Yahad, as well as the epistemological underpinnings and sources for these writings and their transmission. Ben-Dov also broaches the broader question as to whether or not scientific writings were more widespread than the caves of Qumran (Ben-Dov, 109).

Addressing the prerequisite conditions for science, Ben-Dov advocates an emphasis on understanding the ideology underlying the construction and promotion of knowledge of the natural world and its laws (110). Describing Enochic science and its epistemology, Ben-Dov sees scientific interests as being legitimized by a revelation to “a primordial patriarch”—a narrative structure that does not promote the creation of new scientific writings (151).³ By contrast, in Yahad literature, scientific wisdom, including apocalyptic science, are shown to be both accepted and modified for the use of the Yahad community, thus creating new scientific paths (121–3). Ben-Dov notes the move toward anonymity in Yahad scientific writings, which, in contrast to the pseudonymity of the *AB*, to highlight one example, suggests that the Qumran community had moved beyond the apocalyptic literary context and no longer required the external, patriarchal figure to legitimize its scientific pursuits (148). In some ways, then, the Qumran community may be viewed as a community of scientific scholars not merely due to their inheritance and adaptation of earlier scientific writings, but owing to the relationship that its members seem to have had with nature, and the interpretation of natural phenomena. The epistemological context presented in this essay is finely-nuanced, and the series of related questions set out by Ben-Dov regarding the ideology underlying the Yahad community’s understanding of nature is sure to inspire further scholarship in the sub-field of Judaism and science.

The penultimate essay is by Mladen Popović. Entitled “Networks of Scholars: The Transmission of Astronomical and Astrological Learning between Babylonians, Greeks and Jews.” This bold study examines the points of contact among Jewish scholars in early Judaism, moving beyond the assumption of direct contact between Babylonian knowledge and Jewish scholarship. Using social network analysis, Popović demonstrates the weaknesses of earlier scholarship regarding such cultural contact and transmission, instead arguing that there was no direct transmission of scientific knowledge from Babylonian scholars to their counterparts in Palestine (Popović, 154). To this end, Popović points to the lack of evidence for the transmission of mathematical astronomy in early Jewish texts, including the sectarian astronomical/astrological texts of Qumran, and Enochic astronomy, which do not display familiarity with advanced Babylonian mathematical astronomy (162). Nevertheless, he is careful to parse the question of why certain Babylonian ideas were transmitted and absorbed and others were not while maintaining a keen awareness of the fact “that absence of evidence is not evidence of absence.” Presenting some possible ancient epistemological trajectories, Popović suggests an indirect route, with the earliest likely point of dissemination being the Neo- or Late-Babylonian periods. While these dissemination channels appear to have been indirect and remain undefined, the scientific texts left behind attest to great interest in this transmitted knowledge among its Jewish receivers. It is clear from reading this fine contribution by Popović that one cannot be too cautious when interpreting the possible provenance and tradents of given texts and knowledge traditions.

Annette Yoshiko Reed rounds out this collection with “‘Ancient Jewish Sciences’ and the Historiography of Judaism,” which outlines the trajectory of scientific knowledge (with an

³ One might term this a top-down model that serves to inhibit scientific creativity and generativity.

emphasis upon the human body and astronomy) and its teaching in premodern Judaism (Reed, 198). At the outset, Reed is clear that she is not focused upon the bracketing of science qua science, but that an emphasis upon the history of “ancient Jewish sciences” might serve the goals of Jewish historiography, enabling scholars to take note of, and avoid, anachronistic approaches (198–9). The author also sets out to outline the points of continuity that may be detected between ancient Jewish science and rabbinic scientific texts—and from there, the possibility that there may be continuities regarding Jewish celestial thought extending into the medieval period as well. Tracing the cultural appropriation, and local, cultural specificity, of the sciences in cultures including Babylon, Egypt, Greece, the Roman Empire, and early Islam, Reed notes the tendency of cultures to employ scientific pursuits in order to bolster their power. In like fashion, for premodern Jews, this was frequently effected by appealing to the authority of biblical figures, heroes, or traditions (204).

Next, Reed turns to the dynamic tension that exists between history of science scholars and Jewish historians—the former tending to assume the invention of science in modern Europe, and the latter, to carry forward the notion of the western scientific tradition (214–5). On a similar taxonomical note, Reed underscores the tendency in modern scholarship to affix the reductionistic dichotomy of “religion” and “science” to other dichotomies in ancient Jewish scholarship, including “ ‘Semitic’ vs. ‘Greek,’” and “ ‘Mosaic’ vs. ‘Enochic’ ” (218). This trend, she notes, is also present in ancient Near Eastern studies. The result is a demarcation of a text as either religious or scientific, with the implication for historiography that religion and myth must be ignored or dismissed when reading a text if we are to study the science contained within it (218–30). In brief, these dichotomies represent a poor heuristic (252). Addressing the scholarly dismissal of science in religious texts, and highlighting the perception that scientific texts can tell us next to nothing about Judaism, Reed calls for a renewed focus upon ancient Jewish science as a way to overturn the dichotomies and allow the ancient scientific Jewish sources to illuminate the broader field of Jewish literature (229).

This fine collection makes a significant contribution to scholarship by examining Second Temple texts through new prisms, situating and re-situating them solidly within the history of science in ways that have not previously been approached. Moreover, the essays broach questions related to the development of an authentically Jewish science—resembling in form earlier writings by Erica Reiner, Francesca Rochberg, and John Steele spanning the Mesopotamian scientific tradition. In these collected essays, Jewish literary communities are presented not as mere inheritors of traces of earlier ancient Near Eastern and Babylonian scientific knowledge, nor as footnotes to the Hellenistic sciences, but as active participants in the ongoing process of scientific production and transmission.

As Ben-Dov and Sanders emphasize in the volume’s introduction, this process was not without its tensions, particularly where the relationship “between the universality of scientific knowledge and the uniqueness of local traditions” was concerned (Ben-Dov and Sanders, 12). The questions raised in these contributions are far from resolved. Nevertheless, with the publication of this volume comes a reassuring sense that scholarly interest in the history and historiography of Judaism, and the place of science within these fields, is likely to experience a most welcome uptick. It may also be safe to say, I would suggest, that the outmoded view of the Jewish sciences having begun in the medieval period has most assuredly been put to rest.