

BOOK REVIEWS

Ahmad Dallal. *Islam, Science, and the Challenge of History*. New Haven, CT • London: Yale University Press, 2010, xii+240 pp; ISBN 978-0300159110.

Divided into four chapters (“Beginnings and Beyond”; “Science and Philosophy”; “Science and Religion”; and “In the Shadow of Modernity”), and hailed by Yale’s Dimitri Gutas as the “first serious treatment of the whole subject, superseding all earlier, partial, incompetent and, for the most part, biased (through ignorance) works” (book jacket), Ahmad Dallal’s *Islam, Science, and the Challenge of History* attempts to “situate the Islamic culture of science in relation to social and cultural trends in Muslim societies” (p. xi). Based on the author’s Terry Lectures delivered at Yale University in February 2008, the book demonstrates the author’s passionate and lifelong involvement with the topic of the relationship between religious and scientific knowledge.

“Beginnings and Beyond”, the first chapter, provides a brief account of the emergence of science in Islamic civilization. The main question discussed in the first section is the role played by the translation movement of the ninth century in the emergence and subsequent development of Islamic science. For the construction of his historical sketch, Dallal “draws most on two interpretive essays published in 1998, whose authors have attempted to address in systematic ways the particular social and historical roots of the translation movement and the general social factors that contributed to the rise and development of scientific thought” (p. 13). The first is Dimitri Gutas’ *Greek Thought, Arabic Culture* and the second George Saliba’s *al-Fikr al-‘ilmī al-‘arabī: Nash’atuhi wa taṭawwuruhi*. Dallal acknowledges the distinct approaches of these two important historians of science (p. 13-14), and shares with each the historically verifiable conclusion that the translation movement did not give birth to science in Islamic civilization but rather itself emerged in response to the needs of the emerging scientific movement. The section on “Social and Institutional Contexts” offers one of the most rewarding readings of the first chapter, for here Dallal’s lucid, source-based narrative simply dissolves the erroneous model that pitted the Islamic sciences against the rational sciences—a hypothesis which

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has been repeatedly ad nauseam in mainstream books on history of science since its first articulation in the second decade of the twentieth century and reinforced by such classics as George Makdisi's 1981 *Rise of Colleges: Institutions of Learning in Islam and the West*. Dallal provides an impressive array of textual support for debunking this hypothesis, and his sources are indicative of his thorough grounding in the history of Islamic science. In this section, the work he most relies on is Sonja Brentjes' 2002 study, "On the Location of the Ancient or 'Rational' Sciences in Muslim Educational Landscapes", wherein she "argues that education in the exact sciences was a stable aspect of education in Muslim societies, just as education in the religious sciences was. Furthermore, scientific education took place within recognizable networks whose structures paralleled those of religious education" (p. 19). Dallal concludes: "In fact, the evidence for the presence of the rational sciences as a constitutive element in the educational landscape of classical Muslim societies is simply overwhelming" (p. 19). He then affirms, with additional force and evidence, Saliba's conclusion in his seminal *Islamic Science and the Making of the European Renaissance*¹: "The predominance of the Greek scientific tradition and its vital influence on the development of the Arabo-Islamic sciences is a given. But Arabic science was not a mere museum of Greek scientific knowledge" (p. 26). Drawing examples from disparate scientific disciplines such as medicine, optics, and algebra, Dallal states: "Demonstrably, the culture of science struck deep roots in classical Muslim societies. Various developments contributed to the transformation of science from a peripheral, elitist activity (as it had been in earlier societies) to an institutionalized activity with an unprecedented scale of social support and participation.... I underscore this point because so much earlier work on the history of Islamic science accepts that most of the original discoveries and contributions were isolated occurrences or happy guesses that had no impact on their Islamic environment and were appreciated only in Latin Europe" (p. 50).

In chapter two, "Science and Philosophy", Dallal has a two-fold focus: (i) to dispel the misconception that Islamic science lacked a philosophical and theoretical foundation and viewed "science as crafts, not systems of knowledge, stripping them of their philosophical underpinnings and undermining their systematic and truly scientific nature" (p. 54); and (ii) to demonstrate that, in fact, philosophy remained an integral part of Islamic science, whether providing incentives for major scientific reforms (as was the case in astronomy) or serving as a bridge for discussions and debates between the more strictly religious and natural sciences. Citing the example of the sixteenth-century Hadith scholar and astronomer Shams al-Dīn al-Khafīrī as drawn from George Saliba's work, Dallal demonstrates that al-Khafīrī was more concerned with the use of mathematics as a language than with the correctness of a given astronomical model. "What was conspicuously absent in al-Khafīrī's work was any attempt to

1. For a review of this work, see *Islam & Science* 7, no. 1 (Summer 2009):72–75.

fit nature, or what was conceived of a nature in Aristotelian natural philosophy, into any particular model...mathematical representations, in this sense, were no longer a mere medium for translation between reality and observation; they were an object of study in themselves" (p. 81-82). Dallal concludes the chapter by stating: "The various sciences operated, not on the assumption of a unifying universal reason, but on the assumption that the criteria of rationality were not independent from the intellectual and historical contexts of the disciplines in which rationality was deployed" (p. 109).

"Science and Religion", the third chapter, is the most problematic—not only because of its claims, but also because it compels the narrative to adopt the very theoretical model which Dallal otherwise seeks to avoid. That is, Dallal here accepts the prevailing science/religion dichotomy and thus ends up with the burden of examining a non-issue as far as Islam and science are concerned. He does not take the most logical step the narrative dictates at this point, which would be to critically examine the premises of modern "science and religion" discourse and explore its relevance or otherwise to the case of Islam, before jumping to the next step. Having fallen into this trap, which even retrospectively naturalizes theoretical categories and abstracts oppositions from the specific religious milieux that bore them, Dallal is forced to insinuate and recourse to an 'Islam *and* science' discourse: "Religious discourse on science was equally diverse, running the whole gamut of assertions of opposition and conflict to assertions of harmony and unity. Both religious opposition to and endorsement of science took different forms, depending in part on whether the basis was doctrinal reasoning, notions of utility or uselessness, or epistemological criticism or sanction" (p. 111). Assumed (and subsequently alluded to) in this account of the Islam/science discourse, for all its hitherto nuance, are several formulations incorrectly implying centralized religious authorities and organized professional scientific societies. This narrative echoes the earlier Goldziherian model pitting an imagined Islamic orthodoxy against foreign sciences, with all the associated clerical establishments and diverse scientific bodies playing out a Galileo-esque drama in some religious or social theatre constructed for the purpose.

The problems now compound, for Dallal must substantiate the assumption of a fully delineated Islam and science discourse on the pattern of the modern science and religions discourse (which as alluded above is for the most part rather "science and Christianity" discourse and reflects this particular experience in its scholarly-discursive contours). After rehearsing various generalizations for several paragraphs (p. 111-115)—asking aloud, "where do we look?" (p. 112); hinting that "certain religious views could provide indirect positive influences on science" (p. 112); and offering generic comments ("We often encounter in scientific literature, especially in the opening sections of scientific treatises, references to the Qur'ānic call on Muslims to reflect on the outside world and

the world within, where they would find evidence of God's flawless creation and bounty," p. 113—although such verses are arguably cited in the mode of supplication or invocation and thus have nothing to do with science/religion discourse conceived as a field drawing together disparate forms of knowledge)—he finally specifies three “religious thinkers” who “dedicated significant portions of their writings to the discussion of various sciences, scientific knowledge, and the relation of scientific knowledge to religious knowledge” (p. 116): Ibn Ḥazm, al-Ghazālī, and Ibn Taymiyya. Yet this formulation conflates usage of the word “science” between translations of the expansive Arabic term *‘ilm* and the more restricted and differentiated sense of the natural scientific disciplines that Dallal seeks to address. It is therefore at least anachronistic to claim that any of these three thinkers were concerned with the science and religion discourse per se; at best, the claim that Islamic intellectual traditions witnessed “systematic discussions and epistemological assessments of science by religious scholars and by Muslim intellectuals” requires detailed and specific demonstration even in a work originally delivered in lecture form.

Dallal opens the section entitled *Tafsīr* by admitting, “The Qur’ānic attitude toward science, in fact, the very relationship between the two, is not readily identifiable.” He then both claims that “traditional Qur’ānic exegetical works contain plenty of material of possible scientific import” (p. 117) but also that “the traditional materials do not add up to what might be legitimately called a scientific interpretation of the Qur’ān”. Attempting to weave between these positions, Dallal continues, “Traditional exegetes did not present themselves as engaging in such an interpretive exercise. Only a minority of traditional scholars, notably Abū Ḥamid al-Ghazālī and Jalāl al-Dīn al-Suyūṭī, maintained that the Qur’ān is a comprehensive source of knowledge, including scientific knowledge” (p. 118). However, al-Ghazālī did not write a *tafsīr*; the position that the Qur’ān is a “comprehensive source of knowledge” is authentically attributed even to the Companions ‘Alī b. Abī Ṭālib and ‘Abd Allāh b. Mas‘ūd, Allah be well-pleased with them both, and, evidenced throughout the generations of “traditional” scholars, is hardly a minority position. (Surveying how this claim was understood, and the place variously assigned to natural scientific disciplines in the Qur’ānic compendium of knowledge, would have been a more fruitful articulation.) Other regrettable formulations in this chapter include the claim that “classical commentaries often include elaborate discussions of scientific subjects” (p. 124, ostensibly contradicting other statements in the same section) and multiple generalizations referring to exegeses (e.g., “al-Rāzī’s commentary is typical of *many others*” (p. 120); “It follows that in exegetical literature, religious knowledge and scientific knowledge are assigned to their own compartments” (p. 128)) while the only *tafsīr* work actually cited is that of al-Rāzī, which is rather atypical.

In the next section, *Kalām* (dubiously translated as “speculative theology”)

is described as “the genre of Islamic religious scholarship that comes closest to philosophy”, even though for centuries *falsafa* (philosophy proper) and *Kalām* retained well-defined terrain of their own. The only other subheading of this chapter, “The Problem of Causality,” is devoted to the much-discussed issue of al-Ghazālī’s sweeping intervention into debates on natural and Divine causality, although skimming the sophisticated issues involved and providing an incomplete survey of previous works on the topic.

The last chapter of the book, “In the Shadow of Modernity”, which he notes “could have easily been entitled ‘Islamic Science after the Fall’” (p. 150), continues the hypothetical tone in seeking to “explain absences, a task far less interesting and much more speculative than trying to explain things that happened” (p. 150). Dallal is surely correct in stating that the “Arabo-Islamic scientific culture is a legacy of the past and a hope for the future but absent, in effect, in the present” (p. 150). Beyond this all-too-manifest observation, however, and although his critique of existing approaches to this question is cogent and well-articulated, there is little offered in this chapter to explain these absences.

The book suffers from sloppy proofreading; it seems that even respected academic publishers have become invested in cost-cutting to the extent that one reads “Dimiti” for “Dimitri” (p. 13), a book published in 1994 is consigned to 1944 (p. 180), and “Ibn Riḍwān” and “Ibn Ridwān” are used successively even within the same line (p. 180)! Finally, a great deal of the worth of the book is in the critical apparatus developed in the references in the form of endnotes. Although banished from the main text, these endnotes constitute an integral part of the book and must be read along with the text in order to benefit from the narrative.

Dallal’s book adds to the continuous efforts of historians of science aimed at offering systematic, nuanced, and historically sound accounts of Islamic scientific tradition. Even though its last two chapters are flawed in various ways, the work is a significant contribution to the growing body of literature which may finally tilt the balance and reshape the mainstream discourse on Islamic science by confining the old narrative generated by nineteenth-century Orientalism to the dustbin of history.

MUZAFFAR IQBAL
Center for Islam and Science

