



Roxanne D. Marcotte
UNIVERSITY OF
QUEENSLAND, AUSTRALIA

Islam and Science

By Muzaffar Iqbal

(Ashgate Science and Religion Series), Aldershot, UK: Ashgate, 2002;
xxii + 372 pp.; hb. £ 52.50, pb. £ 22.50; ISBN:
0-7546-0799-2/0-7546-0800-x.

[1] *Islam and Science* presents an articulate and concise historical introduction to intellectual developments that have shaped Islamic civilization, both religious and scientific. The work attempts to 'construct a coherent account of the larger religious and cultural background' in which the Islamic scientific tradition came into existence and to explore the 'vexingly complex' issue of its decline. The main thesis is that scientific traditions 'arose from the bosom of a tradition of learning that had been grounded in the very heart of the primary sources of Islam: the Qur'an and Hadith.' The latter are reports of the deeds and statements of the Prophet that became the *sunna*, or tradition of the Prophet. Before addressing difficulties that such a thesis raises, let us first provide an overview of the structure of the 11 chapters.

[2] The first chapter covers the emergence of an Islamic scientific tradition during the first two centuries of Islamic civilization: both the emergence of new religious sciences, with the study of Qur'an and *hadiths*, and the presence of scientific traditions (atomism of the theologians, astronomy, medicine, alchemy). Chapter two introduces the Qur'anic foundation that linked events occurring in nature to the Qur'an central message and that established a 'nexus between the physical cosmos and the metaphysical realm' that was to become the heart of the Islamic scientific tradition. The third chapter describes the advent of the translation movement and the theological (*kalam*) debates over the rational explanations of Islamic doctrines that helped shape the religion/science connection. Chapter four explores this 'fundamental nexus' between the Islamic scientific tradition and the fundamental doctrines of Islam, mainly in metaphysics (cosmology), a nexus that the 'very structure of learning from which natural sciences emerged' guaranteed. The work defends the idea that the Islamic worldview permeating society provided the 'built-in mechanism for wedding these sciences to the heart of Islamic thought,' such that the 'reality of Islam' constituted the vertical axis, while the different ideas and intellectual disciplines constituted the horizontal axis. The fifth chapter sets out to introduce counter-examples (astronomy, medicine, geography) to the decline thesis, proceeds to refute a sociological explanation (Toby E. Huff), and claims that only a scientific tradition grounded in the fundamental doctrines of Islam can explain the existence of a thriving Islamic scientific tradition later than the 12th century. Chapter six reviews the transmission of scientific

knowledge from the Islamic world via the translation of Arabic scientific works to the West and its capital importance for the development of the Western scientific tradition.

[3] The seventh and eight chapters explore the complex, interconnected and diverse forces of the last two centuries, associated primarily with colonization, that changed the Muslim world in four fundamental ways: the disintegration of the *umma*, or community of Muslims (political transformation), the loss of the primacy of Arabic as *lingua franca*, the replacement of the traditional system of education with a Western educational system, and the introduction of a Western political system and its institutions. These changes are responsible for the decline of the Islamic scientific tradition. They introduced a new kind of discourse, whereby science is 'no more the integral unit of the Islamic tradition,' but becomes 'an autonomous and powerful entity, independently and defiantly charting its own course' with its own 'theology of nature and a world view competing against other worldviews.' The ninth chapter presents apologetic discourses on the harmony between science and Islam as the product of the 'colonized' discourses of indigenous Muslim reformers of the late 19th century. Chapter ten criticizes 'Islamization of modern science' projects, a new genre of scientific exegesis of the Qur'an, for their 'profanation of the religious texts,' since the Qur'an cannot be interpreted 'in the light of a knowledge that is always changing.' The last chapter calls for a reconnection of Islam and science 'through a central nexus which is the unitive function' that was and *should* constitute the basis of any Islam/science discourse.

[4] Written from an insider's perspective, the work will undoubtedly fuel debates over the nature of the relationship between Islam and science, both the one that existed in the past and the one that *should* exist today. The author is not a philosopher, a historian or a sociologist of science, nor a historian of ideas, but a Muslim chemist and writer who is aware that his tentative conclusions 'might not be shared by certain historians of science' in Islam. A closer examination of the work may explain why this might be so.

[5] A first methodological difficulty the work encounters is rooted in a conceptual confusion over what constitutes the 'Islamic scientific tradition,' since it includes: Islamic 'religious sciences,' esoteric traditions influenced by various Greek hermetic and alchemic traditions, medieval theological cosmologies, medieval philosophical speculations (theological, metaphysical, ontological, cosmological), various theological discussions about time, causality, motion, and creation and their attempts at harmonizing theology and metaphysics, an Islamic aesthetic experiential component (architecture), and specifically scientific disciplines (astronomy, medicine, mathematics, physics). An all-encompassing notion of Islamic scientific tradition can then provide support for the main thesis, encapsulated in such statements as 'the Qur'an is the foundation upon which everything Islamic is built . . . the primary source, the essential textbook' of *all* knowledge, both religious and secular, that emerged from the Islamic civilization. Such claims become the basis for what is then taken as demonstrations of the existence of an inherent 'nexus' between Qur'an/religion and all sciences, both

religious sciences and the specifically scientific (secular) disciplines. Holding that certain Qur'anic beliefs were at the heart of scientific explanations and that methodologies developed by the religious Qur'anic sciences provided some elements of the methodology used by natural sciences is quite problematic. The work fails to properly explain why most scientific works did not refer to the Qur'an. Stating that what infused their works was the metaphysics of the Qur'an, which implicitly assumes the existence of a relationship between metaphysical knowledge and the scientific traditions, is not a historical or a scientific explanation. The premises of such arguments can only lead to the more serious problem of drawing erroneous conclusions that ascribe to the Qur'an and its central message the role of establishing a 'nexus between the physical cosmos and the metaphysical realm' as objects of a scientific investigation. If one argues that the Hebrew Bible is similar in this regard, how would one account for the lack of scientific impact in the Jewish tradition. The work assumes that there was no distinction between Islamic metaphysical principles and the scientific tradition. In the classical period, Islam infused all aspect of the intellectual activities of Muslims as well as the scientific tradition, by providing the latter with its core Islamic metaphysical principles from which it was not divorced. The history of such sciences as mathematics, biology, astronomy (or the new sciences of molecular microbiology, genetics, astrophysics, etc.) in the Islamic world cannot be reduced to or explained by appealing to Islamic metaphysical principles. The work illustrates the difficulties that a non rigorous use of what constitutes a 'scientific' tradition can generate.

^[6] This brings us to a second methodological problem that is rooted in the presentation of evidence. The work's account of the development of sciences in Islam provides fodder for the main thesis. Examples provided to illustrate the process of appropriation, translation and naturalization of new knowledge abound, e.g., for the religious sciences and for theology, but the work falls short of convincingly illustrating and demonstrating that this was the case in the realm of natural or theoretical sciences to the extent that *only* what was Islamic was retained and naturalized. This was certainly not the case with al-Khwarazmi or Ibn Hayyan whose works were certainly more influenced by ideas that were non Islamic, e.g., Greek, Egyptian, Indian, Persian, Babylonian. Equally problematic are unsubstantiated claims that the sciences of early Islam developed a Qur'an methodology that was used by the scientific tradition. The work also adduces examples of theologians (*mutakallimun*) who worked on ideas that embraced logic, epistemology and cosmology, failing to note that the latter were all at the service of their theological metaphysics, e.g., their atomism to account for an Islamic understanding of the world and of God's actions. The work notes that the Islamic scientific tradition was only one part of the larger context of the Islamic tradition, or what it calls the 'cultural matrix' that gave it birth, but maintains a reductionist assumption that every scientific development in the Islamic world was shaped by Islam and its worldview and glosses over much of the more complex issues that lie at the heart of the historical development of scientific traditions in the Muslim world.

[7] The source of these methodological problems lies perhaps with the work's holistic approach that places the Qur'an (revelation) and the *sunna* of the Prophet at the heart of the religion/science nexus, in order to argue that an 'intrinsic nexus between various levels of existence transforms the multiplicity of appearances into a unity. The ultimate foundation of their interrelatedness at the level of cosmic existence is their ontological dependence on God.' This ontological unitive principle, derived from the Islamic notion of unity (*tawhid*), is projected onto all facets of human experience (ethics, moral, metaphysics, sociology, politics) that extend to the 'numerous internal links between all branches of knowledge in Islam as well as the process through which an integrated and holistic theory of knowledge had emerged from the twin sources of revelation and the tradition of the Prophet of Islam.' This particular holistic approach accounts for a number of problematic claims that the Islamic scientific tradition was 'intimately connected with the worldview created by Islam and so thoroughly rooted in the Qur'an's and that the same Islamic metaphysical truths that produced Islamic medieval metaphysical discourses (theology, cosmology, philosophy) were – *and are still* – capable of producing Islamic sciences. Such claims are controversial from historical, sociological and epistemological perspectives, but this does not prevent the author to affirm that 'for a creative exploration of the relationship between Islam and modern science, one needs to examine modern science from the perspective of the Islamic concept of nature taken as a whole and within its own matrix which is based on the revealed text, the Qur'an, and supplemented by the Sunna of the Prophet of Islam.' Less ideological is the forthcoming Bennacer El Bouazzati's 'The Formation of the Scientific Tradition within Islamic Culture' (in Mohammed Abattouy (ed.), *La science dans les sociétés islamiques*, Casablanca: Publications de la Fondation du Roi Abdulaziz pour les sciences humaines et les études islamiques, 2006).

[8] In his 'Islam and Science: A false Statement of the Problem' published in *Islam & Science: Journal of Islamic Perspectives on Science* (Dec. 2003), Gutas has, perhaps, best illustrated the problem that this type of approach encounters in its attempt to ascribe some sort of historical 'agency' to religious beliefs, i.e., to Islam and its metaphysical worldview, over scientific activities. *Islam and Science* holds that a society dominated by Islamic values, nourished by the teachings of the Qur'an and the *hadiths*, provided the impetus for the development of the rich Islamic scientific tradition and thus incorrectly suggests that religious beliefs/worldviews, i.e., Islam, can be the main driving forces behind the development of a scientific tradition. This was certainly not the case in the West where the rise of the scientific tradition occurred without the metaphysical principles of the Qur'an and the *sunna*. The work notes the impact of foreign (Greek) knowledge, but argues that the advent and decline of the Islamic scientific tradition owes everything to the presence or absence of the Islamic/religious worldview. On the contrary, theological and metaphysical worldviews that religious traditions produce and postulate neither produce science, nor scientific explanations. Theological and metaphysical explanations are by definition 'scientifically' non demonstrable and, therefore, not part of a scientific method or explanation. The

work's theological and metaphysical explanations fail to take into account any sociological, economical, or political factors in its explanation of the development (rise and decline) of a thriving scientific tradition, with research projects, funding, institutions, and patronage.

^[9] Efforts to demonstrate the existence of an inherent 'nexus' between Islam and science constitute part of the 'ideological' underpinning of the work. Arguments for the role of this nexus to explain the vitality and the decline of the scientific traditions in the Islamic world are used to suggest that a revival of this original medieval religion/science symbiosis provides the conditions for the establishment of the needed 'new nexus.' The ideological underpinning of the work constitutes the hallmark of a familiar holistic revivalist (fundamentalist) discourse. At the heart of all revivalist projects is an 'idealized' version of Islam that the 'vanguard' (term used in the work and made famous by Sayyid Qutb, one of the leaders of the holistic revivalist project of the Muslim Brotherhood) attempts to re-actualize and implement via the establishment of an Islamic Society/State. In this work, Islam's idealized role is projected onto the development of scientific traditions. This is made evident with the implicit prescriptive solutions for the revival of a truly Islamic scientific tradition: (i) the revival of the *umma* (political entity), (ii) a return to Arabic as *lingua franca* of the Islamic world, (iii) the reintroduction of the traditional (religious) system of education, and (iv) a return to an Islamic political system and its (traditional) institutions. Islamic sciences will once again thrive when scientists will be educated and trained in an 'organic' and living Islamic tradition (read: a re-Islamized society). Islamic beliefs and worldviews will become producers of an Islamic scientific tradition once the Qur'an and the *sunna* reintroduce this 'matrix', productive of new Islamic knowledge. Once more, the problem of agency attributed to Islam in the medieval period resurfaces as the conditions for the naturalization of new knowledge become the re-Islamization of Muslim societies, through education. The work rests on the (false) assumption that Islam, or any religious tradition, was and, more problematic, *can* be the driving engine that produces a scientific tradition.

^[10] The work provides a useful historical overview of the development of different intellectual traditions and debates in Islam, but it does not provide philosophical discussions on contemporary issues or on their philosophical implications (e.g., theory of evolution, theory of relativity, quantum mechanics, chaos theory, stem cell research). Such contemporary debates are deemed a mere 'historical anomaly' in Islam. Islam is unique. These religion/science debates are foreign to Islam and only occur today because of a loss of the original religion/science 'nexus.' Once reestablished via the 'new nexus,' this anomaly will disappear. For similar reasons, Islam cannot be classified in any of the traditional typologies (e.g., Ian Barbour) that try to explain the religion/science relationship. Again, Islam is unique. The work is a Muslim's 'urgent and creative response' to the 'triumphant force of modern science that seeks to replace all worldviews other than its own,' i.e., the Islamic worldview. On the whole, the work does not quite succeed to overcome the intellectual paucity of contemporary studies on the religion and science debate in Islam. The work, however, provides a useful review of existing

scholarship on various scientific (religious, philosophical, theological, natural sciences, etc.) traditions that took place in the Islamic world and of some of their historical developments. A work that explores the philosophical problems that arise with the contemporary Islam and science discourse has yet to be written.